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21st Century Skills: Changing the Approach to Teaching in Higher Education

CZECH REPORT

21st CENTURY SKILLS

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1. INTRODUCTION

The push of 21st century skills is not a new concept. Setting a diversified goal of education with aims in honing in on students' needs and reflecting a better, more relevant education is something that has evolved throughout history. In the 1980s, a series of reports advocated for an educational reform. A "National Prepared: Teachers for 21st Century" (Carnegie Forum on Education and the Economy, 1986) was among the first released. Then „Turning Points: Preparing American Youth for 21st Century" (Carnegie Council on Adolescent Development, 1989) outlined eight principles that valued the needs of youth and aimed to address what is necessary for students to be successful in the coming century. A revised benchmark of seven recommendations was put for a decade later in „Turning Points 2000: Educating Adolescents in the 21st Century (Jackson & Davis, 2000). Acknowledgement of the importance of a shared educational purpose, parent and community involvement, quality teachers, attention to students needs and career and self-interest exploration are hallmarks of a 21st century education. (Kaufman, K. J., 2013). [21 Ways to 21st Century Skills: Why Students Need Them and Ideas for Practical Implementation. In *Kappa Delta PI Record*, Vol. 49, Issue 2.]

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The 21st century skills are not important only for students, they are crucial to be trained among academic staff or secondary and primary school teachers for better transferring them to their students. Teaching is a complex activity. The professional teacher should not stick to some fixed procedure and routine. Quality teaching means to cope with the specificity of the concrete social group, to teach and guide specific students at specific circumstances. The good teacher needs to be innovative and creative, he/she should be an active listener, a good communicator and a team player, he/she needs to continuously search for new relevant and verified information, develop his/her professional competences and keep acquiring new teaching methods and tools. Teachers in all the levels and sectors of education need to adapt their approach and teaching styles to the changing society, environment and students behaviour.

Because of this, there is a higher demand for further education of teachers in terms of 21 century skills such as creativity and innovation, self-directed learning, story-telling, critical thinking, team skills etc. During the seminars, workshops or trainings of teachers can acquire a variety teaching methods in order to get know-how how to influence their students or learners. In the Czech Republic, the popular methods are: problem solving methods such as heuristic interview or six thinking hats by Edward de Bono, role-play methods by Jacob L. Moreno, synectics (creative method), cooperative learning or project education and Prof. Hejný critical thinking method in teaching mathematics.

Higher education institutions are an irreplaceable part of every developed and modern society. Higher education has contributed significantly to its cultural and economic growth and it accepts its share of responsibility for further sustainable development. The mission of every higher education institution is to help, in its unique way, to build a democratic, open, tolerant, cohesive, educated and cultural society as well as the competitiveness of the country and to help develop a knowledge and innovation based economy.

Higher education institutions (HEI) fulfil that mission through three main groups of activities:

- educational activity,
- creative activity,
- direct societal and professional impact, or the "third role".

Although the educational activity is the primary and most inherent activity of HE institutions, all three groups of activities play their indispensable part. It is the linkage between education, research, other creative activities and the third role that makes HE institutions unique. Every HE institution is different, has its unmistakable profile and mission and carries out the basic activities in a different way and to a

different extent, but every one of them contributes adequately and persistently to the shared academic and societal values.

2. CURRENT SITUATION IN COUNTRY CONCERNING TEACHING OF 21ST CENTURY SKILLS

As in the other European countries, Education in the Czech Republic is based on equal access to learning of every citizen of the Czech Republic or another EU member state without discrimination on the grounds of race, colour, gender, language, religion, nationality, ethnic or social origin, property, health or other status of the citizen. It takes into account the educational needs of the individual. It aims at the mutual respect, opinion tolerance, solidarity and dignity of all participants.

The main aims of Czech education are:

1. The development of the personality of a person who will be equipped with cognitive and social competences, moral and spiritual values for personal and civic life and a profession or work.
3. Understanding and applying the principles of democracy and the rule of legal state, fundamental human rights and freedoms, together with responsibility and a sense for social cohesion.
4. Understanding and implementing the principle of gender equality in society.

The quality of the educational activity of Czech HEIs is understood mainly as:

- added value for every student, i.e. a complex sum of knowledge, skills and competencies which the graduates are equipped with and would not obtain if they did not study at a HE institution,
- relevance of the offered education, i.e. the extent to which the obtained learning outcomes meet the needs of life in the 21st century,
- openness of HE institutions to the internal and external environment and ability to reflect the educational needs of every student, regardless of their background and with a full use of their capabilities,
- harmony of the education with academic values and ability of the HE institution to prepare self-reliant, independent and self-confident individuals who think critically of the society and contribute actively to its development.

Apart from the educational and creative activities, a no less important role of HE institutions is their direct societal impact and, in general, the so-called "third role". HE institutions contribute to spreading knowledge and values in the society in many different ways and they themselves carry out professional activity in their field. Along with other stakeholders they co-create the space for public discussion and they contribute significantly to its openness, critical approach, professional level and sophistication.

In the last two decades, the Czech educational system has undergone number of changes from elementary to higher schools and universities, yet a lot of experts and public as well are calling for a drastic reform (on-line press - denik.cz, 2019). According to the recent findings of Czech School Inspectorate presented to journalists on 12 December 2018 pupils' achievements in schools do not match what they should know based on so-called Framework Educational Programs, which define the content of the curriculum. The curriculums are too extensive and put a great deal of pressure on teachers and children. In the lessons, there is no time for practicing and a fun form of teaching. Therefore, the revisions of the educational programs are currently being prepared by the Ministry of Education. The content of education should be fundamentally changed (lidovsky.cz, 2018). The upcoming **Education Strategy 2030+** is intended to determine the Czech education system for the next decade. Due to the development of this key document, fundamental revisions of the Framework Educational Programs, which set the basic parameters of the curriculum, have been suspended. What and how to teach in the 21st century is becoming the theme of the day not only in the Ministry of Education and the legislature, but also in large companies and non-profit organizations.

Currently, an external expert group has defined **two strategic objectives** (*what do we want to achieve?*) and **four strategic lines** (*how do we want to achieve this?*). The objectives are defined as follows:

- 1) Focus education more on acquiring the competences needed for active civic, professional and personal life,
- 2) Reduce educational inequalities and increase equity in access to education.

While the four basic strategic lines represent the following elements:

- 1) Changing the content and way of education,
- 2) Support for teachers, directors and other staff in education,
- 3) Increasing professional capacity, trust and mutual cooperation,
- 4) Increasing funding and ensuring its stability (MŠMT, 2019).

In the Czech Republic, there are main four acts, which regulate the educational processes at the public and private educational institutions:

I. Higher educational institutions:

- **Act No. 563/2001 Coll. On Pedagogic Staff**

This act focusses on the requirements of schools employees of schools, educational facilities and social services. It also sets standards for their working hours, further education (lifelong learning) and overall system of pedagogic work.

- **The Higher Education Act and Government Regulation on standards for accreditation in higher education, No 111/1998 Coll.**
- **Act no 89/2012 Coll. - Civil Code**

II. Pre-school, primary, secondary, higher professional schools

- **Act No 561/2004 Coll. On Pre-school, Basic, Secondary, Tertiary Professional and Other Education (Educational Act)**

This act lays down the conditions under which education and training takes place and defines the obligations of individual and legal entities. It specifies the competencies of bodies performing state administration, municipalities and self-government in education.

- **Act No 89/2012 Coll., Civil Code**

In accordance with paragraph No 24 of the Act No. 563/2001 On Pedagogic Staff, teachers are required to attend further education to maintain, renew and supplement their qualifications during employment. They can participate in in-service training to upgrade their qualifications. It is up to school manager (rector, dean or vice-dean, director or vice-director) how the lifelong learning of his/her academic staff is organized. In doing so, it takes into account the educational interests of the concrete teacher as well as the real needs and budget of the school. In-service training of teachers is carried out either in the form of education at in-service training centres or at universities or by self-study. The conditions and types of further education are set by the Ministry of Education, Youth and Sport of the Czech Republic. Each teacher can use twelve days off for professional training during the academic year. The teacher has to obtain a salary reimbursement for the period of this leave.

Unfortunately, there is a system gap in organisation of the lifelong learning of academic staff. In the Czech Republic, any of acts does not exist in order to force teachers to attend further training or lifelong learning courses. Moreover, there is no general curricula applicable to specific HEIs or teachers qualification or teaching specialization. The choice of the content of courses is only up to concrete pedagogue and the manager (dean, vice-dean, rector or vice-rector). The decision to develop or not to develop professional skills and competences are on the teacher and his manager.

The aims, conditions, processes and organisation of further training is only determined in the document titled "The Strategic Plan for the Scholarly, Scientific, Research, Development and Innovation, Artistic and Other Creative Activities of Higher Education Institutions for 2016–2020". This document is issued by the Ministry of Education, Youth and Sport of the CR and can be downloaded in English here:

<http://www.msmt.cz/areas-of-work/tertiary-education/strategic-plan-for-higher-education->

[institutions-2016-2020](#)

The Higher Education Institutions Act No 111/1998 Sb. (§ 21), declares that Czech public higher education institutions are obliged to draw up, publish the “Long-term Plan for Educational, Scientific, Research, Development and Innovation, Art and Other Creative Activities”. This intention is one of the basic documents, which orientates and influences the activities of the University in the medium term - in this case 2016-2020 - and is a key tool in its strategic management. In this document, there are aims of achieving the modern principles in education and science of the university and how education of teachers and students in terms of meta-competences and 21st century skills will be processed. The Czech University of Life Sciences Prague issued “Long-term Plan of the Educational, Scientific, Innovation, Creative and Other Activities of the CULS Prague 2016–2020”, on 30/10/2015.

This document describes an university strategy and it is divided into seven national and international priorities and this project would help to achieve several goals within four priorities:

- to systematically improve and innovate mechanisms for quality assurance of pedagogical activities by using international experience,
- to help bodies from outside to solve their problems and thus support their development,
- to continue with strengthening the dimension of all the scientific, research and other creative activities, such as the support of the CULS front position in academic activities the international context, including an international sharing research capacities and to encourage staff to their involvement in prestigious international projects,
- to develop transferable skills in the teaching (e. g. ability to communicate in a foreign language, creative skills associated with innovative approaches, capability of solving problems, working with ICT, teamwork skills, etc.),
- to develop advisory services for students and teachers with emphasis on career counselling.

To sum up, Czech Republic see in 21st century skills more an approach to learning and teaching than concrete skills. These skills are included in **eight teacher competences**:

- subject-specific competence,
- didactic and psycho-didactic competence,
- pedagogical competence,
- managerial competence,
- diagnostic and evaluation competence,
- social and communication competence,
- intervention competence,
- personally cultivating competence.

Source: Vašutová, J. (2007). *To be a Teacher*. Prague: Charles University in Prague. ISBN 978-80-7290-325-2.

3. A SUMMARY OF RESEARCHES DONE AT NATIONAL LEVEL CONCERNING TOPIC

A representative scientific publication on the legacy of J. A. Comenius for the 21st century, entitled *Johannes Amos Comenius: the legacy to the culture of education* is composed of contributions that were presented during the international conference **The Legacy of Johannes Amos Comenius to the Culture of Education in Prague on 15–17 November 2007**, and also from other thematically related works, which the editors were interested in publishing but could not be heard at the conference for various reasons. The conference was organized on the occasion of the 350th anniversary of the publication of Comenius' *Opera Didactica Omnia* (All Collected Didactic Works; Amsterdam 1657), organized by the Ministry of Education and the Pedagogical Museum of J. A. Comenius in Prague, the co-organizers of the conference were the Academy of Sciences of the Czech Republic, Charles University in Prague and the Union of Comenius. The conference was held under the auspices of the International Bureau of Education of the UNESCO, the Czech Commission for UNESCO and the Secretary General of the Council of Europe, Mr. Terry Davis. Participants and speakers were all the world's leading and domestic experts in the field of life and work of J. A. Comenius and other prominent

representatives of education sciences and other social and humanities from the Czech Republic and abroad. The content of the publication corresponds to the professional sections of the conference and consists of the following topics:

1. Comenius' pedagogical work in the context of European thinking,
2. Reflection of philosophical, methodological and ethical elements of the work of J. A. Comenius in later pedagogical thinking,
3. Reception of Comenius - educationalist abroad,
4. The concept of literacy / education and the importance of foreign-language competence - their changes from Comenius to the present,
5. Creativity in education and legacy of J. A. Comenius (Comenius in the education and upbringing and legacy of Comenius),
6. Culture of education at the beginning of the millennium - educational challenges of the present. Information technology and media in education services?

The book includes 83 contributions by prominent experts from 28 European countries, both America and Asia. The book is supplemented with basic biographical data of J. A. Comenius (in Czech and English), as well as a rich photographic supplement. The publication is in four languages, English and German articles have Czech or Slovak resume, Czech and Slovak articles have English resume. The introductory and final texts are translated into English (Chocholová, 2007).

In 2009, the national press *Lidové noviny* published a collection of interviews with Czech prominent personalities of today, entitled *Educational Society in the Czech Republic? Interviews about life and school for the 21st century*. Some of the main thoughts refer to the function of school as a community, the importance of conscious guidance, independence and freedom, love, respect to life, responsibility for one's own position and the world around, education to values as the main mission of the school, having good teachers for better quality education or school as a place where the children look forward to (Lidové noviny, 2009).

Based on the topic of teaching profession in changing educational requirements were published several comprehensive books and monographs:

Spilková and Tomková (2010) written the book entitled *Teacher quality and professional standard: research intent: the teaching profession in changing educational needs teacher education*. The book covers teaching profession, pedagogical skills and educational research in 21st century in the Czech Republic (Spilková, Tomková, 2010). The book was preceded by extensive empirical research and analysis key reform trends in primary education in the first decade of 21st century. The results showed how the conception of the school, the goals of individual educational areas and the everyday life of the school have changed (changes in methods and strategies of teaching, communication and climate in the classroom, ways of assessing pupils, etc.). Attention is also paid to alternative and innovative approaches to education and evaluation of younger pupils, issues of integration of pupils with disabilities, etc. (Spilková, Vašutová, 2008; Spilková, 2005).

Considering changing educational requirements and gender in teenage and adolescent was the main subject of the book titled *Gender marketing: deciding on further education for 15-year-old boys and girls* by the collective of authors. The book focuses on education and the labour market, which it examines as interconnected systems. The core of the book is a qualitative research conducted in families and schools of 15-year-old girls and boys, set in the context of current Czech and European research into the education system and the field of paid work, focusing on gender aspects. The research dealt with the problem of deciding about high school and the future occupation of girls and boys at the end of compulsory education. The research team analysed their expectations, their dream schools and jobs, the choices they actually made, the barriers they faced, and how they were overcome. Research findings are anchored both in sociological theories accentuating the interconnection of the social structure with the actions of individual actors and in feminist approaches emphasizing the need for social change towards a fair and just society (Jarkovská, Lišková, Šmídová, 2010).

The publication of Navrátil and Mattioli presents a comprehensive, systemic approach to improving the quality of education in the Czech Republic, which corresponds to the 21st century requirements for individual competitiveness in the current conditions of the global information environment. The content of the publication should become a theoretical and practical guide to all who are or will be solvers of the current social problem related to the improvement of education (Navrátil, Mattioli, 2013).

Sieglová (2019) has written a handbook for the teachers at all levels of education and disciplines to gain a tool to actively involve their pupils and students in the classroom, through interactive techniques and related methods to develop key skills. These include brainstorming and evocation, cognitive and visualization, kinesthetic, communication, dramatization and compositional methods. The aim of the book is to support the pedagogical practice of globalization, the information boom and social media, where the existing methods of teaching are no longer effective. Each method contains a short description and purpose, procedure for implementation and recommendations on how to present it to students. This is followed by links linking the technique with other chapters across the book. This will allow teachers to construct a lesson from start to finish, including choosing the appropriate interactive form of work for the selected method. The book also offers sample lessons and an overview of the combination of interactive techniques and teaching methods in a comprehensive table. All the techniques and methods contained in the publication are the result of many years of experience at the author, at all levels of education and in a wide range of learning situations (Sieglová, 2019).

Critical thinking is one of the most popular topics in the Czech educational environment and plenty of academic texts are dedicated to its development and application. There have been written several monographs in recent decades applying the findings thru plenty of subjects:

Critical thinking applying to didactics of **mathematics** is experiencing great success in the Czech Republic. *Hejny method* (so called H-mat (Hejny et al., 2015a, 2015b)) is a non-traditional way of teaching mathematics. It is scheme-oriented education. This method has been adopted by more than 750 of the 4 100 Czechs schools on the primary and lower-secondary level. The Hejny method is also being implemented in a range of alternative schools and in home-schooling. The method has raised interest in Italy, Finland, Sweden, Greece, Poland (where a textbook series is about to be published) and Canada. The Czech edition of textbooks for primary schools has been approved by the Czech Ministry of Education. The method is introduced to pre-service teachers studying in primary education programs at the Charles University in Prague and at the University of Ostrava. The Hejny method is based on respecting 12 key principles, that make up a comprehensive concept that allows children to discover mathematics on their own and with pleasure. It builds on 40 years of experimental work and puts into practice historical notions that have been occurring throughout the history of mathematics since the time of Ancient Egypt. For more information about principles please visit: <https://www.h-mat.cz/en/principles>.

Bomerová and Michnová (2018) follow the Hejny method in the two-part workbook that supports the constructivist approach to teaching mathematics. The method is based on building schemes in children's thinking, developing logical judgment and imagination. The textbooks contain discovery-based tasks to support pupils' relationship with mathematics. Emphasis is also placed on the pupil's self-assessment. The manual also includes a time-thematic plan and an overview of outputs and competences (Bomerová, Michnová, 2018). Within the last two decades several Czech authors contributed with comprehensive handbooks to development of logical and critical thinking and independent learning skills in mathematics from pre-school to adulthood (Brožek, Drahorád, 2001; Fuchs, Lišková, Zelendová, 2015; Grecmanová, Urbanovská, Novotný, 2000; Kárová, 2000).

Other authors offer wider range of applying critical thinking in teaching **other subjects** (history, languages, physics etc.) and give the teacher a tool to learn pupils to think over any information. Pařízek (2000) states that curricula and educational programs pay little attention to the ways in which knowledge has been learned and their applications. Most of textbooks focus primarily on communicating knowledge, much less focused on problem solving. The need to lead individuals to creative and critical thinking, to teach them to analyse, generalize, compare and judge. Publication

offers understandable theoretical explanation with suitable examples and model situations. The idea that the focus of education is in *identifying the causes* (Pařízek, 2000). Some of the books are focused on specific level of education. Work of Kosturková focuses on the development of critical thinking in secondary schools (Kosturková, 2016). In Critical thinking is also required for entrance examinations as a part of applying process for most national universities in the Czech Republic. Many tests and handbook were published to train the skills and to get success in entrance examination for humanities such as **law, philology, philosophy, history, theology, politics, psychology, sociology or pedagogy** (Kotlán, Kotlán, Vittová, 2006; Kotlán, Vittová, 2006).

Critical thinking has a long tradition and is equally popular among other scientific disciplines such as theology, philosophy or psychology. The book of Bauman (2013), in twelve chapters, examines the idea of thinking development following the work of Matthew Lipman, founder of the Philosophy for Children program, working with the assumption that the development of thinking from a pedagogical point of view cannot be (or is not) reduced. He puts forward a number of arguments supporting the merits of this assumption. From the point of view of philosophy, theology, psychology and pedagogy, it focuses mainly on two basic questions: What else is there to believe in, in what context does the concept of thinking development need to be put to be truly meaningful? (Bauman, 2013).

The tradition of critical thinking in the Czech Republic reflects *Contradictions* – a magazine published in Prague that wants to critically develop and enrich the Central European tradition of radical and critical thinking. It brings current topics and problems developed by this tradition and puts them in international theoretical discussions on issues, possibilities and limits of emancipatory social changes. They publish scientific studies, theoretical essays, interviews and commented archival materials in the field of political philosophy, social theory or cultural studies. The journal focuses mainly on the following topics:

- 1) Overlooked or forgotten trends of radically left-wing thinking in Central Europe and evaluation of their current topicality,
- 2) Thought traditions in other regions that have developed in parallel with, or linked to, the Central European intellectual tradition; there was mutual reception and dialogue between them,
- 3) Analyses of Soviet-type societies, including how the existence of these systems in the region affects the forms and possibilities of the current emancipatory movement,
- 4) The ideological assumptions and social conditionality of what is known as 'post-communism'.

The journal provides space for analysis and original contributions to critical social theory, based on the experience of the complicated historical and intellectual heritage of Central and Eastern Europe and placing this heritage in the current international context and discussions. *Contradictions* are published once a year as a double issue with separate English and Czech-Slovak parts. (Kontradikce: časopis pro kritické myšlení = *Contradictions: a journal for critical thought*, 2017).

Nutil (2018) extends the findings to nowadays social, political and cultural issues and asks questions: How are we manipulated, and we don't know about it? What are hoaxes? Do the media show the world as it really is? Why are politicians lying to us? What is media literacy? Why is critical thinking needed? And how does the brain play with us? The author is the co-founder of *manipulatori.cz*, which seeks to promote independent and critical thinking and uncover media lies. In the first part of the book the reader can discover the patterns of our behaviour and decision-making and find out why our wishes so often shape the future, understand how our own irrationality affects us, why we succumb to group stupidity, and how easily we make thought mistakes. The second part of the book is dedicated to the hot present. It focuses on commonly used argumentative fouls and on revealing manipulative and propaganda practices in politics and the media. He is revealing the backstage of the media industry, news production, and how media can manipulate us and shows how to uncover false news, learn the truth from a lie and not succumb to conspiracy thinking (Nutil, 2018).

Critical and creative thinking is also considered one of the most important competences in applied psycho-social disciplines. The work of Růžička (2010) gives an extraordinarily profound picture of the development of psychoanalysis, creatively enriches the ego-analytical view with a phenomenological view, deals with the relationship of meta-theoretic and clinical approach in psychoanalytical cognition of man, while consciously avoiding reductionism. It is fully devoted to the ethical dimension of

psychotherapeutic work. Based on his extensive lifelong philosophical-psychological knowledge, the author critically deals with "freudism", his credo is *daseinsanalysis* emphasizing the moral impact of human actions. The book is suitable for psychologists, psychotherapists and experts in humanities (Růžička, 2010). In nursing, critical thinking is the key competence of nurses to diagnose and to efficiently support the nursing process (Mastiliaková, 2014).

Skills of **creativity and innovations** are except arts applied in personal, social, work and environmental education.

Most of the books are dedicated to arts such as painting or theatre. In addition to the necessary methodological background, they offer a lot of original themes and entertaining activities, stimulating especially children's creative creativity and imagination. The activities are verified by practice and guaranteed by an editorial team of experts. Despite a greater focus on selected educational areas, activities do not lose their integrated character and contribute to the holistic development of the child (Balík, 2011; Bezděková et al., 2016; Cejpková, 2015; Podlipský et al., 2017; Slavík, Chrz, Čech, 2013; Tmejová, 2015). **Creativity in narration and storytelling** was subject of Freyová (2013) who published a collection of basic art techniques designed especially for preschool children, supplemented with photo documentation of procedures, a list of aids and materials, a detailed description of the work and a motivational story or fairy tale (Freyová, 2013).

The book of Miovský and Chrz (2010) describe art as a creative activity to which an individual is urged, an act by which a person is enriched. The monograph tells readers at least partially something that is usually hidden from the perception of a work of art. However, the thematic spectrum of the book is very wide: at the end it begins with a work of art and psychology, and then continues through the areas of the creative process, the interpretation of the work, the work with film material and poems. The whole work is the result of systematic work of several research teams in our country and Slovakia. Thus, a unique link was established between several workplaces, deepened nowadays by annual meetings on the platform of the Czech-Slovak conference (Miovský and Chrz, 2010).

Within theatre context, Vostrý (2018) used **Stanislavsky's conception** of acting as a creation, which is related to the phenomenon so characteristic of the period of modernity as the discovery of human creativity. It is a development from performance in role to character creation and from performance of written text to production. The director becomes the leading actor in the theatre. Stanislavsky, however, as a director and teacher focuses on developing acting creativity (Vostrý, 2018). Nuska and Dvořák (2013) published the final trilogy and most extensive work devoted to rhythm, reflection of rhythm in creation applied in art and especially in theatre. Professor Bohumil Nuska, a prominent figure in our contemporary aesthetics and philosophy, concludes the rhythm trilogy as one of the most important phenomena determining human life (Nuska, Dvořák, 2013).

Another comprehensive publication deals with three areas of higher education focused on the development and exercise of creativity and explores the possibilities of their interaction. In the field of creative writing (Zbyněk Fišer) verbal competences and the ability to creatively write professional and fiction texts are developed. In the field of gallery pedagogy (Radek Horáček) the interpretation of the work of art as an active creative process is examined and the field of Action Creation (Vladimír Havlík) focuses on practicing creative activities in the field of visual art. Creative work with text and visual information is a necessary competence for study and practice (Fišer, Horáček, Havlík, 2010).

Several monographs pay attention to motivation for creativity and innovations. Bezděk a Honzíková (2014) shows how motivation for creativity and approaches to creativity in the teaching profession influence the creativity process and content (Bezděk, Honzíková, 2014). The book of Mühlfeit and Novotná (2018) offers courses and seminars for parents, children and students, led by world-renowned coach Jan Mühlfeit together with lecturer Katka Novotná, to help to understand what children excel in. You will discover why it is important to help children discover natural talents and how you can support them as parents to develop their strengths so that they can use them effectively. In life, in the studio and later in work (Mühlfeit, Novotná, 2018).

According to Franková (2011) creativity is the driving force of the economy and the core of the success of companies and other organizations. The publication provides the first comprehensive overview of

how to recognize creativity and promote and develop within an organization to deliver marketable innovations and thus a competitive advantage. The author emphasize why it is important to recognize the creative potential of an individual, how to specifically support and develop human and team creativity, and how to recognize and shape an organizational culture that fosters creativity and innovation, without which an organization cannot truly realize its creative potential. In addition to practical advice, the book offers a number of examples and exercises to help identify and develop creativity and is intended for students, managers and entrepreneurs (Franková, 2011).

Novák (2017) focuses on the role of manager in support of innovation activities, description of organizational culture supporting innovation, instructions for innovation of products and services, methods of implementation of changes at the level of individuals, teams and organizations or on corporate education issues. The explanation is supplemented by various practical examples (Novák, 2017). Dytrt (2014) connects women and creative management referred to specific benefits and figures showing that greater participation of women in management represents a real benefit and a condition for success in the future (Dytrt, 2014). Overall, creativity is often required for many positions in technology (Honzíková, Sojková, 2014; Novotný, Honzíková, 2014), marketing and advertising (Horňák, 2014) or consultant business.

Several publications were dedicated to applying creativity in psycho-social professions. The content of the Kantor's (2014) publication covers theoretical bases for the use of creative (especially musical) means and approaches in persons with severe multiple disabilities. The methodological approach for the elaboration of the publication was based on already realized research, especially the mixed research design of the educational process of pupils with cerebral palsy, the analysis of the content of pedagogical and music therapy documentation and elements of the hermeneutic circle were used (Kantor, 2014).

Communication in education is one of the most common themes over decades. In the Czech Republic, one of the most important experts is J. Janoušek. His last publication deals with the internal connections between language and the human psyche. Special attention is paid to its cognitive function, especially thinking. More or less all types of communication are characterized. The main topic is the extremely complex relationship between internal speech and interpersonal communication. The book also pays attention to written speech and written communication, the influence of individuality or interpersonal relationships. Even lay readers are interested in the chapter on the specificity of female and male communication or communication in virtual reality. The author also considers the sustainability of verbal communication as a means of understanding and understanding among people (Janoušek, 2015).

The book *Psychology of Communication* by Vybíral (2009) analyses interpersonal and internal, hidden communication and discusses verbal and nonverbal communication, cognitive foundations, and contemporary approaches to understanding communication exchanges. Attention is paid to how we use language and speech to influence the thinking and attitudes of others. Individual chapters analyse media communication, communication disorders, therapeutic communication or communication in the Internet environment. The book was created by reworking and substantially extending the publication *Psychology of Human Communication* (Vybíral, 2009).

Communication skills in practice are in the interest of many other books (Křivohlavý, 2010; Mikuláščík, 2010; Svoboda, 2013). Focus is put on giving constructive feedback (Reitmayerová, Broumová, 2015), reflection (Nehyba, 2014) or crisis and difficult communications (Evans, 2010; Gottwaldová, 2017; Medlíková, 2012; Navrátil, Mattioli, 2011; Vymětal, 2009). Nowadays topic of pedagogical communication embrace inclusion and pupils with special needs (Havel, Filová, 2010; Kaleja, Zezulková, Franiok, 2011; Mazánková, 2018), intercultural communication (Hasil, 2011; Palščáková, 2014; Uličná, 2012; Západočeská univerzita v Plzni, 2017) or disinformation, fake news and propaganda (Alvarová, 2017; Gregor, Vejvodová, 2018).

Collaboration in learning has become an important part of education process. Czech authors offer many cooperative activities and methods applied across many subjects (Grecmanová, 2000; Chytková,

Černý, 2016; Kasíková, 2016; Koteš, 2009; Pecina, Zormanová, 2009; Rodová, 2014; Siegllová, 2019). Hrušková (2010) dealt with the influence of cooperative strategies on the effectiveness of language teaching with comparison to classical competitive methods (Hrušková, 2010).

Self-direction is one of the most required competences both in educational and organizational environment. Publications aim at emotional intelligence, mental resilience and self-confidence, other focuses more on self-management.

A great attention should be given to emotions. They have a significant impact on the quality of life, health and the ability to think right. Loja's (2019) book offers practical exercises and techniques to manage emotions in five basic steps. Emphasis is placed on working with the unconscious in alpha (Loja, 2019). According to Nešpor (2016, 2017) healthy emotions arise easily in favourable circumstances, such as in the company of likable people, in beautiful nature or when listening to melodic music. He guides the readers to evoke positive emotions at times we can't be in the countryside or a wonderful company. K. Nešpor, leads the male addiction department of the Bohnice Psychiatric Hospital and lectures to health professionals and university students. For about 30 years he has been involved in the prevention and treatment of addictive diseases. He is the author of many professional and popular works (Nešpor, 2016; Nešpor, 2017).

The sixth edition of the book *The Fairytale of the Lost Landscape: Psychology of Self-Coaching* deserves to be called a bestseller in the field of psychology. It is the result of the author's long-term work with coaching and lectures on this topic at home and abroad (Bahbouh, 2018). Suchý and Náhlavský perceive self-coaching as the key to positive change and personal satisfaction (Suchý, Náhlavský, 2012). Another exceptional book written by a leading Czech coach and psychotherapist Š. Vávrová brings her point of view of relationships, money, work and self-confidence and health. The readers share stories from their long work practice and are not afraid to talk about their personal experiences. It touches on topics that resonate with most of us. How to build a perfect relationship; how to get an enjoyable job and at the same time provides financial support; or how to face everyday stress (Vávrová, 2017).

Peterková (2014) published the book entitled *The Course of Healthy Self-Esteem* is a continuation of a series of mental health training and focuses on a lack of self-worth and low self-esteem. In a lightweight form, the author offers knowledge from rich therapeutic practice, invites the reader to work on herself and provides him with appropriate procedures, tips and suggestions. The course is based on cognitive-behavioural therapy and is divided into 14 parts, "DAYS", which direct readers to deeper self-knowledge and give them the opportunity to learn how to increase self-confidence and well-being (Peterková, 2014).

The End of Procrastination: How to Stop Postponing and Live a Fulfilled Life of author P. Ludwig is the worldwide bestseller (over 100 000 copies were sold). The End of Procrastination offers science-based, practical tools to stop procrastination. Even with overflowing inboxes and unmet deadlines, most people still cannot manage to take control of their time and stop procrastinating. With eight clear, approachable tools – from quick daily worksheets to shift your perspective to do lists that actually help you get things done. The End of Procrastination provides everything that people need for changing the way they manage their time and live their lives.

The book will help readers learn:

- the science behind why we postpone things,
- how we can motivate ourselves so that we enjoy our work, feel less stressed, and focus more,
- how to avoid becoming a goal junkie (a high achieving but unsatisfied person),
- how to organize your daily life and follow your vision,
- how to acquire new positive habits and end bad ones,
- how to cope with decision paralysis.

Based on the latest research, *The End of Procrastination* synthesizes over one hundred and twenty scientific studies to create a program that is based on the way our brains actually work. By

understanding exactly why procrastination happens and how our brains respond to motivation and self-discipline, the book provides readers with the knowledge to conquer procrastination on an everyday basis (Ludwig, 2016).

Most of the publications deal with stress, time and energy management (Bedrnová, 2009; Eckhardtová, 2006; Mikšík, 2009; Plamínek, 2008; Toman, 2009; Trojanová, 2012; Vágner, Weber, 2006).

In the education context, several publications consider self-direction as one of the most important competencies of teacher and leaders at schools (Trojanová, Šnýdrová, Tureckiová, 2013). Text of Juklová (2015) is centred on the study strategies of future teachers. As educators of future teachers, they pose the question whether and how the study strategies, which are being learnt by students during their tertiary education could become part of their permanent repertoire of behaviour. Further question was whether those strategies can really lead towards more effective learning and are potentially useful to be passed on to future generations. The Czech Republic has witnessed extensive changes in the teaching profession, partly represented by a change in the role of the teacher, as well as by many social changes leading to new motives, goals and tasks for the generation of future teachers. A reflection on the effects and their consequences for the strategies of young people in teacher training was one of the goals reasons for writing this publication. Such changes are not only specific to Czech education, but are increasingly gaining European-wide attention, the interest was also focused on future teachers from Poland, another European country with similar legal standards and political influences. The answers to these questions can be found in the second part of the book describing the results of two empirical surveys based on a quantitative research pattern. Their aim was to identify and compare preferred learning and reading strategies of Czech and Polish future teachers in the context of current conditions (Juklová, 2015).

The most recent comprehensive book on **making global connection** entitled *Civilization on the Planet Earth* by Bedřich Moldan is primarily intended for grammar school students, but it can also be used for teaching at other levels of education. Its content is directly linked to the topics of the Framework Educational Program for grammar schools (especially the educational areas “Man and Nature”, “Man and Society”) and contributes to deepening cross-cutting themes such as Environmental Education and Thinking Education in European and global contexts (Moldan, 2018).

The book *Together we Create a World: Inspiration to Those Who Help Children and Adolescents Take Responsibility for Creating a World Where All People Have the Opportunity to Live a Dignified Life* is an inspiration to those who help children and adolescents because of the global concept, specific practical tips, comprehensible language or deep thought about making global world (Zajíc, 2016).

Pelánek (2010) published methodological book *Experiential Education Programs* how make a global connection through a good game with an educational element – good teaching carries elements of the game. Teachers often have no experience in introducing more challenging games and instructors of experiential events are not accustomed to embedding learning elements in games. This publication provides inspiration to both groups and has no competition in the market. The programs are very diverse - from teaching to discussion to primary experiential programs designed to reflect on our own life. The detailed elaboration of several projects makes it possible to use them directly without great preparation requirements. The book is used mainly by instructors of experiential events and leaders of leisure activities for children and young people from 14 to 30 years, as well as teachers interested in non-traditional methods and elements of teaching (Pelánek, 2010).

A number of experts deal with the cross-cutting themes of global education and published several methodological manual and handbooks. Handbook *Millennium Development Goals Manual for Secondary School Teachers* consists of a set of DVDs and methodological guides for educators. Thematically, the films focus on education, gender equality, HIV / AIDS, the environment, globalization and poverty (Partners Praha, 2007). The topic of Millennium Development Goals was also part of the campaign *Czech against Poverty and Inequality*. This Global Call Against Poverty (GCAP) has been the most important common activity of Czech civic initiatives participating not only in networks associating organisations oriented to development cooperation like the Czech Forum for the Development Cooperation or the Association for Fair-Trade, but also in the association of ecological

organisations “Zelený kruh” (Green Circle). The main objective of the campaign is to obtain support in the topics of poverty eradication, promotion of equality, development cooperation, ecology (GCAP, 2019). In this context, Tožička published a manual with focus on civil responsibility in the light of global poverty (Tožička, 2008).

Demlová and collective of authors published manual with a wide range of global topic in regards with teenagers and adolescents (Demlová, 2009). Holková (2011, 2012) created handbooks for multicultural and global development education for school partnerships aimed at children (Holková, 2012) and teenagers and adolescents (Holková, 2011). Hlavičková (2010) created a methodological manual with 100 activities for teaching English – how to work with cross-cutting topics, global education and communication development (Hlavičková, 2010). Stašová, Slaninová a Junová (2015) dealt with selected aspects of the socialization and upbringing of contemporary children and youth in the context of the medialized society (Stašová, Slaninová a Junová, 2015).

Dlouhá (2015) created a handbook teaching through **regional** materials and case studies for environmental global education on the Science for Schools project. However, this locally-based learning reflects local conditions and environment, the findings are applicable globally (Dlouhá, 2015).

Using technology as a tool for learning is nowadays necessity and the topic gets more attention of various experts across different fields. The book of Zounek et al. (2016) is intended for all readers who encounter digital learning or teaching: student teachers, adult educators, researchers and the general public. It is based on the theoretical study and empirical research of the authors, but also on their own teaching and lecturing practice. It reflects current pedagogical and technological trends but is also critical of unrealistic expectations and ideas that are often associated with technology implementation. The publication can inspire readers and open up new perspectives and ways of learning (using) digital technologies. It will be appreciated especially by those who prefer modern but sophisticated didactic procedures of using technologies. The book is complemented by online support, see <http://knihaelearning.cz/> (Zounek et al., 2016).

Chromý (2014) deals with communication and use of media and its means in various areas, especially in education and culture. It presents selected results of research on the use of means of communication, adherence to the principles of auditoriology and quality of services in the field of technical means. The publication also covers a wide range of communications related topics. It is intended not only for professionals in the field of communication and media, but also in other areas of social life (Chromý, 2014). Budíková and Nebolová (2016) show tips and tricks (hacks) from different areas, with or without technology. The authors simply advise readers on how to better organize – how to make a system, improve habits, not overwhelm, how to effectively prosecute duties, and thus have time for joy, how to reduce chaos and make daily life easier and more fun, how to learn effectively or how to hack travel (Budíková, Nevolová, 2016).

Publication of Černý (2016a) is the basic overview monograph on the topic of very complicated and difficult information systems in education. He focuses both on school information systems or the Learning Management Systems, but also monitors the possibilities of their mutual interaction. Describing side-by-side two phenomena that have a lot in common and will probably blend even more in the future was difficult. The author strongly hopes that the solution proposed by him did not lead to confusion or unintelligence of the whole interpretation. The second difficulty lies in the theme itself. There are not many quality publications that would be devoted to information systems and at the same time not based on managerial or technical discourse. It was necessary to offer a certain perspective of their own, often in perspective or prediction. Rather than describing the current state or preparing specific architects of information systems, it was about creating a certain framework of thought. He creates a paradigm in which one will be able to think about this interdisciplinary issue. Within the framework of various approaches to information systems, he created a very unconventional concept, which is written primarily for educators or social and cognitive scientists. There is very little technical detail in it and the author does not expect any special reader's prior knowledge of this field. The publication is conceived as an overview monograph that can offer some specific paradigm of information systems creation in education (Černý, 2016a). His other book was dedicated to using

creative techniques in online environment (Černý, 2016b), or tablets (Černý, Hostašová, Hošek, 2015a), electronical sources (Černý, 2015b) and webinars in education (Černý, 2015c). Two other textbooks are dedicated to the profession of ICT coordinator (Černý, 2015d) and ICT methodist (Černý, 2015e). The book of Černý (2018) follows the questions of online education in their pedagogical-psychological form, based on the concept of a certain new calculation of the cyber logical concept of online learning. The first part focuses on a new interpretation and use of Bloom's taxonomy. The second part deals with individual topics that are specifically related to online education - from self-evaluation or motivation to work with memory or gamification. It creates a previously unpublished set of key topics that can be of interest to online education tutors or designers as well as researchers in the field. The third chapter is focused on these, which deals with the possibilities of research in the online environment, respectively specific procedures and techniques that can be used here. The fourth chapter is devoted to cognitive psychology and positive psychology, i. e. two psychological schools that find the widest application in online education. The last chapter is focused on information behaviour (Černý, 2018).

Lacina, Rozmahel and Kominacká (2016) published a guide for mentoring and mentors, including managing educational changes, such as strengthening the importance of activation methods and ICT in the learning process. The most important and useful part of the publication consists of chapters concerning the practical application of mentoring techniques in practice and chapters dealing with trends in modern approaches to making teaching more attractive using ICT and activation methods of teaching. The authors intended to create a "practical handbook" containing advice, recommendations and guidelines that have proved their worth in practice. The ultimate goal is to support the practical implementation of mentoring as professional support for individuals and work teams. Mentoring as a tool for peer support is a useful way of sharing experiences and developing new trends that support a modern approach in education (Lacina, Rozmahel, Kominacká, 2016).

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4. PROJECTS IMPLEMENTED IN THE CZECH REPUBLIC CONCERNING 21ST CENTURY SKILLS

A) Across project

The IEC CULS was a leading organisation of the project titled „Across Disciplines, Borders and People in Rural Development”. It was an international project solved within the Erasmus+ KA2 programme and it was aimed at the development of competences of teachers in vocational education. One of the important output of the project was a survey at selected vocational schools in Austria, Bulgaria, the Czech Republic, France, Germany and the Netherlands in the academic year 2017/2018.

The sample of the ACROSS survey consisted of 412 respondents (= teachers) from 85 different vocational schools in partner countries. There were questioned 275 female teachers and 137 male teachers. The largest sample of teachers was from **Austria** (150 respondents), **the Czech Republic** (85 VET teachers) and **the Netherlands** (70 respondents).

The main aim of the survey was to find out and analyse the actual problems of teachers in vocational education and needs for further training of teachers. The largest part of the sample (= 63,4 % of 412 questioned teachers) concluded that the biggest obstacle in their profession is “decreasing motivation for study among their students”.

Czech pedagogues and scientists in education see the main reason for this situation in the low promotion of 21st century skills and meta-cognitions at the secondary schools. The students are being educated only with the method of memorising the content.

European educational scientific or psychologists (e.g. British psychologist S. Larkin, 2010) assume that metacognitive thinking is not supported in the secondary education system, especially because educators prefer solving short tasks and doing quick exercises. The motivation of the learners is therefore to make the task correctly as quickly as possible. The metacognitive regulated learning occurs only at the very end of the lesson when students have to reflect on the whole process of the lesson - what they learnt, how they solved tasks, how demanding it was for them, and others.

This is the main reason, why is the IEC, very keen on cooperation on the CATCH 21st Century Skills project. Its aim is to teach academic staff how to organise time of lesson effectively with help of using teaching methods such as cooperative or project learning, problem solving tasks, heuristic discussions etc. in order to train students in 21st century skills.

Especially in the Czech Republic, we observe huge development in the field of VET and higher education but often without proper methodological background and trainers’ qualifications.

Within the ACROSS survey, the respondents were able to give feedback of their satisfaction or non-satisfaction at their work position. The respondents clearly showed different views on the priorities of individual indicators. Analysis of their answers in the questionnaires led to results, which can be a basement for the topics of new courses for VET teachers or for academic staff in the involved countries. The questionnaire consisted of six questions and the most relevant question to this report was – ***“Please, select all the courses, which you would be interested in studying”.***

There were nine options of the courses offered in the ACROSS questionnaire, and four of them could be a part of the intensive course on development of 21st skills of teachers:

- social skills and communication and presentation skills
- basic knowledge of psychology
- creative didactic methods (didactic games, project teaching, cooperative learning...)
- self-development competences (course of assertiveness, time-management skills...)

Each responded had the chance to select three concrete courses from the offer in the ACROSS questionnaire. If they did not find option corresponding with their demand for future learning, they could write it down in the open question “other”. The table No 1 shows the results achieved from the survey:

TYPE OF COURSE	Number of answers
Practical skills connected with teaching background of the teacher	171
New didactic methods	166
ICT skills	122
Self-development competences	118
Basic knowledge of psychology	108
Social skills (communication skills)	100
Foreign language	95
Project management skills	43
No training	9
Other	4

Table 1: Demand for future training among VET teachers

The main results regarding lifelong learning of VET teachers are quite positive – the questioned teachers are really keen on professional and personal development, only 9 out of 412 respondents ticked the item „no training“. Only **5 Czech**, **3 Dutch** and **1 Austrian** teacher showed **no interest** in future training.

The highest demand among VET teachers is for the courses connected with their **teaching specialization** in order to strengthen their professional skills (41,5 % of teachers' answers) and for **training of new didactic methods** (40,3 % of respondents selected this course). **The smallest demand** among respondents is for course of **project management skills**.

TYPE OF COURSE	CZ	NL	BG	FR	AT	DE
Practical skills connected with teaching background of the teacher	44,7	25,7	27,5	55,2	44,0	70,4
New didactic methods	38,8	38,6	47,1	62,1	34,7	44,4
ICT skills	21,2	18,6	27,5	62,1	33,3	33,3
Self-development competences	21,2	45,7	11,8	17,2	33,3	25,9
Foreign language	37,6	31,4	17,6	31,0	14,7	3,7
Social skills (communication skills)	15,3	21,4	7,8	34,5	34,7	22,2
Basic knowledge of psychology	9,4	51,4	15,7	20,7	31,3	11,1
Project management skills	16,5	10,0	11,8	20,7	6,7	0,0
No training	5,9	4,3	0,0	0,0	0,7	0,0
Other	0,0	2,9	0,0	0,0	1,3	0,0

Table 2: Demand for future training sorted by the country of residence of the respondent

The answers of six different national samples varied in several aspects:

- The largest number of **Dutch teachers** is interested in **courses of psychology** (51,4 %) and **self-development training** (45,7 %), the demand of teachers from the other five countries is much smaller.
- The demand for **language courses** is much smaller in **Austria** (14,7 % of the answers of Austrian respondents), **Bulgaria** (17,6 % of Bulgarian teachers) and **Germany** (3,7 % of German teachers).
- The interest in training of the **communication and presentation skills** was found out mostly among **French** and **Austrian teachers** (around 35 %).

- **French teachers** are really keen on some **ICT courses** and **trainings of new didactic methods** (62,1 % of the answers from this sample). The demand for **ICT courses** among other countries is much smaller.
- **German teachers** are strongly interested in **professional courses** connected with their teaching background (70,4 % of answers).

The results from the survey show that the VET teachers are more interested in practical training than in the development of personality competences. Regarding training of the 21st century skills, the training would attract VET teachers if it contained lectures on sharing new didactic methods such as project teaching, cooperative learning and self-directed learning - 166 questioned teachers out of 412 respondents selected this course, which makes around 40 % of all the survey sample.

The IEC as the leading organisation of the project would like to admit, that the selection of courses would be quite different if the survey aimed at training needs of another segment - the academic staff. There is prediction that the demand for personality developmental courses would be much higher than for courses of practical skills because the profile of university staff is more academic than VET teachers, they deal more with theory than with practical issues and they have different preferences for further education.

B) PROSOLVA project – Problem Solving Methods in Teachers Professional Development

The PROSOLVA project implemented within the EU programme Comenius merged eight universities dealing with teacher training and several vocational schools in Bulgaria, Czech Republic, France, Greece, Norway, Poland, Spain and the Netherlands. The main aim of the project was to collect efficient problem solving methods, which could help teachers to develop lifelong learning skills. A set of solving tools was elaborated and tested during action research executed in eight EU countries in 2007. The main outputs of the project were toolbox with problem solving approaches and European training course for VET teachers. During the action research (on the base of structured interviews with stakeholders) was concluded that the most functioning problem solving methods are: definition of social skills by D. W. Johnson (1993), measurement of social competences by E. A. Doll (1953), ALACT-model (Korthagen 2001), support-questionnaire by D. Chalvin, P. Alto's group questionnaire frame, teachers stories by Fenstermacher (2004), active listening by E. Gendlin, six Bono's thinking hats, forum theatre, Beck's sheet and log writing.

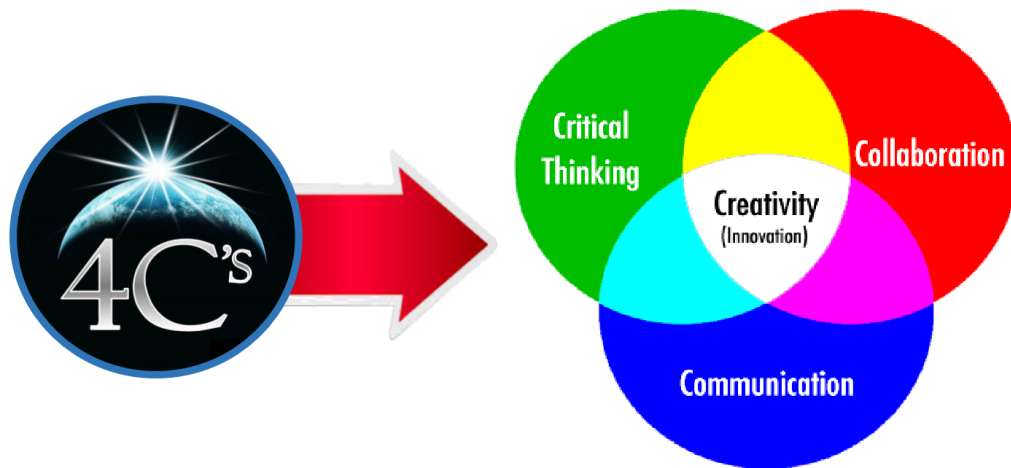
It is obvious, that these methods were utilised in the millennium time. Although some are still very popular by both VET teachers and academic staff, they are nowadays considered to be quite "old fashioned". That is way, the IEC academic staff see a high potential in the CATCH 21 project in order to share new methods within training 21st century skills and implement quality and actual training for academic staff.

5. ACTIVITIES IMPLEMENTED IN THE IEC CULS PRAGUE CONCERNING 21ST CENTURY SKILLS

IEC staff integrate the principles of 21st century skills approach to their lessons. The IEC shares values on this actual topic with its key partner a Dutch AERES University of Applied Sciences Wageningen.

Dutch education scientists transformed the above mentioned competences into three core career situations of academic staff: 1. professionally competent, 2. subject didactically competent, 3. pedagogically competent. These three situations are surrounded by a so-called 'broad professional base' including 21st century skills (organisational, planning, communication, reflection, curiosity, result- and developmental oriented, cooperative, collaborative learning.

IEC also sees the meaning in the 4C model as a basement for integrating the 21st century skills into teaching and learning – **C**ommunication, **C**ollaboration, **C**ritical thinking and **C**reativity.



Picture 1: The 4C model

This model now is nowadays extended into a variety of „Cs“:



Picture 2: Extended the 4C model

Practical examples and case studies how the Institute of Education and Communication works with the 21st century skills for teachers or students are presented in the following three pages.

A) Course on Presentation and Communication Skills for CULS Ph.D. students

The Institute of Education and Communication has been annually organising a course for the Ph.D. students of the Faculty of Forestry and Wood Sciences, the Faculty of Environmental Sciences and the Faculty of Tropical AgriSciences since year 2005. The course is carried out in four-day modules. Ten IEC academic staff and four IEC technical staff participate in the implementation of the course programme. The main aim of the course is to introduce the principles of the education, to train students in delivering a quality presentation of research results and to develop their skills of verbal and nonverbal communication. An important part is training didactic and presentation skills of learners on the base of the method “microteaching”. This method was implemented by the first IEC director – Prof. M.

Slavík in 2005. The main advantage of this method is using camera for recording and analysing teaching trials of student teachers. Due to growing number of Ph.D. students from foreign universities, this course was implemented also in English language in 2015.

B) ESF funds – intensive course “Development of Pedagogic Competences”

The IEC academic staff is responsible for training of selected academic staff from all the CULS faculties within the project MOST (2017 – 2020). The project is funded by the EU Structural Funds to improve the quality of higher education provided through:

- increasing the professional level of academic staff,
- reworking existing and creating new study programs taking into account modern teaching methods,
- the needs of the labour market and practice,
- taking into account the needs of students with specific needs,
- establishment of a system of quality assessment and strengthening of CULS strategic management.

There were delivered three rounds of this course within the project. The staff is working on preparing the last round. Eighty-six academic staff will be trained within this project. Each round consist of 80 hours of face-to-face training and e-learning. The most popular lessons of the course are communication teacher–student, group and cooperative forms of university education, personality of an university teacher, development of metacognition of university teachers and application of ICT in university education (source: questionnaire forms filled in by the course participants).

C) Publication activities

The Institute of Education and Communication develops scientific and research activities in educational, psychological and other related branches of the social sciences. Scientific activities respond to new pedagogical trends, current developments in the educational system in the Czech Republic, and the requirements of practice in educational institutions. The IEC, besides traditional areas, deals also with topical issues. Among these belong, for example, new technologies and innovations in education, modern strategies in teaching and learning, lifelong learning of various target groups, professional and key competences, social and pedagogical aspects of learning and teaching or progress, and the effectiveness of the guidance process. In research work, the IEC commits to the idea of green pedagogy, which places emphasis on interdisciplinary cooperation, highlights the importance of the environment for learning, and strives for a responsible, sustainable development of the individual and society.

Eight out of eleven IEC internal academic staff publish articles and take frequently part as lecturers in trainings for academic staff or VET teachers: three of them have Ph.D. degree in psychology, one Ph.D. degree in social pedagogy and four Ph.D. degree in pedagogy sciences.

Lucie Smékalová, Ph.D et Ph.D.

She graduated in Pedagogy at the Faculty of Education in a study field of adult education at the Faculty of Arts at the “Palacky University in Olomouc”, Czech Republic. Nowadays, her position is a Deputy Director for Education and the Head of the Department of Lifelong Learning and Study Support at the Institute of Education and Communication of the Czech University of Life Sciences Prague. Her professional work is focused on the professional competences, transferable competences, didactics, “didactics for adults” and education of seniors. She is also a member of the “Czech Education Research Association” and a member of the Scientific Board of the professional journal “Paidagogos”.

Jiří Votava, Ph.D.

Senior Assistant of the IEC, graduated in general education, he obtained Ph.D. degree in social pedagogy. In the research he focusses on problem solving methods in education and social pedagogy. He has got a broad experience in teaching international students, he trained secondary school teachers

within PRO-SCHOOL and PROSOLVA project. He frequently goes to state universities in Georgia, Cambodia, Mongolia and Uzbekistan to train academic staff in innovative teaching methods.

Kamila Urban, Ph.D.

Junior academic staff, she is graduated from the psychology and she obtained a Ph.D. degree in school pedagogy. Her research focusses mainly on the meta-cognitive development and self-regulated learning.

PhDr. Jitka Jirsáková, Ph.D.

She is a senior academic staff at the IEC CULS Prague, her teaching and research aim at the career guidance and prevention of risk behaviour of youths. Her scientific work is influenced by theories of Peavey (Socio-dynamic guidance), Schein (career anchors) and Holland (test RIASEC). She systematically focuses on the cooperation with IEC graduates. She also regularly engages with the activities of the Career Centre of the CULS every year and offers individual consultations on the professional orientation to CULS students and CULS graduates.

In the career guidance, she prefers using creative techniques (didactics cards, photographs, pictures and collages). She organises the Job Fair of work opportunities at the CULS. She is a co-founder of the "Czech Association of Career Counselling". She is also a member of the "Association of University Advisors" (<http://www.asociacevsp.cz>) and the "Association of Adult Education Institutions" (<http://www.aivd.cz/>).

Prof. Ing. Milan SLAVÍK

He is a former director of the Institute of Education and Communication of the Czech University of Life Sciences Prague (IEC CULS). In terms of scientific work, he is a Professor of Management in Education and his research is focused on the professional competences and the transferable competences, extension in agriculture and education.

Dr. Jiřina Sněhotová

She teaches psychology and diagnostics for teachers of practical education and vocational subjects at the IEC CULS. She graduated in psychology at the Faculty of Arts of the Charles University in Prague, where she is currently completing her Ph.D. in psychology of work and organisation. For over 15 years, she has been professionally and academically involved in personnel psychology, personal development and education. She has a broad experience in managing complex development and prestigious projects. Her portfolio includes management consulting, psychological coaching, soft skills training, group facilitation, psychological testing, enhancing feedback and interpretation, employee surveys and various psychometric analysis. She also cooperates with non-profit organizations and other educational institutions.

Dr. Marie Hanušová

Senior teacher of psychology. She has got an extensive experience in training employees in companies (banks, insurance companies, manufacturing companies, state institutions, etc.). She trains managerial psychology within MSc. Programme at the Institute for Public Administration Prague.

This team of academic staff is led by the director **Karel Němejc, Ph.D.** He focuses on evaluation in education, environmental education, teaching aids and the effective use of educational technologies. He is in charge of evaluation of education processes and inspection activities at the Czech University of Life Sciences Prague. He is a member of the Quality Assurance Board of the "Euroleague for Life Sciences".

The most relevant publications corresponding with the issue of development of 21st century skills are:

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D) Other activities on topics of 21st century skills at the IEC – career guidance

Jitka Jirsáková, Ph.D., senior academic staff at IEC CULS closely cooperates with the **Career Centre** of the Czech University of Life Sciences Prague. The goal of the centre is to help students with entering the labour market. The centre achieves its goals with a wide range of services focused on students' personal development, gathering relevant information for a qualified decision on their future careers and connecting students with their prospective employers. Jitka Jirsáková, Ph.D., offers professional coaching to students to make a good decision for further study and job position. She also annually organises job fairs and meetings of current IEC students with the successful IEC graduates.

6. CONCLUSION

The European Commission perceives teachers as key players in how education system evolve and in the implementation of the reforms which can make the European Union the high performing knowledge-driven economy in the world. High quality education is supposed to deliver learners a personal fulfilment, better social skills and more diverse employment opportunities. The European Commission recommends all the teachers to be graduated from higher education institutions. Every teacher should have the opportunity to continue his or her study to the highest possible level to achieve progress within the profession.

Further education represents a heterogeneous part of the educational system. The target groups are characterized by entirely different features. As to the institutional background, it may take place both in purely educational institutions and within entities having education as their only economic activity. One of the basic ideas of adult education is that every individual must be in a position to keep learning throughout his life. The further education is legally stipulated in the Education Act, in the Czech Republic, it is concretely Act No 563/2004 Coll, On Pedagogical Staff.

In 1972, the UNESCO's International Commission on the Development of Education commission issued the document '**Learning to be**', which contained a number of recommendations for adult education. One of the basic ideas was: „Every individual must be in a position to keep learning throughout his life. The idea of lifelong education is the keystone of the learning society!”

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