

Implementing Transferable Competencies in the Curriculum Through the New Course "21st Century Skills": A Case Study

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Abstract: The paper presents the design, implementation and evaluation of the course "21st Century Skills" which is a partial output of the international project "CATCH 21 - Changing the Approach to University Teaching". The topics of the course were chosen based on the results of qualitative interviews with HR managers who assessed what transferable competencies are missing in university graduates. Prior to the start of the course, the students underwent a self-assessment of the transferable competencies. Within a course several innovative activating methods were used. At the end of the course, students rated the relevance of the course itself.

Keywords: transferable competencies, 21st Century Skills; curriculum, tertiary education environment, self-assessment.

Introduction

Transferable competencies are the generic capabilities which allow people to succeed in a wide range of different tasks and jobs (Enterprise in Higher..., 2019, 5). The development of transferable competencies is still actual priority of HEIs, the competencies are considered a "global currency of the 21st century" and the European Commission characterizes competence as a "win-win" strategy for individuals, society, employers and the economy. M. Yorke specifies that the basic idea is that skills learned in one context could readily be transferred to another (Yorke, 2006, 12). A. Ylonen points out that transferable skills are important for individuals to enhance their employability, for employers to find qualified and able employees, and for the economy that needs highly skilled workforce for economic growth and competitiveness (Ylonen, 2012, 804). To become sustainably competent for functioning in the continuously changing labour market, a student has to develop meta-skills and transferable competencies (Kuijpers, et al., 2009).

The above is becoming a central issue in the current academic environment. Two basic sets of questions arise here. The first set of questions: Are current graduates prepared for the labour market? What are the current requirements of employers on graduates of degree programmes? Which 21st century competencies do students lack? Second set of questions: Can transferable competencies be developed in university students? Which methods can be applied to teaching in order to develop specific 21st century competencies?

The answers to the above questions were also explored in 2020 (within a qualitative research of the project "CATCH 21 - Changing the Approach to University Teaching"). In this paper, only the results at the national level, i.e., for the Czech Republic, are presented. Based on the answers of employers (especially HR managers), a course was designed and implemented in the curriculum of university training. Before the course itself, the students assessed some transferable competencies, i.e., to what extent they have acquired the competences. Subsequently, the course was designed and taught for a semester at the end of which the students evaluated the course. The respondents were students in the Guidance in Vocational Education program. The course was implemented at the Institute of Education and Communication of the Czech University of Life Sciences Prague.

Transferable competencies reflect the demands of the world of work across occupational sectors (e.g., teamwork etc.). The higher education environment can develop transferable competencies in a variety of ways, for example, by implementing a course in the curriculum. For example, A. Assiter argues that transferable competencies are so significant for career and social life that they should be included in curricula in a notable rate (Assiter, 2017). A. Baylei highlighted this fact already in 1990 when she argued that transferable competencies should be developed within academic subjects as a benefit, bearing in mind future technological development and the variability of job positions (Baylei, 1990).

Therefore, the paper offers a case study of how transferable competencies can be implemented in the curriculum.

Methodology

Course design

The starting point for the course concept was first the results of a qualitative survey of employers. One of the questionnaire items was a closed scaling question, in which the participants rated the importance of seven chosen competencies on a scale from 1 to 10. Table 1 shows the HR managers' ratings of 21st century skills (Smékalová, et al., 2021, 315). The interviewed managers consider two skills of newly hired managerial staff as the most important – "Collaboration" and "Communication".

Table 1

The managers' ratings of 21st century skills in terms of their importance for recruitment

List of 21 st Century Skills	Manager 1	Manager 2	Manager 3	Manager 4	Manager 5	Manager 6	Mean	Standard deviation	Order of importance
Critical Thinking	9	10	9	9	8	8	8.83	0.687	3
Collaboration	10	10	10	10	10	10	10.00	0.000	1
Communication	10	10	9	8	10	10	9.50	0.764	2
Creativity & Innovation	9	5	5	10	7	8	7.33	1.886	6
Self-Direction	8	9	7	10	9	9	8.67	0.943	4
Making Global and Local Connections	9	8	8	5	8	4	7.00	1.826	7
Using Technology as a Tool for Learning	7	9	10	9	7	5	7.83	1.675	5

These findings also correspond with research results on importance of peer collaboration, which was implemented at the University of Latvia in years 2018 and 2019. These research results also implicitly suggest that to demand students to write papers and reports together as part of a peer cooperation activity may be successful only if these tasks are first used as part of peer collaboration assignments, which could teach the students how to successfully work in a team with various people and, thus, make them more self-confident, as well as convince that peer collaboration is a useful skill to possess for the future career (Apse et. all, 2020, 34).

The results gained from the guided interviews were integrated into the course in order to strengthen all the most frequently mentioned competencies, i.e.: verbal and nonverbal communication, active listening; cooperation, teamwork; critical thinking, problem solving; self-directed learning, creative skills; multicultural skills; modern ICT tools in education.

The new course "21st Century Skills" had following annotation and objectives:

- **Annotation:** The course is divided into seven thematic units (modules): communication, collaboration, critical thinking, self-direction and self-reflection, creative and innovative thinking, multicultural skills, and ICT skills. In addition to the theoretical information about individual skills needed for education, career and social activities in the 21st century, students will develop practical skills – critical and innovative thinking, teamwork, communication, ICT and multicultural skills – through team activities. The course is implemented as one of the main activities of the international Erasmus+ project "CATCH 21st Century Skills".
- **Course objectives:** The aim of the course is to acquaint students with tools, techniques and methods for the development of soft skills that are essential for education, specific job position and social activities in the 21st century.

The education plan included the following lectures and seminars.

Lecture:

- **COMMUNICATION SKILLS:** verbal and non-verbal communication, pedagogical communication;
- **COLLABORATION:** principles of cooperation and teamwork;
- **CRITICAL THINKING:** anchoring critical thinking in the project (reading and writing for critical thinking), importance of critical thinking, cognitive bias, logical fallacies;
- **SELF-DIRECTION AND SELF-REFLECTION:** self-directed learning and motivation, metacognition and self-reflection, learning approaches by Ramsden (Ramsden, 1992), the role of emotions during the learning process;
- **MULTICULTURAL SKILLS:** European networks for international cooperation, national specifics of selected countries, tools for avoiding ethno-centric approach and schematic thinking;
- **ICT SKILLS:** internet, social media.

Seminar:

- **COMMUNICATION SKILLS:** active listening, trial microteaching lessons;
- **COLLABORATION:** creating teams and facilitating teamwork (Belbin's Teams Roles);
- **CRITICAL THINKING:** development of critical thinking with the help of interactive methods;
- **CREATIVITY AND INNOVATION:** methods to enhance creativity, creative problem solving (brainstorming and brainwriting);
- **MULTICULTURAL SKILLS:** making global and local connections, globalization, sustainable development;
- **ICT SKILLS:** ICT skills as a tool for learning (advanced tools on Moodle such as Competency Frameworks, Individual Learning Plans, Rubrics) and modern applications such as Mahara E-Portfolio System, DojoIBL, Canva, Genially, Learning Apps, Padlet, Kahoot and Mentimeter.

The course guarantees the acquisition of the following learning outcomes (knowledge, skills and competencies recognised under the ECTS):

- **Knowledge:** Students will learn to identify various digital applications and tools for self-directed learning and self-reflection. They will also gain new knowledge on self-directed learning, self-regulated learning models and the most common strategies. They will learn basic concepts such as metacognition, motivation, student independence, interests and self-regulation, self-efficacy, trust, self-esteem, etc. Students will know different types and ways of effective communication and cooperation, and active listening. They will understand their importance, including the possibility of application in communication and collaboration with colleagues, external partners and other people. Moreover, they will understand the basic definitions, theories, strategies and techniques related to critical, global and creative thinking.
- **Skills:** Students will strengthen soft skills such as effective and fair communication, active listening and teamwork, critical and creative thinking, self-management, self-motivation, self-reflection etc. Students will learn how to use popular techniques for the development of critical and creative thinking or ethnorelative approach. Students will manage their work and communication in a team. They will learn to exist safely on social networks and learn modern ICT tools for online learning such as Kahoot, Mentimeter, Genially or Learning Apps.
- **Competence - Communication:** Students will develop teamwork and communication skills in English by solving numerous tasks in small groups. Students will strengthen their multicultural skills by getting acquainted with the cultural specifics of European countries and the differences of cultures outside of Europe.
- **Competence - Opinion:** Students can realistically assess their learning opportunities by mastering self-directed learning practices. Students will learn critical thinking throughout the learning process and can assess the opportunities and threats of the global world. Students will remove the schematic view to other mentalities and cultures.
- **Competence - Education:** Students will strengthen independent thinking and reasoning. They can understand the needs of lifelong learning in connection with the further development of their own personality. They continuously monitor professional literature and other relevant sources.

The course is conditioned by the knowledge of the English language at a minimum level of B1. The form and methods of teaching, and the completion of the course are as follows:

- **Learning activities and teaching methods:** Activation methods (dialogue, heuristic interview, problem teaching, role-play method) are used in lessons. Modern information technologies such as Kahoot and Mentimeter are also used. Communication between learners and a teacher is also conducted through e-learning in LMS Moodle.
- **Assessment methods and criteria:** During lectures, seminars, and e-learning in Moodle, the students work on tasks given by the teacher. The condition for obtaining credits is an active participation in contact lessons with absence not exceeding 25%, and work in LMS Moodle.

Course Implementation

The course was implemented in the summer semester of the academic year 2020-2021 in the scope of 4 hours per week (2 hours of synchronous teaching and learning and 2 hours of work individually on tasks in LMS Moodle). The course was taught exclusively in English and was completed with a credit of 4 ECTS. The course was elective due to the language requirement, being taught in English. The course was designed for the purpose of contact lectures and seminars; due to the restrictions of the COVID-19 pandemic it was necessary to implement it in an online environment. The synchronous teaching and learning took place in a video room in the MS Teams application. Self-study was conducted in LMS Moodle where the students were acquainted with the objectives of each synchronous online lesson, had downloadable learning materials, worked on independent assignments, and completed feedback questions to determine whether they understood the topics correctly.

Seven teachers contributed to the course two of whom were external tutors, experts in ICT who brought the latest knowledge in the field of digital technology and digital education.

The students were participants in the bachelor's degree programme Guidance in Vocational Education, 2nd year of study. As an added value, the course was also attended by 2 students from abroad under the Erasmus + programme.

Prior to the start of the course, students were asked to complete a pre-test assessing their initial knowledge of specific competence clusters, namely: collaboration, self-direction, communication, critical thinking, creativity and innovation, using technology as a tool for learning, and making global and local connections. In detail, they had to specify their level for each one of the clusters ranging from 0 (no knowledge) to 10 (plenty of knowledge).

The results showed the following self-assessment of the initial level of acquisition of transferable competences prior to the implementation of the course, see Figure 1.

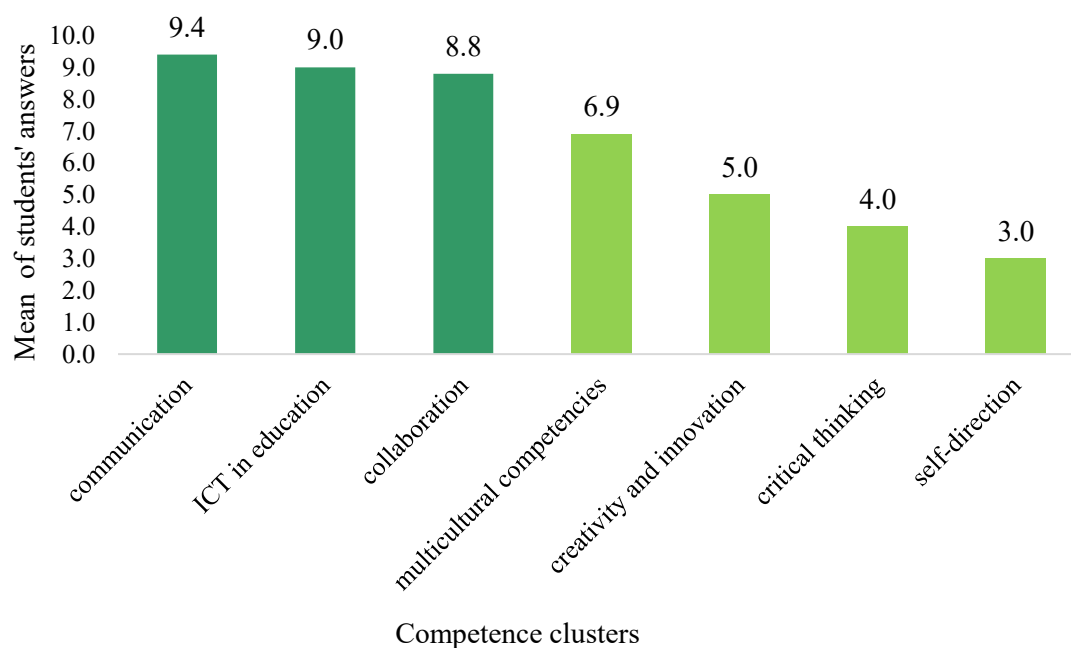


Figure 1. Students' level of acquisition of transferable competencies prior to the start of the course.

The transferable competencies Self-Direction, Critical Thinking, Creativity and Innovation showed insufficient acquisition. These competencies were therefore the priority focus of the course.

The course was therefore taught through activation methods, practical skills were developed, and emphasis was placed on interactivity and feedback.

An illustrative example of an activation method, called the cinquain (Marcus, 1974), is shown in Figure 2. Students were asked to reflect on the significance of communication. They then constructed their responses through the cinquain method.

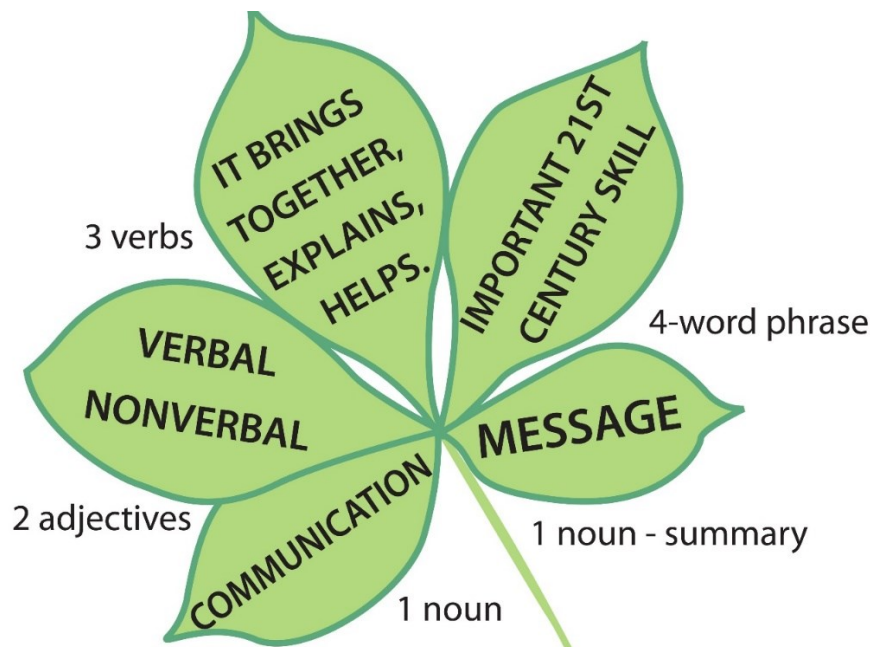


Figure 2. Graphic illustration of the cinquain method.

The cinquain method and the example above are clear evidence that: (a) students had to reflect on the topic of communication using critical thinking to realize the complexity of the problem; (b) the different representations of the cinquain (in the form of a plant, a pyramid etc.) reflected students' creativity and innovative thinking; (c) students had to use self-direction to apply the assignment and its methodological steps to the final solution of the assignment.

Other methods or professional test used during the course were for example Torrance Test of Creative Thinking (Torrance, 1974), Six Thinking Hats (Bono, 1985) in creativity and innovation module, fish-bone and diamond method in lessons to enhance critical thinking.

When reflecting on specific transferable competencies through discussion during lessons, students confirmed that there was a development of transferable competencies compared to the initial assessment. However, the students did not dare to estimate the interval of improvement because they objectively reported that the course lasted only one semester and, therefore, the development of transferable competencies could not be considered sufficiently internalised.

Results and discussions

At the end of the semester, students rated the course very favourably. The course was rated as the best of all the courses in the semester in a continuous evaluation survey of all courses which takes place regularly at the Institute of Education and Communication at end of each semester. Historically and statistically, the course had the best rating in the last 3 years, as students reported the highest scores on all items assessed. The rating scale was from 1 (minimum) to 4 (maximum) expressing agreement with the statements. The overall course score was 3.8. The loss of 0.2 points was only due to the item that assessed the course learning load which the students rated as higher than usual. The load involved such demands on the student as English language proficiency, focus for interactive learning, providing feedback, and group involvement in particular assignments.

From the teachers' point of view, the course was also perceived favourably. Students were motivated, willing to cooperate and there were interesting creative handlings of individual tasks. From a didactic point of view, examples of the application of activating methods were given and then applied to other examples so that the educators were confident that the students understood the specific methods sufficiently. The form of teaching (online environment) was a limitation as was the time loss for explaining the assignments for the given activation methods which were not known to the students. Many of the methods are taught in a so-called experiential way or experiential learning, which the online environment does not allow for much. Even though the teachers used the shared whiteboard Google Jamboard and numerous modern applications like Kahoot, Learning Apps, Mentimeter, Genially during online teaching, practicing skills in an actual classroom through face-to-face interactions can never replace the virtual environment for 100% (Figure 3).

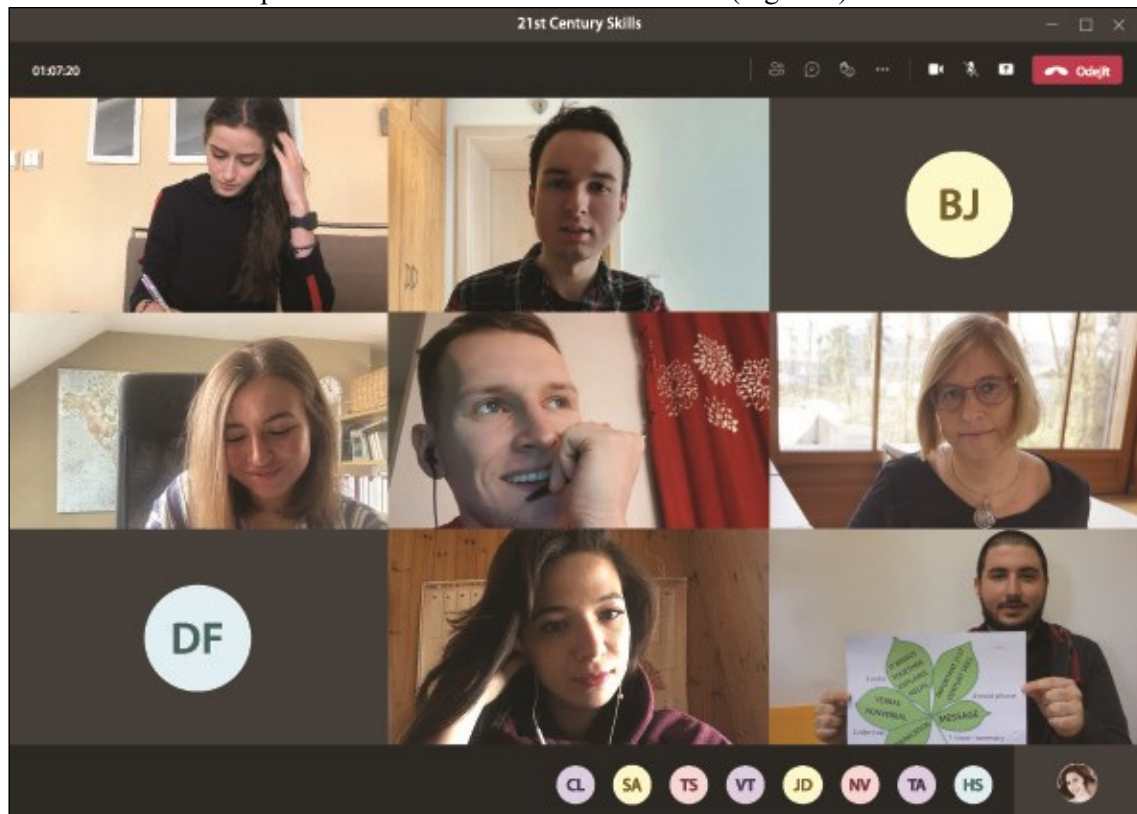


Figure 3. Synchronous teaching in MS Teams.

Conclusions

The case study confirmed that the development of transferable competencies reflecting 21st Century Skills can be implemented in the curriculum. It proved that the course should be included in the first year of the curriculum to expose students to activation methods that promote transferable competencies. This means that they should know the different methods, their assignments and how to work with them. This knowledge will enable teachers to avoid having to spend time explaining the methods in the classroom in subsequent studies.

An advantage of the implemented course was also that the students acquired a different way of learning than the traditional one and they would be better prepared for interactive learning.

From an organisational point of view, it is advisable to include activation methods cross-sectionally even in other courses to enable measuring the interval of development of transferable competencies at the beginning and at the end of the bachelor's degree.

The results of the case study have an impact in that the course will continue to be counted with in the curriculum and will be regularly included as an elective subject. In the future, there are ambitions to statistically investigate the long-term effects of the course on the development of transferable competencies and teaching effectiveness.

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