EDITORIAL BOARD

CONTENTS

STUDIES

ARTICLES

FOREWORD

Dear Colleagues, dear Readers!

The Editorial Board have prepared the spring issue of Acta Technologica Dubnicae, which is its first issue of Volume 7, 2017, from a number of articles submitted recently. The journal is available both in print and online.

De Gruyter Open has informed us on the results of the evaluation process of our journal in 2016. Acta Technologica Dubnicae fulfilled the requirements of three new databases and became indexed in them. These services are: Cabell's Directory, EBSCO (relevant databases), and WanFang Data. It means that one can find us in 22 recognised databases. We are glad that more and more readers have the opportunity to visit our pages and to become familiar with our authors' work and their publications.

In this issue, the Editorial Board of Acta Technologica Dubnicae gives space to several authors representing the Czech "scientific school" and working at various universities. The contributions focus on the issues of formal education from several aspects, including elementary school pupils, secondary school students, university students and novice university teachers, as well as on the issues of informal and non-formal education, i.e. lifelong learning. Our readers get an interesting view into the culture of education, learn about the opinions on quality of life, the differences in vocational education and some literacies in the selected regions of the Czech Republic. It is not the intention of the authors to generalise the results of their research on the whole population of their country.

What does the study "Career Plans of Novice University Teachers: The Research Perspective" by Adriana Wiegerová from Tomas Bata University in Zlín (Czech Republic) bring? The author paid attention to the description of one of the aspects of professional advancement of novice university teachers – their professional plans after their entry to an academic position after completion of their PhD. programme. By in-depth interviews as a means of qualitative research, she revealed how the young teachers adapted to the workplace environment, how they struggled with the double roles in academia, i.e. an instructor and a researcher, and which personal decisions they made for the next years in employment. These findings serve as a source of inspiration for further research.

The problem of unification of the curriculum of secondary schools as well as the fact that we need graduates of vocational and apprentice schools on the labour market, while we still strongly support grammar schools and other theoretically oriented schools, whose graduates are not motivated for manual professions, are the topic of Ilona Kočvarová's (Czech Republic) paper entitled "Population Reduction, Unification of Curriculum and Diversification of Financial Support of Secondary Education in the Czech Republic: The Situation in the Years 2006 – 2016". This situation in the field of secondary education is a problem in the whole European Union. It is necessary to consider three issues: population reduction, unification of curriculum and diversification of financial support of secondary education, and to find immediate solutions. Although current trends clearly support lifelong learning and its unification, the graduates of apprentice and vocational schools are most needed on the labour market.

Tomáš Svatoš and Martina Maněnová from University of Hradec Králové (Czech Republic) introduce the results a psycho-didactic experiment in their study entitled "Learning from Visual Materials: A Psycho-Didactic Experiment". It widens the findings about the perception and understanding of the visual parts of textbooks for pupils in their first years of schooling and a less-known research method based on eye-tracking is presented (a paper dealing with the same topic by Jana Škrabánková from University of Ostrava was published in Acta Technologica Dubnicae in 2016). The research was designed as a case study which could be used for further research of a similar form, the authors suggest.

The perception of quality of life by Czech fifth-graders is dealt with by Hana Lukášová from University of Tomas Bata in Zlín (Czech Republic) in her contribution "A Study of Conceptualisation of Quality of Life by Czech Fifth-Graders". In content categories, the characteristics of quality of life were ordered as indicated by pupils. The study revealed that the fifth-grade pupils attributed a wide range of valuable characteristics (social, psychological, environmental, spiritual, and personal) to the concept of quality of life.

Alena Jůvová from Palacký University in Olomouc (Czech Republic), in her paper "The Guerrilla Literacy Learners Project: Development of Literacies through Informal Learning", deals with the options of non-formal education and, partially, a set of literacies developed within informal learning in the knowledge society. The author focuses on the international project "Guerrilla Literacy Learners, the goal of which is to find innovative strategies for informal learning and to develop a methodology that would support the development of literacy and active knowledge of a foreign language by using modern teaching resources such as ICT, visually attractive materials and adequate methods, such as MOOC and blended learning.

The article entitled "Gaming Methods in the Management Teaching at Secondary Schools" is the outcome of the cooperation of Martina Polčáková from Tomas Bata University in Zlín (Czech Republic) and Kateřina Bočková from DTI University (Slovakia). The design of gaming methods for teaching Management at secondary schools and the importance of using effective games in the process of secondary education are addressed. The authors emphasise that games, in connection with didactics and andragogy, belong to the most attractive teaching methods.

Ádám Nagy and Attila Kölcsey, two researchers from Hungary, decided to pay attention to the topic "Generation Alpha: Marketing or Science?" from the field of sociology of education and youth. The authors of the paper focus on the origin of the notion "Generation Alpha", the possible characteristics attributed to this age group, and try to discern whether this concept is meaningful in terms of the generation paradigm. Based on the results of data mining and web search, they assume that while the existence of X, Y, and Z generations is demonstrable, the term and the characteristics of "Generation Alpha" are mainly important for marketing purposes and there is no evidence of its existence.

Papers from the field of history of education are welcome on the pages of our scientific journal as well. Professor László Trencsényi from Eötvös Loránd University in Budapest (Hungary) uses interesting literary expressions in his essay (which makes this contribution completely different from the other ones). He introduces the 500-year history of the reformation of education. In the contribution entitled "The school culture heritage of the Reformation", the author offers an analysis of the educational innovations in the history of central European education introduced by the Church reform in the 16th century, through the spreading of universal school systems. Examples from the innovations in the college culture of the period (that were further developed in the 18th and 19th centuries) prove that those pedagogical values are not only valid today but are exemplary from the point of view of contemporary education: pupils' autonomy (in the form of various communities), and the relative pluralism of values. It is a really inspiring and interesting reading.

Dear Authors, Readers and Future Authors, on behalf of the Editorial Board of Acta Technologica Dubnicae, I wish you pleasant reading.

Viola Tamášová

Editor-in-Chief

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STUDIES

Career Plans of Novice University Teachers: The Research Perspective

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Abstract:
Introduction: The career trajectories of young university teachers have been a relatively frequent research target in North American and Western European countries but an entirely neglected topic of the Czech and Slovak educational research. This paper's ambition is to narrow the gap. The research goal is to describe one aspect of career advancement of young university teachers - their professional plans after their entry to an academic position at a university after completion of their doctoral studies.
Methods: This qualitative investigation was concentrated on a sample of ten young university teachers currently employed in Czech universities. The data were gathered through in-depth interviews, sound recordings were converted to written transcripts, and then open- and category coded.
Results: The findings show how the young teachers adapted to the workplace environment, how they struggled with the double roles in academia, i.e., an instructor and a researcher, and which personal decisions they made for the next years in employment. I was revealed how the desire to attain assistant professorship overwhelmed their professional, occupational and personal decisions.
Limitations: As concerns the limitation of the findings, the qualitative investigation went deeply into the thinking and decision making of the study participants but was unable to draft wide generalisations.

Key words: professional career, occupational career, teacher, researcher, postdoc.

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1 Introduction

A *career* is defined as a developmental sequence that takes place during a life span. Its course can be either ascending or descending, it can comprise growth, stagnation or decline. A career is frequently conceptualized as an individual's professional and occupational trajectory.

A *professional career* is a developmental sequence in an individual's profession. It should be distinguished from the occupational career, as that refers to a broader concept. The professional career is an on-going process of developing experience in a profession, and it may evolve within several organizations in which an individual is employed during his/her lifetime. This concept also emphasizes the distinctive nature of a profession and its autonomy, as manifested by a special mandate, which has its own ethical codes and norms. These are the bases of the functioning of the professional community. The professional career is linked to experiences. It is a route which enables the understanding of one's behaviour and actions in professional life.

There are significant differences in valuing professional careers when we compare genders. As Weisgram, Bigler and Liben (2010) proved, some professions are traditionally characterized as feminine and others as masculine. The respondents labelled occupations with regards to money, power, family, and altruism. Results revealed gender differences in occupational values and interests. Furthermore, participants' values predicated their own interests in masculine and feminine professions. Importantly, this rating was proved across all age groups (adults, adolescents and children).

An *occupational career* is a developmental sequence in one's occupations. The selection criterion of a particular occupation is the salary or other benefits, such as power or authority, as well as time available to share with family and for one's leisure time activities. The occupational career comprises not only an occupational position; it also includes "work ownership", employment and its execution. An occupation is regulated by workplace rules as well as by general occupational norms, such as the labour code.

The professional career is influenced by values and personal constructs, which, in turn, shape one's self-concept. Values are relatively stable personal qualities that considerably affect one's attitudes towards other people, situations and objects. Personal values serve as standards for assessing one's own behaviour and the behaviour of others.

An employee's professional *career planning* in an organisation is a process aimed at securing a required occupational position in a profession. In this

planning, professional and occupational careers intersect. An individual delineates his/her growth and progression in an organisation, based on the needs of this organisation. An organisation plans the professional careers of its employees based on the employees' potentials, attainments, and the organisation's preferences. A well-functioning career planning system encourages employees to take more responsibility for their own development, including the development of the skills viewed as critical for the institution (Milkovich & Boudreau, 1993).

The employees' professional career planning in an organisation must take into consideration the professional orientation of each employee. This orientation is determined by the employee's abilities, motivation, and value preferences.

Professional career planning is a subset of professional *career management*. The organisation selects employees, evaluates and directs them in order to achieve the best possible performance of the institution. This is based on a management policy designed to maximize the potentials of an organisation. The policy includes whether an institution concentrates on internal employee development or whether it hires them externally. The policy also includes the decision whether to train narrowly-specialized or broadly-skilled workers and also what strategies to adopt if careers stagnate.

Besides professional career planning, which is provided by an institution, there is also an individual's professional planning, which is the responsibility of an individual. An *individual's career plans* should be established after careful self-assessment of abilities, knowledge, attitudes, values and experiences. This planning is more efficient if an individual can receive advice from a more experienced co-worker who can judge the adequacy of the individual's professional career aspirations. The career plan plays an important role in setting of an individual's career goals. It is a result of self-assessment and judgment of goal-attainment conditions.

Educational research has accumulated rich data about the studies and lives of doctoral students (Davis, 2003; Gardner, 2007; McAlpine, Jazvac-Martek, & Hopwood, 2009; Turner & McAlpine, 2011; Jaraim & Kahl, 2012; Neusar, Charvát et al., 2012; Vekkaila, Pyhältö, & Lonka, 2013). A wealth of information has also been collected about postdoctoral years (Melin, 2005; Mareš, 2013, Åkerlind, 2007, 2008). However, data about the professional paths of *university teachers* after completion of their doctoral studies are scarce. Some findings were published by Šeďová et al. (2016), but they concentrated primarily on the quality of teaching and self-concept of novice teachers at a particular Czech university.

This study provides a deeper examination of the occupational and professional careers of novice university teachers. The data illustrate what they experienced after being employed at a university, how they work within the system and how they perceive the influences and contexts that affected them in the university environment and beyond it.

2 Methodology

The aim of this study is to understand the process during which university graduates become university teachers.

This broad aim is subdivided into two specific aims:

1. To describe the developmental phases in occupational and academic careers of novice university teachers.
2. To describe the external and internal factors that determined the professional growth of novice university teachers.

This study concentrates on participants who completed a doctorate and subsequently became teachers at a university. The occupational and professional careers of some of them were not straightforward, but included digressions, critical moments, situations and events that dramatized their careers and brought strong professional and personal challenges and stimuli. My intention was to capture and describe these career situations and moments – as they were reconstructed in the participants' accounts.

The participants were acting and developing in concrete occupational and professional environments. In the beginning, my intention was to concentrate only on the personalities of the participants, however, during the investigation – in agreement with the canons of qualitative inquiries – it appeared fruitful to broaden the scope of investigation and describe how the occupational and professional environments function, as viewed by the study participants. Therefore, another aim came to present the university environment as a domain in which occupational and professional carriers intersect.

The study aims are limited by the field of investigation. The exploration of becoming a university teacher was restricted to graduates in pedagogy. Therefore, their processes and determinants are bound by this discipline, though some data and their interpretations may extrapolate to other domains, at least by suggesting new questions for future investigations.

The research method in this study was an in-depth interview. In the preparatory phase, the content frame of the interview was constituted.

The frame consisted of following topics:

- reasons to study in a doctoral programme
- doing coursework
- conducting dissertation research
- writing the dissertation
- views of university teacher responsibilities
- identification with the position of a university teacher
- identification with the position of a researcher
- views of the subsequent phases of the professional career

The participants provided informed consent. The purpose of the study and the circumstances were explained to them, including how their anonymity will be protected by the researcher. The place and the time of interview were negotiated. The interview consisted of a set of questions generated from the thematic domains. Many additional questions emerged during the interview. The first few interviews convinced me of the relevance of the thematic domains. Gradually, the questions became clearer and more aim-directed. My strategy was to let the interviewee talk continuously, as interruption-free as possible.

Only two identical questions were posed to all participants, the first and the last. The intention of the first question was to involve the participant in the interview. The question was, "What do you remember about your doctoral studies?" It elicited recollections and thus served as an efficient stimulus. The last question, "What will you recall tonight about our meeting?" aimed at participant's self-reflection.

A specific feature of the interview was that the participants themselves are familiar with empirical research, so they could follow critically my management of the interview. They observed various aspects of my verbal and nonverbal communication and probably assessed them. Being aware of this "participatory monitoring" brought a certain burden to my interview conduction.

Another specific feature was that the participants themselves posed questions to me. This also may be attributed to participants' experiences with the research. For instance, they frequently asked a question such as "How was this in your case?" This can be interpreted as testing the researcher and as an effort to gain a stronger position in the conversation. The participants sometimes posed questions because they were unable to answer my questions. Interestingly, such questions were only asked by women.

The interviews generally took place at the participants' "home universities" and in their offices, to make them feel at ease. There were two exceptions: two male

participants agreed to be interviewed outside of their workplaces, but still at a university, a relatively familiar environment. The duration of the interviews was dictated by participants' time constraints, albeit with a minimum requirement of one hour.

Each interview was recorded on two voice recorders. This was to ensure that the interview would not be lost even if one of the recorders failed to record. Transcripts were made from both recordings by two assistants and the two versions of the transcripts were compared for accuracy. Discrepancies were resolved in a discussion. As a result, a single transcript was made from the two.

The analysis was based on a recursive reading of transcripts, through which I gradually immersed myself into the thinking and opinions of the participants and created a global view of them attempting to understand the interview as a compact whole (Pope et al., 2000). I made frequent interpretative memos, highlighted important segments and looked for relationships among them.

In the analysis, I used the principle of induction, the advantage of which is the potential of revealing new perspectives on the investigated raw data. In this way, new categories were created and relationships among them traced.

While reading and analysing the transcripts, firstly the sensitive segments were identified, i.e. those pieces of text that seemed most relevant. These were then attributed labels, or codes. The segments varied in respect to length, however, none was a single word, rather, they were chains of several words. For instance, codes were "rules of supervisor-doctoral student communication," "collision of two jobs," or "desire to become a university teacher". After having identified a certain amount of codes, they were systematized and grouped according to the meaning they carried, and then were hierarchically ordered.

For instance:
Phases of the doctoral study
Motivation for enrolling in the doctoral programme
Acceptance of the role of a doctoral student
Writing the dissertation
Integration into the professional community

Theory construction is an important component of qualitative enquiry. Theories were being developed continuously in the data analysis and were accompanied by drawing diagrams of categories. These diagrams underwent changes in every phase of the analysis.

3 Results

In this article, I concentrate exclusively on the description of the professional plans of young university teachers after their entry to an academic position at a university after completion of their doctoral studies. Earlier stages of their academic careers, i.e. the period of their PhD studies, will be the topic of other publications.

In the course of their PhD studies, the participants viewed the university environment through a student perspective. In addition to attending lectures and seminars, they visited offices of supervisors, teachers and university administrators. Their acquaintance with the university environment affected their occupational and academic career plans and influenced their personal constructs.

Workplace experiences are closely associated with workplace adaptation, in this case with adaptation to the university. Adaptation is supported by one's representation of the reality, i.e. by the way in which shared beliefs of a group of people develop and are transferred to others (Hayes, 1998). In this case, PhD graduates accepted the social representations mediated by university employees. Social representation is a traditional folk wisdom spread among institutional workers. Occupational motivation plays a vital role in the manner of acceptance of social representations.

3.1 The Goal – Associate Professorship

None of the participants doubted their decision to take a university job. They all found this workplace enticing and felt they belonged in it. The subsequent stages of their professional careers were subordinated to the goal of having a job at a university, or rather, to sustaining the job there. Thus, the participants realized that their professional life did not culminate in earning a PhD degree. On the contrary, they learned that this degree created an opportunity to achieve the next goal – obtaining an associate professorship.

If I sum it up I would like to be an associate professor, and I hope I shall be one day. I want to extend my contract with the university, and I know how important this degree is. It increases my chance that they will let me work here. (F2)
Because I want to remain at the university, there is no other option than to struggle for an associate professorship. (F1)

Universities push teachers to produce "normed" achievements and to follow prescribed career routes. Publications and higher degrees increase the credibility of a university. Thus, teachers are directed by departments to set out on the track of earning an associate professorship within five to ten years after earning a PhD.

At our faculty, career growth is closely followed. Simply, we receive deadlines from administrators for reaching the next career stage. I am aware that I must be an associate professor. However, one has to have time to mature. Unfortunately, it seems that a university is a kind of a factory for producing associate professors, and I do not think some individuals are mature enough for it. (M3)

University pressures, as described by the participant, are understandable. A university needs "recognized publications" by employees in order to qualify for programme accreditation. Publications and accredited programmes, in turn, are criteria for the government subsidisation of a university, including the subsidy for number of students. However, the professional and personal maturation of teachers varies. The number of students who earn a PhD at the age of 25-30 increases every year. In the past, it was usual that a university teacher first earned a PaedDr degree (lower level doctorate) and only then enrolled in a PhD programme. In principle, a PhD was earned ten years after receiving a master's degree and a PhD graduate was 30-40 years old. Nowadays, the age level is lower. An individual enrolled in PhD studies can earn their degree at the tender age of 25. From this it is clear that a university teacher can be an associate professor as soon as at the age of 35. According to formal criteria, such quick advancement is possible.

Concerning the age of earning a PhD, the study participants can be divided into two groups:

- Those who earned a PhD before the age 30.
- Those who earned a PhD at the age of 35 or later.

The first group is well represented by these quotes:

I have a lot of publications; however, I am unable to find a topic suitable for earning an associate professorship. A principal topic is required for it. But nobody will tell you which topic is principal. Therefore, many of us inspected the topics that had been defended. And the task is to detect why a topic was or was not successful. (M3)
When I was a student, I thought that if somebody was an associate professor or a full professor his books would stuff the shelves in a library. A professor is a man of reputation. Then I learned that this was not always true. One can earn these degrees quicker and in a smooth manner. (F6)

Participants of the second group are represented by the following quotes:

I am thinking of associate professorship but, to tell the truth, I hate it when a colleague boasts of this degree and I know how easily he earned it… and then I

said to myself if an idiot like he did it why should I not do it myself. On the other hand, if such idiots pile up, then one can ask if having this degree would not assign you to a bad society… so everything needs time. (M2)
In the beginning, when I got the job at the university, I thought this was very easy. It simply goes by itself, quickly. These ideas were naïve. I did not know precisely how to earn an associate professorship. That is why I thought it was easy. I know now that it will not go rapidly, but the direction is clear. (F1)
I do not hurry to earn an associate professorship. I desire to be considered a reputable professional. One needs time to mature. (M1)

In the accounts of participants who belong to the first group, it appears that they found a research topic by searching the already-defended dissertations. This, however, is an obscure practice of someone who wishes solely to earn a higher degree. A candidate should be a specialist in a particular field and well known in the professional community for a contribution to the development of this field.

In the first group, academic career acceleration seemingly rests on finding ways to ease the promotion process, or putting it bluntly, to play the system. In addition, the first group's conceptualisation of an associate professor's responsibilities appears inaccurate, as witnessed by the following quote.

When I become an associate professor, I will not be burdened by trifling matters, I will have more time to conduct research, I will have more influence, and I will meet relevant people. I will have a higher position than I have now. Associate professorship will make it possible to reach things that are currently unreachable. (F1)

In the second group, participants were aware that personal maturity is a necessary characteristic of associate professorship. The two groups differed in considerations of what an associate professor should do. The participants conceptualised associate professorship chiefly in relation to research, advising and assisting others.

An individual becomes an associate professor if he/she can advise others, if the individual subordinates their own benefits to the benefits of others, if he/she has a strong will to develop professionalism and if others consider him/her an expert in a field. (M1)

Professional routes of the two groups are depicted in Table 1:

Table 1

Professional routes of the two groups are depicted

First group = academic route No. 1	*Second group = academic route No. 2*
Rapid pace of PhD studies; usual duration of 3 years.	Slower pace of PhD studies, usual duration of 5-7 years.
Age of completion, 25-27	Age of completion, 30+
Naïve conceptualisation of PhD studies; strong motivation for earning an associate professorship.	Strong motivation for research projects.
Effort to ease the route to associate professorship.	Higher self-demands.

A distinct characteristic of the first group is conformity. The individual has quickly adapted to the options available for career advancement. Individuals in the second group are less conforming; they have high self-esteem and high confidence in their abilities. They aim to build excellent reputations in their fields and try not to ease the route to an assistant professorship.

It is impossible to identify causality between the level of conformity of a student and the quality of the doctoral studies. This was neither the aim of the study, nor can it be supported by the research data. However, the possible existence of such causality might be worth future investigation.

3.2 A Teacher and a Researcher

In addition to describing their career advancement, the participants explained visions of their professional growth, or rather of work improvement at a university. In their accounts, they described themselves as teachers and as researchers.

The participants' views of their university positions were influenced by their university employment contracts and by several years of experience, both of which helped determine their next professional steps.

The participants identified easily with the role of a university teacher because they previously taught at primary or secondary schools, making the role of an educator familiar to them. They knew instructional principles and didactical rules. This explains why they enrolled in pedagogy rather than in other disciplines. But the participants admitted they needed improvement in teaching

skills. They teach adults, which is much different from teaching children. The participants stressed that instructional practices and pedagogical philosophies keep evolving, which challenges them.

To grow professionally, the participants

a) studied professional literature.
   I moved further and further to new teaching methods, I searched in books, method manuals, or foreign publications. I desired to give students a lot of knowledge. (F7)
b) attended courses and workshops.
   I used to travel to attend workshops in Prague, then in Brno. They were excellent, I learned a lot and I used the gained knowledge in the classroom. (F6)
c) had discussions with colleagues.
   It is important to meet people, discuss my opinions with a colleague. This increases the chances of enriching students. (M2)

The accounts of all participants expressed a desire to assist students in their learning, which agrees with the findings of G. S. Åkerlind in her research conducted at an Australian university (2007). University teachers focused on building a better knowledge of their content areas, in order to become more familiar with what to teach. They also continually increased their understanding of what works and does not work for students, in order to become more effective in facilitating student learning.

The instructional content and structure are in the teacher's hands, but they are in part shaped by accreditation documents, which, however, provide only an interpretation framework for the curriculum. The participants expressed the need for practical teaching skills and the development of a repertoire of instructional strategies. They also found it important to detect which strategies work best in providing content to students. They also considered how to adopt the teaching content to a particular class, how to present a topic to students as efficiently as possible, how to motivate them for learning, how to assign tasks and how to assess them. These activities, of course, are only a part of a university teacher's work.

University teaching is an occupational position within which educational, scientific, research and developmental activities are required, the results of which are then passed along to students. The full list of these activities is long, and the study participants have not yet met many of them. However, during their academic career, they will come across new tasks, which will bring new challenges.

According to the study participants, a university teacher accomplishes these tasks:

- delivers lectures, heads seminars and organizes workshops,
- provides consultations,
- supervises theses and dissertations,
- develops organisational plans,
- proposes projects,
- publishes textbooks and other learning materials,
- publishes studies,
- cooperates with partners in the field,
- searches for and analyses new knowledge in the field,
- performs administrative tasks.

Of course, the participants have a simplified view of university teacher responsibilities, which reflects their narrow experience. Note, for instance, that the list does not contain academic research, which the participants were reluctant to talk about it – either theirs or their colleagues'.

Research about becoming a professional researcher is rich and there is a wealth of research data on becoming a teacher. Åkerlind (2008) identified four stages in the development of a researcher:

1. *Becoming confident as a researcher.* This stage involves acquiring the skills required to do research successfully, such as learning how best to choose a research topic, to present conference papers and write-up results, to do literature searches, etc. It might also involve clarifying a future research direction.
2. *Becoming recognised as a researcher.* In contrast to the previous stage, which involves the development of an internal sense of competence and success, this stage includes external recognition of one's competence and success by other academics in one's field. This is marked by becoming part of a research community, building a reputation in the community and having one's ideas adopted and used by others.
3. *Becoming a more productive researcher.* This stage views development as a quantitative increase in a researcher's productivity, that is, conducting larger research projects, teaching more PhD students and postdocs, receiving more funding, and publishing more. This increase can involve the simple accumulation of research activity over time and/or an increase in the rate of productivity through improved efficiency and the beneficial impact of one area of activity on another.
4. *Becoming a more sophisticated researcher.* This stage extends from the quantitative changes described in the previous category, to include a focus on qualitative changes as part of researcher development. These qualitative

> changes involve developing greater sophistication in thinking, becoming more theoretically aware, increasing breadth of knowledge, developing a greater depth of understanding, becoming aware of wider perspectives, being able to resolve issues and having an enhanced capacity to do research.

The participants in this study belong to the first developmental stage, higher stages being far away from their present research competences. It should be noted, however, that Åkerlind´s sample included postdocs, which were not present in my sample.

In many countries, academic support is offered to postdocs through a variety of projects. This is in contrast to the situation in the Czech Republic, where PhD graduates are not provided specific assistance to enhance their research capacity. They are expected to be fully-developed researchers upon taking a teaching position at a university.

The participants who took academic route No. 1, defined previously, were explicit in describing their problems with starting a research project.

I failed to start my research. I wish I could be involved in a project, or propose one of my own, but I cannot decide on the topic. I feel like I am an apprentice. (F4)

The participants have not yet reached the stage of a productive researcher. For them, independent research projects were faraway targets. But this might change in the future. Rather than concentrating their efforts on growing academically, they criticise the career rules and wait for external support.

I want someone to supervise me, but they expect publications from me in order to gain points for some evaluation. I wish someone would come to me and offer participation in a project someday. (F5)

The participants that follow academic route No. 2, who had a slower career pace, appeared to make an effort to build a positive reputation within the academic community.

I am happy if I do meaningful things - if the topic is interesting and I collaborate with reasonable people. I am happy if I can present my findings and they are accepted by the community and cited. (M2)
Quite recently I published a book, which made me very happy. I have received favourable references, which pleases me. This is how I build respect within the academic community. (F2)

As noted, some of the participants feel a need for acceptance within the academic community. It is of value for them because it is in harmony with their view of their career growth. They also are aware of the importance of conducting research projects.

I like doing projects, but in the Czech Republic large projects, such as GA ČR[1], they are accessible only to the chosen ones. I do not know how the selection is being made, but in the list of approved projects, one can repeatedly see the same names. (M2)

I have no chance to analyse and evaluate the objectivity of the system of approval of GA ČR proposals. PhD graduates generally have an opportunity to apply for the so-called junior projects. Nevertheless, the criteria are strict, and only a small percentage of PhD graduates can meet them. One of the criteria is at least six months studying and teaching abroad.

One of the participants succeeded in gaining a GA ČR grant, and he finds it an excellent research experience.

I managed to receive a GA ČR grant. It was demanding but I am fond of research methodology. I had some knowledge of statistics, I read Kerlinger and such stuff but now I am excited about the qualitative route. Suddenly, I found out that figures must be verbally interpreted to express meaning, and if I want to get underneath, there is no other direction. (M1)

A novice researcher should start their career with small-size projects, and only then proceed to larger ones. The Ministry of Education of the Czech Republic offers grants to support so-called specific university research. Every university has its own grant rules. Many universities support IGA projects[2], which are targeted to doctoral students and postdocs. Some faculties offer grants for university teachers in collaboration with graduate student programmes. With this, a teacher takes up a more demanding role, as he/she must be able to propose a team project in order to succeed.

One of the participants has had experience with IGA projects.

[1] GA ČR are research grants provided by the agency of the government of the Czech Republic.

[2] IGA are grants provided by some universities in the Czech Republic to support specific university research. It is funded by the Ministry of Education.

Now we have an IGA and we enjoy it. We are four women in the team. The collaboration is interesting and we learn a lot. We discuss matters and discussion means collaboration. We find solutions about our topic. (F2)

A novice university teacher needs time to grow to be a researcher. Experience in research is needed. The faculties that hire young PhD graduates should create the right research conditions and emphasize the important role of research in academia. It should be the strategy of a university to support PhD graduates not only to become teachers but also researchers.[3]

5 Conclusions

The study described the professional and academic careers of the study participants from the completion of their master's studies to their work at a university. This study synthesizes these findings. The data and categories were merged to form concepts and relationships that constitute a theoretical model of occupational and academic careers, including career determinants.

The study participants had personal values that influenced their beliefs about attaining university employment. They desired to work in academia and therefore concentrated their efforts towards reaching this goal. On the route to the position of a university teacher, each participant had at their disposal a set of career options and a repertoire of possibilities that could be used to achieve personal satisfaction. Their decisions were influenced by a range of career possibilities and opportunities. These personal decisions and their key determinants were integrated into a model that is depicted in Figure 1.

[3] This is in contrast with most of the West European and North American universities that are either teaching universities or research universities.

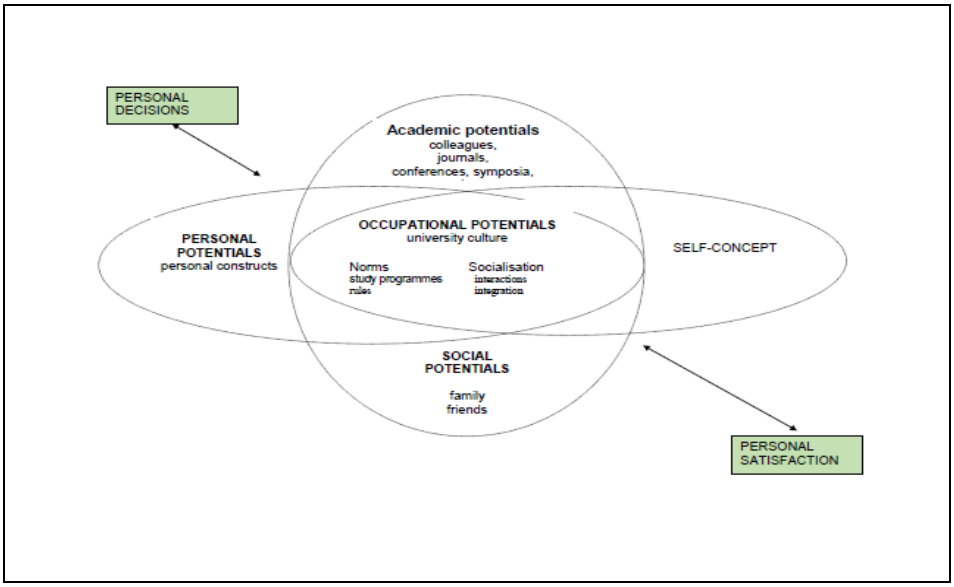

Figure 1. Personal decisions and career determinants of a university teacher.

Personal potentials are the abilities, values, and beliefs of an individual. They strongly affected the participants' behaviour and activities aimed at obtaining a job contract at a university. Personal potentials strongly interact with the family environment of an individual and with an individual's self-concept. A personal community consists of close relatives and friends. In general, a personal community motivates and stimulates an individual to utilize career possibilities and opportunities. To develop a sound self-concept and attain occupational success, a university teacher generally needs a satisfactory family milieu, and sympathy as well as a support from relatives and friends. Such a support was reported by study participants to be a strong emotional stimulus, especially if accompanied by financial and material aids.

A teacher's job at a university requires much understanding and extensive support from the immediate environment. The participants reported that family and friends had affirmed for them that they belong at a university and deserve a respected position in the academic community.

Occupational potentials are conditions of the university milieu. On the one hand, a university introduces norms and rules that regulate the employees' work. On the other hand, a university enables interactions among colleagues and students who constitute the academic community. A university needs to develop a culture

that generates a teacher's personal satisfaction and motivation for high achievements.

The core component of academic potentials is an academic community, which is constituted by colleagues at a home university. A university teacher is gradually integrated also into a broader academic community, represented by partners from other universities. A teacher's scholarly reputation is gained by publishing quality research papers and monographs but also in face-to-face contacts in seminars, conferences and symposia. Experiences and knowledge exchange, both in domestic and international scientific events, shape a teacher's academic self-concept.

Over time, career possibilities and opportunities change. In order to make efficient career decisions, a university teacher assesses them. The interaction of decisions with career possibilities and opportunities has a significant influence upon the sequence of a teacher's career stages.

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Population Reduction, Unification of Curriculum and Diversification of Financial Support of Secondary Education in the Czech Republic: The Situation in the Years 2006 – 2016

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Abstract:
Introduction: The article focuses on the situation in the area of secondary education in the Czech Republic. Its aim is to reflect three topics: population reduction, unification of curriculum and diversification of financial support of secondary education in the Czech Republic in 2006 - 2016.
Methods: The results are underlined by available data from the national statistics. The data are collected annually and are accessible on the website of the Ministry of Education, Youth and Sports. They contain the entire population of secondary schools, teachers and pupils. Analysis was provided with the use of SPSS, version 24.
Results: There is a reduction of vocational and apprentice schools, but at the same time we are increasing financial support to their fields of study. Under the 2004 law, each school has an individual school educational program, but realistically, we see that the curriculum at secondary school level of education rather standardises. On the labour market, we need graduates of vocational and apprentice schools, but we still strongly support grammar schools and other theoretically oriented schools, whose graduates are not motivated for manual professions.
Discussion: Closer analysis focused on reflection of selected trends in the area of secondary education is needed for the purposes of education policy and for planning future research studies in this area.
Limitations: Continuous development takes place in the field of education. All comparisons in the years 2006 - 2016 are therefore limited. The data were used in their original form, in some cases were not available and therefore they could not be included in the analysis.

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Conclusions: Educational policy is very complicated, because education is difficult to control and it is based on freedom of access. Therefore, the most important target for the future is to stabilize the situation and be able to reflect maximum of factors influencing secondary education in our society. Although current trends clearly support lifelong learning and its unification, we should not forget the specific fields of apprentice and vocational schools, which are needed on the labour market.

Key words: the Czech Republic, secondary education, education policy, school financing, normatives [1].

1 Introduction

In the article, we highlight the current situation of secondary education in the Czech Republic, especially trends and problems, which are mainly apparent in this area in the years 2006 - 2016.[2]

Secondary education is a traditional part of the Czech educational system at ISCED 2 – 4 (Eurostat, 2016). This level follows up on the compulsory primary education and offers a wide range of possibilities: shorter one or two years long studies without a certificate of apprenticeship, three years of study with a certificate of apprenticeship, four-year program ending with school-leaving examination known as maturita (in this text also mentioned as graduation exam), but also various superstructure courses and shortened studies. Grammar schools, lyceums, vocational schools, apprentice schools and conservatoires are at the secondary school level. Currently, we are witnessing the merging of different types of secondary schools. The ratio of public, private and church schools is about 25:8:1. Regions establish about 95% of public schools and the proportion of this type of schools is slightly decreasing in long-term evolution (MEYS[3], 2016). More general information about the status of secondary schools in the Czech educational system is available in the document EACEA[4] (2009).

Several key factors influence the current form of secondary education, mainly the transformation of the educational system after 1989, following legislative changes, significant decentralization in education (in comparison to other European countries), but also a major curricular reform in the transition to new

[1] In this text we use the expression "normatives" to talk about the guaranteed amount of money paid regularly by regions to schools for each pupil (per capita). It could also be translated as standards or norms.

[2] Barták's overview report (2004) discusses the earlier situation especially on the level of vocational training.

[3] The Ministry of Education, Youth and Sports

[4] Education, Audiovisual and Culture Executive Agency

curricular framework (state educational program and individual school educational programs, in Czech known under the abbreviations as RVP and ŠVP). The social and economic situation leads to a changing conception of schools. Their workers begin to apply market-oriented strategies, because they have to fight for their place on the educational market. It manifests a trend that can be, in our view, described as a "reverse competition" where schools are struggling for pupils, but pupils can choose nearly any school regardless of their abilities, which generally leads to a reduction in standards and seriousness of education in our society[5]. The situation at the same time forces school workers to implement marketing activities, benchmarking and other efforts to create a positive image. Basic documents of educational policy, such as the White Paper (2001), regularly published long-term plans for education (hereinafter LPE, the last of 2015) and the Strategy for Education Policy of the Czech Republic until 2020 (MEYS, 2014), reflect and predict the situation of secondary schools in the long term.

State graduation exams, unified final exams for apprenticeship programs, promotion of inclusive education, the approval of the career system of teaching profession, or the upcoming state-regulated compulsory entrance exams for courses ended with state graduation exams are among the latest innovations at this level. However, we still struggle to optimize the system of financing schools (currently there is an effort to differentiate normative financing according to the needs of the labour market and complement it more by project financing). Another issue is problematic expansion of cooperation between educational institutions and entities providing practice to pupils, or stronger motivation of pupils to study technical and practically oriented disciplines. New changes are constantly stretching the post-revolutionary transformation. School workers must adapt to them flexibly. Often, however, difficult and sometimes conflicting interventions can be recorded in the Czech educational policy and practice (e.g. the establishment of an autonomous approach to the creation of school educational programs known as ŠVP, which was subsequently completed by unified state graduation exams, etc.).

[5] We consider reducing standards of education particularly with regard to the exigence of studies, which may be reflected with the use of data on student performance in the first round of admission procedure in secondary schools. It rose from 80% in 2006 to 83% in 2009. After changing the rules of admission procedure (MEYS, 2009) the success rate dropped sharply to 59%, but since then it has been continually rising to 73% in 2016. We expect, however, that the following year will bring another downturn, because all pupils will have to take compulsory entrance exams for all graduation disciplines. Given that schools are still mainly founded according to normatives based on the number of their pupils, it is clear that they are forced to recruit the largest possible number of pupils each year, which in turn limits the demands placed on them.

Information on the status and development of secondary education are regularly updated in the aforementioned documents on educational policy, but also in the outputs of the Czech School Inspectorate, also in national and international studies. Nevertheless, we still lack a closer analysis focused on reflection and context of selected trends and issues manifesting themselves in this area. In the following chapters we will focus on three topics as already mentioned.

2 Methodology

The study is based on quantitative analysis of publicly available data from the fields of national and regional education, which are available on the website of the Ministry of Education, Youth and Sports (MEYS, 2017a-d) in section Statistical Yearbook of Education and also in section Normatives. The analysis was provided with the use of statistical software SPSS, version 24. We focused on regional normatives of public schools because they are the most represented in the Czech educational system and the vast majority of them (about 95%) are set up by regions. We focused on information relating to the years 2006 - 2016. The data are collected annually by the state under Decree no. 364/2005 Coll. about documentation of schools and educational institutions, as amended, which are used for monitoring the development in selected areas of educational reality. The research group consists of the entire secondary school population in the Czech Republic (schools, pupils and teachers). The analysis uses data in the original structure (e.g. school types, etc.) and preserves the monitored variables in their original form.

The analysis is based on combining various data about schools, pupils and teachers. We attempt to put them into context in order to understand trends in ten years of development. In the chapter devoted to the diversification of financial support we do not monitor development in each year, but only compare the years 2006 and 2016. That is because we want to highlight the differences that could appear as subtle and confusing at the annual development continuum. Our intention is not to present detailed information on each of the monitored variables, because these data are available on the website of the ministry of education, and also because it is a really big amount of data from which we select only the most relevant for the purposes of this study. We focus on three topics: population reduction, unification of curriculum and diversification of financial support of secondary education in the Czech Republic in 2006 - 2016. Our intention is to underpin them with available data. The usability of this analysis is primarily in the area of education policy, because it is important to discuss the information about the current state of secondary education in the Czech Republic, but it also plays an important role in the planning and execution of research studies in education, where it is necessary to know the basic information about the structure of the research population.

3 Results

Outputs from the analysis are divided into the following three sections which reflect the announced topics.

3.1 Reduction of secondary school population

Long-term reduction of secondary school population is not surprising, but we still consider it appropriate to present and discuss the selected parameters of this area. Abolition and merging of secondary schools follows the wave of reduction in the field of nursery schools (especially in the years 2001 - 2004), followed by primary schools (2004 - 2007) and was most evident in 2007, when it touched 522 schools. The most fundamental cause of the reduction can clearly be declining demographic curve. Despite the decreasing number of schools, they are still filled in average by 60 % (LPE 2015 - 2020, p. 22), but their capacities are still waiting for a short-term increase in the number of pupils who currently attend primary schools. According to forecasts in LPE 2015 - 2020 (p. 20) there will be a turnover in 2017 and the number of pupils entering the first year of secondary schools will slightly increase. But then again, it will stagnate and in some regions of the Czech Republic fall. If we focus on three basic segments of the secondary school population (schools, pupils, teachers), their abundance has been decreasing over the past 10 years, as shown in the graph in Figure 1. Since 2006 the number of schools has decreased to 65%, teachers to 81% and pupils to 74%. Although the numbers of pupils in relation to teachers decline more markedly, we cannot assume more radical reduction in the number of teachers because they represent a diverse branch structure of secondary education and their interchangeability is not possible. Teachers with various specializations therefore remain at schools to implement teaching in their specific subjects even at the cost of fewer pupils. Often, however, teachers are forced to broaden their specialization to be usable in more areas and keep full-time jobs.

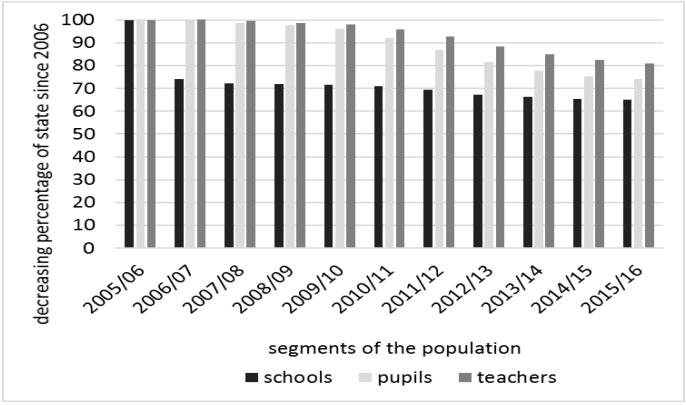

Figure 1. Decreasing secondary school population.

Decreasing numbers of teachers do not indicate that there is no need to prepare their new generation at pedagogical faculties. Above all, we know the situation in practice. There is a fairly significant turnover in schools (especially a shortage of language teachers, IT specialists and specialists for technical subjects). We also know that the population of secondary school teachers is dramatically aging (in the category of teachers aged 56 years and over, there is 29% of teachers in 2016, while in 2006 it was 20%, and in the other categories there is also evident shift toward higher age boundaries). It is therefore entirely pragmatic to prepare and motivate new teachers.[6]

The situation does not only have negative consequences. The average number of pupils per teacher decreased from 12.2 pupils in 2006 to 11.1 pupils in 2016. However, according to our experience, the number of pupils per teacher is dramatically different in various types of schools (grammar schools are currently filled with some of 80% of their capacity, while the other secondary schools roughly 60%). The situation must also be seen due to the focus of teachers. On the one hand, generally focused Czech language teachers must cope with large classes, which are often built from merged fields of study, on the other hand, specialists in technical areas deal with much smaller groups.

Declining numbers of secondary schools contrast with the sharp increase in the number of private secondary schools especially after the revolution in 1989. Nearly 500 private secondary schools were open in the years 1990 - 1997 (Development Report, p. 17). Liberal education policy did not reflect sharply declining demographic curve at that time. Probably, it was believed that it was a short-term trend, although it was apparent that the demographics of the Czech population approximates the Western European model (EACEA, 2009, p. 17). At present, however, we assume (using predictive statistical models), that the birth rate in the Czech Republic will continue to decline (LPE 2015- 2020, p. 9).

Along with the declining number of schools we also monitor their structure by founder and focus. It turns out that the biggest wave of abolition (hence merging) schools in 2007 hit mainly vocational and apprentice schools of public

[6] In this context, we consider it appropriate to mention at least marginally more problematic aspects of the situation of secondary school teachers. Their medially proclaimed average gross wage increased to 138% in 2016 compared to 2006. But in terms of real wages (at constant 2005 prices) it only raised to 104% of state from 2006, so their salaries actually just replicate growing inflation. The situation of teachers doesn´t seem much better, although they are forced to enhance their education (from 88% in 2006 to 92% of university-educated secondary school teachers in 2016) and they must also adapt to the newly introduced career system (MEYS, 2016; Janík, Spilková, & Píšová, 2014).

type. Along with these types of schools the percentage of their pupils obviously decreased (from 73% in 2006 to 67% in 2016). This issue has implications for the next part of the analysis presented in the following subchapter.

3.2 Unification of secondary education

In this section, we present data on the structure of secondary education in the Czech Republic, where we notice the ratio of vocational schools (including lyceums), apprentice schools and grammar schools, but we also focus on the relationship between graduation and apprenticeship programs.

Current secondary schools lose their traditional professionalization function (preparation for the performance of a specific profession), on the contrary, they have increasingly important transit function in the educational system. It means that the schools no longer provide a comprehensive preparation before taking up employment for the majority of the population, but represent a transition between compulsory primary and tertiary education. It is consistent with current trends since the European Union has been trying to increase the proportion of highly educated population in all member states. The situation leads to a progressive unification and generalization of the curriculum of secondary schools (contrary to the development of individual school educational programmes after 2004). They increasingly serve as preparation for lifelong learning[7] (more in Hužovičová & Jakúbek, 2014). White Paper (2001, p. 28, 51) points to this trend as well. Support is directed towards multifunctional, integrated, widely profiled, not narrowly specific fields of study. The aim is to promote permeability within the educational system and variability of branches to be flexible with regard to labour market requirements (Ibid, p. 52).

As well as vocational schools and lyceums, grammar schools are also changing. They do not hold the role of purely academic preparation any more, but they are becoming general educational schools which are open to a wide range of candidates. They are still primarily preparing pupils to universities, but they also focus on transferable skills into practice.

Since founders of schools still strongly support graduation fields of study, the percentage of pupils at apprentice courses continuously decreases (from an already low ratio of 23.6% in 2006 to 21.5% in 2016). The development is questionable given the current demands of the labour market and in a situation where quality of the candidates for graduation fields of study decreases (which is

[7] JuSeuk (2016) constructed a GLLI index (global lifelong learning index) which can be used to make comparisons among countries. Czech Republic placed on the 27. place out of 81 countries and our result was strong among countries with medium economy (according to GDP per capita).

why in 2017 we are introducing state-regulated compulsory entrance exams for these courses). This situation was foreseen in the White Paper (2001, p. 29). The document envisaged a roughly 25% share of pupils at apprentice fields.

Despite the criticism of support in the area of graduation courses and grammar schools, we should emphasize that current graduates of grammar schools have the lowest unemployment rate in comparison to other graduates (in 2014 around 4%), graduates from vocational secondary schools with graduation exam have a slightly larger problem finding a job (in 2014, 10-14% in various types of fields) and graduates of apprentice schools are the least successful (18% in 2014). This is paradoxical due to the demands of labour offices. These proportions do not change rapidly in terms of the national average in the long term, but they differ markedly in terms of regions (more in LPE 2015-2020, p. 23-24). But the question is whether our society creates artificial jobs suitable for workers with general education and at the same time artificially increases the employment of graduates of grammar schools, while companies vainly bid for specialized and manually oriented professions.

3.3 Diversification of financial support of secondary education
In this area, we focus on differences in regional normatives per pupil. Basic rules for their establishment are governed by Decree no. 492/2005 Coll., on regional normatives per pupil, as amended. Of course, continual development takes place in this area and the specifics of individual regions are strikingly evident. They differ mainly in the area of labour market requirements, but also demographic characteristics, etc.

First, we present a breakdown by fields according to the Classification of Core Fields (NUV, © 2016), which are also specified by Government Regulation no. 211/2010 Coll. These courses are divided according to their endings: graduation fields (ending with school leaving examination - maturita) and vocational apprentice training (ended with certificate of apprenticeship), as shown in Table 1.

Table 1

Basic classification of fields of secondary education in the Czech Republic

Category of fields	*Levels of education*	*Length of study*
H	Secondary education with apprenticeship certificate	3 years
K	Secondary education with graduation exam (general grammar school education)	4 years
L	Secondary education with graduation exam (vocational education with vocational training)	4 years
M	Secondary education with graduation exam (lyceum or vocational education)	4 years

Some types of fields are not included in the table and analysis, because their conditions are strongly different in compared years, namely the fields marked J (one or two years long practical school for graduates of special elementary school) and E (two years long vocational courses without an apprenticeship certificate within special schools). The analysis does not reflect the sub-groups of fields (especially superstructure and shortened courses). We also do not include analysis of conservatories as a specific element of education at secondary school level.

In our analysis, we focus on the issue of diversification of financial support in different categories of education and also fields of study, namely on the normative financing. In the case of fields where vocational training is implemented, we add the amount for theoretical and vocational training together.

A fairly significant development of educational fields occurred between 2006 and 2016. Therefore, only the fields existing in the two years could be included in the comparison. We held the following criteria: compared fields exist according to the classification of fields at the same levels, and they have the same, if necessary only minimally different, name. Table 2 presents basic outputs of the level of regional normatives.

Table 2

Comparison of regional normatives in 2006 and 2016 by categories of educational fields

Year	*2006*		*2016*		*2006 - 2016*	
Category of fields	*Average normativ (CZK)*	*Median (CZK)*	*Average normativ (CZK)*	*Median (CZK)*	*Average increase (CZK; %)*	
H	28 035	27 897	48 471	44 071	20 436	172.9
K	23 605	23 605	32 994	32 994	9 389	139.8
L	27 644	26 811	42 042	34 707	14 398	152.1
M	26 880	26 254	36 720	35 119	9 840	172.9

From Table 2 we can calculate that in the area of graduation courses (K, L, M) the average increase amounts to 147.9% in 2016 compared to 2006. Average support increases more markedly within apprentice courses H (172.9%). Opposed trend is evident in the context of the above information. On the one hand, there is a considerable increase in financial support for apprentice schools, on the other hand they are reduced in terms of the number of places in schools (due to abolition and merging of schools). Their reduction is often at the expense of general oriented graduation courses such as grammar schools. It turns out that apprentice schools are problematic part of educational system in the Czech Republic.

Table 2 also shows that normatives in 2006 were much more balanced than in 2016, where we can observe significant differences even exceeding CZK 15,000. The increasing diversification of funding in various fields of study is therefore clearly evident. Apprentice schools receive on average the biggest financial support. It is both due to their need for labour market, but also a higher level of practical training, which is more expensive than theoretical teaching. Considerable differences exist, however, in support of various disciplines and the average is somewhat misleading figure because it is influenced by extreme values. These relate mainly to technical fields that are challenging for material conditions. Therefore, the table also shows the median value, which is in both years significantly lower (compared with the average) in all categories of fields except for category K (grammar schools). Although the average subsidy is the lowest in category K, we must realize that the demands of practical teaching is not listed here, and if we compared only expenditure on theoretical teaching, the situation would be completely reversed and grammar schools would appear as strongly supported (as can be seen from Table 3, the cost of vocational training may even exceed the cost of theoretical teaching, as in the fields of category H).

If we look at the growth of support in the fields in last 10 years, we can see that it is most significant in the fields in category H and M (apprentice schools, vocational schools and lyceums), while the lowest increase is in fields in category K (grammar schools). But we must point out that we present the average indicators for the whole country and the situation is more complicated both in terms of specific fields of study (due to various specializations they have vastly different requirements for provision of teaching especially in practical training) but also in terms of regions (they labour markets have different needs). We recall that total normative in categories L and H is composed of two parts: the amount of theoretical and vocational training, as shown in Table 3.

Table 3

Comparison of regional normatives in 2006 and 2016 in the fields of vocational education

Category	*Components of normatives*	*Average 2006 (CZK)*	*Average 2016 (CZK)*	*Average increase in years 2006 - 2016 (CZK; %)*	
L	vocational training	10 240	15 420	5 181	150.6
	theoretical teaching	17 404	23 889	6 485	137.3
H	vocational training	14 432	21 536	7 104	149.2
	theoretical teaching	13 603	18 385	4 783	135.2

Distribution of funds for vocational training and theoretical teaching corresponds to their ratio within the fields – fields of study in category L have typically much more theoretical training, while apprentice courses (H) have the ratio of theoretical and practical training more balanced (here, regardless of the financial demands in various fields).

Now we focus on a comparison according to specialization in selected areas. The selection of them is not random. We concentrate on the sectors that existed in 2006 under the same name and in the same category as in 2016. The analysis includes only courses for which complete data on regional normatives for both years are available. Thus, a broad spectrum of fields is reduced to just 18, because all the other came through considerable changes (after 10 years they are newly designed and/or put into another category). Therefore, they cannot be regarded as comparable. It is necessary to realize that also these 18 fields now exist in different social situation and different rules for setting normatives. It, of course, limits the relevance of the comparison. Also, there was a shift in the concept and content of compared fields and that is why the results are rather tentative.

Table 4

Average regional normatives by fields of study

Year	*2006*		*2016*		*2006 - 2016*	
Field of study	*Average normative (CZK)*	*SD*	*Average normative (CZK)*	*SD*	*Average increase (CZK; %)*	
Mechanic & Electrician L	29 552	2 104	35 711	1 906	6 159	120.8
Farm machinery repairman H	28 653	2 578	37 599	2 772	8 946	131.2
Medical assistant M	31 570	1 680	41 901	3 156	10 331	132.7
Hotel management M	26 918	1 830	36 011	2 262	9 093	133.8
Cook - waiter H	26 480	1 873	35 805	2 596	9 325	135.2
Business academy M	24 543	799	33 616	1 163	9 073	137.0
Electrotechnics M	26 174	877	36 317	3 027	10 144	138.8
Grammar school (4 years) K	23 605	745	32 994	1 114	9 389	139.8
Construction industry M	25 881	872	37 107	3 168	11 226	143.4
Agribussines M	29 098	2 027	42 135	5 588	13 037	144.8
Cosmetic services L	26 811	2 255	39 267	10 946	12 456	146.5
Bricklayer H	27 355	1 893	45 038	8 817	17 682	164.6
Joiner H	31 321	3 368	52 086	9 347	20 764	166.3
Salesman H	25 965	2 261	43 341	7 972	17 377	166.9
Hairdresser H	26 136	1 571	44 071	1 821	17 935	168.6
Metal machining H	28 047	1 701	56 622	6 633	28 575	201.9
Electrician H	31 312	2 365	67 083	15 163	35 771	214.2
Confectioner H	26 574	2 661	58 956	10 435	32 382	221.9

Branches in Table 4 are sorted by the average increase (in %) of financial support in the years 2006 - 2016. As the notional reference category, we can choose traditional grammar schools. They do not belong among the best-funded fields, but we dare to say that they are among the less costly disciplines (because of their strongly theoretical base), and they therefore can be considered as highly supported in both years.

As we can see, financial support is mostly increased in the fields from category H, in three cases it is even more than doubled. There are interesting data on the standard deviation (SD), which expresses how greatly the support varies across 14 regions of the country. In 2006 and 2016 the smallest differences are among grammar schools and business schools (i.e. relatively widely conceived fields without practical training). If we search for the major differences in the support,

we can find them in vocational courses (in 2006 it is Joiner, Confectioner and Farm machinery repairman, in 2016 it is Electrician, Cosmetic services and Confectioner). This is due to the situation on the labour market, which is different in 14 regions, but also due to different needs for material conditions of specific study courses.

4 Discussion

In the discussion, we will focus on the issues arising from the information presented. Educational policy seeks to reflect past and current situation of secondary education. In education, however, there are many factors that cannot be clearly monitored and evaluated. The analysis of White Paper (2009) testified it. It blames mainly the recent economic crisis, but also long-term instability of the Czech government, leading to inconsistent educational policy. Although there are efforts to gradually modify the system of funding schools so that it is more flexible, we are still unable to better reflect the current needs of the labour market (LPE 2015 – 2020, p. 21). It turns out that even supported courses often have high levels of unemployment, e.g. gastronomy, construction industry, food industry or wood processing have a long-term unemployment around 20 %, as apparent from LPE 2015-2020 (p. 24). On the contrary, the demand for graduates in other fields is met with no response, mainly in positions as craftsmen and labourers (often apprenticeships) but also salespeople, technicians and other specialists (NUV, 2015, p. 33). It appears, therefore, that we should give even more support to strengthen vocational and apprentice fields of study. They not only need financial support, but they also need to increase the motivation of primary school pupils who are not interested in them. In Czech society, there is still a prejudice that vocational fields (mainly apprentice schools) are not prestigious and that they lead to manually-intensive and poorly paid professions. It is also necessary to create more learning opportunities in these fields. They are reduced for the benefit of generally focused fields like grammar schools. These are currently accessible to a mass of almost anyone who wants to postpone the decision on their specialization to the level of tertiary education.

The situation should also be reflected in terms of European policy, which supports increasing percentage of highly educated population and lifelong learning in all EU countries. This helps grammar schools and all graduation fields of study, and at the same time leads to reduction in apprentice fields. This is evidenced by the decision to support not only technically and naturally oriented sectors, but also grammar schools (LPE 2015-20, p. 31), which represent the current trend of secondary school as a unifying mass preparation for universities and lifelong learning. Other authors write about education policy at secondary level and take notice of similar trends. For example, Erikson

discusses integration of academic and vocational programmes leading to unification and quasi equality on the level of upper secondary schools in Sweden (2016). Abadzi (2016, p. 253) points out, that governments should "de-emphasise basic knowledge and focus instead on complex cognition" in the context of apprentice education and on the base of cognitive science.

5 Conclusions

Educational policy in the Czech Republic is traditionally an issue that is relegated to the background. The funds, which are inserted into education, are below the long-term average of the EU and OECD countries. Additionally, we are still struggling with changes in our government and the endless transformation of the educational system. School workers also have to cope with changing concept of schools, which are seen as part of the educational market, where competition works.

The aim of the article was to point out some problematic aspects of the situation of secondary schools in the Czech Republic. On the one hand there is a reduction of vocational and apprentice schools, on the other hand we are increasing financial support to their fields of study. Under the 2004 law, each school has an individual curriculum known as the school educational program, but realistically, we see that the curriculum at secondary school level of education rather standardises. Unified state school leaving examination (maturita) also contributes to this trend. On the labour market, we need graduates of vocational and apprentice schools, but we still strongly support grammar schools and other theoretically oriented schools, whose graduates are not motivated for manual professions and often continue on universities.

It should be noted that the situation is not as simple as it may appear in this text. Educational policy is very complicated, because education is difficult to control and it is based on freedom of access. Therefore, the most important target for the future is to stabilize the situation and be able to reflect maximum of factors influencing secondary education in our society. At the end of this study we would like to express our concern over the declining share of apprentice schools in the Czech educational system. Although current trends clearly support lifelong learning and its unification, we should not forget the specific fields, which are often manually based (not based on general soft skills) that are needed on the labour market. Educational science should also give more attention to apprentice schools, because they are still overlooked and underestimated (there are not many examples of Czech research in this area, let us mention Kantorová, 2015).

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Learning from Visual Materials: A Psycho-Didactic Experiment

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Abstract:
Introduction: The authors consider a book (as a pedagogical text) a traditional and timeless source of knowledge for many different groups of learners. It is a known fact that textbook authors, teachers, researchers, etc. generally pay more attention to the text part of the book than to its visual materials. However, the latter are just as important in understanding the subject matter and its applications as textual information on the topic.
Methods: The psycho-didactic experiment described in this paper aims to widen the findings about the perception and understanding of visual parts of textbooks for pupils in their first years of schooling. In the paper, a less-known research method based on eye-tracking is presented.
Results: The main results of the research are as follows: According to the findings of the authors, each pupil accepts and understands visual materials individually and this acceptance and understanding of visual materials is influenced by pupils' personality traits. The research also shows that pupils prefer visual materials that depict reality as accurately as possible.
Conclusions: The research was designed as a case study which could be used for further research of a similar form.

Key words: eye tracker, visual materials, children's perception.

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1 Introduction

Learning processes belong to the group of well-known and well-described topics of pedagogical psychology. Learning processes focus on how information is being received, assorted, incorporated within already existing concepts and re-structuralized by people; and how is a piece of information being remembered and then recalled.

In the schooling environment, didactic means are of a great importance for learning. There are two main groups of didactic means: nonmaterial, e.g. educational methods; and material, for the purposes of this article, the authors would like to point out the so called "pedagogic texts" (Gavora, 1992).

In literature, the research of textbooks, course books, spelling books, dictionaries, songbooks, worksheets, etc. comes in two forms: firstly, the main focus of research lies in the text-based information the books provide, and, secondly, in visual materials.

According to Mareš (2013), researchers, teachers and theoreticians centre their attention mainly on the textual parts of the books, because articles and paragraphs form the main components of a textbook and because it is generally considered easier to interpret written texts than pictures.

It is generally agreed upon that both sources of information (textual and visual) should be equally valuable and mutually irreplaceable while learning, because both sources influence a learner in a different way: whilst text represents a "common" means (a language which is a natural means of communication of humans), visual materials represent a specific modality of the "world around us" (as in graphs, diagrams, pictures, maps, etc.) and are not necessarily understood by all learners to the same extent (neither do they necessarily evoke the same ideas and they do not have to influence learning processes in the same way). Nevertheless, it is important that visual information and its effect on education are directly dependent on the form of the information. The form ought to respect developmental and individual differences of "a person in the role of a pupil".

This brief introduction to the topic of learning from visual materials was necessary for formulating the goals of this study. The goals are as follows:

- to present a brief description of the field of learning from visual materials;
- to narrow the field of learning from visual materials to young school children's learning;
- to show new research possibilities of the eye-tracking method, especially during the phase of perceiving the visual materials and expressing their quantitative characteristics;

- to perform, analyse and describe the research in the form of a case study among first grade pupils. The goal of this part is to understand the cognitive processes of first-grade pupils while they were learning from visual materials (see part 5.4).

2 Learning from visual materials

In this part, the authors provide the reader with the definition of learning from visual materials. Then, the criteria for classification of visual materials are described and explained. Lastly, the function of visual materials is being discussed.

Visual materials, as defined by Mareš (2013, p. 131), are: "materials of mainly nonverbal character used while learning". These materials are often didactically adapted.

Kosslyn (1989) and Mareš (2001) explain the essence of learning from visuals with a diagram shown in Figure 1. Learning from visual materials is a dynamic process that starts with pupils observing a picture and receiving visual information. This information connects with the knowledge and experience already present in pupils' minds. Then, the whole unit, now consisting of both the previously gained experience and the newly acquired piece of knowledge gradually moves from the "simpler type" of memory to the long-term memory.

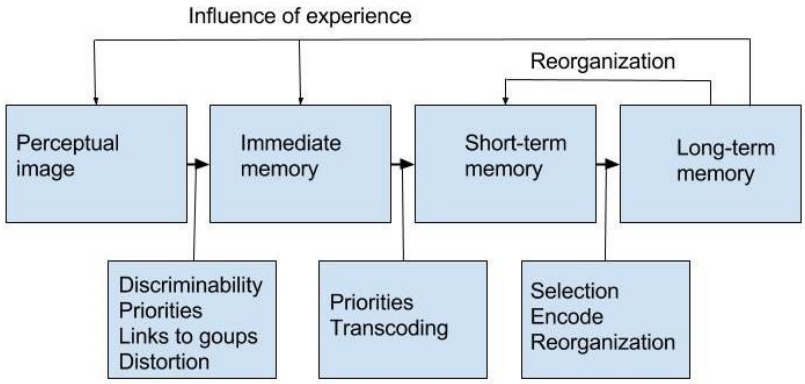

Figure 1. Visual information processing (Kosslyn, 1989; Mareš, 2001).

According to Mareš (1995), the basic classification criterion of visual materials is their pedagogical function. Visual material ought to represent the subject matter, make the text more structured and, therefore, more understandable, "co-interpret" the text and transform the text (e.g. reconstruct the main ideas into a

diagram or a chart) to a certain extent and hereby increase its rememberability. Visual materials can be classified based on the extent of abstraction (ranging from concrete such as representation of the real world, to abstract such as diagrams, models, etc.), dimensionality (2D or 3D projection), dynamic character (static or dynamic material), highlighting of selected parts for didactic reasons, interactivity and visually-aesthetic qualities (Mareš, 2013).

Levin, Anglin, and Carney (1987) mention these functions of visual materials: decorative function (visual materials do not necessarily have to correspond with the text), representative function (visual materials reflect information provided by the textual part), organizing function (visual materials support the organization of information and can help with the transition from declarative knowledge to procedural skills), transformative function (visual materials can influence the way pupils process information), affective and motivational function (visual materials can increase pupils' interest in the curriculum), attention improving function and cognitive and regulative function (visual material supports cognitive processes).

Let us briefly debate the last-mentioned feature of visual materials, the dynamics and regulative potential which can be summarized by the term animation and dynamic visualization. Animation and dynamic visualization consist of pre-arranged and "measured" interpretation of visual information. By doing so, the time dimension is added to learning and perception processes are activated according to an arranged "scenario". Dynamic visualization is very suitable for learning difficult and abstract curriculum content (Rasch & Snotz, 2009).

Presently, the learning theory works with a new concept of the so called visual keys (Lin & Atkinson, 2011). Visual keys help with perception and can come in the form of a graphical symbol (an arrow, a zoomed-in detail, etc.) or a static or dynamic (moving) element. All these forms help to differentiate individual parts of an object and understand them. Visual keys sometimes appear in the form of a pedagogical agent, a picture of a person, a head or a talking pictogram.

Lastly, the authors briefly discuss the visual and aesthetic function of visual materials. This function does not affect cognitive operations with visuals directly, it is, however, important for accepting or refusing the curriculum by a learner. Moshagen and Thielsch (2010) observed that a pleasant representation that corresponds with a learner's aesthetic taste is positively reflected in every step of learning and processing visualized curriculum content.

The paper mentions only some pieces of knowledge that describe a wide topic of learning from visuals. Only those are mentioned which the authors found

important when researching a specific group of learners: children in the role of pupils.

3 Cognitive and sensual readiness of children for education

The sense of sight is of the highest importance for pre-school children (or children at the beginning of school attendance) while they familiarize themselves with the outer world. It is known that visual perception directly affects other phenomena, such as speech development, visual and motor coordination, coordination in the three-dimensional world, etc. (Bednářová & Šmardová, 2011).

According to the findings in the field of evolutionary psychology, visual and auditory perception of a child between 5-7 years of age develops to such level that a child can learn the first-grade curriculum. Pre-school children usually focus on objects further in the distance (Papalia & Olds, 1992), whereas the development of short-distance sight (perception of details) is crucial for schoolwork. Eye lens accommodation often puts strain on learner's attention, which can negatively influence the ability to see small pictures or "small" texts. Children starting school ought to be able to distinguish any kind of shape in any position on any background (firstly, children learn to work with the vertical position and the difference between up and down; then, they learn to work with the horizontal position - right and left side, which is more difficult). For schoolwork, it is important to be able to distinguish two objects visually; small children are not capable of distinguishing letters that vary in position (Matějček, 1987).

Vasta et al. (1995) offer these differences in perception strategies of pres-chool children and young schoolchildren. Pre-school children tackle a problem without any plan and they choose their actions randomly. Young schoolchildren show (to some extent) a systematic nature in their approach: they are able to inspect a picture in a pattern, called systematic exploration or perception strategy. A child ready to enter school is capable of distinguishing between similar pictures, letters, numbers and can differentiate small details, their shape and number. Perception strategy is dependent on maturing and the development of other perception processes (Vágnerová, 2005).

Readiness for attending school shows in the capability of perceiving a whole object (concept) as a system of intertwined details (visual synthesis) and in the capability to break the whole object into parts (visual analysis). Children are capable of perceiving sequences (sequence perception). Sensory-motor

coordination affects visual perception, too. Seeing is being coordinated with motor activities (Vágnerová, 2005).

The findings from the field of evolutionary psychology mentioned above are especially important for those that make didactic materials for young schoolchildren. Textbooks ought to contain visual material showing the reality in the extent of abstraction matching the mental skills of the pupils. Generally said, textbooks ought to contain two components (textual and visual) that correspond with each other and aim to help the learner understand the presented content.

The research of children's perception of didactically designed visual materials exceeds the aims of this paper. The works of Czech and Slovak authors Průcha, Gavora, Mareš, Maňák, Klapka and others who pursued this topic can be found in the resources.

While researching perception of visual materials by an individual, technical support and its development are becoming more available and efficient. In the next part of the paper, the subtopic of technical support used while researching the perception of visual materials is discussed.

4 Technical support used while researching perception of visual materials

To understand a visual content, it is crucial to fully perceive the picture (see Figure 1). How does such perception work? Are there some "visually more sensitive" places on a picture? Which elements are predominant for perception and which are redundant (out of viewers' interest)? How do we learn from visual materials? Do we stop to focus on some elements more (fixation) or do we get back to the parts of a picture that were unclear to us (saccades)? How much time do we spend on individual parts of a picture, etc.?

To obtain an answer, psychological and pedagogical research uses mainly technical devices. In this paper, the authors will discuss the eye tracker system and its uses in particular. This method is described in detail in Duchowski's summarizing paper (2007).

An eye tracker is a technical device scanning eye movement (eye tracking) and evaluating quantitative characteristics of the movements (Škrabánková & Trnová, 2014; Škrabánková, 2016). Research participants sit in front of a monitor showing visual information and the device scans their eye movements and attention focus of the participant while observing the presented information. Verbal communication of the participant is also being recorded by the device.

The software used for research purposes helps the researchers with computing mainly quantitative data, in this case the data about perception. The software then shows the computed data in a graphical form both to the researcher and the participant. For the purposes of this research, the authors used the Tobii 3.2 program (© Tobii AB). The data are presented in three main forms: mapping (and computation) of fixations and saccades, heat maps (graphical representation of the frequency and the length with which particular areas of a picture were viewed) and cluster representation.

According to Duchowski (2002), today's eye tracking systems are the fourth generation of devices developed for capturing eye movement while watching a picture. However, today's systems are the first that are non-aggressive, interactive and complex (connected to the analyzing software).

Note: Hyökki (2012), Richardson and Spivei (2004) focus on current research that uses eye tracker in their works.

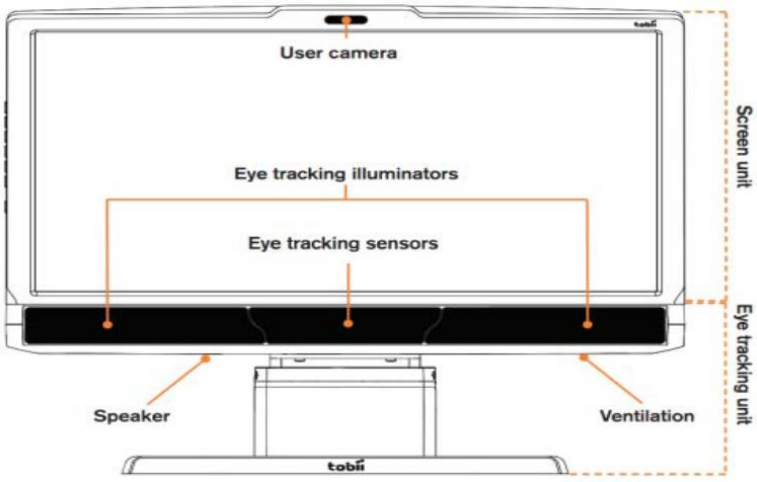

Figure 2. The eye tracking device and set up (Škrabánková & Trnová, 2014).

The audiovisual record of a discussion between a researcher and a participant was analysed not only by the Tobii system, but also qualitatively (the extent and level of speech was analysed alongside with the participants' dependence on the intermediary, their capability to defend their beliefs and opinions, etc.). This approach is nearing the approach of the so-called video-studies, a method used for example by Janík and Janíková (2006).

5 Children's perception of visual materials: a psycho-didactic experiment

5.1 Research goals

The aim of the presented research was to analyse first grade schoolchildren's perception of visual materials. Visual material presented to the schoolchildren consisted of the material included in ordinary textbooks. Specifically, the goals of this research were as follows:

- To observe and analyse the visual trajectories of the participants when one picture was switched for another (from two different textbooks on the same topic).
- To identify why specific pictures were selected by the participants as most correct or most suitable and to record the reasons given.
- To analyse how the participants communicated when a picture was chosen (with respect to the individual and educational qualities of each child).
- To evaluate the experiment and discuss the main results thereof.

5.2 Methodology used and research phases

Four randomly chosen first grade pupils were presented with two types of visual materials from two textbooks (both on the topic of spring). Visual material A was formed solely by photographic material, visual material B consisted only of illustrated pictures of spring motifs. Both materials consisted of individual pictures forming a thematic whole. The participants (recorded by the eye tracker and a video camera) watched picture A and then, under the same conditions, picture B. Then, they were shown both the pictures at the same time and asked which picture is "better", which picture is more accurate according to them. All communication and responses of the participants were recorded and then analysed. A symbolic diagram of research process is depicted in Figure 3.

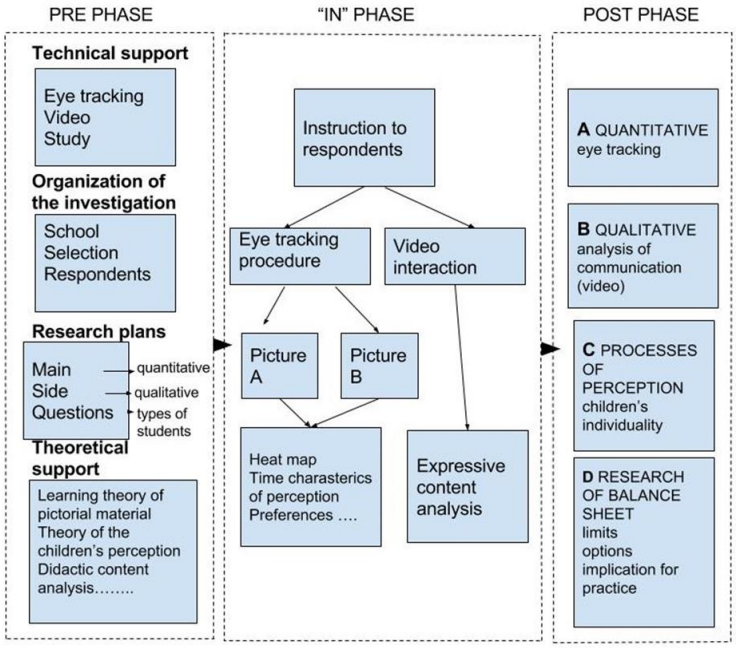

Figure 3. Research phases, their contents and progress.

The research was both qualitative and quantitative in nature. The authors collected research data from observation, discussion, eye tracking (performed by the Tobii system). The length of visual focus on each picture was measured, the trajectory of eye perception was observed and accompanying nonverbal signals (facial expression, gestures, body position, body and limb movement) were marked. When analysing verbal communication, the authors focused on the extent of participants' vocabulary, coherence of their speech, description of remembered pictures and the level of detail included in the description, and on the level of involvement of the intermediary (who was also a member of the research team).

5.3 Participants

The research participants in the role of respondents were four first grade pupils of the same public school: two girls and two boys. All of them were chosen at random. A psycho-didactic characteristic of the pupils was given by their class teacher (an experienced teacher who had already spent 7 months teaching the participating pupils).

Karolína

Karolína is a quiet, kind and forthcoming girl. She is very popular among her peers and has two friends who are boys. During lessons, she is very active and

wants to answer questions very often, however, at the same time she does not aggressively compete for attention at the expense of others. She is very bright and solves assignments quickly thanks to her logical thinking. Whenever she makes a mistake (caused in most cases by varying concentration), she tends to be insecure and less confident.

Veronika
Veronika is a quiet and, compared to her peers, less communicative girl. She is often lost in thought, trying to escape to her inner world. When communicating, she tends to be tactless, even quarrelsome. During lessons, she works a bit slower, but manages to complete assignments correctly in most cases. She does not have any close friends in her class and she likes solving problems on her own. Whenever she makes a mistake, she does not want to accept the misstep and her talk often leads to an argument.

Honza
Honza is a cheerful, communicative and optimistic boy who is healthily self-confident. He is very ambitious, is interested in learning and likes to show his knowledge. He gives the impression of a very kind, non-conflict boy. He is capable of admitting his mistakes and learning from them. Honza is very bright and shows deep knowledge about the world around him and about interpersonal relationships.

Šimon
Šimon is a very introverted boy, but he does not tend to close up and communicates freely with both his peers and the teacher. He is very successful in the subjects that interest him, however, when working on a topic that bores him, he works slowly (both when he works with his hands or mind). During lessons, he is often dependent on teachers' help who motivates him, works on his low self-confidence and supports him to concentrate for longer periods of time.

5.4 Research results – quantitative data examples and their interpretation
The participants of the research were shown two pictures: firstly, picture A and then picture B. They were asked to watch the pictures and remember them. Meanwhile, the Tobii system monitored the eye movements of the participants.

The authors were, among other things, interested in the fixation factor (the period of time during which eyes focus on a specific place of a picture in order to remember and understand the information viewed) and about the length of each fixation recorded. In Table 1, the authors present quantitative data obtained. These data show how each pupil reacted to visual materials presented to them and how much time did each pupil need to understand each picture. The

variation of obtained results is related to sensory-cognitive talents of individual pupils.

Table 1

Fixation length for each picture per participant

[s]	*Pupil D (Karolína)*	*Pupil B (Šimon)*	*Pupil A (Honza)*	*Pupil C (Veronika)*
length of first fixation on picture A	0.18	0.49	0	0
length of fixation on picture A	19.91	13.64	12.77	23.09
length of first fixation on picture B	0	0	0	0.71
length of fixation on picture A	13.30	9.10	8.45	15.10

The heat map method offers an interesting representation of the obtained data. This method marks presented pictures with colours; colours are only applied to places that have been viewed by the participants. Figure 4 shows a heat map of the visual material A. Red spaces marked on the pictures represent places with the longest fixation times. Long fixation time could have been caused by either interest in presented information, or by its visual difficulty.

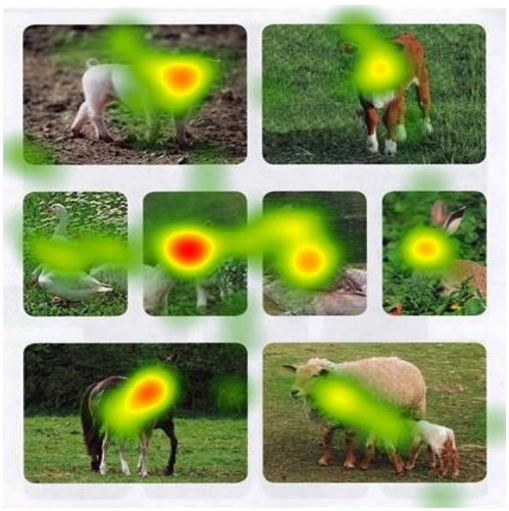

Figure 4. Heat map of the visual material A (data collected from all the participants presented).

Figure 5. Heat map of the visual material B (collected from all the participants presented).

In the end of this phase, the participants were presented with both sets (A and B) of visual materials. Each participant focused their attention on the visual set A. Just for the record, least visually attractive was the photograph of a duck (middle row, left side). Regarding the focus on details, all pupils were attracted by the heads of the animals shown. The main conclusion of the quantitative part is as follows: research participants paid much more attention to the first set of pictures, visual material A. This set consisted of photographs and the participants found them more accurate and more natural than pictures presented in the visual set B.

5.5 Research results – qualitative data examples and their interpretation
Visual material preferred by children
The analysis of verbal and nonverbal communication of the research participants brought the following results. The authors were interested mainly in the reasons why each participant preferred the visual material A or B. According the data obtained, participants' preference was based on their life experience; children at this age (6-7 in the Czech Republic) are already familiar with animals shown in the pictures. They also know how the depicted animals live, how they usually behave, what is their relationship to humans, what do they eat, etc. That is why the photographs represented spring more accurately than the illustrations. The obtained results show that curriculum presented in the form of a picture (visual material) contains not only cognitive parts, but also emotional ones. This was obvious when the participants talked about the babies of the presented animals:

their speech was richer, more adjectives were used (smooth fur, ...) and the children were suddenly happier, as their facial expression showed.

The obtained results can be divided into two groups: mutual and different. Among the group of mutual results, the most important were as follows: every child preferred photographs to illustrations. Every child responded in a very emotional way and every child showed interest in the possibility to arrange individual pictures differently. Results that differed the most from participant to participant were those where inter-individual diversities showed: every child showed a different level of perception, decision making, creativity, communication skills and imagination (in relation to learning).

The second group of results (results that differed the most; results that show how each child tackled the problem presented) is shown in more details in Table 2. The data presented clearly show the correspondence between each child's attributes (as described by the class teacher) and the results obtained during the experiment.

Table 2

Some typical socially-cognitive dimensions (shown for individual participants)

Dimension	*Pupil A*	*Pupil B*	*Pupil C*	*Pupil D*
Perception	Fast, continuous	Restless, slow, focus on details	Slow, thorough	Fast, systematic
Decision making	Independent, alternative	Non-internalized, dependent on the neighbourhood	"Their own", difficultly accounted for	Independent, accounted for
Explanation	Persuasive, conceptual	Random, non-systematic	Persuasive, pragmatic	Persuasive, intuitive
Operation memory	Significant, systematic	Small, undifferentiated	Smaller, reproductive	Significant, structured
Verbal language	Consistent, factual, rich	Small production, only primary meanings	Smaller vocabulary, less fluent	Consistent, persuasive
Personality type	Balanced, extroverted	Submissive, introverted	Balanced, introverted	Balanced, extroverted

6 Discussion

What kind of results did the experiment bring? One of the main parts of the final discussion was that it confirmed the presumption that the way authors of pedagogic texts think (and their visual understanding) differs from that of children: those who use the textbooks to learn. The causes are many (and, besides other things, they show that pupils of the same age who share the same classroom differ individually). Let us mention a single reason for the differences: textbook authors' and teachers' opinions on how to work with textbooks and how to learn from them differ from those of pupils.

The experiment showed that pupils perceive a picture both as a whole and as a set of details. In a picture, there are particular places that the children focused on (some parts were not interesting enough). Children interpret the content of a picture according to their personality and they form emotional links alongside the cognitive ones. Emotional links are often passed by textbook authors.

The experiment has proven that what teachers perceive as a comprehensive, convincing and visually attractive educational content does not have to be perceived as such by the learners. The authors showed that the formation and usage of educational texts (or rather their visual parts) could be different, more helpful for the pupils. A positive change in the approach was recorded when the participants got the chance to change the content and the visual side of presented pictures. Průcha (in Maňák & Klapko, 2006) reached the same conclusion: Průcha is not satisfied with didactic quality of newly released textbooks, because the quality is not being verified (particularly with respect to pupils' potential).

As a side result, the authors found out that in order to be successful, the psycho-linguistic and didactic work of the teachers working with young children needs to be based on the individual knowledge of each pupil ("who is who") in the sense of pupils' cognitive, social and emotional attributes.

In what way could the results of this paper influence schooling? The authors advocate that in school, learning about the real world ought to be based on children's experiences. The life experience of pupils should be included from the very beginning of their education. Children can bring up topics from their social environment and describe them to the others by using their own words and means. This does not mean that no work is done at school; the authors only think that pedagogic texts ought to inspire children to learn and not only provide them with finished pieces of information (Korthagen, 2011).

7 Conclusions

Results presented in this paper were obtained by using the above-mentioned methods (eye tracking system and discussion record analysis). The authors believe that it is possible to learn how pupils work with visual materials, how do they perceive and remember them even without using complicated and expensive technical devices. Therefore, this paper was not intended as a work in favour of one approach at the expense of another, but as a way to describe how individual pupils perceived visual materials and to offer a path to knowledge the learner could participate in.

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A Study of Conceptualisation of Quality of Life by Czech Fifth-Graders

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Abstract:
Introduction: This study summarized the results of research on quality of life as conceived by Czech fifth-graders.
Methods: The subjects responded in writing to three tasks that asked them to describe the characteristics of quality of life. The first task required them to picture what they imagined under a magazine headline entitled "Quality of Children's Lives". The second task required them to explain this headline to their classmates, while the third task asked them to generate their own ideas of a bad life, normal life, and excellent life.
The sample consisted of 174 fifth-grade pupils from two Czech localities. The pupils' statements were open-coded, and then the codes were cumulated to create content categories.
Results: Ten large categories emerged from the data that depicted children's ideas of quality of life. Data processing the frequencies of the content of the categories were computed to show the ranking of the characteristics of the quality of life as selected by the children. The study revealed that the fifth-grade pupils attributed a wide range of valuable characteristics (social, psychological, environmental, spiritual and personal) to the concept of quality of life.
Discussion: In pedagogical theory, the quality of children's lives is a concept with a number of meanings. It includes qualities related to bio-psycho-personal, social, and spiritual aspects of life.
Limitations: The quality of children's lives is a multidimensional concept and we can study only some of them.
Conclusions: Responses to the third research question can be summarized into three key answers, illustrated by relevant statements of the Czech fifth-grade students.

Key words: quality of children's lives, primary education, pupils' conceptualisations, fifth-grade pupils.

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1 Introduction

It is first necessary to understand the concept of the quality of children's lives in the context of this study. The concept is applied to many human activities and is used in many scientific fields, e.g. philosophy, theology, social work, psychology, biology, medicine, ecology, sociology, politics, economics, etc.

The research of the quality of life originally proceeded in three directions:

1) objective – as a summary of objective indicators, for example research on the quality of living conditions of human beings;
2) subjective – as a summary of subjective indicators, for example research on the uniqueness of the quality of life of an individual's "life journey"; and
3) a combination of subjective and objective indicators (Mareš, 2006, p. 11). This study concentrated on the pupils' subjective perceptions of quality of life because it has been infrequently investigated in educational research.

The results of studies that dealt with the relationship of objective conditions and subjective experiences have inspired other studies. On their basis, general models of quality of life have been created, for example the Veenhoven's model (2000) and the 3Bs model by the Canadian scholars Raphael, Rukholm, and Brown (1996) and others (being, belonging, becoming – to be, to belong somewhere, and to endeavour for something, to become something – see Mareš, 2006, pp. 15-16; Barnes, 2013; 2015). Mareš placed the topics of general models into a table that demonstrates the complexity of the structure of conceptualisation (2006, p. 17; Veenhoven, 2000).

Table 1

Bases of conceptualisations of the quality of life

	External qualities of life (environment)	*Internal qualities of life (individual)*
Life chances, opportunities in life	Physical appurtenance Social appurtenance Community appurtenance	Physical (somatic) being Psychological being Spiritual being
Results of life, life profile	Spiritual being: behaviour towards the environment, spiritual needs, faith Physical endeavour: voluntary work	Practical endeavour Free time Endeavour to achieve personal growth and personal development

This model makes it possible to identify if fifth-grade pupils approach the characteristics of quality of life from the perspectives of life changes and opportunities or if they concentrate on life results. Further, the model makes it possible to identify whether pupils prefer external (environmental) or internal (individual) causes of quality of life.

The hierarchical model of quality of life by the Slovak psychologist Kováč (2001, p. 40, as cited in Mareš, 2006, pp. 18-19) is another interesting way to structure the conceptions of the quality of life. Kováč's model specifies three hierarchical levels. The first level is basic, existential, and all-human, and it has six areas: 1) somatic condition; 2) mental functioning within normal limits; 3) a functional family; 4) material and social security; 5) a life-giving environment, and 6) basic abilities for survival. The second level is the middle (mezzo) level, which is individually specific as well as social, with the following six areas: 1) robust health; 2) favourable social inclusion; 3) level of social development; 4) friendly environment; 5) acquired competencies, and 6) experiences of satisfaction and wellbeing. The third and highest level is cultural and intellectual, which represents the meta-level of the quality of life and includes six areas: 1) trouble-free ageing; 2) experiencing appreciation; 3) manifestation of goodness; 4) contribution to life progress; 5) pro-social behaviour, and 6) the intensity of self-cultivation. Kováč's model indicates the time-dependence of the quality of life. This study assumed that the pupils' conceptualisations would be concentrated in the first basic level.

Mareš (2006) reports on the results of a meta-analysis of 68 models of quality of life, which was performed by a Canadian research team led by M. C. Taillefer (2003). The authors distinguished three types of models with different levels of generality: 1) the conceptual model, the simplest one, which states the dimensions and characteristics of the conception of quality of life but does not specify their mutual relations; 2) the conceptual framework is a group of models which describe, explain, or forecast the principle and direction of the relations between the elements and dimensions of the quality of life; and 3) the theoretical framework is a group of models that include the structure of the elements and, moreover, their connections with the theory that explains these connections. This study concentrates on the first level of quality of life.

The problems with understanding the conceptualisation of quality of life and its definitions were analysed by Mareš in 2006. The lower frequency of studies in connection with the quality of children's lives, for the purposes of this study, led to the acceptance of the following characteristics as a theoretical basis.

The quality of children's lives is a multidimensional concept defined by the World Health Organisation as follows:

It concerns an individual's perception of our position in life in the context of the culture and the system of values in which an individual lives; expresses the individual's relation towards his own objectives, expected values, and interests ... it includes the individual's somatic health, mental condition, level of dependence on the environment, social relations, beliefs, and faith in a comprehensive way – all in relation to the main characteristics of the environment... Quality of life expresses a subjective evaluation which takes place in a certain cultural, social and environmental context (Mareš, 2006, p. 25).

This definition served as a basis for the development of a model for the parameters of the quality of life of children, which will be employed in this study. As few studies have been previously undertaken that examine the quality of children's lives in the pedagogical context, this Czech case study helps fill a scholarly void. It specifies the following possibilities concerning the quality of children's lives, which can also be followed in education (Lukášová, 2010).

Table 2

A Model for enhancing the development of the quality of pupils' lives in education (Lukášová, 2010)

A child as a pupil and the qualities of that child's life, which lead to the development of personality in adulthood	***Values and objectives of primary education***
Possibilities of somatic growth in respect to **maturing**– identification of these potential abilities by teachers and pupils.	**Somatic growth and maturing** – physical and mental health, hygiene, environment, etc.; values of a healthy lifestyle, material conditions for health, psychomotor and sensory presumptions for learning.
Possibilities of mental development– areas of cognitive, emotional, volitional, and motivational development.	**Mental development – intellectual** (cognitive), **affective** (emotional), **motivational** (volitional).
Possibilities of social development– mutual meeting, development of relationships, cooperation, friendship, understanding, competition, group role, status, prestige.	**Social development**– perception of relationships, social experience, respect, cooperation, understanding, satisfaction in the school class and school environment, love of others and of the world, love of truth, etc.

Possibilities of developing the child's ego– realisation of personal possibilities, self-knowledge, self-experience, self-evaluation, and self-development.	**Development of personal qualities and self-development** – **self-exceeding tendencies of personal ego**, self-realisation, self-knowledge, self-respect, self-control, self-evaluation, self-confidence, belief in the possibilities of personal development as well as in higher guidance.
Possibilities of intellectual (spiritual) development in axiological, aesthetic, ethical, and creative areas (looking for values and the development of creativity).	**Intellectual development**– leading towards the values of truth, beauty, good, justice, and other intellectual **values and virtues of humanity**, zest for discovering and creating life, truth, beauty, and goodness, creation and self-creation at all the mentioned levels, **existential and self-exceeding cultural aspects** (creativity, wisdom, character, respect).

This model provides the theoretical framework for the categorisation and interpretation of the results of this research.

Concerning the quality of children's lives, the first large investigation in the Czech Republic was organized by Mareš (2006; 2007; 2008). Svatoš and Švarcová (2006; 2007; 2008) conducted the first empirical investigation of the conception of children's lives as expressed by student teachers in the Czech Republic. In another investigation, Lukášová (2006; 2007; 2008) assessed the knowledge of this concept by student teachers. At the same time, another study was focused on the subjective understanding of quality of life by fifth-grade pupils. Concerning the pupil's growth, the fifth grade closes the first phase of school attendance and is developmentally stable. Individual differences in perception of the quality of life can reveal deeper layers of pupils' subjective attitudes to life, which may be unnoticed by curriculum authors.

Clearly, the idea of the notion of quality of life must involve physical, mental, personal, social, material, and spiritual dimensions. To meet these requirements, this study focuses on the areas in which the subjective conceptualisation of the quality of children's lives is expressed by teachers specializing in primary education. It also concentrates on children's conceptualisations of the quality of life and how they describe it. These conceptualisations are the subjective perspectives of 10 to 12-year-olds determined by a number of factors: personal experiences, the opinions of schoolmates and friends, the opinions of parents, as well as by facts presented in media. However, it is not so important to learn what these conceptualisations are determined by as it is relevant to learn what they look like, so that teachers can respond to them. This is the domain referred to as

pedagogy of care for well-being (McMullen, Buzzelli, & Yun, 2016, p. 259; Seligman, 2012).

2 Methodology

2.1 Research questions

This research project aims to shed some light on the conceptualisations of the notion of the quality of children's lives by primary school pupils. Specifically, it concentrates on how pupils conceive this notion from three different perspectives: (1) their subjective interpretation of the notion, (2) the way they communicate the notion to peers, and (3) their description of some qualities of children's lives.

The research questions were as follows:

1. What conceptualisations of the quality of life do children describe when asked to interpret a magazine headline entitled "Quality of Children's Lives"?
2. What conceptualisations of the quality of life do children describe when asked to communicate this notion to their classmates?
3. What characteristics of the quality of children's lives do they emphasise when asked to describe the terms "a bad life", "a normal life", and "an excellent life"?

The research questions used correspond to the tasks assigned to the children. They are aimed at the identification of their subjective conceptualisations of the quality of life.

2.2 Research sample

The research sample consisted of fifth-grade pupils who originated from two localities in the Moravian section (the eastern half) of the Czech Republic. The reason for the focus on fifth-grade pupils was that prior research has indicated that this age group is developmentally capable of understanding the notion of quality of life and can produce meaningful descriptions thereof. The total size of the sample was 174 pupils: 75 boys (43%) and 99 girls (57%). They were recruited from two localities. The pupils came from compact classes, i.e. they were pupils who were taught together during the entire school year. The sample was made out of convenience, with the understanding that this would limit the implications drawn from the research findings. The composition of the sample, in regards to age and gender, is shown in Table 3.

Table 3

Sample composition

Age	10		11		12		Pupils in total
Gender	Male	Female	Male	Female	Male	Female	
Number	10	22	49	65	16	12	174

The age interval of 10-12 years is considered to be a relatively serene, balanced and stable phase in a child's development (Vágnerová, 1997). At this age, primary schooling is completed (Gesell et al., 2005; Adair, 2014). At the same time, it is the age of the first stage of the influence of pupils' experiences with quality of life.

2.3 Methods of data gathering

The data-gathering technique used an open questions format and was based on the work of Mareš (2006; 2007). It required the pupils to work out three tasks, which they wrote on an A4 sheet of paper. The pupils' descriptions were content-analysed inductively to produce content categories (Given, 2008; Constas, 1992), of which the frequencies were then calculated to provide a ranking of content categories.

The tasks addressed to pupils were as follows:

Task 1: If you see the headline "Quality of Children's Lives" in a magazine, what do you imagine? Think for a while and then write your answer below.

Task 2: How would you explain the headline "Quality of Children's Lives" to a peer so that he/she would understand it?

Task 3: We have prepared a table which you have to fill in. Imagine some of your classmates and friends and categorise them in the table according to the categories of quality of life therein. Please explain why you think that they have a bad, normal, or excellent life. Please do not write any names of children.

The table contained a description of a bad, normal, and excellent life:

Bad life: he/she probably has a bad life; the quality of his/her life is not good, he/she lives a worse life than the majority of children I know.

Normal life: he/she has a somewhat normal life; its quality is average.

Excellent life: his/her life is excellent; in my opinion, his/her life is better than that of most of the children I know.

The children filled in the answer sheets during normal school lessons; they did it anonymously, providing only two demographic data, i.e. gender and age. The data gathering was conducted by Saparová (2007) and Švikruhová (2009) within their masters' theses research under the supervision of the author of this article. This methodology made it possible to display the data in the following tables and graphs which provided answers to the research questions.

3 Results

3.1 Categories

The data allowed for the extraction of ten broad content categories that encompass the individual aspects of quality of life as described in the answers to the first task. The categories are:

1) Psychological aspect
2) Education
3) Health
4) Material aspects of life
5) Friends
6) Upbringing
7) Environment
8) Values
9) Needs
10) Family

The ideas were expressed by children approximately at the age of 11 which made it difficult to determine the borders of these categories. And that the researchers knew the pupils well, as well as the schools they attended, made the analysis easier. The content categories are described as follows:

1) The psychological aspect included the statements of pupils, which connected the quality of life with a number of psychological aspects. They pointed to the need for love, close relationships with family members or friends, happiness, and satisfaction. The mental states such as joy, "not sorrow", and the like were expressed as well. Furthermore, an appreciation of good relationships with familiar people and the need for friendly communication with them were detected.

2) Education includes statements that link the quality of life with education, instruction, and learning. The emphasis was placed on success at school. The pupils wrote about school achievement and good marks. They also projected their future lives. Progress at school is a reward, as it improves the probability of finding a good job.

3) Health is a rather broad category. It includes the statements of the pupils that connected quality of life with health and the absence of illness or a handicap. To describe health, the pupils used terms connected with physical movement and sports. The unhealthy manifestations were related to spending time on the computer. There were also statements describing addiction, for instance, tobacco or alcohol consumption. The pupils pointed out healthy relationships in the family, which were demonstrated by parents not shouting at each other.

4) Material aspects of life include statements describing awareness of the fundamental things needed for life. The pupils listed clothing, food, and drinks. They ranked the need to have quality meals much higher than the need to possess a computer. The need for money was listed as well, as most common needs can be met with that.

5) Friends were delineated as a separate category because several pupils stressed that friendship is a fundamental characteristic of their subjective conceptualisation of the quality of life. It is important for them to have friends and play and have joy with them. They sought friendship as support both in school and outside of it, in games and in hobbies.

6) Upbringing is a category expressing the requirements of good upbringing of children. The pupils connected the requirement of good upbringing with their obedience (someone who is obedient has no problems) and respecting the school code. Some pupils relate the notion of good upbringing with proper behaviour towards elders. Such pupils were referred to as being well brought up.

7) Environment is a quality of life category related to living conditions. Notions that were listed are a clean and peaceful environment, which is socially affable, and in which nobody is abused. The pupils expressed their view that a favourable environment is not present in institutions that care for orphans or children neglected by their parents.

8) Values is a category that included statements emphasising freedom and an option of independent decision making, as well as the possibility of voluntarily assisting the elderly or those who need help. It is interesting to

see how intensely some 11-year-old pupils expressed the value of freedom in their lives and decisions.

9) Needs is a category that expresses other urgent characteristics linked to the quality of life. Among them care (by the one who cares for children) as well as the need for a regular rhythm in life, which is associated with keeping the daily schedule in the family and in school were rated. Some statements concerned voluntarily taking care of something (an animal) or someone, and also the possibility of doing freely whatever the child wished.

10) Family is a category expressing a clear relationship between the notion of family and the subjective view of the quality of life. The family creates a stable home and the parents are good-hearted. The family is also healthy if there is a family member who the children can approach if needed. The family should consist of both parents; it should be a nuclear family. The family should not be susceptible to substance abuse.

3.2 Research results and their interpretation

Figure 1 presents the summary of findings – the categories identified in the answers to the first question. The categories were determined by key characteristics in the pupils' statements.

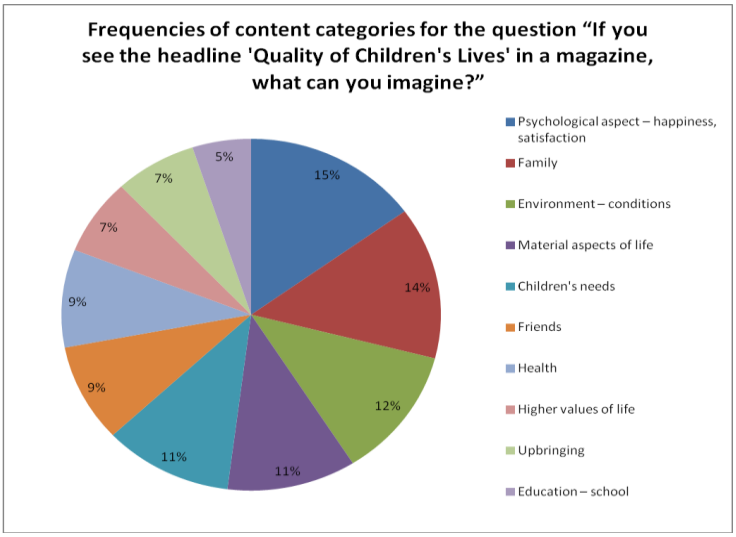

Figure 1. Frequencies of content categories for the question "If you see the headline "Quality of Children's Lives" in a magazine, what can you imagine?"

The partial answers of pupils from the first task will now be presented. It is obvious from Figure 1 that under the phrase, "quality of children's lives", fifth-grade pupils imagine, in the first place, qualities associated with psychological aspects – happiness and satisfaction (15% of the children's conceptualisations). For children, feelings of satisfaction and joy in life are the most frequent choices. Generally, they link the quality of life with psychological well-being, i.e. with inner contexts of quality of life. Qualities associated with family life (14% of the children's attitudes) occupy the second place. The pupils recalled relevant associations within their family lives, so the external context prevails. Qualities associated with the environment and living conditions had the third highest frequency, representing 12% of the children's statements ("How we live, in a clean environment, what we do, and how we perceive it." "I imagine a different environment, different upbringing, health, love, and understanding."). Here, the external context of the quality of life was conceptualised. Qualities associated with material conditions (i.e. food, living conditions, clothes, finances, and others) and children's needs, which are described by children as the need for love, safety, and family in this meaningful range, occupy the fourth and fifth places, comprising 11% of the statements ("Someone loves us and somebody takes care of us." "Love means that somebody loves us and that we have a family."). Here, both external and internal individual meanings of quality of life were conceptualised. The quality of life associated with friends and health, comprising 9% of the statements, occupied the sixth and seventh places. The statements describing the qualities of life associated with higher values of life and the statements describing upbringing, making up 7%, took the eighth and ninth places in the table. Finally, the fifth-grade pupils associated quality of life with school and education in 5% of their statements.

In sum, the proportion of internal and external contexts of the quality of life of children is 42% to 58% (see Figure 1). Czech fifth-grade students associate the title of the magazine article with external contexts (in 58 % with the family, life and material conditions, friendship and quality education). Internal contexts of the quality of life are associated with the needs for satisfaction, with their child needs and the needs for health, as well as with relevant life values (42%).

The next section analyses the categories by specific examples of pupils' statements so as to thoroughly understand the results of the first question. In the examples, the letter "G" indicates girls, while "B" is for boys. The number indicates age.

The quality of life that is connected with family often contains concrete examples: "When his father died, he stopped learning. The quality of life is higher when living with both parents rather than with one" (11, B). The description of elements connected with the quality of life does not necessarily

need not contain excellent conditions. Most frequently, pupils confined themselves to expressing the absence of some negative characteristics: "If they are not abused. Or they are not seriously ill" (11, G). When pupils wanted to specify the notion of conditions, they described contrasts: "His life is satisfactory or unsatisfactory; he has a place to dwell in, or no place to dwell in" (11, G). The students expressed their needs faithfully: "Freedom – doing what one wishes" (11, B). Sometimes a specific need of a child was expressed: "That they feel secured. Yes, you have to be secured" (11, B). The students offered positive perspectives on the spiritual aspects and higher values of life: "You are happy, you are free" (11, G). Frequently, they had a moral tone, both with boys and girls. "Children should appreciate things in their surroundings" (11, B). "Each parent should take care of his/her children" (11, B). "Children should not smoke or drink alcohol" (11, G).

In answers to the first question, 351 pupils' statements have been identified. Concerning their content, 10 key categories appertain which have been categorised according to the characteristics they share. The results show that the environmental aspects prevail over the individual ones. All dimensions of the quality of life included in the model (Lukášová, 2010) were represented. First of all, these are the social aspects that relate to the quality of life of children within the family, among friends, and receiving a quality education at school (37% of statements). Next, there are statements concerning the individual aspects of psychological requirements of satisfaction (15%), happiness and the requirement of safety and, surprisingly, also freedom (in total 26%). In these psychological statements, the children's needs for self-realisation and for adequate self-evaluation may be distinguished. Further, higher value needs and ideas of moral aspects of life (7%) as well as the emphasis on bio somatic health were present (9%).

Examples of answers when answering task No. 2: How would you explain the headline "Quality of children's lives" to a peer so that he/she would understand it?

Repetition of task wording:
"Some children may have a bad, normal, or excellent life" (11, G).
"A human being can have a bad, normal, or excellent life" (11, G).

Simple short answers:
"Life" (10, G).
"You have got a family and money" (11, B).
"That he is doing great" (10, G).

A description of several elements that are related to quality of life:
Some answers emphasise that not everything needs to be great:
"They will take care of you better and you will have everything you want; however, it does not always need to be great; there are many contradictions" (10, G)
"That they have what they want and they have parents" (11, B).

Mentioning contradictions:
"The quality of children's lives is different, some of them are better off and some of them are worse off" (11, B).
"For example, somebody is spoilt and somebody is starving in Africa" (11, G).
"How the children are doing, if good or bad" (12, B).

Seeing positive things:
"To have good parents, to visit a good school, nice clothes, many friends, to have what I wish from time to time" (12, G).
"To have the right to our own decision, to take care of some animal to make the child happy" (12, B).

Moralization:
"He must be healthy, he cannot be tortured, he cannot drink alcohol and smoke" (11, B).
"You have to obey, get dressed well; you are not allowed to give up and you must reach your goal" (11, G).

Using comparisons, dramatization:
"When a doll is torn, it is unusable" (11, G).
"I would show it to him by pretending to be conceited so that he would understand it" (11, G).
"I would tell my brother that it is just like being locked up somewhere for your whole life, that it is terrible" (10, G).

Mentioning a personal example:
"I imagine being outside with my friends and with my hamster and laughing" (11, B).
"I have my family, I have a home and toys and I have something to eat" (11, B).
"Mum, dad, brother, I have a place to play" (10, G).

Mentioning a concrete example from the lives of other children:
"Some children are born disabled, and they will live in a normal way" (11, B).
"That the children have their parents, they are not in children's institutes and homes, they are healthy and without illnesses" (11, G).
"I would tell him about the way the children live" (11, G).

Attempts to explain the term quality of life:
"How the child is doing, who its friends and parents are, what its environment for life is" (12, B).
"How the child is brought up, what the child eats, in what environment it lives" (12, G).
"Mum and dad, siblings who love you and devote their free time and love to you, basic things for life, family" (11, G).

In the second part of the findings that concern explanations of the concept of quality of life to a friend, students presented different categories. Unique statements were provided, from which representative qualitative examples have been chosen. The great array of statements with which pupils can explain the concept of the quality of life to classmates have been presented in the answers to the second question. The answers to the third question are displayed in the following graphs. Three subcategories of answers can be distinguished, i.e. a bad life, a normal life, and an excellent life.

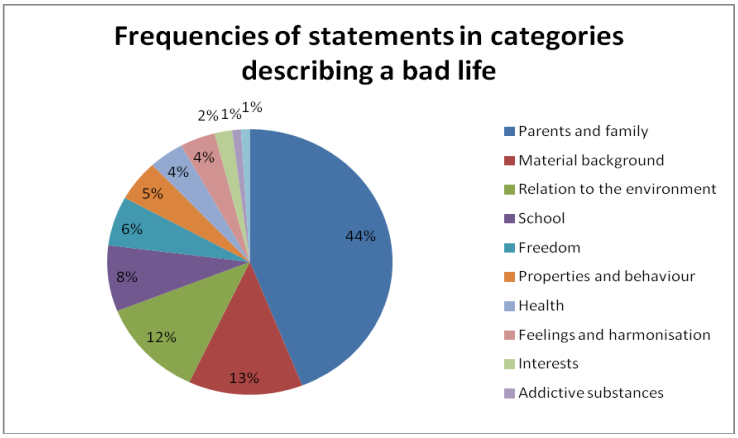

Figure 2. Frequencies of statements in categories describing a bad life.

Evidently, the concept of a bad life for Czech children aged 10-12 is associated with the characteristics of the family. The family and the parents are frequent sources of perception of a bad life by pupils (44%).The frequencies were calculated from 555 pupils' statements.

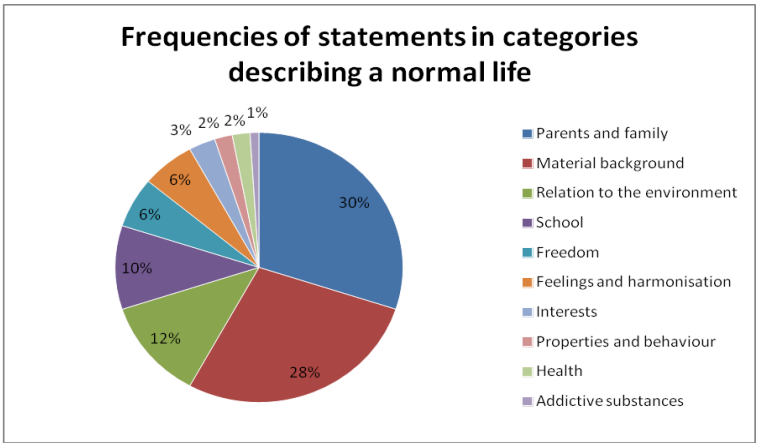

Figure 3. Frequencies of statements in categories describing a normal life.

The family is also the most important factor in pupils' characteristics of a normal life (30%). The results were calculated from 509 pupils' statements associated with the quality of normal life. References to parents were frequent. A normal life is associated with school characteristics. Material provisions play an important role for children (30%) as well as other environmental characteristics of quality of life (12%). A similar percentage of pupils' statements were related to the quality of school (10%).

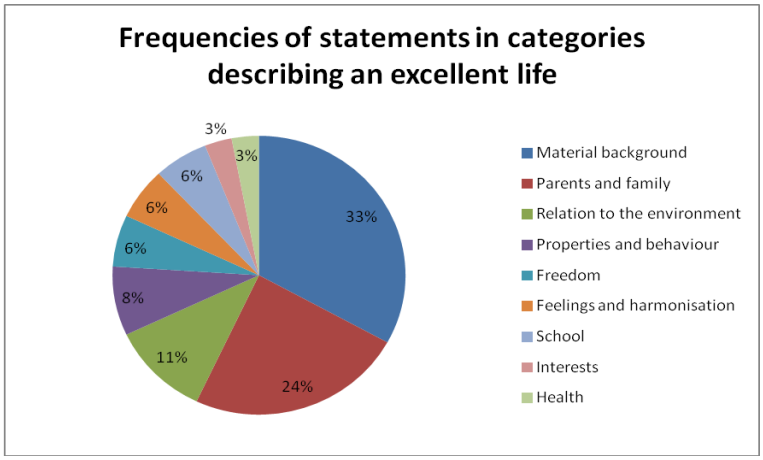

Figure 4. Frequencies of statements in categories describing an excellent life.

An excellent quality of life is represented by 598 statements, which are, however, distributed differently than in the case of previous qualities. First,

pupils connect the quality of life with above-standard material provisions (33%). The relationships within the family are also important for the perception of the quality of life. Almost one-quarter of the pupils' statements was associated with this social quality of life (24%). In pupils' statements, school plays a minor role in the perception of an excellent quality of life (6%).

To illustrate the categories, only those examples with the highest frequencies in the statements were selected.

Responses to the third research question can be summarized into three key answers, illustrated by relevant statements of the Czech fifth-grade students.

- The first finding shows that the social characteristics of the family and parents play a relevant role in conceptualizing quality of life by fifth-graders.

In the categories of bad and normal lives, the pupils' experiences of family life appeared. In answers that conceive of a bad life because of family problems (44% of the pupils), the following experiences were described: "He has bad parents, they beat him, harass him, the parents scold him."; "He has no parents, they died."; "His parents have divorced, he has only one parent."; "She is not loved and has no home."; "They are not interested in him, they do not care for him, they do not worry about him." It can be inferred that the pupils link the quality of life to the quality of a family. A bad family is one which does not support the child, is non-existent, or is incomplete.

As for the pupils' conceptualisations of quality of life connected with a normal life, family (30%) is in the first place. However, the pupils used arguments different from those used in describing a bad life. For instance: "His parents love him, he feels their love."; "She has a family and relatives, she does not live alone."; "She has both her parents."; "She has nice and good parents."; "His parents are interested in him, they care for him, and they create a proper family background."

Concerning the experiences with an excellent life, the pupils rated family second, after material conditions. As many as 24% of the pupils used the following arguments: "She has both her parents and an excellent family."; "His parents love him; he feels their love and care."; "Their parents are interested in them; they care for the children and create a good background at home."; "She has good parents; it is fine even if one has only one parent."

- The second important finding is the appearance of material and environmental conditions in conceptualisations of the quality of life by

fifth-grade pupils. These play a major role in their descriptions of an excellent quality of life.

Material conditions are the main factor connected with an excellent quality of life (33%). The most frequent arguments: “Rich parents have a lot of money, enough finances, and good jobs.”; “The pupil receives whatever he wants from his parents.”; “They have luxurious holidays, take trips, and enjoy other fine events.”; “She has plenty of toys and branded goods.”; “She has a large, even unlimited, allowance.”; “They possess a house, villa, swimming pool, estate, and an expensive car.” Arguments that advocate a normal quality of life were made by 28% of the pupils. Examples of their statements are as follows: “They do not have an abundance of things, nor a lack of them.”; “She has a lot of things, adequate to her needs.”; “She has enough money, as much as needed; her parents earn good or average salaries.”; “She lives in a flat and has a room of her own.”; “She has nice meals and drinks.” Concerning a bad quality of life, 13% of the pupils associated it with an unfavourable material background. For instance: “She has little or no food and drinks and has unfavourable living conditions.”; “She has no money or toys.”; “She has dirty clothes or not enough clothing, or her clothing is worn out.”; “She has no home, she is homeless.”

The relationship to the environment was rated third of the three qualities of life that were described. Concerning a bad quality of life, the pupils emphasised relationships with friends (33 statements out of 65): “She has only a few friends or none at all.” As many as 45 statements out of 64 were associated with a normal quality of life. “He has friends, he has a few very good friends.” The same applies to the excellent quality of life. “He has many friends. He has a lot of good friends.”, “His friends love him, he is popular among his friends, he is a good team member.”

- The third important finding concerns school and education, which play important roles in the pupils’ conceptualisations of the quality of life.

The final interpretation concerns the category of school, which interestingly appeared only with characteristics of a bad and normal quality of life. For example, pupils presented the following characteristics related to a bad quality of life: “Pupils have bad marks; they are slow at learning.”; “They are admonished by the teachers, they forget to bring learning materials to school.” Concerning a normal quality of life, the statements were, “Pupils have good marks; they are good at learning.”; “The pupils learn; they are of average intelligence.” These statements demonstrate how important success at school is for the pupils’ quality of life. As far as the excellent quality of life is concerned, the school plays only a minor role; it was ranked the seventh place.

4 Discussion

In pedagogical theory, the quality of children's lives is a concept with a number of meanings. It includes qualities related to bio-psycho-personal, social, and spiritual aspects of life. Therefore, it is important that future teachers should understand all these aspects and use them in their everyday practice.

The results of this study show that for the Czech fifth-graders, especially the aspects of their psychological experience of life, their satisfaction, and experiencing happiness are important. Furthermore, the social context of the quality of life is clearly significant, with the emphasis on family conditions and relationships with parents.

The data on the conceptualisation of material aspects of the quality of children's lives are interesting because only 13% of all the statements were related to a bad life, whereas 28% of statements were related to a normal quality of life, and 33% to an excellent quality of life.

Only 11% of children provided answers to the research stimulus: *When you see the headline "Quality of Children's Lives" somewhere in a magazine, what do you yourself imagine by this phrase when you think of it a bit?*

5 Conclusions

The obtained empirical results of the research into the quality of children's lives give a strong motivation to continue the research and expand upon it (Lukášová & Mareš, 2014). The decision to use open questions as the data-gathering method seemed to be appropriate because the children understood the task and described the quality of life of someone else, as well as their own. In agreement with the study of Mareš and Neusar (2012), the first two questions were somewhat more difficult to answer than the third one. However, the pupils did produce high quality answers. In the future, it will be important to take into consideration the limits of the data-gathering methods used in this study. Mareš and Neusar pointed out that even a small change in the instructions during the administration of the questions may affect the pupils' answers. The same warning can be found elsewhere in literature (Tourangeau, Rips, & Rasinski, 2000; Sudman, Bradburn, & Schwartz, 1996).

Furthermore, the fact that the pupils originated from certain localities (the northern Moravian cities of Ostrava and Orlová) might have affected the answers and the study outcomes. So, there is a question about the generalized ability of the answers to pupils living in smaller towns and villages, or in cities in other geographic areas of the country.

No large differences were detected between boys and girls. The girls only produced more moralised answers than the boys. They wrote what should or should not be a good quality of life and how parents and children should behave. This is more typical in their answers to the first and second questions.

The children wanted to have parents with whom they feel fine and to be cared for, have at least average school marks, have a place to stay, meals, and some friends. Health is considered a "gift," and for this reason it appeared infrequently in the children's statements.

In contrast to the expectations, school and instruction did not play a decisive role in the children's statements. The positive experience of receiving good marks is important for them because it symbolises academic success.

Children are realistic and they know that a normal life also brings some inconveniences. Bad things usually contain a drop of good things and vice versa. They admit that a life with even one parent can be excellent. Mareš and Neusar (2012) stated that a more detailed analysis can reveal that an excellent life can also include some negative characteristics, e.g. being spoilt. This phenomenon was the focus of a study by Lukášová and Hasalova (2012), in which drawings and interviews were used to analyse the negative characteristics linked to an excellent quality of life. The results were also published in the study by Lukášová and Mareš (2014).

Even though the number of studies on the quality of life of children has increased recently, Rapley (2003) and Mareš and Neusar (2012) are still correct that more research is needed in order to learn how exactly the quality of life is interpreted by children and how research questions should be addressed to them. Even so, this study demonstrates that the Czech fifth-grade pupils, aged 10-12, are able to answer questions concerning their quality of life. Their statements may serve for their teachers.

When comparing the findings of this study with the model of pedagogy of care in which 9 categories of the quality of well-being in the lives of young children were identified, similarities can be seen in nine components: "senses of well-being" are specified that are synergistic, contributing to and dependent upon one another, which together, are requirements for overall well-being" (McMullen, Buzzelli, & Yun, 2016, pp. 262-263).

Categories that summarized the findings originated from the statements of Czech fifth-graders (11-12 years of age). This proves that children are able to distinguish even mild details in the quality of life within their families, in their relationships to parents and in association with the material and environmental

conditions of life. On the other hand, the pupils did not consider the relationship between quality of life and school important.

International studies have argued for the development of curricula with characteristics that increase the quality of life of young children (see Barnes, 2016). This study adheres to these challenges.

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ARTICLES

The Guerrilla Literacy Learners Project: Development of Literacies through Informal Learning

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Abstract:
Introduction: This paper deals with the options of non-formal education and, partially, a set of literacies developed within informal learning, which an individual should be equipped with in order to succeed in life in the contemporary society. At the beginning, there is a mention to the nature of learning and knowledge of society in the context of lifelong learning.
Purpose: The aim of the paper is to analyse and explain non-formal education in contemporary society of knowledge and, subsequently, to provide examples of its use when developing operational literacy. This literacy can be defined as an individual's ability to be nimble, proactive, and responsive to various life situations.
Methods: The paper serves as an overview study of the subject. For a literary analysis, the methods of comparison and content analysis were used with examples of good practice at the end.
Conclusions: At the end of the paper, one can find an example of the international project "Guerrilla Literacy Learners" the goal of which is to find innovative strategies for informal learning and to develop a methodology that would support the development of literacy and active knowledge of a foreign language by using modern teaching resources, such as ICT, visually attractive materials and adequate methods – MOOC and blended learning.

Key words: knowledge and learning society, literacy, non-formal and informal learning, lifelong learning.

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1 Introduction

At the beginning, there is a need to mention the concept of the knowledge society and the differences between education and information society as presented by individual authors. Later, the text deals with the position of informal learning among the contemporary educational strategies. The concept of knowledge society is based on Bell's theory of post-industrial society, which, in its development, distinguishes between the pre-industrial, industrial and post-industrial phases. For the post-industrial phase, the services sector and information sharing are crucial (Bell 1973; Dopita, 2010). Not theoretical but applied knowledge dominates here (Šima, 2006). In the post-industrial society, the main issue is the organization of science, with university being a leading institution. Science becomes an independent and distinct activity. As reported by Reich (1992), in this type of society, which is booming and the use of ICT is present there, information replaces physical capital and thus becomes a key strategic resource. Information literacy is becoming an essential part of education and the level of its mastery then affects the state of social structure to a certain extent. The economy is based on the distribution and use of information – knowledge; we talk about the so-called super-symbolic economy (see Toffler and Toffler, 1996; Kolomazník, 2000). Information is a specific product of culture, tradition, economic and educational policy of each country.

2 Knowledge and Learning Society

The European civilization is based on the concept of science as an independent and distinct activity (Cílek, 2008). Knowledge society is a concept that the European education system is trying to reach. Knowledge in national education systems is produced, distributed and applied in a specific way, which tracks the culture, traditions, education policy and economic status of the country (Petrusek, 2007). The notion of knowledge society that was firstly used by Peter Drucker (The Landmarks of Tomorrow, 1959), is gradually emerging in political documents of international and state organizations. The creation of knowledge society has become a political objective of developed countries (Šima, 2006; Veselý, 2004). Knowledge society is understood both as a society, where the aim is to achieve education and the type of society in which "knowledge becomes the dominant productive force" (Veselý, 2005). The concept of lifelong learning should contribute to achieving this stated objective. The idea of lifelong learning is enshrined in the basic documents of the European Union, which form a general framework for setting educational policy strategies of the member states (White Paper on Education and Training, 1995; Delors, 1996).

The framework of the curriculum should be based on general competencies and specific multidisciplinary, interdisciplinary and disciplinary competencies:

- Learning to learn and to think;
- Learning to communicate;
- Learning to live together;
- Learning to be oneself;
- Learning to do it and initiate/undertake (Tawil & Cougoureux, 2013).

The concept of lifelong education/learning in the context of the priorities of the educational policy of the European Union does not apply only to the individual activities of individuals, but extends its effect to the whole society in which individuals are motivated to lifelong learning. The aim is to create a learning society, in which every individual should have the ability/competence and motivation to learn throughout their whole life. Lifelong learning, apart from adult education, also includes children and youth in schools and extracurricular education, formal and non-formal education outside the school. According to the EU, lifelong learning is a tool for social inclusion, it should serve to reduce social inequalities in the society, reduce unemployment and increase competitiveness in the labour market. In a broader perspective, a higher level of education in society should bring the development of democracy and civil society in terms of active citizenship and community development/life. Therefore, it is obvious that the individual and his/her needs must become the centre of attention in education (European Commission Memorandum of 30 October, 2000 on Lifelong Learning). The system of all forms of education should be as open as possible and should be based on the use of all the available methods and means leading to successful in the learning process. "Lifelong learning should be the key to social integration and equality" (European Commission Memorandum of 30 October, 2000 on Lifelong Learning).

In the Czech Republic, there are efforts to achieve the status which can be seen in some political activities, as well as in activities in schools and in those performed by teachers, academicians and professionals.

Currently, we promote the concept of inclusion of pupils with special educational needs in regular schools, but these efforts do not meet with a positive reaction mainly on the side of teachers and schools that typically do not have sufficient funds and adequate staffing as for special education teachers or teaching assistants.

Experts from Palacký University in Olomouc prepared a collaboration with the non-profit organization "Člověk v tísni" (People in Need), a program of inclusion for the Czech Republic, being implemented to Czech schools since the academic year 2016/2017.

It is a two-year project called "Systemic support for inclusive education in the Czech Republic". From the perspective of the research team (almost 600 writers, teachers, guidance counsellors, directors, officers, regional and municipal authorities and others), the past period has brought many interesting experiences (see http://www.inkluze.upol.cz/portal/ and https://www.clovekvtisni.cz/en).

In the field of non-formal education, in the Czech Republic, there is an emphasis on the wide range of extra-curricular activities for pupils of younger and older school age and adults, for example, in sports Sokol (Falcon), Orel (Eagle), etc.; arts; culture; or leisure activities in natural sciences and technology. Also, there are traditional tourist clubs, such as Skaut (Boy Scout) and Pionýr (Pioneer). Basic art schools with the fields of music, dance, art and drama and language schools have a long tradition in the Czech Republic. Since 1989, associations and private subjects alongside state institutions play a role in non-formal education.

The concept of lifelong learning reflects both the theories of adult education and biodromal or social education, and, practically, the implementation of adult lifelong learning, retraining courses financed by government, corporate or private agencies. In the field of education, we talk about training teachers to enhance or supplement their qualifications.

A learning society and lifelong learning have been the most important aims since 1996, when the document called "Learning: The Treasure Within" was published: "With the lifelong learning paradigm set as a backdrop, the report is based on four key pillars underlying education and life: learning to know, learning to learn, learning to do, learning to be, and learning to live together" (Delors, 1996). Another significant illustration of the influence of the four pillars of learning on curriculum development is in the area of Education for Sustainable Development (ESD). Indeed, the four pillars outlined in Delor's report have been used in the ongoing work – coordinated by the United Nations Economic Commission for Europe – to define ESD competencies required by educators (Tawil & Cougoureux, 2013). The aims for lifelong learning were formulated in the Köln Charter: Aims and Ambitions for Lifelong Learning (1999).

Changes in the current educational reality have been summarized by Orr, Rimini and Van Damme (2015) into six key educational challenges:

- Fostering the use of new forms of learning for the 21st century.
- Fostering teachers' professional development and engagement.
- Containing public and private costs of education.
- Continually improving the quality of educational resources.
- Widening the distribution of high-quality educational resources.

- Reducing barriers to learning opportunities.

In reflection of these changes, teachers and pupils have new opportunities for the use of non-traditional and modern, new forms of learning methods and strategies for effective learning.

Also, open educational resources should help this purpose. "OER offer the possibility of reducing these costs through developing, sharing and updating resources costs more effectively. The dynamics of knowledge society leads to three challenges for educational resources: they must reflect new developments in the subject area they cover, they must reflect new learning theories in order to better support high-quality learning, and they must be fit for purpose for the expected learning outcomes and the heterogeneous group of learners who are using them" (Orr, Rimini, & Van Damme, 2015).

The paradigm of the relationship between teachers and pupils changes here. In the contemporary constructivist approach to learning, the aim is a self-directed learning, in which teachers help pupils by mentoring, tutoring or coaching. The intensity and extent of teachers' assistance depends on the pupils' age – first you need to show the way to learning to the children, to support their curiosity, and then teach them to learn and benefit from modern means, such as ICT, visually attractive materials and adequate methods - MOOC, blended learning etc. (see Jůvová et al., 2015).

According to the theory of social constructivism, the teacher helps to create and construct educational reality by organizing the educational environment and external educational conditions. An individual acquires knowledge by subjective, personal life experience, in everyday situations and in social interactions of everyday life in the society.

The personality of a modern teacher plays an important role here. Such a modern teacher:
- has perfect theoretical preparation,
- is oriented towards the practical aspects of education,
- is progressive in education (Jůvová et al., 2015).

It is, therefore, a substantial change in the interaction between teachers and pupils towards (self)learning management, with an emphasis on high quality teaching communication between pupils and teachers, creating a positive educational climate, intense motivation for learning using ICT and all the opportunities provided by informal learning.

3 Literacy and informal learning

Informal learning has an important role in the process of lifelong learning. We talk about informal education if it is a doctrine that is not institutionally anchored and unlike formal or non-formal education, it does not lead to obtaining a certificate of knowledge achieved. This type of learning can take place at any stage of life of an individual, at any place and in any environment. Depending on whether the individual is aware of the fact that he/she acquires new knowledge with a specific goal or intention or not, we distinguish between intentional and unintentional informal learning (see Rabušicová & Rabušic; Straka, 2009).

It is a parallel process that takes place in all stages of formal and non-formal education simultaneously. At the school level, it is a part of the so-called hidden curriculum, in which education takes place outside the official framework. Any act of communication by the teacher or the dynamics of informal relationships associated with the exchange of information between all actors in the process of education (pupils, teachers, family and community), can be included here. The concept of informal learning is one of the key concepts of educational policy of the European Union and national policies of the member states, including the Czech Republic. "Informal learning is a natural accompaniment to everyday life. Unlike formal and non-formal learning, informal learning is not necessarily intentional learning, and so may well not be recognised even by individuals themselves as contributing to their knowledge and skills" (European Commission Memorandum of 30 October, 2000 on Lifelong Learning).

Although the documents of the European Union (European Commission Memorandum of 30 October, 2000 on Lifelong Learning) include informal learning, together with formal and non-formal education, among the three core areas of education policy, for an individual, it is not possible to determine its quality or to assess the extent and nature of thusly gained new knowledge or skills.

We need to ask some important questions, such as how the potential of informal learning can be used for the benefits of the society and individuals; and whether it is possible to achieve through not only the expansion of the cultural capital of individuals, but also by contributing to a better labour market. To achieve that, one must create a uniform definition of the concept of informal learning, to determine its quality indicators and determine the procedures for evaluation. We believe that due to the very nature of informal learning, it will be a complicated process with an unclear outcome. It should be emphasized that informal learning does not provide a comprehensive and systematic review of the evidence given in science disciplines or in other fields of human activities. Providing

information may be random, chaotic and does not need to provide skills that are essential for a deeper understanding. In the reflection on current events, we come to the conclusion that informal learning may be the basis for social pathology of the individual. Nevertheless, we must pay a close attention to informal learning, as it offers a considerable potential for lifelong learning and is an important addition to formal and non-formal education, the results of which can be positively influenced.

4 Guerrilla Literacy Learners Project and Operational Literacy

"Our future depends upon people, skilled people."

Marianne Thyssen

Considering all the above-mentioned possibilities, there are new concepts emerging for the use of informal learning in normal school education. One of them is the Guerrilla Literacy Learners Project (GuLL), part of Erasmus+ KA2.

The international Guerrilla Literacy Learners Project (GuLL) concentrates on a student-centred approach which helps language learners improve their language acquisition skills. It focuses on identifying hidden policies, and on searching for new methods in the process of foreign language learning. Apart from qualitative and quantitative research probes made, there are important elements, such as storytelling, the methodology of work with errors and intervention in favour of motivation to learn foreign languages.

As clear from the Global Monitoring Report Education for All: Teaching and learning: Achieving quality for all (UNESCO, 2014), there is a current global crisis of education where 250 million out of 650 million primary school children are not taught basic literacy skills in Western Europe, however, 96 % reach 5th-grade level reading skills. Nevertheless, Europe is confronted with a very large group of students who are unable to acquire basic literacy, while one student of 15 in the population aged 15 years old still cannot read properly (UNESCO, 2014). What is more, more than 70 million adults in Europe have poor reading, writing, numeracy and digital skills (Thyssen, 2016). In the Czech Republic, the percentage of literacy is around 99% – in the international PISA comparisons. PIAAC in the Czech Republic is above average values (Simonová, 2010; OECD, 2016).

Early school leaving is another problem, when many students stopped studying, although they could have become very good professionals in various fields. As a

consequence, teachers and researchers are looking for new ways of teaching basic literacy skills.

Literacy used to be taught from functional to social and critical literacy with the presumption being that you need the operational literacy to be able to participate in the society. The modern society, however, sees citizens who are socially and critically literate without being operationally literate. "Literacy programmes usually allow individuals to acquire knowledge and skills through a variety of activities, promote informal learning, and encourage people to make and follow their own educational plans. In order to create the scope for literacy practice and for acquiring life skills, access to information and organisation of community development, and activities with local initiatives should become the major focus of literacy programmes" (Alam, 2004).

Operational literacy can be defined as an individual's ability to be nimble, proactive, and responsive to various life situations. All these changes provide challenges to literacy learning and, thus, call for a new didactical approach. "As well as supporting broader social development, people rightly expect that their education and training will help them to get a good job" (Thyssen, 2016).

"The common task for schools, families and the community is then to prepare children for life as successful active persons/citizens, thus, to develop and cultivate flexibility and resilience of children for being able to respond adequately to diverse life situations and social changes brought by the development of technology and science and the related differentiation of the society. The point is to find an identity and a satisfactory way of life that corresponds with the aim of achieving a high quality of life" (Jůvová & Bakker, 2015).

GuLL switches from how learners should learn to how they actually learn, thus, embracing the European recommendation that if students fail to learn, teachers might want to teach in a different way. GuLL asked learners to reflect upon the unorthodox links (Guerrilla patterns) they make and then remediate it.

GuLL embraces an evidence-based approach linking learners' and teachers' experiences to academic research on literacy and, therefore, it offers a three-pronged trajectory:

- It empowers learners by coaching them into autonomous learners.
- It improves the teaching practice by connecting it to non-formal and informal learning.
- It creates an inclusive language learners' space as GuLL organises these learning steps in MOOC and Facebook groups.

The methodology and the concept of the project are based on the knowledge of social and educational constructivism, on a deliberate approach to pupils and the use of less traditional teaching methods. These include the method of graphic facilitation/custom design, motivating students to create short video clips and their activation through narration or creative writing.

The outputs of the project include a project website (www.pleasemakemistekes.eu) and knowledge-clips in which the basic problems teachers may face in education are referred to through the narration. Besides school education, these products can also be applied in schools or public libraries. Library staff can find new and interesting ideas to support effective formal and non-formal language learning for different age groups, either through workshops or through online activities.

5 Conclusions

Through the activities and outputs of the GuLL project, each individual has an access to non-conformist ways of new knowledge and literacy acquisition not only in learning but also in gaining the necessary confidence in communication in a foreign language.

This article is dedicated to Project Erasmus+ KA2 2014-1-BE02-KA200-000472 Guerrilla literacy learners (GuLL).

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Gaming Methods in the Management Teaching at Secondary Schools

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Abstract:
Introduction: The paper deals with the design of gaming methods for teaching Management at secondary schools and the importance of using effective games in the process secondary education.
Methods: The authors analysed and summarised the relevant findings collected during the fifty-year history. For the purposes of the investigation, a questionnaire survey was carried out between April 11, 2016 and April 22, 2016. Finally, interviews with teachers were conducted.
Results: Specific gaming methods for teaching Management were implemented in classrooms which helped to identify the strengths and the weaknesses of the gaming methods.
Limitations: The limits of the survey were given by the small number of respondents (100) and by the fact that only 6 questions were asked.
Conclusions: The gaming methods are attractive not only for pupils and students but also for adults and represent one of the most attractive teaching methods. There is a connection between gaming methods, didactics and andragogy.

Key words: gaming methods, economical subjects, management.

1 Introduction

Nowadays, the ability to adapt, to be dynamic and to be able to learn new things are important factors. In times, when information technology is developing, everything is changing constantly. Usually, we are lack of trends in neighbourhood or we do not understand them. Organizations change, increase or disappear, arise branches, mergers or amalgamation of organizations, new

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information systems are implemented. Especially for school management, it is not easy because of the innovative and proactive behaviour and the use of modern techniques and new tools for colleagues and employees. Everybody has a unique mix of features and capabilities.

It turned out that the most effective way of learning is in the form of gaming (Horčička & Jelínková, 2013; Svetlíková, Zelina et al., 2014). But this game is not an ordinary game. Normal games possibly amuse some interesting facts. The principle of the application of the gaming method is quite similar to that of traditional games but contains some distinguishing features.

Gaming methods are not exhaustively defined in the system of didactic methods. Elements of games can be exposed into many didactic methods which are classified by various factors. "Games" occur, for example, in the didactic methods of a simulation, role play or problem solving, etc.

The output of this paper is the answer to the question whether we can use gaming methods for improvement in Management teaching with specific economic subjects in secondary education. Our intention was to suggest specific gaming methods that can be used for the purposes of teaching Management. We applied them during lessons at secondary schools and evaluated them based on interviews and questionnaires administered to students. Then we identified the strengths and weaknesses of gaming methods and validate their application in secondary education.

2 Methodology

The concept of the specific gaming methods was preceded by an analysis of information sources which describes gaming methods and their principles with an emphasis on learning and education with regard to the specifics of economic subjects. We used an analysis and summary of relevant findings which were collected during about the fifty-year history of gaming methods by the scientific community. In this area, we mainly focused on the validity of using gaming techniques as alternatives to traditional teaching methods (lectures and case studies). After the elaboration of this part, we were able to estimate using games and gaming methods for specific purposes. We specifically meant the suitability of gaming methods as a tool for teaching specific knowledge and skills.

We found only a little information on the issues of gaming methods in Czech secondary education. We have to use mainly professional articles written in English which are concerned with this topic.

Through the use of a questionnaire survey, we could identify whether games and gaming methods are attractive not only for students but also for adults. By this step, we wanted to make sure whether it is appropriate and relevant to propose the inclusion of gaming methods into contemporary secondary education. The questionnaire survey was carried out between April 11, 2016 and April 22, 2016 on the sample of 100 respondents. The goal was to determine if respondents like games which develop their skills and thinking. For administration of the questionnaire, we used www.vyplnto.cz. This questionnaire contained six questions.

In the form of interviews with teachers of economic subjects, we investigated the possibility of using gaming methods in these subjects in light of the terms of time, demands on the preparation, applicability and legislation. In this context, we formulated the following key questions:

KQ1: What is the significance of games in secondary education? What is the role of games in secondary education?
KQ2: How effective are the games used in the process of secondary education?

Respondents were pre-selected and approached with the request to participate in the qualitative survey. There were 5 qualitative interviews with 3 male and 2 female respondents.

The result of this paper is the design of gaming methods for teaching Management which were implemented in the classes. In our questionnaire survey for students, we identified the strengths and weaknesses of those methods in education. The survey was realized personally in April, 2016.

3 Gaming methods as important tools in education

A strong stimulus to use games in schools comes from psychology and research about the principles and importance of games in education (Čáp, 1997; Fontana, 1995). The positive effect of games as spontaneous activities resulting from the satisfaction of natural needs and interest of adult humans (spontaneous learning "out of curiosity"), is also beyond question.

The game theory contributes to the knowledge about games as multipurpose activities which serve to satisfy many different needs of children and promote their development in every aspect. The recognised Greek philosopher Plato was one of the first who realized the practical value of games. Plato, in his "Laws", provides practical advice on how to encourage small children to play games.

Theoretical considerations about games and their essence appeared, with some exceptions, as late as in the 19th century. Maňák (1997) indicates that also the Czech teacher, theologian, philosopher, social and religious thinker, priest and writer J. A. Comenius was a promoter of the idea of using games in school education through his work "Schola ludus". His approach emphasized that children are naturally active in the framework of learning. The English philosopher Herbert Spencer (1820–1903) believed that children play to the moment they are completely out of energy. He assumed that unusual verbal games during the day help children discharge energy. Instead, the German psychologist Karl Gross saw that a game is a kind of a functional exercise where a small child (like an animal cub) is preparing for future development. The Viennese physician and psychiatrist Sigmund Freud (1856–1939) discussed the importance of games in the early 20th century. He saw the opportunity to tap deep into personality by means of games, to learn about one's wishes and interests. He used games as a method for treating mental illness as well. Based on the assumption that human expressions and behaviour are determined by the amount of pain or pleasures bring, individuals repeatedly seek for pleasant experiences and try to avoid the unpleasant ones. During games, human behaviour and conduct do not have to conform to any external rules, they are motivated by the desires of the individual" (Freud, 2016). Freud also assumed that the game activities of children reflect their wishes and conflict directly or indirectly in symbolic action (Geoffrey, 1996).

A significant contemporary theory of game is represented by the theory of the Genevan psychologist Jean Piaget. He connects child's play with his/her intellectual development (Piaget & Inhelder, 2014).

The Dutch historian Johan Huizinga (1971) wrote that the purpose of games is, for example, to discharge energy, to practice those activities which will be operated seriously or provide vicarious satisfaction of desire which cannot be fulfilled in fact. According to Huizinga, a game is a kind of similarity or other facility to Freudian displacement (in this role, it would rivall with dreams). Huizinga, in his book Homo loudens (The Origin of Culture in the Game), set several characteristics which are topical even today:

- the game is a free negotiation, nobody can force me to play,
- it is the reflection of ordinary life in a temporary sphere of activity with own tendency,
- the game is closed spatially and temporally bounded,
- it is possible to repeat the game – the whole game or a part of it,
- the game has specific rules and regulations,
- in the game, rhythm, harmony and tension can be found.

According to Huizinga (1971), games, as for their form, can be characterised by freedom of action as the activities stand outside the ordinary life, they do not bring any material interest nor any benefit. Games take place in time and space, are based on certain rules. They enrich the life of a social group which likes to surround itself by secrets. Games are played for each other and the group escapes from the real world.

We cannot agree with this definition and with the fact that nothing can be achieved by the application of games. By means of games, it is possible to practice a variety of skills (motor skills, memory, and creativity), and to simulate a variety of real life situations. One of the aims of games is to relax. Games increase the intensity of life and enrich human beings as personalities. By means of games, we can gain new experience and enrich our own lives.

It is necessary to appreciate the importance of games in teaching of children and give them a thoughtfully official space in school work as being an important educational resource. A game is an activity which entertains and is based on the intrinsic motivation of students that we need to promote. In contrast, learning and work are only forms of secondary motivation (Kalous & Obst, 2002; Kukal 2005; Sárkozi, 2005).

The authors of Pedagogical Dictionary – Průcha, Walterová and Mareš (1998) define a didactic game as an analogy to children's spontaneous activities with educational goals (for students it is not always obvious). It can take place in a classroom, in the gym, on the playground, in the village or in the countryside. The game has rules and requires management and final evaluation. It is designed for individuals as well as for groups of students. Educational leadership includes a wide range of roles from the role of the organizer to the role of the observer. The advantage is in awaking the interest in increasing the involvement of students in activities undertaken, stimulating their creativity, spontaneity, promoting collaboration and competition, forcing them to use different knowledge and skills, and to engage life experiences. Some educational games are similar to real life model situations.

According to Ďurič (1979), a didactic game is "a game with an educational goal". The goal of a didactic game is to develop the cognitive processes and intellectual abilities of a child and to expand his/her knowledge in an amusing way. The structure consists of the roles, activities and the rules of the game. The role of a game reflects the didactic summary and particular objectives, the form of activity which a didactic riddle should solve. Being entertaining and the attraction of activities are essential requirements. Games motivate children to solve didactic tasks; a game is not a didactic game without them. The rules of a game contain specific requirement for the activities which make them more

attractive and enjoyable. Compliance with the rules increases the efficacy of didactic games. Didactic games are designed especially for the purposes of pre-school education but in their modified form, they can be massively applied in schools with older students and adults.

4 Didactic games as teaching methods

Lately, many innovative trends have emphasized the importance of the game as a teaching method. Using games for educational purposes has a long history (Montessori, 2014). Consistently, teachers use them at primary schools; they include them into the educational process with the goal to promote pupils' interest in learning and new knowledge (Skalková, 2007). Based on the efforts to introduce alternative approaches to teaching, this method has been applied more frequently in recent years. By the implementation of games, it is possible to solve common and complex learning tasks with students as games represent a strong motivation and stimulus for them` thanks to which they are able to mobilize their cognitive potential (Patersonová, 1996).

For teachers, preparation of classwork, in which the method of games is implemented, requires careful planning and considering the functional aspect, organization, content, material security, preparation and formation of students' groups. The game has its own place in all subjects. This is, of course, the didactic game but disturbing didacticism can be easily wiped in such games. (Rosecký, 2003).

It is undoubtably beneficial if a teacher uses a catalogue of games for his teaching subjects. In this card catalogue, he/she could sort the games according to certain criteria. He can sort them, for example, based on the impact of games on the development of creativity. In light of the impact of games, we distinguish between games that affect mobility, fluidity, originality and creation, design, production, organization, transformation, ability of novel expression, implementation, translation and transposition, combination, decision making, customization, and organization. There can also be exclusively methodical aspects (Kalous & Obst, 2002).

In professional literature, we can find a variety of educational games, for example various quizzes, competitions, or problem solving tasks – treasure hunt, searing for the tomb of the Pharaoh, Jumanji, and Scrabble (to make as many words from letters as possible). It provides a kind of cognitive training in general (this can also include free games – constructive and thematic) or is specifically focused on the acquisition, repetition and practice of the relevant curriculum (educational games and simulation).

Didactic games have a firm place in school education and represent a useful tool for teachers who do not perceive them as a waste of time. They recognize that appropriate classification reduces energy consumption to a great extent – mainly in the process of repetition and practice of the educational content. Didactic games contain the important element of self-realization in cognitive activities. Students learn to follow rules in the process of both didactic games and other games with rules. They support their socialization and lead to self-control. Teaching and cognition go through peacefully and with spontaneous interest which is important. In games, the culture of adult life is applied. Students have the opportunity to learn to deal with people throughout the game (Evangelu & Fridrich, 2009; Gentry & Burns, 2003; Hagoort, 2009).

The results of a game used as a didactic method always depend on the classroom climate but also on the creativity and the organizational skills of the teacher (Tamášová & Geršicová, 2014).

5 Outcomes and findings of analysis

The results of the questionnaire survey can be concluded that the participants would recommend to use the gaming method in secondary schools. This fact means that gaming methods are unlikely to be rejected. Whether the players' improvement is realized or not, the players would surely enjoy the games developing their skills.

Further interviews were conducted with the teachers of economic subjects. In its basic form, the scenario of the talks dealt with the question on the nature and benefits of secondary education from the perspective of the respondents. Further, we were interested in which kind of games is the most popular among students. Examples of games bring a concrete contribution to the development and education of students in secondary schools. The last question (according to the predetermined outline) was asked about another area of secondary education which should be used mostly in relation to gaming methods.

We noticed that the inclusion of gaming methods in secondary education was generally perceived as very important by all the five respondents. Specifically, games were referred to as offering the opportunity to solve problems from a different perspective, then as enriching the learning process. For example, the fact that games lead to an effective acquisition of new competencies or the detection of hidden personal qualities and skills, were considered the benefits of the method. Using games also showed other roles and behaviours and lead to the promotion of cooperation and defining the roles within the team.

Based on the findings above, we decided to design specific gaming methods which we recommend to include in teaching Management in secondary schools.

6 Concept of gaming methods for management teaching

Below, there are some examples of gaming methods which we implemented in the course Management in secondary schools (an advanced subject field). Those gaming methods are described in detail in Max.

1. *Mind maps:* A mind map is suitable for repeating and deepening knowledge on planning, setting goals and priorities in the work of managers.
   Process: the teacher writes in the middle of the board DETERMINATION OF PRIORITIES. Students say everything what they know about the notion. The teacher writes everything on the blackboard and, together with the students, makes connections in the mind map. Students actively improve their knowledge, visualise it, classify their knowledge systematically and discover new contexts. The teacher can change the key word, for example, for TIME MANAGEMENT or PLANNING THE TIME OF A MANAGER.
2. *Brainstorming:* Brainstorming within the frame of the theme "Communication and presentation skills of a manager".
   Process: For students, the objective is to detect a variety of communication competences of a manager. Another objective is to get to know how to communicate with each other. They use their current knowledge. The teacher encourages and motivates students to be creative, open and active. First, students work individually (each student writes his/her proposal within 5 minutes), then they discuss their ideas with other members of the group and then present them in groups to each other. The role of the teacher is to organize the ideas of students, and to define other key communication skills of managers together with students.
3. *Venn diagram:* Venn diagram in the frame of the topic "Monitoring and controlling".
   Process: The task is to compare two terms: monitoring and controlling. Students draw two intersecting circles. In the first circle, they briefly write the characteristics of monitoring, in the second one those of controlling. In the intersection, there is a space for the common features. Students work individually or in pairs and then present their results to the class and the teacher. They define the common features and the differences between both terms together.
4. *Cube method:* The Cube method in the frame of the topic "Corporate culture - structure, level, formation and change".
   Process: The teacher introduces students the topic of "Corporate Culture" (determined roll of the cube). The task of students is to write about the topic

within 2-4 minutes as it gives an instruction that "fell" on the block "1" describe, "2" compare, "3" associate, "4" analyse, "5" apply, and "6" argue. An example of the topic:
DESCRIBE: corporate strategy – what it is and what the function of the company is;
COMPARE: corporate culture and corporate image
ASSOCIATE: sanctions and bullying at the workplace;
ANALYSE: assumption making and changes in the corporate culture, corporate values, norms, symbols, patterns of behaviour, manners of company employees, company reputation;
APPLY: principles of a healthy corporate culture in schools;
ARGUE: why to create a healthy corporate culture.

5. *Roundabout:* Roundabout in the context of practicing and repeating the topic "Stress of a manager at work, how to face it and how to cope with it".
Process: The teacher divides the class into two groups. One half of the students is sitting on chairs arranged in a circle. The second half of students forms a circle around them – they face out of the circle. Students sit in pairs and keep an eye-contact. Subsequently, the students in the inner circle are "visitors" and those in the outer one are "guests". Visitors are invited by the teacher to move to the next group in clockwise direction. After a certain period of time, the outer circle moves one step, so everyone gets a new partner. The role of hosts is to share information with new visitors. The discussions in the original composition give new information for the teacher. The visitors ask the hosts and inform them about new knowledge which they gained in the previous composition. After some time, visitors are asked to move to another group again. The hosts remain in their places. This process continues until the original group is formed again. The original members of the group discuss together again in the context of new knowledge which they acquired during the entire of carousel.
It is essential that teachers instruct students on how to implement this activating method. Students are divided into halves, then groups and circles. Each group enters a set of starter questions and comments on the papers. The teacher asks groups to process the questions quickly. The teacher continuously monitors time and makes sure that each group worked well. The teacher instructs the visitors to move to the hosts in a clockwise direction. After connecting with the original group, the teacher asks the students to re-discuss the issues starting with the newly acquired knowledge. In conclusion, there is a discussion across the group.
Examples of questions:
   - What is stress?
   - What kind of stress it is? Provide some examples of stressors.
   - How does a person react to stress?
   - How to handle stress? Indicate the process.

- How can a manager help to avoid stress?

6. *6-3-5 Brain writing:* Using 6-3-5 Brain writing within the frame of the topic "Motivation and stimulation of employees".
   Process: It is a special method which students enjoy. The role of the teacher is very important, being both the moderator and the evaluator. We use the 6-3-5 brain writing method, for example, with the theme of motivation and stimulation of workers. It is a kind of introduction used before presentation. The task for groups of students is to write "what are their motives at present and what is their positive motivation". Each student of the group produces three answers to the question, the ideas are written on a sheet of paper which is passed to their neighbour on the left side and take suggestions from the neighbour on their right hands. Each student writes other 3 ideas and then proceeds them until the moment when the sheet of paper gets back to the original owner and the discussion round ends (takes 5 min). The stage of evaluation enables teachers to differentiate between the concepts of motive and stimulus which, in our experience, students often use interchangeably or do not see any difference.
7. Additionally, we used marking and production of roles. Among the lengthier gaming methods, which develop basic management skills (soft skills) as team management, coordination, taking responsibility, ability to make decisions in stressful conditions rather than individual topics of education (hard skills), we used Abigail and Colour tower.

7 Results of the questionnaire survey on the use of the gaming method in teaching Management

By means of a questionnaire survey, we found out that 49% of girls responded to the questionnaire positively, 27% responded negatively and 24% responded that they do not know.

Almost half of the girls liked gaming methods and were interested in them. The girls positively evaluated the gaming models reflecting actual practice and found teaching through gaming methods interesting. The girls also perceived the gaming methods as a modern form of education positively. Girls negatively assessed the fact that the gaming methods did not motivate them run their own business after their graduation.

The questionnaire survey among a group of boys brought the following results: 48% of them responded to the questionnaire positively, 27% responded negatively and 25% did not know how to respond to the questions.

More than one half of the boys liked gaming methods and were interested in them. Boys positively evaluated teaching by using gaming methods. Boys

negatively evaluated the gaming method which did not reflect to the actual practice. Boys, as well as girls, rated the fact that the game did not motivate them to run their own business after school negatively.

8 Conclusions

Gaming methods are one of the most attractive teaching methods of the 21st century. They are unique in the area of quantitatively-based capabilities in the field of business economics with a connection to decision-making skills in the field of management, teamwork and personal management as well as in the field of managerial psychology. In addition, it would be difficult to find practical experience of managing a real company in other types of educational activities, which in this regard, are a result of good conditions.

When using gaming methods, players are divided into teams which then act in certain roles. This mediates the players a lot of experience, offer the opportunity to develop talents and acquire the desired skills and knowledge. The team character of gaming methods implies an emphasis on interaction. On the other hand, it is an active form of collaboration for team members. Also, it is a process of communication, cooperation and competition between teams. Each game is divided into several stages representing a specific time period. It gives players the opportunity to get feedback and practise strategic decision making. The team which is the best in maximizing their profit is the winner.

One of the objectives of the presented paper was to define and describe gaming methods as used in secondary education. It was accomplished by the study of theoretical knowledge of this phenomenon in many professional publications and resources that combine andragogy knowledge with the practical use of gaming method in secondary education. These sources also revealed the fact that games are reflected in many areas of human life from childhood to adulthood and old age and that the concept is extremely subjective and based on various factors. There is no uniform definition of games as such or games within secondary education. As it emerged from several sources, the use of games can be primarily seen as children's activity, among other things, can serve as a form of leisure activities, after completion of their tasks and responsibilities, but in many cases, it may be just the game which helps us overcome problems with difficult situations in their personal and professional lives.

Huizinga (1971), Zapletal (1985) and Zapletal (1996) reflect on education and development. From their point of view, more broadly, games are understood as a source of entertainment and a form of relax, but also as a path of self-realization, education itself, fulfilling educational functions. A game can be helpful in

fulfilling various professional, personal and educational needs (Vaněk & Vaníčková, 2015).

In the context of a qualitative survey, the respondents confirmed that games form an integral part of the learning process. As well as secondary economic education has its specific elements, also gaming in secondary schools may have a specific shape and perform different functions. Among secondary school students who already know themselves, a very important psychological aspect of games is that they offer feedback which is an important mean of self-realization. This was also confirmed by the respondents of the survey because their experience showed that many students' motivation is very low in the beginning mainly because of various barriers, low self-esteem, shyness or the belief that games are only for kids. It is important to explain the benefits of games with respect to their practical use in one's personal and professional life. One is successfully drawn into an imaginary plane by the game's story and there are new roles and ways to find solutions to real problems.

As for the classification of gaming methods in secondary education, based on literature research, there is no uniform taxonomy and many authors or publications offer various divisions on the basis of different internal and external factors of the educational process. "Games" are, for example, applied in the teaching methods of simulation, role play, in the methods aimed at learning, problem solving etc. Hermochová (2004), Rachow (2005), or Wallenwein (2003) give a detailed description of the role of games and the possibilities of using gaming methods in teaching Management.

The importance of the topic of gaming in secondary education, its benefits and relationship to didactics and andragogy, etc. were confirmed in this work.

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Generation Alpha: Marketing or Science?[1]

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Abstract:
Introduction: The transition from the limited information environment to the extended information world has fundamentally transformed the communication and information-gathering processes. The new learning spheres (non-formal and informal learning, i.e. lifelong learning) require rethinking learning strategies.
Purpose: The generation logic and knowledge of different generations can help making the learning process more effective and efficient. It also helps, if we know which generation exists and which one is a "fictious generation". According to theory of Mannheim and the model of Prensky, we can describe Generation X, Y and Z, but now the name of the next generation is being established.
Methods: With the help of traditional desk research, such as literature search, data mining and web search, this article covers the origin of Generation Alpha (Alfa), the possible characteristics attributed to this age group, and tries to discern if this concept is meaningful in terms of the generation paradigm.
Conclusions: Overall, it is apparent that while the existence of X, Y, and Z generations is demonstrable, the naming and characterizing the Alfa generation is important for marketing purposes, scientifically there is no evidence for "Generation Alpha".

Key words: generations, GenAlfa, Alpha generation.

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1 Introduction

According to Mannheim, an age group can be considered a generation if they share some immanent attributes, generational consciousness or communal characteristics. For this to happen, three requirements must be met: shared experiences, actual cohesion, common attitudes and forms of behaviour (Mannheim, 1969). Mannheim draws parallels between generations and social classes (one cannot enter a social class at will, he/she is born into it, and cannot leave it until his/her status changes). Of course, this does not mean that every single person in a generation will show the same characteristics, only that there is an observable generational pattern.

2 The logic of generations

According to the model made by Strauss and Howe (1991), a generation change takes place in our society around every 20 years, with some signs of cyclicality. Marc Prensky added the relation to the information society and technology to the age group dimension as an important factor. It is his digital immigrants-digital natives model (Prensky, 2001) that Székely combines with the Strauss-Howe model (Székely, 2014):

- *Generation X* (digital immigrants, McDonald's generation): The main body of today's labour market, born in the late 60's and in the 70's, this age group came in contact with the tools of information technology and the digital world at a relatively young age. They witnessed computer technology turning into IT, and then into information society. The Internet is more or less present in their lives. In Western countries, they grew up under the influence of electronic media. In Hungary, they still grew up under the Socialism, but its milder, abating phase, and they were the so-called Ratkó-grandchildren.
- *Generation Y* (digital natives): Born in the 80's and 90's, the members of this age group experienced the Internet in their early childhood, they are confident in using digital tools and navigating the web, the digital world is their natural habitat, their digital self is consciously formed. They are characterized by strong media consumption, they are fast to adapt to technological changes. This age group is the generation of information society: they started using ICT tools as young children with ease. "Generation Y in Hungary basically closed the gap that was usually present between us and the Western world. Gen Ys grew up from children to youngsters mostly after the regime change, they met computers and the Internet - if not at home, at least in schools" (Székely, 2014). Their social interactions take place in the real and the digital world at the same time, they are more mobile than previous age groups, due to mobile phones and the Internet. Generation Y is different from previous generations in many ways, they are attracted to group activities, shared space, they are

performance-oriented, confident, they mostly identify with the value system of their parents, and they are highly educated (school and good performance is important for the majority of this age group). They process information faster, preferring image and sound over text, they also prefer random references (hypertext). They strive to immediately and often satisfy their desires, favour games over "serious" work, and instead of an inconvenient but necessary ally, treat technology as a friend (Prensky, 2001). Members of this generation follow global trends, they are among the first to learn to use new technologies, often changing the course of education. They feel at home in the digital world much more than the older "digital immigrants".

- *Generation Z* (Facebook generation): They are those who were born at and after the turn of the millennium. They lost their "computer-virginity" in the Web 2.0, met social media in its full, they do not know what life without the Internet is. Their primary communication channel is not e-mail anymore, but social media. They not only consume information but generate and share also. This generation does not know life without wireless network, mobile phones and the Web. The most important cultural difference between them and the previous generations is that they not only consume digital content, they also generate it, on sites like YouTube, Facebook, Twitter and torrent sites (and if we think this is only an irrelevant pastime, we should remember the snowstorm in March, 2013, when traditional media failed to help, and social media took over as primary information source). They use devices on a skill level, they are typically multitasking: writing blogs, listening to music, following email and social network messages at the same time; their decision-making speed increases. Gen Zeds do not simply pick up these tools and contents, but use them in their everyday life and change them to their own tastes; they are practically not limited by location. Generation Z's social environment is radically different from previous generations, thus making their learning, socialization and pastime totally different, too (Tóbi, 2013). This difference is mainly not sub-cultural (shown in clothing, use of language), it can be seen instead in methods of information gathering and communication strategy. They consume content on several different channels at once (multitasking), their combined consumption exceeds the "physical" limits of a single person, and most of them show no awareness of the legal and institutional environment of their everyday internet usage (e.g. downloading, file sharing). Moreover, changes in the world not only affect the rational part of their psyche, but their emotions as well. Many of them relieve this emotional tension without any cathartic experience. This "emotional incontinence" brings with itself the expectation of "others tidying us up" (at least in an emotional sense) (Tari, 2011; Csobánka, 2016). Thus, we live out our emotions through them (for example on a blog, through thousands of comments, but also in some identity situations,

relationship aspects and the world of work. As of Hungary, the differences between the Western world and our Central European region have disappeared altogether, in the generational sense, bringing some kind of global youth culture with itself, as innovations appear only a couple months late on the domestic market.

3 Generation Alpha

The alphabet ends with Z, but the generational change probably does not. Therefore, the question about the name of the next generation arises. In 2005, Mark McCrindle, an Australian demographer, and his team conducted a national survey, which resulted in "Generation Alpha" being the most popular choice. The name was explained referring to other science disciplines, where after "exhausting" the Roman alphabet and Arabic numerals, the Greek alphabet was used.

After getting the name straight, let us look at the contents. As a quick reminder: according to Mannheim, an age group can be considered a generation if there are common characteristics differentiating them from previous ones. So, what are the common attributes of these "Alphas", what makes this generation different from the digitally integrated Generation Z?

There is surprisingly little to know about them. Most articles on Generation Alpha only concern themselves with the name and its platitudinous origins, perhaps contemplating a few possible attributes that the age group of those born after 2010 would possess. These articles appear mostly on Australian news sites, on McCrindle's own website, or in online marketing journals. Since there is virtually no academic source to dissect, let us analyse some of these sites in order to get a clearer picture about "Gen A".

Starting with the "purest source", Mark McCrindle's website (http://mccrindle.com.au/), it is not surprising that several blog posts can be found about the topic here. Not many of these contain any scientific explanation, though. The most informative article is a Q&A, made with McCrindle by the New York Times. In this article, an entire paragraph explains the information gathering method used regarding the Alphas (who, we must not forget, are still 6 years old at most). According to the author, this method is basically prognosis, forecasts. They draw conclusions like an increased screen time, shorter attention span and digital literacy. These digital skills, however, are not that different from the ones observed in Gen Z, or even Gen Y (Tari, 2010; Tari, 2011). McCrindle mentioned, that Instagram and the iPad launched in 2010, the year of the "generation change", and the word of the year was "App". With this, he tries to accentuate that growing up in this world of smartphones, touchscreens and

constant Internet connection, the primary medium of youngsters will be glass, the touchscreen. This phenomenon is already well known in youth research (Nagy, 2013a). It is also mentioned, that physical and psychological maturity is starting earlier, while the adult life stage (marriage, children and career) is pushed back, caused mainly by the increasing time spent in education. This is also old news (Nagy, 2013b), since in the generational change narrative, researches showed similar results since the 80's, regarding the length of adolescence (Zinnecker, 1993; Gábor, 1996).

A strong resemblance to Generation Z is also apparent. Those born around the turn of the millennium have not experienced the world without Internet either, the majority of them used smart devices at a very young age, while YouTube and Instagram have more influence on them than television. Their learning habits also changed, which would require new teaching methods, since they are used to rapid information gathering, and multitasking is a basic skill for them.

4 The criticism of Generation Alpha paradigm

The borders between Generations X and Z are already blurred, because it is hard to connect "overthrowing" an age group to a specific date. Even the Strauss-Howe model refers to the 20-year lifespan of a generation as a crude estimation, thus stating that every child born after 2010 is to be considered an "Alpha" is only as binding as the categories seen in the graph below (generations, by birth year). It is apparent, that Generation Y and Z are overlapping by almost a decade, so children born between 1995 and 2004 could belong to both generations (SIC!). Based on these facts, it is not impossible to imagine that Gen Zed will last way longer, making the catchy Generation Alpha title redundant.

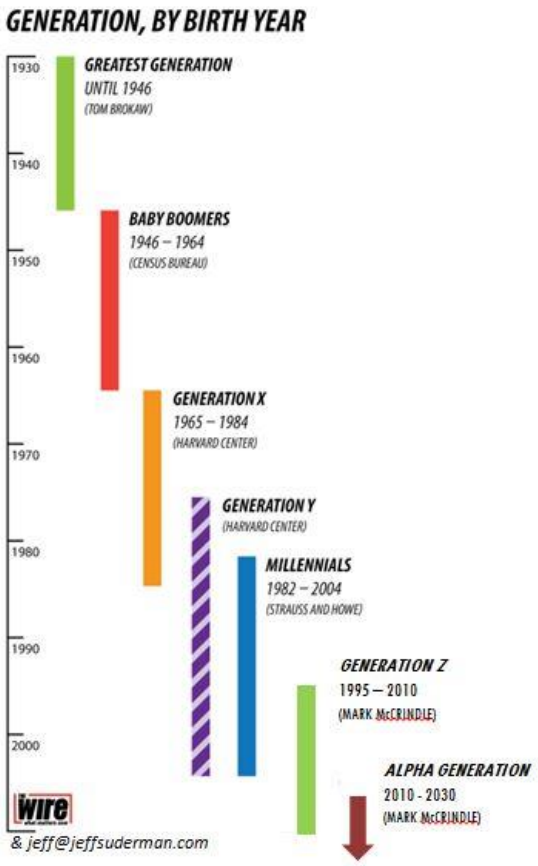

Figure 1. Generations, by birth year (Suderman, 2016).

This catchy, but empty name became the favourite of tabloids nonetheless: numerous articles, similar in content and style, were published during the past few years. The Business Insider, for example, published two writings (basically repeating the same ideas, word by word) about Generation Alpha, only six months apart (Sterbenz, 2014a; Sterbenz 2014b). They are exploring the background of the name itself, but impart very little scientifically accurate information. The most interesting statement is about demographic change, naming China and India as the "gravitational centre" of the future, at least in terms of social matters.

An article from Dan Schawbel, a bestselling author, researcher and FORBES columnist, found on his own website (Schwabel, 2014) provides us with little more insight. In this writing, he tries to predict 5 attributes that Gen Alpha

children will possess growing up, which are very similar to those written about Gen Zed.

- They will be the more entrepreneurial generation.
- They will be the most tech savvy and not know a world without social networking.
- They will primarily shop online and have less human contact than previous generations.
- They will be extremely coddled and influenced by their Gen X and Y parents.
- They will be more self-sufficient, better educated and prepared for big challenges.

Advertising Age (AdAge) published similar "observations", but with a different style. The author of the article, published in January 2016, chose a more cynical approach, by stating 13 conclusions drawn from observing a young Alpha (possibly his own child). These are, of course, not entirely serious "facts", but some of them could (if they persist at an older age) shape the general characteristics of this generation.

Scientifically it can be criticised at least in three ways. They hate sharing economy (shouting "Mine!", "All mine", and not sharing anything), they do not care about privacy and rules, they break free of any boundaries and they live in the moment. However, the question if these conclusions, drawn by watching a single, 6-year old or younger child, are generational characteristics, or simply attributed to young age arises.

- Even if we accept the Strauss-Howe model, we should not use it mechanically. It is certainly not true, that if someone was born in December, 2009, he/she belongs to one generation, but if in January 2010, belongs to another. Trends and characteristics can obviously be found, based on previous generations, but these are to be interpreted on a large social group, certainly not on a single person. In our case, people try to come up with generational characteristics and attributes without large amounts of data.
- In this light, it is still not known if the growing age group will show generation features based on Mannheim's interpretation, and if these attributes are any different than the previous generation. Ergo, we cannot tell if there is a substantial change compared to Generation Z, or even if this age group can be considered a generation at all.
- In the last few years, there was no narrative that would start of any scientific interpretation pointing beyond generations X (digital immigrants), Y (digital natives) and Z (content creator). Some ideas are close to coming through and promise the possibility of a new generational interpretation (VR-glasses, self-driving cars, touchscreens, voice recognition), and some

of them are pure sci-fi (surrogate robots controlled by people at home, as in the movie Surrogates). But no one of these are realities re-shaping the social space.

5 Conclusions

Overall it is apparent that naming and characterizing the new generation is important mostly for marketing purposes, which would be relevant only after many years, when we have more information about "Generation Alpha", which is literally in its infancy right now. Based on current facts, Gen Alpha is basically just "Z 2.0", which is not that different from its predecessors, only carries forward their "legacy".

Several innovations can become society shaping breakthroughs, thus being core elements in a new generational interpretation (if such a thing becomes reality). But without the knowledge of their existence, and if any, their attributes, naming a generation is not unlike naming an undiscovered star about ourselves: nothing but the vanity and displacement activity of a scientist.

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The School Culture Heritage of the Reformation

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Abstract: On the occasion of the 500th anniversary of the Reformation, this essay analyses those educational innovations in the history of central European education that were introduced by the Church reform in the 16th century, following these modernizations and their further developments through the spreading of the universal school systems in the late 18th and early 19th centuries. Drawing examples from the innovations in the college culture of the period, the author emphasises that those pedagogical values established in the 16th century are not only valid today, but are exemplary from the point of view of contemporary education. From these the author highlights: pupils' autonomy (in the form of various communities), cooperation with the teachers and school management and the relative pluralism of values.

Key words: reformation, history of education, school culture, colleges, pupils' autonomy, contemporary education.

Vocem prego ('My turn please!') – contributors ask the chairing Preses ('President') to allow them to speak at the scholarly debates at the University of Miskolc, where the student traditions of the town Selmec are still alive and well along with the school culture heritage of the Reformation. This very important aspect (ceremonial function) is left out of Mátyás Bajkó's book, entitled College Culture at the Time of the Enlightenment and the Age of Reformation, published in 1976. Nevertheless, the late Bajkó had been the most prominent Hungarian researcher of the Protestant school culture. His book serves as some sort of 'Sola scriptura' for his fellow researchers.

As well as the Preses, the role of the Etalon ('the fellow of the absolute measure') is not mentioned in Bajkó's work either. During the scholarly meetings, from time to time the Preses demands that the Etalon recites a tongue

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twister. If he manages to perform one without mistakes, the Preses allows his fellow colleagues to drink more wine, but if the Etalon fails, the Preses prohibits further drinking (assuming that all members are mildly inebriated).

Bajkó's work is commendable in many respects. It is his recognition that colleges create a distinctive culture system. In his work, Bajkó describes various functions that young men studying at these Protestant colleges (such as Debrecen, Sárospatak, Pápa, or Nagyenyed) fulfil when running the school's government, the so-called coetus. For instance: the senior (a final year student who was the leader of the coetus), together with the contrascriba (the inspector) and the oeconomus (the financial and economic manager of the school). We learn about many other roles the students fulfilled in running the Protestant college: praeses (the person who was responsible for helping with learning), vigil (night watch), apparitor (morning alarm person), calefactor (stoker), etc. All the above roles the students undertook would be considered today as student participation.

Indisputably, Bajkó's oeuvre (centering around the Protestant school culture) represents indispensable material for the Hungarian educational sciences. Bajkó is the spiritual heir of Ernő Fináczy's (Fináczy, 1927) legacy (an outstanding 19th century scholar of the traditional education history research), along with István Mészáros (Mészáros, 1984). In Bajkó's oeuvre the educational history is interwoven with comparative sciences. The same methodology is applied by his eminent follower János Ugrai. The latter combines Viktor Karády's historical sociology with classical educational history discourse to explore the main episodes of the history of college culture (Karády, 1977).

Nevertheless, the topic of my essay is the 'real' Sola scriptura: the practice of these Protestant colleges – a subject that is topical on the eve of the 500th anniversary of the Reformation.

It is notable that the Hungarian terminus technicus, 'Iskolakultúra' (school culture) was coined by Bajkó; and it is widely used today among scholars as part of the academic discourse. As a term triggering complex debates about school, it has also become the title of one of the most prominent Hungarian educational journals.

What is the main pedagogical and scholastic message conveyed by the Reformation? First of all, the fact that the norms and objectives are for our 'worldly existence' here and now, which is a Copernican revolution emphasizing the individual's mission by superseding the 'valley of death' concept. The significance of this shift is that from this moment on, the aim of pedagogy changed, and it was operating within a new paradigm: instead of preparation for

the afterlife, pedagogy's role was to help the pupils manage their life here and now, and work and live an honorable and respectful life. In that sense, here we are talking about what later Max Weber describes as the Protestant work ethic (Weber, 1958).

Secondly, for the first time, people could directly address the Creator without their priests' mediation. The possibility of this new, direct dialogue had an important impact on moral education and on how we recognize the relationship between one's own responsibilities and ethics. If freedom from God's punishment for our sins cannot be purchased by money, it means accountability for one's own actions. The relevance of this to pedagogy is that this increases people's responsibility, that they are the agents of their own lives, in charge of their actions, and are responsible for them.

Thirdly, Luther's aim to translate the Bible into the mother language of the people, led to the establishment of schools and the idea of general education (where people can learn how to read and write). This not only had a profound effect on the development of literature that is written in the mother tongue, but also changed the system of education, emphasizing "that schools are rather necessary" (quoting János Apáczai Csere, 17 c. Transylvanian theologian and educational expert).

Fourthly, we must not forget that the concept of necessary and compulsory, universal education originates from the Reformation. This democratic education policy is inherited from the Europe-wide renowned 17th c. educator, Comenius (Vyskočil, 1990). The idea that we are all equal before God and we should all receive education equally bolstered with appropriate didactics is founded in Comenius's principles.

Finally, the implementation of all the principles mentioned above requires a suitable school culture. This school culture was adopted in the Protestant college where the legendary puritanical rigor met serenity, creating a specific "well-thought-out association of students and teachers" (Apáczai, 2003).

As it is known, in those Protestant colleges, there was no sharp distinction between teachers and students. The functions mentioned earlier gave responsibilities to all students. There was also an opportunity to copy and learn important public citizenship models through role-play, by modelling the college after a fictional ancient Roman republic. Through that role-play the pupils not only internalized history but also law and citizenship, via the effective means of learning by doing. In addition, the meaning of the Latin collegium (society), where the word college originates from, denotes the coexistence of people who

study together, where everyone is equal, where students and their professors share responsibilities together (see: Jókai, 2005).

The elements of the Selmec-Miskolc school culture are also documented in the 19th century novelist, Jókai's works; its customs (their slang), and the student-edited underground journal that contained banned student songs and texts, the Chronicle of Hush-Castle (Csittvári Krónika), is described in his 1872 novel, 'És mégis mozog a föld' (And Yet It Moves – Eppur si muove) (Jókai, 2010). Through this self-edited journal, the students had an opportunity to develop and practice their own voice and assert their own culture.

All the above examples show that autonomy is a wider concept than self-governance, since it is practicing freedom.

We must also mention Mihály Csokonai Vitéz (1773-1805), an outstanding poet of the Hungarian Enlightenment, the forefather of the Hungarian reform pedagogy and drama pedagogy. As a teacher at the Csurgó grammar school in 1799, Csokonai was the first to lead a secular student theatre (he wrote and directed the pieces); and also by holding some of his seminars in a local forest, he could be considered as the forerunner of the practice of forest schools (Szilágyi, 2002).

In addition, we should mention Sándor Kövy (1763-1829), the legendary professor of the Sárospatak College, and his innovation, the so-called 'Pántzél-vármegye' (Armour county), whereby in the class he modelled the administration of the era and role-played it with his students in their imaginary county, thus teaching the law, politics and administration to his pupils through enactment. It is recorded that one of the outstanding Hungarian politicians of the 19th century, Lajos Kossuth was one of Kövy's pupils, who played the provost in this role-play. The Sárospatak College was therefore the first school in Hungary that employed the project methodology in teaching. Although Kövy's innovation is considered controversial, I agree with Bajkó, who thinks that it was a place for political socialization, while Ugrai states that it was a successful practice of legal education (Ugrai, 2007).

What followed? What do we think about the 'Nádor-vármegye' (Provost county), a similar endeavor at the same Sárospatak College, that involved the then student Bertalan Szemere, who later became the Hungarian Prime Minister in 1849? Perhaps it can be considered as the forerunner of the democratic school-republic (school-city) system whereby students had autonomous control over their own affairs by practicing responsibilities by acting out historical and contemporary roles (Reilly & Warneke, 2008; Trencsényi, 1994).

All the above examples demonstrate that we are safe to conclude that the innovations of the Reformation had an important influence on contemporary pedagogy and the development of modern school. The 500th anniversary of the Reformation is an anniversary that points beyond its religious significance. Those pedagogical values that were established in the 16th century are not only valid today but are exemplary from the point of view of contemporary education. Namely: pupils' autonomy (in the form of various communities), pupils' cooperation with the teachers and school management, the relative pluralism of values, as well as the opportunity for choice, the possibility for families to select between a variety of educational institutions that offer different pedagogical values and aims.

It is therefore important to pay attention to the college culture of the Reformation, and examine it continuously in order to better understand our cultural heritage and learn from its innovations.

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