Enhancement of students’ skills via project-based learning

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Abstract - The increase in employment, productivity and social cohesion are pillars of the smart growth of the European Union. Specialized agendas and action plans (Digital Agenda, Education and Learning, E-skills and Employment) were designed to support these objectives. To increase the employment of European Union citizens, the part of the above-mentioned agenda is focused on the employment of the young people, especially recent graduates. Excessively theoretical approach to educate youth was identified amongst the major problems in the educational system. The educational system should empower the students to acquire practical experience, which represents the advantage when applying for a job, or choose to develop their own business. Moreover, making graduates able to implement their knowledge, skills and experience to solve practical problems via project-based learning to enhance their motivation and involvement in the educational process. The paper describes the setup of the newly developed course, its content, evaluation by students and lecturers, achieved results and concept describing our future work related to Europe2020 objectives.

Keywords – project based learning; on-line marketing; education-practice collaboration; entrepreneurship; startups;

I. INTRODUCTION

Development of the new business units is the driver of economic growth of the country [22]. However, when browsing the study plans of universities with the major in economics, business and management in Slovakia, the content of their courses tends to transform the students to become ideal employees, not ideal employers. Moreover, Harris [24] consider the education to be the structured misrepresentation of reality, and many times, students have no opportunity to gain practical knowledge by executing real-world business tasks. On the contrary, the word “startup” is one of the most significant buzzwords in the sphere of business. During university studies is the ideal time for students to start their own venture, as they (1) have more certainty in their lives provided by their families (“the pillow”) in case of failure; (2) have an ideal opportunity to learn practical skills that can help them later in their career, even when they finish running their own business; (3) can acquire great talent for their team (represented by their classmates) for smaller wages before these talents apply for a job in large corporations. Even in case their business fails, they can learn a lesson from this experience and build a new company (many successful entrepreneurs have a history of failures [32]). This motivated us to develop a mixture-of-marketing-and-business course that helps students conduct business by actually conducting a business and motivate them to become an employer, not an employee.

II. THEORETICAL BACKGROUND

A. Entrepreneurship agenda in European Union

Unemployment is one of the crucial economic factors for the country. When it comes to young citizens, the rate is even higher, compared to the other groups of the citizens [34]. Typically, young people in their twenties, new graduates need to face the reality of finding the job. In EU (European Union), the youth unemployment rate reached 15.1% in 2018 [34]. In [34] entrepreneurship is defined as a transversal competence, which applies to all spheres of the life: from the nurturing personal development, to the actively participating in the society, to (re)entering the job market as an employee or as a self-employed person, and also to start-up ventures (cultural, social or commercial). From that point of view, the education of young generations towards entrepreneurship is important. In Europe2020 strategy, it was identified as one of the key elements to promote innovation, competitiveness and economic growth [12]. Entrepreneurship is ‘an individual’s ability to turn ideas into the action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects to achieve business objectives. [5] The development of the entrepreneurial skills at multirational level is covered by the New Skills Agenda for Europe [8], [13] by its particular area - The Entrepreneurship Competence Framework (EntreComp) [10], [9]. EntreComp conceptualizes entrepreneurship as a competence needed in XXI century (Figure 1). It covers the mixture of cognitive skills, social skills and relationship skills, technical skills and managerial skills, also defined as important by the other authors e.g. [7], [21].

B. Education towards innovative entrepreneurship

The entrepreneurial skills are crucial in the process of defining a new business idea and its implementation. It is important to know how to reduce the risk, seek for new sources of innovation, use creativity tools, and learn from the market [16].
Based on Institute of Entrepreneurship Development [18] it is necessary for the young people to possess entrepreneurial skills. The survey identified some of the main skills for successful entrepreneur:

- Management and leadership skills, that cover the ability to plan activities occurring in the organization, ability to coordinate and motivate human resources within the organization, ability to support cooperation, communication, etc.
- Networking and communication skills helping express ideas in clear and effective way and develop relationships with people within and outside the business.
- Planning a business plan and access to finance, which are extremely important factors to maintain the sustainability of the business.
- And finally - Digital marketing skills, that are considered as the key factor for boost competitiveness, productivity, innovation and professionalism. The crucial part is the knowledge about using digital tools and technology for surviving on the market and future growth of the business.

C. Education of 21st Century and Project Based Learning method (PBL)

At present, the “wireless” generation is the participant of the education. “Wireless” means, that this young generation is born into the age riddled with Information and Communication Technology (ICT), so for these people is natural to use ICT in every field of their lives. Not excluding education. J. S. Brown [20] defined attitude of the digital youth to ICT as “something akin to oxygen”. It’s integral part of their social life. It causes shift in their perception of the education, life and behavior, and also in requirements of the educational process and contend design and development. In the article [19] main requirements on new learning design were introduced (Table 1):

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Learning design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-defined goals</td>
<td>Learning objectives are clear</td>
</tr>
<tr>
<td>Patience</td>
<td>Students may redo assignments repeatedly if necessary</td>
</tr>
<tr>
<td>Team play</td>
<td>Groups of students work together to complete and review tasks</td>
</tr>
<tr>
<td>Tracking</td>
<td>Students see progress at every level and as a whole</td>
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<tr>
<td>Change</td>
<td>Students divide large tasks to learn time management and to progress toward goal achievement</td>
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<tr>
<td>Immediate consequences</td>
<td>Teachers provide immediate/useful feedback and meaningful, formative and diagnostic assessments</td>
</tr>
<tr>
<td>Personalization</td>
<td>Students explore different roles, which are shaped by their interests, to discover strengths and achieve goals</td>
</tr>
<tr>
<td>Patterns</td>
<td>The learning environment makes sense</td>
</tr>
</tbody>
</table>

Source: [19]

The Gold Standard PBL (Figure 2) developed by [2] supports, besides of the above mentioned learning skills and improvement skills, also skills like research skills and inquiry skills, self-assessment and reflection skills, and critical thinking.

![Figure 1. Entrecomp Framework visualisation; source: [14]](image1)

![Figure 2. Gold Standard PBL elements; source: [2]](image2)

PBL offers to students the personalization of their learning [33]. It is active, student-directed learning. The basic principle of PBL requires students to work on a real-world and open-ended problem by solving projects over the specific period of time, while demonstrating their knowledge and skills. Finally, their solution/product/service is presented to a real audience. By using PBL, students can see on their own that obtained knowledge can be used in the practical reality [1].

By applying PBL, lecturer could create collaborative problem-solving groups, so students are more open to learning because of the same difficulties they must face. The learning may include aspects like the activation of the prior knowledge, recalling of the information and discussion increase in the group. These result in the students’ interest in the educational process. [4], [17].

![Table 1. Requirements on learning design](table1)
While planning the use of PBL method, it is important to take care of the following Essential Project Design Elements [2]:

- **Challenging Problem or Question**, because an engaging problem or question makes learning more meaningful for the student. At the same time, they have to apply their knowledge to find a solution to the problem.

- **Sustained Inquiry** – searching for appropriate information is more attractive and more interactive while using PBL, because students' results are constantly confronted by their colleagues or lecturers. They can mix traditional research methods with interviews with experts, service providers, future customers, etc. Students can fulfill the needs of potential product users.

- **Authenticity** – project can be authentic in term of solving the real-world problem by using real processes, tools and performance standards.

- **Student Voice and Choice** – student obtains only project definition. In order to complete the project, he/she can use methods by his/her choice. They can choose the resources and answers, tools and way of fulfilling the project objectives. It is up to them how they conduct and present their outcomes to public.

- **Reflection** helps students strengthen what they have learned and think about how it could be applied elsewhere, beyond the scope of the project.

- **Critique & Revision** teach students how to give and receive constructive feedback that could be supportive in further product improvement. It is important to involve classmates or people from practice, who have more experience and excitement.

- **Public Product** adds motivating power and encourages students to high-quality work. The motivation raises, if they have to present their results to an audience.

As a result, students develop deep context knowledge as well as critical thinking, creativity and communication skills in the context of doing an authentic, meaningful project. Project Based Learning unleashes a contagious, creative energy amongst the students and teachers. [27]

**III. COURSE: MARKETING TOOLS FOR THE PRESENTATION AND EVALUATION OF BUSINESS IDEAS**

According to Patel [31], 90% of startups fail. Giardino et al. [3] claims that acquisition of the first customer, delivery of customer value and targeting a niche market are amongst most frequent marketing issues of early-stage startups that cause them to fail. Da Silva et al. [15] add no market need (market validation), pricing/cost issues and ignoring customers to be another marketing issues of failing startups. Wang et al.’s [35] study proved, that customer acquisition, business model and product market fit are amongst most significant challenges of starting companies. These are all issues mainly connected to marketing.

The purpose of the educational institutions should be providing a knowledge to their students so they can overcome these issues.

There have been several studies discussing the innovative ways of teaching marketing skills. Das [23] provided a methodology called Participatory Photo Novels. By creating a photo novel by students, teachers were able to generate a discussion in the marketing classroom and deliver new learnings to all participants of the class. Bove and Davies [26] assigned students to client-sponsored projects, and by conducting the analysis, they were supposed to deepen their knowledge in the field of marketing research. Overview conducted by Granitz and Pitt [30] was focused on teaching marketing using innovative technology. This overview contains several technology tools to teach marketing, however, instead of teaching students to learn modern marketing technology, they are taught traditional knowledge by using unusual tech tools. McCorkle et al. [6] claims that marketing students need more room for creativity. However, by taking a traditional way during the education, there are boundaries that limit the creativity, which is among the most required skills marketers possess.

Based on the introductory discourse and provided research in the field of marketing education, we decided to create a new concept of the university course that allows students to learn current marketing knowledge, combine it with the usage of the modern marketing and technology tools, and acquire practical skills by using the knowledge and tools in the real-life environment.

During the development of the innovative subject content, we took the net-generation requirements on the educational process into account, e.g. to allow students to be in control, to make their own choices, to interact in the groups and to take the risk and implement the PBL PBL method, according to the above mentioned, allows to increase motivation, interest and involvement of students to the process of their education and at the same time enhance their practical skills implementation in the real-life problem solutions. We already have experience with using PBL method in the subjects carried out at our faculty, for example Informatics II [25], Electronic Finance Services [28], Economic Information Systems [29], etc.

The main objective of the course “Marketing tools for the presentation and evaluation of business ideas” is to provide basic knowledge in the field of information technologies, especially its utilization on marketing issues. During the course, students are confronted by practical problem of the product development, market fit, promotion and analytics, so it allows them to try what it means to start a company from scratch.

They are asked to come up with the product business idea and afterwards, check its viability and the response of the market directly. For that purpose, they obtain theoretical knowledge in the business models, objectives and KPIs, modern website design, data analysis and online marketing. Solving the practical problem, they are introduced to and gather practical skills by working with the applications such as WordPress, Google Analytics, Google Tag Manager, Google Trends, Google Market Finder, Google Ads, social networks, etc.
The course itself was divided into two parts – face to face (F2F) learning and self-studying and self-practicing. The F2F part is filled with lectures in business and marketing, and afterwards the appropriate tools are demonstrated. The achieved knowledge and skills are later applied by the students in their projects.

The content of the course covers following topics:
- Business Models and Key Performance Indicators,
- Content Management Systems and modern website design; basic graphical and content aspects of the product/service website,
- Marketing Research – validation of market potential, buyer persona research,
- Data Analysis – data collection, sources of marketing data, methods and tools of data analysis,
- Social Networks – how to set up product campaign based on the product/service,
- Content marketing – strategy and development,
- E-mail Marketing,
- Basics of the traditional and agile Project Management basics.

During the course, students worked in small teams (2-5 people). The team roles were set directly by students based on their skills and interests in particular activities. The course was evaluated in context of students’ skills achievement proof – students presented their product, its market fit, business model and marketing strategy. Project was evaluated by lecturers and colleagues, while focusing on the following aspects: business model definition and its measurable objectives, website of the product/service, real-world use of online marketing tools, design and execution of the content marketing initiatives, identification of the relevant data and its analysis, and evaluation of the viability of the product/service in the market.

While developing the course organization and content, we focused on the development of particular group of the skills referred in the previous chapter, as we considered them to be the most important for new entrepreneurs and start-uppers, especially those ones defined in EtreComp parts “Ideas & Opportunities” and “Into Action”.

IV. RESULTS AND DISCUSSION

The course “Marketing tools for the presentation and evaluation of business ideas” is optional, so the number of the students enrolled is much lower compared to the obligatory courses. During the academic year 2017/2018, only 15 students participated on the course. They created 4 teams. The LMS Moodle was used to publish and manage the course materials, schedule and activities. The results of their work (Figure 3, Figure 4) are available at http://marketing.ekf.tuke.sk, because of their public visibility outside the secured access to LMS Moodle course.

At the end of the course, the students’ projects were evaluated from different points of view. Every team could reach the 100% rate in the total. The evaluation was concerned on:
- Formulation of the objectives and their achievement by the team,
- Website content, design and its functionality,
- The use of the web analytics tools to analyze data collected from website of the product/service,
- The use of the content marketing in order to develop new prospects and provide support in the decision-making of the customers,
- Viability conclusion, decision whether the product or service will be able to survive in the competitive marketplace.
- Presentation of the project and the results achieved by the whole team.

Only one of teams reached the results of 100%. However, results of the other teams were positive. The other teams reached the following results (Table 2):
The most common problems were unclearly defined business goals, the level of the content marketing and set up Google Analytics that did not covered the company needs. That resulted in misinterpretation or lack of data collected from online channels.

In addition to the project development, all teams were challenged by necessity of achieving official Google certifications - Google Tag Manager Fundamentals and Google Analytics Fundamentals, by at least one member of the working team. More than half of students participating on the course obtained above-mentioned certificates. We consider it to be a success of the course.

As the course was in a pilot stage, we were focused on the evaluation of the content of the course, the difficulty level, communication, the project difficulty and approach used during the course. All students that attended the course filled the questionnaire at the end of the course. The results of the questionnaire could be summarized as follows:

- The content of the course met the students' expectations (47% of them agreed and 53% strongly agreed). They were informed about the content in advance via specialized document – course syllabus.

- 54% of respondents declared that the most interesting part of the course was website design and development. 13% of them chose the marketing and 33% had no favorite part of the course.

- 87% of students were satisfied by the course execution. They appreciated that there was no clear boundary between practical exercises and lecture. We run the course as the consultation meeting combined with lectures by the experts. The main emphasis was taken on the students’ activity and their need to self-search and self-study. The remaining students missed the tutorials and cannot apply their own creativity, imagination and curiosity. In spite of this, students evaluated this course as very interesting and motivating towards studying.

- For 87% of the students considered the course moderately difficult, for the remaining 13%, the course was very difficult.

- One of the objectives of the subject was to showcase the practical information and examples as much as is possible. All students agreed with the statement that the obtained knowledge and skills are applicable in the real life. At the same time, they appreciated the outcome of the course and process of generation of the outcome because of the need to employ creativity and teamwork.

If we try to summarize the experience with the course execution and define the skills and the competencies achieved by the students, we are able to classify them as part of Ideas & Opportunities (especially creativity, vision, evaluation of ideas and sustainable thinking), Into Action (particularly learning through experience, working with others, planning and management) within the EtreComp Framework. From that point of view, the feedback results could be summarized as follows:

- 87% of the students confirmed the improvement of their managerial skills,

- 100% of the respondents agreed that participation in the course improved their understanding of the processes in the start-up company.

- 93% of all participants are able to assess the importance of their business idea. In [8], having a business idea and access to finance alongside having an appropriate business partner and the role model are amongst the most important factors when deciding to start a new business. In that context, students’ practical experience with the projects should be considered as one of the most important outcomes of the course.

In general, we can conclude, that course invoked the high activity and the interest of students. Moreover, they also regularly discussed the various topics and issues on F2F lessons to find the solution or recommendation about their problems with project. What really interest us is the fact that despite of short time (three months interval), students managed to develop the product/service, to build up the website, to organize and to execute marketing campaign and to analyze achieved results and collected data.

V. CONCLUSION

The contemporary business sector is constantly changing, and becoming more complex and challenging. At the same time, business competition is inevitable and tough, with entrepreneurs being urged to adapt and react quickly to changes and constant developments.

From [11] follows, that 34% of self-employed people had followed an entrepreneurship course, because they feel lack of skills and experience needed for guarantee the sustainability of business in the labor market. However, less than half of EU citizens feel that their school education helped them understand the role of entrepreneurs in society (47%) or gave them the skills and the know-how to enable them to run a business (41%).

For that purpose, we decided to implement these missing skills into our education. By participating in our course, students could improve some of their competencies, such as "taking the initiative, planning and management, coping with uncertainty, ambiguity and risk, working with others; learning through experience", etc. listed in main EC document – EntreComp. At the same time, they
need to proof their ability to develop ideas and be creative and innovative, define the problems and find the solution. As was stated above, these seem to be crucial skills to be successful on the labor market if somebody decide to start-up own business.

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