LIFELONG LEARNING SKILLS IN HIGHER EDUCATION: A CASE STUDY BASED ON THE STUDENTS' VIEWS

Asst. Prof. Dr. Z. Zuhal Güven
Necmettin Erbakan University
Faculty of Social Sciences and Humanities
Department of Linguistics

ORCID: 0000-0002-5523-3843

ABSTRACT:

Higher education institutions need to integrate lifelog learning skills into their education objectives to prepare students for learning at university and working in business world. This study was conducted to investigate how project-based learning could help university students to acquire lifelong learning skills. The research was designed as a case study and the participants were composed of undergraduate students involved in a ten-week course activity during 2018-2019 academic year. The data collected through the notes taken during interviews, recorded discussions and a semi-structured survey form were analysed using the content analysing technique. The results of the analyses revealed that the participants found it engaging to develop a project about a social problem, and adopted a positive attitude towards project-based learning. The findings suggested that project-based learning might help students gain competencies to cope with real-life problems, and it was concluded that comprehensive studies were needed to explore the effect of project-based learning on fostering lifelong learning skills.

Keywords*: Higher education, Lifelong learning, Project-based learning*

.

INTRODUCTION

Lifelong learning skills (LLS from now on) lay foundation for learning and working as they foster various skills necessary in the changing world. Though the origin of lifelong learning as a concept dates back centuries ago, it has been emphasized as a demand of modern society in the last forty decades (Collins, 2009; Knowles, 1975; Duyff, 1999; Fischer, 2000; Titmus, 1999). One of the latest reports released by UNESCO (2020: p. 10) argues that lifelong learning is key for the future as it equips people with some capabilities to cope with change and construct ideal future. The philosophy underlying the definition of lifelong learning was summarized by Duyff (1999: 538) under eight headings as follows:

> (1) Continuous- lifelong learning never stops, (2) Supportive - We don't do it alone, (3) Stimulating and empowering - It's self-directed and active-not passive, (4) Knowledge, values, skills, and understanding - It's more than what we know, (5) Lifetime - It's from our first breath to our last, (6) Applied - Lifelong learning is not just for knowledge's sake, (7) Confidence-creativity, and enjoyment - It's a positive, fulfilling experience, (8) All roles, circumstances and environment – It applies not only to our chosen profession, but to our entire life.

Lifelong learning is regarded as a crucial necessity to build the future of societies with a mindset that strives for essential learning dimensions such as self-directed learning, collaborative learning, learning on-demand, and organizational learning (Fischer, 2000: 265). Self-directed learning could be considered as a core dimension of lifelong learning because it is defined as

> a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Kohles: 18).

In literature, it is argued that the concepts of lifelong learning and lifelong learners emerged in education as recently as 1980s and has been investigated comprehensively to meet the new demands driven by the new challenges in the 21st century (Collins, 2009). In broader terms, it could be said that lifelong learning and 21st century skills are interconnected concepts as they are discussed in the context of the changing demands in the 21st century (Collins, 2009; McGarrah, 2014; McGarrah, 2015; Silva, 2009; Soland, Hamilton & Stecher, 2013). As the 21st century requires people to gain some specific skills to cope with the difficulties they may face at the societal and personal levels, students should learn to construct, create and communicate the knowledge collaboratively to meet the demands in the rapidly changing paradigms in business world (Bialik & Fadel, 2015). Additionally, globalizing world demands citizens equipped with new learning styles like fluency in multiple media, ICT literacy and active learning based on collectively constructed experiences (Dede, 2010: 60). Studies have shown that employers require the prospective employees to have such traits as good communication skills, problem-solving skills, decision-making ability, team-working efficiency, adaptability and management competence, along with technical competences necessary for a specific job (De Fruyt et al., 2015: 278; Şahin & Tepençelik, 2015: 52).

Integrating LLS into higher education objectives is promoted as they provide college and career readiness (McGarrah, 2015). There have been some efforts in various countries to redesign school curriculums around the changing paradigms in the 21st century (Bialik & Fadel, 2015). In Turkey, the reports released by the Higher Education Council have cited the role of universities in meeting the demands of society and labour market through well-planned strategies (Yüksek Öğretim Kurulu [YÖK], 2007; YÖK, n.d.). It was also stated that particularly the undergraduate programs should be redesigned so as to empower students with generic skills such as communicating, collaborating, problem-solving, computer literacy and foreign language efficiency (YÖK, 2007: 185-190). As higher education is the final stage of formal learning for many people before they face the real world demands, it could be argued that educational approaches that will enable students to gain these skills should be investigated. In this regard, project-based learning could be promoted as it offers an opportunity to foster various skills to cope with the real life problems in today's world (Bell, 2010; Giri, 2016; Rabacal et al., 2018). On the other hand, the amount of the research into the effect of PBL on university students is quite

scarce in Turkey though it stands an opportunity to apply an alternative learning way in higher education (Ay, 2013; Gülbahar & Tınmaz, 2006; Güven &Valais, 2014a; Güven & Valais, 2014b; Kalaycı, 2008; Kaya et al., 2014).

Changing Needs in Changing World

It could be said that the basic role of education has been to improve individual and social life throughout history. In a broad perspective, education empowers people to contribute to society and business world, to use and improve their abilities, to fulfil their civic responsibilities, and transfer their customs and values to further generations (Trilling & Fadel, 2009: 12). Considering the changing world in the 21st century, education is expected to prepare people to be ready for the requirements of highly mobilized and technology-driven society. The interconnected world, mostly shaped by the advances in communication and transportation technology, expects education systems to prepare students not only for their future employment but also for the changing requirements. Considering the need to know what to do with the knowledge obtained at school in real life, Bialik &Fadel (2015: 1) explored the skills necessary for 21st century education under the name of 4C's: creativity, critical thinking, communication, and collaboration. In another study, the top ten soft skills considered as the most important in business world were identified as honesty, communication, kindness, commitment, social skills, positive attitude, expertise, flexibility, collaboration, and work ethic (Robles, 2012: 462). Similarly, it was argued that in an increasingly global, technology-based economy, it is important to work in harmony with people from other cultures, adopt a creative approach to solve problems, communicate well, and think critically (Gewertz, 2007: 25).

On the other hand, there are several research studies that indicate university graduates do not have some specific skills required in working life (Du Toit et al., 2016: 65; Jollands et al., 2012: 143; Robles, 2012: 460). Students today are required to have such skills as communication, collaboration, cross-cultural understanding, critical thinking, technology use and creativity, and education systems need to be adjusted to deal with these challenges (Saavedra & Opfer, 2012: 12).

Project-based Learning

Project- Based Learning (PBL) is a student-centred learning approach which involves students in a constructive investigation through projects that necessitate critical thinking, creativity and collaboration. PBL is a way of active learning, which requires learners to use their higher order thinking skills through research under the teacher's supervision. Through PBL, students are guided to design a project that involves problem identification and plan development (Wurdinger et al., 2007: 151). PBL is defined as a comprehensive approach based on student engagement in investigation, in which students seek solutions to problems by asking questions, making plans, collecting and analysing data, discussing their findings and ideas with others, and drawing conclusions (Blumenfeld , et al., 1991: 371). As it is a student-driven and teacher-facilitated approach based on inquiry, collaboration and communication, PBL can be expected to contribute to developing the skills required in today's world (Bell, 2010: 39). PBL encourages both independent exploration and collaborative team work to create projects designed to link what is learned in the classroom to real-life situations outside of school, therefore it is used to guide students to gain the 21st century skills (Du Toit et al., 2016; Giri, 2016; Moylan, 2008; Rabacal et al., 2018; Silva, 2009; Rotterham & Willingham, 2009).

In the light of the theoretical background presented above, this current study aimed to investigate how PBL might be used to foster lifelong learning skills of university students. The study was designed to reveal the students' perspective into PBL through a case study, details of which were presented below.

METHOD

This case study involves a Project-Based Learning activity, which 28 first-year university students participated in during 2018-2019 education year. The participants were involved in the study through informed consent forms. The aim was to find out how PBL could be used to foster lifelong learning skills of university students. Within

that aim, a ten-week course activity was fulfilled at the undergraduate programme of Linguistics Department, in which the students were asked to develop a social responsibility project related with an actual problem. The principal research question was:

How can PBL be used to foster lifelong learning skills of university students?

The sub research questions were:

1) In what ways do students think PBL offers opportunities?
2) In what ways do students think PBL causes some problems?

Research Model

This study was designed as a case study to investigate a particular course activity because case study research is accepted as a common form of qualitative research that aims to find out meaning, to investigate process, and to gain deeper understanding of individuals, groups, or situations (Lodico et al., 2010: 175). Furthermore, case study is considered as a descriptive and detailed research type that looks into a case or phenomenon, with a narrow focus, in its real-life context using various types of data (Dyer, 1995: 48; Robson, 2002: 178; Simons, 2009: 21).

Participants

The study group were composed of 21 females and 7 males, totally 28 volunteer participants, who were involved in a course activity based on PBL during the first year of undergraduate programme at Linguistics Department. All of the students had B1 or above English language level as they had been placed into the programme according to the scores they obtained from a centrally conducted placement test in Turkey. Twenty-four of the participants graduated from Anatolian High Schools and four of them graduated from Religious High Schools. The age of participants ranged from 18 to 26.

Data Collection Process

As it is recommended to use various ways to increase confidence in researcher's interpretation (Stake, 1995: 114), both focus group and individual interviews were held in data gathering process of this study. First, the participants were divided into four focus groups, each of which was composed of 7 students, and interviews were held in approximately 60-minute sessions. A week later, 12 voluntary participants out of the initial 28 participants attended 30-minute in-depth interviews. The recorded discussions and the notes taken by the researcher during the interviews were used as data gathering instruments. At the end of the in-depth interviews, twelve participants were also asked to fill in semi-structured interviewing forms.

The semi-structured individual interviewing forms, developed by the researcher, had open-ended questions related with the students' opinions about the learning activity based on PBL. The comprehensibility of the questions was checked by two experts, in the fields of linguistics and educational sciences, and the following open-ended questions were asked in the forms:

1) Have you ever participated in a PBL activity before? If your answer is "yes", in what ways was your previous activity similar or different from the current one?
2) What do you think about the PBL activity you were involved in this year? What were the positive and negative aspects of this process?
3) How do you think the PBL activity can be implemented better? What is your suggestion?

There were also two multiple-choice questions regarding the advantages and disadvantages PBL to collect more specific information about the opinions of the students regarding PBL. The items in the multiple-choice questions were determined in the light of the related literature (Abdelkarim et al., 2018: 1076; Mills & Treagust, 2003: 12; Mihic & Zavrski, 2017: 5; Sumarni, 2013: 480-482) and the notes taken during focus group discussions. The participants were told that they could choose more than one item if they wish. The first multiple-choice question asked the students to choose the advantages of PBL out of the list with the following items: *collaboration, creativity, critical thinking, communication skills, learner autonomy, real-life problem solving skills, motivation*

and presentation skills. The second one included the choices related with disadvantages such as *time constraints, weak assessment, inadequate sources and costliness, impracticability,* and *team working.*

Data Analysing

The data collected through the interviewing notes and recorded discussions were analysed using the content analysis technique. The data analysis involved organizing and making sense of the data in terms of the participants' views about the case. As a first step, all the sentences were typed using MicrosoftWord, and coded in accordance with the research into LLS. Next, the categories, named as themes in the tables in the study, were determined and the opinions of the participants were listed in the related categories such as *"dealing with a social problem", "active learning/ creativity/ motivation", "critical thinking"* and *"criticisms & recommendations".* As for the data obtained from the multiple-choice questions in the semi-structured interviewing forms, the frequency of the participants' choices was analysed in terms of the frequencies of the choices.

RESULTS

The analysis of the results obtained from the data were presented under two headings, which were named in terms of the data collection instruments used in the study.

Findings obtained from interviews

The findings obtained from the interviews revealed that only two out of 28 participants had taken part in the PBL activity during their secondary school education. Both of the participants explained that the PBL they had been involved in at high school was different from the process they took part at university in that it was about writing a project individually, not a group work. The other results obtained from the analyses of the data gathered from the recordings and notes taken during focus group discussions and in-depth interviews along with the open-ended questions in the first part of semi-structured forms are in the Table 1 below:

Table 1. *Distribution of the students' views about the PBL activity*

Themes	f	Percentage%
Dealing with a social problem	164	32
Active learning, creativity, motivation	148	28
Critical thinking	94	18
Criticisms	67	13
Recommendations	45	9
Total	518	100

The data in Table 1 show that the theme mostly talked about is "*dealing with a social problem"* (f: 164; 32%), which suggests that the participants found it engaging to develop a project related with the real-world. The most common points in the statements were the significance of raising awareness of such problems as violence, ignorance, indifference and extravagancy, which the participants believed were rather prevalent in society. It could also be said that they had mixed feelings towards social problems, like sadness, worry, anger and anxiety while they were also hopeful about proposing solutions. One of the participants (P8) expressed his opinions as follows:

> *I really liked it. It was so good to deal with the violence in society. When we, as a project group, decided to make a project to raise awareness of the violence in society, I really felt excited…. There is so much violence against those weaker than others, for example animals, children and women. And I think everybody is guilty of this problem because they ignore it.*

Another participant (P3) pointed out the negligence exhibited towards some social groups by saying

> *My friends and I thought that nobody does anything for the people at prison. The idea of collecting books and creating a reading environment for prisoners sounded great. One of our team-mates thought it might be difficult but then he also believed in the idea…. I think it will work if someone puts it into effect…. We*

should know that there are other worlds than ours. I mean some people are at prisons or concentration camps, and some old people are at nursing home. We should do something for them.

One of the participants (P11) involved in the medicine recycling project expressed her worries about the amount of the waste in medicine as the following:

As a group, we wanted to show the huge amount of the wasted medicine in our country. For example, I can say that the medicine cabinet in our house is full of drugs and pills which are not used. … Putting medicine recycling bins in various spots in the town sounded a very good idea, and we decided to present it as a project. We thought if people put the unused pills, drugs or similar items in these bins, they could be sent to some check points supervised by medical authorities, and then delivered to those who need them.

The second theme the participants mostly expressed their views about was *active learning/creativity/motivation* (f: 148; 28%). As they usually stated active learning/creativity and motivation in the context of reason and result, the theme was coded to include these three words. It was obvious that the participants liked being active and creating a project rather than sitting passively in the classroom. The views of a participant (P4) were as follows:

What I liked most about the activity was to build up a tangible solution which can be used to relieve the anxiety problem among teenagers. As a teenager suffering from anxiety problem, I found some information very useful for myself. … We are planning to submit our project to some authorities, and that makes me feel more excited.

The participants that found PBL useful in terms of active learning usually linked it with the retention of what is learned. For example, one the participants (P18) said that

I don't think I will forget the information we learned when we were doing our project because we found the topic and resources ourselves. We collected information meticulously and it was so good to feel like a teacher. We learned to be self-disciplined.

Another participant (P14) cited retention by referring to previous study habits by saying

When I was a high school student, I would study textbooks and memorize the notes our teachers gave us and then usually forget many things. Now, I feel much better because we planned every step and really worked hard to produce something.

Similarly, a participant (P23) compared his present and previous habits as the following:

I now see that I spent too much time on my exams and assignments before. There were people around me who told what I should do to pass the exams. But, this time, my friends and I have made plans together.

Some of the expressions that indicated how the participants were motivated to study and learn by the idea of developing a project were as follows: "I was not bored"; "It was so good to produce something."; "There was always something enjoyable to do."; "I liked creating something"; "It made us so busy that we didn't understand how the time passed."

Another finding, coded as "*critical thinking*", was that the participants found PBL useful as it enabled them to use their higher order thinking skills (f: 94; 18%). Although they did not use the term "higher order thinking skills" explicitly, they used such expressions as "collecting, categorizing, processing and applying information and facts to seek solutions", which suggested the former. One of the participants (P16) stated that

What was different from my previous learning experiences was that I did not have to memorise information without thinking about it. I have learned to ask questions. Beforehand, we were asked questions about the subjects our teachers taught us.

Another participant's (P2) views were as follows:

One of the best sides of doing a project was freedom in choosing the topic and determining the steps to collect and present information. As such, we chose the source materials ourselves, and sought ways to present them as effectively as possible because we knew that the other groups were working hard, and we did not want to lag behind.

A participant (P21) who was the member of a project group that designed a large-scale project to arouse awareness of a rarely-known disease, and propose a treatment procedure involving various people of different professions expressed her ideas by saying

> *As the goal of our project was to build a team composed of various experts not only for awareness but also the treatment for a very rarely seen disease, we had to think about all the details and make a well-planned road map. It was not easy because we knew that our project might have sounded impracticable if we had not done so.*

The fourth theme was called *"criticisms"* to generalize the participants' views about the shortcomings of the PBL process (f: 67; 13%). The mostly criticized points in PBL were related with team-working. The participants usually complained about the lack of collaboration among the team members, and claimed that they had problems in time-management, work pace and division of work. One of the participants argued that it took too much time and effort to understand PBL and prepare the project, which caused problems in fulfilling other tasks. Some quotations from their remarks were listed below:

> P9: *We could not work efficiently as a team because not everybody obeyed the work schedule as they should. I had to wait for my friend to finish his part sometimes for a week. Even when he finished, there was always something missing. I think we should have made projects individually.*
>
> P11: *I couldn't find time to do the assignments for other courses properly because we had to work after school. We sometimes came together at weekends…. We wasted too much time at the beginning because we did not understand what we should do. It could have been better if we had had some information in the first semester.*
>
> P17: *I did not like working with others. Each of us was so different. We usually had disagreements. One of us did not do her duties properly and the others usually had to complete them. This is not fair. She should have been assessed individually. I was very enthusiastic at the beginning but she demotivated me.*
>
> P22: *We didn't have any arguments like some other groups but I don't like working with others. I feel myself restricted. I am much better when I work by myself. I think my other friends had also some problems just as I did.*

The last theme was called *recommendations* because some participants implicitly or explicitly put forward some suggestions about the PBL process (f: 45; 9%). For example, as could be seen in the criticisms stated above, there are some implied *recommendations* like *individual projects* and *more detailed rules and rubrics.* Besides, some participants also proposed that there be some changes in curriculum to teach students how to make large scale projects in real life. Some others said that the projects should be put into practice; they should not be just a power point presentation. The following quotations might give some idea about the participants' views:

> P6: *I think there should be a course about PBL in our curriculum because it would be great to learn how to develop projects for Erasmus or TUBITAK (Turkish abbreviated form of Scientific and Technological Research Council of Turkey). I liked developing a project but I think we need to learn more to be successful in real life projects.*
>
> P20: *I think students should do projects actively. We wrote and presented our project but it might have been very useful if it had been implemented. We are planning to talk with some authorities about our project. I hope we can convince them*

Findings from the multiple choice questions in the semi-structured forms

The second part of semi-structured forms had two multiple-choice questions that asked students to choose the advantages and disadvantages of the Project-based learning, as many as they wish, out of the given list. The choices for the advantages were *critical thinking, collaboration, creativity, learner autonomy, real-life problem solving skills, motivation, communication skills.* The results related with the advantages of PBL, which were obtained from the second part of semi-structured forms, were presented in Table 2 below:

Table 2. *Distribution of the students' views about the advantages of the PBL*

Themes	n	f	Percentage%
Real-life problem solving skills	12	11	92
Critical thinking	12	10	83
Creativity	12	8	67
Motivation	12	8	67
Communication skills	12	5	42
Collaboration	12	3	17
Learner autonomy	12	1	8

The results of the analyses of the findings revealed that *real-life problem solving skills* was chosen as the best advantage of PBL, which is followed by *critical thinking, creativity,* and *motivation.* As could be seen in Table 2, *learner autonomy* was regarded as the least important advantage. It could also be seen that *collaboration* was chosen by only three participants as an advantage of PBL.

As for the question about the disadvantages, the choices were *time constraints, weak assessment, costliness, team working, inadequate resources and materials, impracticability.* The results related with the disadvantages of PBL, which were obtained from the second part of semi-structured forms can be seen in Table 3 below:

Table 3. *Distribution of the students' views about the disadvantages of the PBL*

Themes	n	f	Percentage
Team working	12	5	41
Weak assessment	12	4	33
Time constraints	12	3	25
Impracticability	12	2	16
Inadequate sources and materials	12	2	16
Costliness	12	1	8

The findings presented in Table 3 showed that the participants were not so focused on the disadvantages of PBL. The frequencies for the items, except for *team working,* were not over four, which means that two third of the twelve participants did not choose five items as a disadvantage. It could be seen that *team working* and *weak assessment* were regarded as the biggest disadvantages of PBL by a third of the participants, *costliness* was chosen as a disadvantage by only one of the participants.

DISCUSSION

This study was designed to investigate the role of PBL in fostering the LLS through the perspectives of students. The principal research question was developed to find out how PBL can be used to foster lifelong learning skills. The two sub research questions were formed to find out the opinions of the students about the positive and negative sides of PBL to investigate the principal research question in order.

The first finding obtained from the interviews, which revealed that only two of the students had been involved in PBL process at secondary school, might suggest that PBL is not used commonly at secondary schools in Turkey. It was also significant that both of the students described their previous PBL experience as an individual project writing process. Considering the fact that PBL is quite different from writing an individual project, it could be argued both of the participants might have confused an assignment writing with a project developing, or they might have used the terminology wrongly during their secondary school education.

The findings related with sub research questions showed that the students mostly had positive opinions about developing a project as it enabled them to propose a solution for a social problem. It was obvious from the participants' statements that they were quite enthusiastic about dealing with a real-life problem. Considering the literature that highlights the role of project-based learning in encouraging students to work beyond classroom

through dealing with an authentic problem (Fleming, 2000: 6; Bell, 2010: 42; Johnson & Delawsky, 2013: 561), it could be said that the participants' views were in accordance with the prior literature.

The high frequency of the expressions related with creativity, critical thinking and motivation also suggested that the participants benefited from the PBL activity. The clearly defined statements of the participants revealed that most of them were involved eagerly in the stages of developing a project such as choosing a topic, posing questions, gathering and analysing evidence, and drawing conclusions. Given the fact students in Turkey are exposed to various exams with multiple-choice questions, which require them to endure a long, exhaustive and demanding preparation process (Büyüköztürk, 2016; Coşar, 2016; Baş & Kıvılcım, 2019), it could be argued that PBL was found to be a new and motivating experience by the participants.

On the other hand, the analysis of the data obtained from the focus group interviews showed that collaboration was one of the mostly criticized aspects of PBL. Similarly, team-working was chosen as a disadvantage with the highest frequency by the participants during the in-depth interviews. These findings were found significant because they did not align with prior literature which promoted team-working in higher education particularly in terms of preparation for the workforce, constructivist pedagogy in authentic content and contemporary learning approaches (Casper, 2017; Tarricone & Luca, 2002; Michaelsen et al., 2014). On the other hand, there is also some research that revealed difficulties and challenges in applying team-working in education, such as conflict among team members, lack of interest in fulfilling responsibilities, uneven distribution of tasks, and previous experiences (Fredrick, 2008; Galbraith &Webb, 2013), which were in accordance with the results in this study. As a reason for the negative thoughts of the participants about team-working, the education system in Turkey might be discussed. The demanding process which requires the high school students in Turkey to compete with others as if they were in a race could be argued to have been influential in this finding. Considering the related research in literature that revealed how competitive and stressful it is to pass the other candidates to be eligible for being a university student in Turkey (Aydın, 2016; Baş & Kıvılcım, 2019; Büyüköztürk, 2016; Coşar, 2016; Karadeniz, 2005; Zeytin, 2015), it could be assumed that the participants might have learned to achieve success individually.

The finding obtained from semi-structured forms which revealed that only one of the students regarded *learner autonomy* as an advantage of PBL could be considered significant because learner autonomy/self-directed learning is regarded as a one of the most essential lifelong learning skills in literature (Chene, 1983; Fischer, 2000; Yurdakul, 2017). Though this finding seemed to be in contradiction to previous literature, the detailed examination of the findings given in Table 1 with a code Active Learning revealed that participants had expressed their content in working independently in the interviews. As could be seen from the students' quotes like "one of the best sides of doing a project was freedom in choosing the topic and determining the steps to collect and present information" (P.2); "Now, I feel much better because we planned every step" (P.14); "We collected information meticulously and it was so good to feel like a teacher" (P.18), autonomous learning was a new and positive experience for the students. Consequently, the finding that learner autonomy was chosen as an advantage of PBL by only one participant might suggest that participants were not familiar with the term "*learner autonomy*" as a concept of independent learning.

As for the principal research question, the analyses of the data about the opinions of participants suggested that LLS could be fostered through well-planned PBL activities. Although there are various classifications to define the competencies necessary in the changing world, the key skills were described as critical thinking, communication, collaboration and creativity (Bialik & Fadel, 2015; Trilling & Fadel, 2009). The findings revealed that the participants developed quite a positive attitude towards PBL. As the participants enjoyed finding a solution for a social problem and creating a project using critical thinking skills, it could be said that PBL might be a way to empower learners with LLS. Additionally, the findings showed that the participants gained new study habits like analysing, creating and evaluating the data they had collected, which are defined as higher order thinking skills, and they were happy with giving up some old habits like memorizing information and studying course books. Conklin (2011: 38) described 21st century learners as innovators and creators who use higher order thinking skills by asking questions, thinking strategically, and seeking ways to solve problems. Accordingly, it could be said that PBL could be useful in guiding students to gain higher order thinking skills, and become

lifelong learners, which is an argument discussed in related literature (Rotterham & Willingham, 2009). The findings could also be discussed in the context of relationship between PBL and contemporary educational approaches like active learning, learner autonomy and critical thinking, which should be adopted for lifelong learning. In line with this argument, Barr &Tagg (1995: 15) stated how important it is for colleges to change their paradigms from lecture-based teaching methods to learner-centred environments where students construct knowledge through making discoveries and solving problems. Similarly, Larmer et al., (2015, pp. 5-10) argued that college students needed more than basic subject-area knowledge to get prepared for careers, citizenship and life, and proposed PBL as a way to build the competencies and skills required in today's world.

Additionally, the findings could be discussed in terms of higher education. There have been studies into the problems of the higher education system in Turkey, which revealed a decline in quality due to the demand and supply gap (Çetinsaya, 2014: 47; Demir, 2008: 131), the deficiencies in student placement system (Arslan, 2004; Eşme, 2014; Şenses, 2007), the problems related with classroom practices of instructors and lecturers (Aksu et al., 2008; Arslantaş, 2011; Ay, 2013; İlter; 2014; Murat et al., 2006), and the need to reform the higher education (Günay & Günay, 2017; Küçükcan & Gür, 2009). The Higher Education Quality Council (THEQC) is a public legal entity founded to evaluate the quality levels of education and research activities and administrative services at higher education institutions. One of the benchmarks determined by THEQC to ensure quality in learning-teaching processes is student-centred approach (Yükseköğretim Kalite Kurulu, n.d.). Student-centred learning aims to create a learning environment where the teacher provides students with opportunities to learn independently, and from one another, so that they can construct meaning by combining new information and prior experience (Felder & Brent, 1996: 43). In line with these arguments, it could be said that PBL should be investigated further to offer solutions for the curriculum based problems in higher education.

CONCLUSION

In the light of the overall findings, it could be concluded that involving PBL into college curriculums can enhance the students' lifelong learning skills such as critical thinking, creativity and problem-solving skills, and make the learning process more motivating. Considering the course book-based and teacher-led education background of the participants, PBL might offer an alternative to help university students gain competencies to cope with real-life problems. Yet, it should also be stated that further studies are needed to investigate how PBL can be implemented more efficiently as it requires careful planning that involves clearly defined steps from introduction to assessment, as stated in literature (Livingstone & Linch, 2000: 326; Rotherham & Willingham, 2009: 17). While the results of the current study are promising, the limitations suggest that PBL should be investigated through further studies. What should be noted here is that the enthusiasm exhibited by the participants should not be overgeneralized as the study was about just a ten-week course activity. Comprehensive and sustainable studies, which are particularly designed to develop specific education programmes, might shed light on how theoretical and practical knowledge can be applied to foster LLS, particularly due to the increasing need and opportunities to learn anything anywhere and anytime.

REFERENCES

Abdelkarim, A., Shween, D., & Ford, T. (2018). Advantages and disadvantages of problem-based learning from the professional perspective of medical and dental faculty. *EC Dental Science, 17*(7), 1073-1079.

Aksu, M.B., Çivitçi, A., & Duy, B. (2008). Yükseköğretim öğrencilerinin öğretim elemanlarının ders uygulamaları ve sınıf içi davranışlarına ilişkin görüşleri. [College students' perceptions about teaching practices, classroom behaviours and attitudes of the faculty]. *İnönü Üniversitesi Eğitim Fakültesi Dergisi, 9*(16), 17-42.

Arslan, M . (2004). Eğitim sistemimizin kapanmayan yarası-Yükseköğretime geçiş. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1*(16), 37-51.

Arslantaş, H. İ. (2011). Öğretim elemanlarının öğretim stratejileri, yöntem ve teknikleri, iletişim ve ölçme değerlendirme yeterliklerine yönelik öğrenci görüşleri. [Student views regarding teaching staffs' sufficencies in teaching strategies-

methods and techniques, communication, measurement and evaluation]. *Mustafa Kemal Üniversitesi, Sosyal Bilimler Enstitüsü Dergisi, 8* (15)*,* 487-506.

Ay, Ş. (2013). Trainee teachers' views on project-based learning and traditional education. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, H. U. Journal of Education, 28*(1), 53-67.

Aydın, E. (2016). Üniversite giriş sınavına hazırlanan öğrencilerin sınav kaygılarının farklı değişkenlere göre incelenmesi (Publication No. 422983). [Master's thesis, Nişantaşı University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Barr, R. B., & Tagg, J. (1995). From teaching to learning- A new paradigm for undergraduate education. *Chan*ge*: The Magazine of Higher Learning, 27*(6), 12-26.

Baş, G., & Kıvılcım, Z. S. (2019). Türkiye'de öğrencilerin merkezi sistem sınavları ile ilgili algıları: Bir metafor analizi çalışması. [Perceptions of students on central system examinations in Turkey: A metaphor analysis study]. *Eğitimde Nitel Araştırmalar Dergisi – Journal of Qualitative Research in Education*, 7(2), 639-667.

Bell, S. (2010). Project-Based learning for the 21st Century: skills for the future. *The Clearing House, 83,* 39-43.

Bialik, M., & Fadel, C. (2015). *Skills for the 21st century: What should students learn?* Massachusetts: Center for Curriculum Design.

Blumenfeld, P.C., Soloway, E., Marx, R.W., Krajcik, J.S., Guzdial, M. & Palincsar, P. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational Psychologist, 26* (3-4), 369-398.

Büyüköztürk, Ş. (2016). Sınavlar üzerine düşünceler. *Kalem Eğitim ve İnsan Bilimleri Dergisi*, *6*(2), 345– 356.

Casper, C. (2017). Teaching beyond the topic teaching teamwork skills in higher education. *Journal of Higher Education Theory and Practice, 17*(6), 53-63.

Chene, A. (1983). The concept of autonomy in adult education: A philosophical discussion. *Adult Educaiton Quarterly, 34*(1), 38-47.

Collins, J. (2009). Lifelong learning in the 21st century and beyond. *RadioGraphics, 29*(2), 613-622.

Conklin, W. (2011). *Higher-order thinking skills to develop 21st century learners*. CA: Shell Educational Publishing.

Coşar, M. (2016). Üniversite tercihinde öğrencileri etkileyen faktörler. [Affecting factors of students university preferences]. *Eğitim ve Öğretim Araştırmaları Dergisi, 5*(1), 1–5.

Çetinsaya, G. (2014). *Büyüme, kalite, uluslararasılaşma: Türkiye yükseköğretimi için bir yol haritası*. Eskişehir: Anadolu Üniversitesi Basımevi.

De Fruyt, F., Wille, B., &John, O. (2015). Employability in the 21st century: Complex (Interactive) problem solving and other essential skills. *Industrial and Organizational Psychology*, *8,* 276-281.

Dede, C. (2010). Comparing frameworks for 21st century skills. In J. Bellance & R. Brandt (Eds.), *21st Century Skills: Rethinking How Students Learn* (pp. 51-76). Solution Tree Press.

Demir, R. (2008). *Üniversitenin bugünü ve yarını*. Ankara: Palme Yayıncılık.

Du Toit, A., Havenga, M., & Van Der Walt, M. (2016). Project-based learning in higher education: New skills set for consumer studies teacher education. *Journal for New Generation Sciences, 14*(3), 54-71.

Duyff, R.L. (1999). The value of lifelong learning: Key element in professional career development. *Journal of the American Dietetic Association. 99*(5), 538-543.

Dyer, C. (1995). *Beginning research in psychology*. Oxford: Blackwell.

Eşme, İ. (2014). Türkiye'de yükseköğretime geçiş sistemi. [Transition to higher education in Turkey]. *Yükseköğretim Dergisi, 4*(3), 148-157.

Felder, M.R., & Brent, R. (1996). Navigating the bumpy road to student-centered instruction. *College Teaching, 44*(2), 43-47.

Fischer, G. (2000). Lifelong learning – More than training. *Journal of Interactive Learning Research, 11*(3), 265-294.

Fleming, D. S. (2000). *A Teacher's guide to project-based learning*. Washington: ERIC.

Fredrick, T. A. (2008). Facilitating better teamwork: Analyzing the challenges and strategies of classroom-based collaboration. *Business Communication Quarterly, 71*(4), 439-455.

Galbraith, D.D., & Webb, F.L. (2013). Teams that work: Preparing student teams for the workplace. *American Journal of Business Education, 6*(2), 223-234.

Gewertz, C. (2007). Soft skills in big demand: Interest in teaching students' habits of mind for success in life is on the rise. *Education Week*, *26*(40), 25-27.

Giri, D.J. (2016). Project-based learning as 21st century teaching approach: A study in Nepalese private schools. *US-China Education Review A., 6*(8), 487-497.

Gülbahar, Y., & Tinmaz, H. (2006). Implementing project-based learning and e-portfolio assessment in an undergraduate course. *Journal of Research on Technology in Education, 38*(3), 309-327.

Günay, D., & Günay, A. (2017). Türkiye'de yükseköğretimin tarihsel gelişimi ve mevcut durumu. [Historical development and current situation of higher education in Turkey]. *Yükseköğretim Dergisi, 7*(3), 156–178.

Güven, Z. Z., Valais, H. T. (2014a). Empowering learner autonomy: A case for collaborative learning. In H. Arslan, G. Rata, E. Kocayoruk, & Icbay, M.A. (Eds.), *Multidisciplinary perspectives on education* (pp: 3-14). Newcastle Upon Thne: Cambridge Scholars Publishing.

Güven, Z.Z. & Valais H.T. (2014b). Project based learning: A Constructive way toward learner autonomy. *International Journal of Languages' Education and Teaching, 2*(3), 182-193.

İlter, İ. (2014). Öğretim elemanlarının kullandığı yöntem ve tekniklere ilişkin öğretmen adaylarının görüşleri. [Teacher candidates' opinions related to methods and techniques used by the instructors]. *Uluslararası Sosyal Araştırmalar Dergisi, The Journal of International Social Research, 7*(35), 562-575.

Johnson, C.S., & Delawsky, S. (2013). Project-based learning and student engagement. *Academic Research International, 4*(4), 560-570.

Jollands, M., Jolly, L. & Molyneaux, T. (2012). Project-based learning as a contributing factor to graduates' work readiness. *European Journal of Engineering Education, 37*(2), 143-154.

Kalaycı, N. (2008). Yükseköğretimde proje tabanlı öğrenmeye ilişkin bir uygulama: Projeyi yöneten öğrenciler açısından analiz. [An application related to project based learning in higher education: Analysis in terms of students directing the project]. *Eğitim ve Bilim, 33* (147), 85-105.

Karadeniz, E. (2005). Üniversite giriş sınavına hazırlanan lise son sınıf öğrencileri ve velilerinin kaygı düzeyleri, baş etme yolları ve denetim odağı arasındaki ilişki (Record No. 188728). [Master's thesis, Marmara University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Kaya, H., Şenyuva, E., Işık, B., & Bodur, G. (2014). Nursing students' opinions regarding project based learning. In Ş. Beşoluk (Ed.), *Proceedings of ERPA International Congress on Education,* (pp. 379-385). ERPA. Retrieved from https://www.sciencedirect.com/science/article/pii/S1877042814052835

Knowles, M. S. (1975). *Self - directed learning: A guide for learners and teachers.* New York: Association Press.

Küçükcan, T. & Gür, B. S. (2009). *Türkiye'de yükseköğretim: Karşılaştırmalı bir analiz. [Higher education in Turkey: A comparative analysis].* Ankara: Seta Yayınları.

Larmer, J., Mergendoller, J., & Boss, S. (2015). *Setting the standard for project based learning.* ASCD.

Livingstone, D., & Lynch, K. (2000). Group project work and student-centred active learning: Two different experiences. *Studies in Higher Education, 25*(3), 325-345.

Lodico, M.G., Spaulding, D.T., & Voegtle, K.H. (2010). *Methods in educational research from theory to practice. San Francisco:* Jossey-Bass.

McGarrah, M.V. (2014). *Lifelong learning skills for college and career readiness:* An *Annotated Bibliography.* The College and Career Readiness and Success Center at American Institutes for Research. Retrieved from https://files.eric.ed.gov/fulltext/ED561900.pdf

McGarrah, M.V. (2015). *Lifelong learning skills for college and career readiness: considerations for education policy.* The College and Career Readiness and Success Center at American Institutes for Research. Retrieved from https://files.eric.ed.gov/fulltext/ED570180.pdf

Michaelsen, L. K., Davidson, N., & Major, C. H. (2014). Team-based learning practices and principles in comparison with cooperative learning and problem-based learning. *Journal on Excellence in College Teaching, 25*(3&4), 57-84.

Mihic, M., and Zavrski, I. (2017). Professors' and students' perception of the advantages and disadvantages of project based learning. *International Journal of Engineering Education, 33*(6A), 1-14.

Mills, J., & Treagust, D. (2003). Engineering education: Is problem-based or project-based learning the answer. *Australasian Journal of Engineering Education, 3*(2), 2-16.

Moylan, W.A. (2008). Learning by project: Developing essential 21st century skills using student team projects. *International Journal of Learning, 15*(9), 287-292.

Murat, M., Aslantaş, H.İ., & Özgan, H. (2006). Öğretim elemanlarının sınıf içi eğitim öğretim etkinlikleri açısından değerlendirilmesi. [Assessment of instructors with regard to instructional activities in classrooms]. *Gazi Eğitim Fakültesi Dergisi, 26*(3), 263-278.

Rabacal, J.S., Geroso, M.J.S., & Oliveros, J.A. (2018). Developing students 21st century skills using project based learning. *Asia Pacific Journal of Multidisciplinary Research, 6* (2), 47-53.

Robles, M.M. (2012). Executive perceptions of the top 10 soft skills needed in today's workplace. *Business Communication Quarterly, 75* (4), 453-465.

Robson, C. (2002). *Real world research.* Oxford: Blackwell.

Rottherham, A.J. & Willingham, D. (2009). 21st century skills: The challenges ahead. *Educational leadership: Journal of the Department of Supervision and Curriculum Development, N.E.A, 67*(1), 16-21.

Saavedra, A.R. & Opfer, V.D. (2012). Learning 21st-century skills requires 21st-century teaching, *The Phi Delta Kappan, 94* (2), 8-13.

Silva, E. (2009). Measuring skills for 21st-century learning. *Phi Delta Kappan, 90* (9): 630-634.

Simons, H. (2009). *Case study research in practice*. London: SAGE.

Soland, J., Hamilton, L. S., & Stecher, B. M. (2013). M*easuring 21st century competencies: Guidance for educators.* New York, NY: Asia Society.

Stake, R. E. (1995). *The art of case study research*. California: Thousand Oaks, Sage Publications.

Sumarni, W. (2015). The strengths and weaknesses of the implementation of project based learning: A review. *International Journal of Science and Research, 4*(3), 478-484.

Şahin, M., & Tepençelik, F. (2015). Kariyer geliştirmede yükseköğretimin rolü ve işveren algıları: Bir alan araştırması. [The role of the higher education in career development and employers' perceptions: A research field]. *Eğitim ve Öğretim Araştırmaları Dergisi Journal of Research in Education and Teaching, 4*(1), 46-55.

Şenses, F. (2007). Uluslararası gelişmeler ışığında yükseköğretim sistemi: Temel eğilimler, sorunlar, çelişkiler ve öneriler. [The Turkish higher education system in light of international developments: Main trends, issues, contradictions and recommendations]. *ERC Working Papers in Economics, 07/05, Middle East University.* Retrieved from http://erc.metu.edu.tr/en/system/files/menu/series07/0705.pdf

Tarricone, P., & Luca, J. (2002). Successful teamwork: A case study. *Research and Development in Higher Education: Quality Conversations, 25,* 640-646. Retrieved from https://www.herdsa.org.au/publications/conference-proceedings/research-and-development-higher-education-quality-79

Titmus, C. (1999). Concepts and practices of education and adult education: obstacles to lifelong education and lifelong learning? *International Journal of Lifelong Education, 185*(5), 343-354. doi: 10.1080/026013799293595.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times.* San Francisco: Jossey-Bass.

Wurdinger, S., Haar, J., Hugg, R., & Bezon, J. (2007). A qualitative study using project-based learning in a mainstream middle school. *Improving Schools, 10*(2), 150-161.

Yurdakul, C. (2017). An investigation of the relationship between autonomous learning and lifelong learning. *International Journal of Educational Research Review, 2*(1), 15-20.

Yüksek Öğretim Kurulu (2007). *Türkiye'nin yükseköğretim stratejisi.* Yayın No: 2007-1, ISBN: 978-975-7912-32-3. Ankara: Meteksan A.Ş.

Yüksek Öğretim Kurulu (n.d.). *Yükseköğretim politikalarında yeni YÖK.* Retrieved from https://www.yok.gov.tr/Documents/Yayinlar/Yayinlarimiz/2018/yuksekogretim-politikalarinda-yeni-yok/index.html#page/1

Yükseköğretim Kalite Kurulu (n.d.). *Öğrenci merkezli öğretim, ölçme ve değerlendirme.* Retrieved from https://portal.yokak.gov.tr/en/makale/ogrenci-merkezli-ogretim-olcme-ve-degerlendirme/

Zeytin, Y. (2015). *Üniversite giriş sınavlarına hazırlanan öğrencilerin akademik beklentilerine ilişkin stres ve öznel iyi oluş düzeylerinin incelenmesi.* ((Publication No. 423504). [Master's thesis, Marmara University]. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi