

Implementation of Mobile Entrepreneurial Learning in the Context of Flexible Integration of Traditions and Innovations

<https://doi.org/10.3991/ijim.v14i21.18445>

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Abstract—The study considers the issue of integrating traditions and principles of mobile learning in entrepreneurship education. The purpose of the research is to study the level of implementation of mobile learning methods in higher education through the example of the Republic of Azerbaijan. The study involves a survey of 97 teachers from five universities. The survey results confirmed that both external factors (primarily globalization and widespread introduction of information and communication technologies) and internal factors affect higher education. It has been shown that national traditions do not contradict the best practices of entrepreneurship education and are successfully integrated into mobile learning. The level of integration of advanced trends in education in the practice of mobile learning has been highly assessed by the teachers (3.44 out of 5 points on the Likert scale). The benefit of mobile learning for implementing the identified advanced trends (3.44-4.84 on the Likert scale) has also been highly praised. For example, respect for people by age, experience, rank; practical focus; comprehensive assessment; rationality; involvement of each family member in hard work are supported by advanced learning methods, including the involvement of skilled lecturers, the increased importance of practical tasks, the use of project approach and startups; the use of mobile applications to assess knowledge; personalization of classes; the introduction of distance learning, etc. Flexible integration of national traditions and innovations can become a competitive advantage of the university and the education system; it is also successfully implemented in mobile learning. A model for the formation of entrepreneurial competence in students that takes into account flexible integration of traditions and innovations and is based on the use of mobile applications and cloud services has been developed.

Keywords—Higher education, entrepreneurship education, mobile learning, globalization, information and communication technologies

1 Introduction

The modern economy is globalized and innovative; it is often referred to as the knowledge economy [1] as modern society development is based on knowledge and the latest technologies. An innovative economy is directly dependent on entrepreneurship. The measures taken by developed economies in order to reduce the negative impact of the COVID-19 pandemic on small businesses and independent entrepreneurs confirm the importance of entrepreneurship, in particular small and medium-sized businesses, for the economy of each country.

The development of a knowledge society around the world requires educational reforms, which will contribute to education through a reasonable combination of the global best practices and national traditions. Hence, higher education in post-Soviet countries faces the challenge of bridging the gap between raw material production and the knowledge-based economy, which is the basic development model of the leading economies today [2,3]. The education system in all developed countries is experiencing not only quantitative but also qualitative changes. The problems of the post-Soviet countries are similar to those being addressed by developed economies that are forced to adapt to technological changes quickly [4,5]. The number of people of all ages interested in learning specific subjects and getting a second degree is growing; education types and duration are being changed, and its tasks are becoming more complicated.

The education systems of post-Soviet countries face most of the same problems that appear around the world as a result of the rapid technological development, the development of the knowledge economy and digital environment, and the generation born in the new environment. These factors pose completely new challenges to the pedagogical system of higher education [3,6,7]. On the other hand, modern information technologies have created a global learning environment, which increases the attractiveness of all types of education by ensuring standardization and unification of academic disciplines and allows students to study at their own convenient pace [8,9].

The natural higher mobility of entrepreneurs has led to a great interest in the application of the methods of mobile and online entrepreneurship learning in many countries [10-12]. The COVID-19 problem has emphasized the importance of distance learning, provided that practice and theory of entrepreneurship are integrated. Online learning is not only part of the academic practice in business education, but also a defining methodology for in-service entrepreneur development. A feature of traditional education in most countries of Central Asia and the Transcaucasian region was training in entrepreneurship and trade skills directly in practice, in the process of carrying out activities. The training was based on the mechanism of personal mentoring [3,13]. In the modern situation, it is the use of technologies and methods of mobile learning that allows the traditional values of entrepreneurship learning to be effectively implemented in practice because it allows mentoring in real time, and not only in the form of academic training before starting practical activities [14]. The advantage of mentoring is that theoretical concepts are learned in practice and taking into account the peculiarities of the local and international market and their rapidly changing conditions, which are familiar to the mentor but may not yet be reflected in the theoretical material of the textbooks [15,16]. Thus, learning permeates the practice rather than precedes it.

Mobile learning plays a huge role in attracting women to entrepreneurship, especially in developing countries. Researches have demonstrated the high potential and success of this practice [17]. It is critically important to integrate traditional methods and principles of teaching entrepreneurship with mobile technologies. This problem is studied in the example of Greece in the works of Kalogiannakis and Papadakis [18] and Papadakis [19]. The results of these studies are important for most countries, in particular, for Azerbaijan.

The researchers believe that the most effective way to implement mobile technologies into academic practice is to use the existing developed online learning systems [20,21]. The use of MOOC (massive open online courses) like Moodle provides an opportunity to integrate existing entrepreneurship training programs into an online environment quickly. It guarantees the rapid technical integration of mobile technologies into the learning process and, through them, the use of traditional methods of mentoring.

Unfortunately, the problem of including traditional values and methods of teaching entrepreneurs in different countries and cultures has been very little studied, and this work is intended to close this gap in relation to Azerbaijan. The novelty of the research has two important aspects: it is a study of the integration of traditional approaches to teaching entrepreneurship into the modern academic process, as well as the integration of such teaching methods into mobile learning technologies. Both of these aspects are extremely poorly studied in modern scientific literature.

1.1 Research structure

The introduction offers a broad perspective on the issues of online learning, entrepreneurship learning and how they relate to incorporating traditional practices and best practices into the learning process. The literature review includes the analysis of existing research related to the topic and emphasizes the study novelty. The Methods and Materials section details the research sample, methods of conducting it, and theories used. The results offer a summary and detailed statistical analysis of the survey. The Discussion compares the results obtained in similar works of Russian and foreign scientists.

2 Literature Review

The study covers the issues of online learning and mobile entrepreneurship learning within the academic environment and is aimed at exploring the potential for integrating traditional teaching methods, especially national ones, into modern learning and entrepreneurship practices in a digital environment.

2.1 Mobile learning perspective

The higher education system of the Republic of Azerbaijan is characterized by the problems commonly found in all post-Soviet economies [3], and the transformation of

education follows the pattern of developing countries [4,5,22]. The higher education system in Azerbaijan is changing in accordance with global trends. These include the development of 21st-century skills, the continuity of education, the use of the digital environment, and the total penetration of mobile learning [9]. In particular, entrepreneurship education is aimed at the development of new entrepreneurial thinking, which allows introducing an innovative model for the development of economic education in the country [7,23].

The development of mobile learning is ahead of schedule as it does not require high costs and relies on free common solutions [6,24]. This is evidenced by the experience of a number of countries and confirmed by numerous studies [5,6,8,22,25].

2.2 Azerbaijani case

A study of the impact of public spending on education, gross capital formation and the total population on Azerbaijan's economy during 1995-2018 showed that public spending on education has a positive and statistically significant impact on human capital development [26] and long-term economic growth [27].

In the Republic of Azerbaijan, there are 52 universities, and the higher education system is divided into three stages (Bachelor's, Master's, and Doctoral degrees) [28]. The major problems are limited financial resources, the need to develop new curricula and textbooks, establish new economic relations, develop teacher competencies to use the digital environment and mobile technologies, as well as the need for new teaching methods [9,15,24,29]. In connection with the need for integration into the international educational system and the international labor market, a mechanism for online and mobile learning in various forms is developing [13].

2.3 Mobile technology usage

Mobile technologies are the most natural in training entrepreneurs, given their increased mobility and busyness [14,16]. Besides, mobile learning technologies make it possible to implement specific features of entrepreneurial learning, for which practical orientation, mentoring, and possibly receiving comments from a supervisor or mentor are critically important [5,6]. The total penetration of mobile communications makes it possible to integrate mobile learning technologies into education quickly [9].

The use of online technologies and the spread of mobile technologies facilitate the possibility of starting a business and the process of managing a business, which further increases the importance of using these technologies as leading mechanisms for training entrepreneurs [30]. The startup phenomenon was primarily associated only with the sphere of young, rapidly growing IT companies, but now it has spread as a mechanism for fast-growing small and medium-sized companies in many business areas [31]. Azerbaijan strives to be like the countries that are leaders in the development of startups, but this requires infrastructure, academic and pedagogical potential, at the development of which this work is focused.

Today, the higher education system is characterized by the widespread introduction of information and communication technologies, which have improved the quality of

higher education in the country. The key concept in higher education of Azerbaijan is the General Extended Technology Acceptance Model for E-learning (GETAMEL), which introduces active and distance learning methods into the learning process [32]. In a number of countries, these principles are most often implemented through the introduction of mobile learning technologies [33].

The research conducted in the economies that quickly managed to bridge the technological gap and incorporate into the international division of labor and markets confirms the decisive role of continuous learning in this process, which is often implemented through mobile learning and the introduction of its elements into traditional classroom activities [6,10,33]. In this context, the key features are the practical focus as the basis for the development of applied business competencies; personification of the educational process at the university; individualization of educational pathways of students studying entrepreneurship; compliance with the professional needs of students [24,34].

In developed countries, in particular, South Korea, the introduction of advanced mobile learning technologies in the spheres that contribute to the national economy, for example, IT, shipbuilding, and others, is accelerated [4]. In the practice of entrepreneurial academic education, different methods of practical training are used, which differ in common features: the use of real business experience through the mechanisms of mentoring; the growing use of online and mobile learning technologies; constant integration of the learning process into the daily practice of entrepreneurship [35]. Industry 4.0 technologies are also being widely introduced in Azerbaijani engineering universities. The cooperation between production companies and universities is being strengthened; it is aimed at providing high-tech industries (primarily oil) with highly qualified personnel [36].

2.4 Entrepreneurial education features

Entrepreneurship education is focused on practical activities [12]. According to researchers, business modeling and business practices based on cases and simulation situations, as well as the development of startups, allow students to engage in a real production situation and study it in action [10,37]. The widespread use of information and communication technologies makes it possible to involve not only young people but also all population categories in the study of entrepreneurship at a comfortable pace and with flexible terms [37]. Online modeling and educational games through mobile technologies and “cloud services” provide students with the opportunity to formulate personal and professional priorities, gain experience in various, including non-standard, situations based on real business cases that are modeled in the environment that is as close as possible to the real world [9,24,37]. In Azerbaijani economics education, apart from business modeling, separate mobile learning programs are also used to teach accountants, top-level managers, technologists, marketers, financial analysts, etc. [37].

Thus, it should be noted that global entrepreneurship education is focused on the practical component and mentoring while actively relying on information and communication technologies. In particular, a number of various forms of online and mobile

learning are actively introduced. The analysis of the Azerbaijani higher education system has revealed a steady trend towards the integration of higher education in the global learning environment and a rapid spread of mobile learning courses. The use and integration of traditional learning approaches have been little researched and need to be studied in the context of fusing traditions with modern methods of distance learning and blended learning based on digital technologies.

2.5 Setting objectives

National traditions allow overcoming intercultural contradictions and other social development problems, which is especially important for higher education that is being globalized. The integration of traditions and innovations makes it possible to increase the competitive advantages of universities and the education system as the use of pedagogical traditions in education in the context of modernization confirms the development of the education system based on the principle of the national, inter-ethnic and universal unity.

The purpose of the study is to substantiate the effectiveness of the use of traditions in higher education in the context of education modernization, which can ensure the development and self-realization of an individual and society.

The research objectives are as follows:

- To identify the key trends in higher education of the Republic of Azerbaijan.
- To study the importance of traditions in Azerbaijani entrepreneurship education.
- To identify best practices supported by traditions in entrepreneurship education.
- To determine the level of implementation and usefulness of mobile learning methods in the implementation of positive trends in higher education of the Republic of Azerbaijan.
- To develop a model for the formation of entrepreneurial competence, taking into account the flexible integration of traditions and innovations.

3 Methods and Materials

3.1 Research design and sample

In order to determine the importance of traditions in entrepreneurship education, a teacher survey was conducted in the most prestigious universities of Azerbaijan:

- Azerbaijan State University of Economics (15 respondents).
- Azerbaijan State Oil and Industry University (23 respondents).
- Baku State University (24 respondents).
- Baku branch of Moscow State University named after M.V. Lomonosov (21 respondents).
- Azerbaijan Cooperation University (14 respondents).

Table 1 shows detailed data on the participants' age, gender, the teaching experience of the respondents as well as their academic degree.

Table 1. Survey results (for business owners)

Gender	Age			Work experience		Academic degree		
	<i>Under 30</i>	<i>30-50</i>	<i>Over 50</i>	<i>Up to 10 years</i>	<i>Over 10 years</i>	<i>no</i>	<i>Candidate of Sciences</i>	<i>Doctor of Sciences</i>
Azerbaijan State University of Economics (15 respondents)								
Male	2	5	2	2	5	1	7	1
Female	1	4	1	2	6	1	5	0
Azerbaijan State Oil and Industry University (23 respondents)								
Male	4	8	2	5	6	1	8	5
Female	2	7	2	8	6	1	6	4
Baku State University (24 respondents)								
Male	4	7	2	5	6	1	7	4
Female	3	6	2	6	7	3	6	3
Baku branch of Moscow State University named after M.V. Lomonosov (21 respondents)								
Male	4	5	3	5	6	3	5	3
Female	4	2	3	4	6	4	3	3
Azerbaijan Cooperation University (14 respondents)								
Male	1	4	1	3	4	-	6	1
Female	2	3	3	2	5	1	4	2
Total	27	51	21	42	57	16	57	26

For research purposes, gender was considered insignificant. The research was conducted in the form of a survey using online and printed questionnaires. The survey was conducted over a week based on the results of a 2-year study. All study participants participated on the basis of anonymity, with prior consent. No personal data were used or collected in the research process. The results of the study were statistically processed, and data visualization was carried out using MS Microsoft Excel 2013 software.

The respondents have been teaching entrepreneurship for at least two years, relying on mobile learning techniques both within university programs and open online courses. Online courses were widely distributed on a free basis on several MEP platforms, which were pre-selected and matched the content and objectives of the existing academic courses. The key feature of these courses is full access to educational materials through publicly available free mobile applications. Educational content was hosted in the cloud services of Dropbox, Google Drive, MS Azure. Besides, students had the opportunity to communicate with teachers and mentors using social networks and messengers according to a pre-established schedule; a number of important emerging issues could be put up for open general discussion by all participants in the study group. Study participants from different universities used the same academic entrepreneurship curriculum, but the software and MOOC used by faculties and students were different.

Student assignments were provided as independent research projects divided into folders with individual access through mobile applications. The responsibility of each teacher was to provide a wide, reliable and comprehensive transfer of knowledge. Communication through social media applications allowed mentors to quickly answer questions or receive feedback to improve the course and teaching methods. The national

tradition of respecting elders and the need for the transfer of experience were also reflected through the development of scientific views, assistance in awakening interest, managing the scientific activities of students. In mobile learning, these traditions were implemented through the accepted ethics of online communication and information exchange protocols in the course being studied. Open access to cloud services from mobile devices encouraged teamwork and developed tolerance to different opinions.

3.2 Research limitation

The study did not take into account the peculiarities of social, gender and other types of stratification of students and teachers. The subjective assessment of teachers was also not taken into account. Results of students' use of mobile learning methods were not considered. This point will be the topic of future research.

3.3 Survey and data analysis

The survey was based on a one-stage sampling that involved two phases. In the first phase, teachers were asked to participate in a survey. In the second phase, the respondents switched to online and printed questionnaires. They contained the following questions:

- What trends can you observe in higher education?
- Do the trends in the development of higher education in Azerbaijan have any peculiarities?
- What are the features of the development of higher education in Azerbaijan?
- What is the role of national traditions in entrepreneurship education?
- What modern learning methods are most harmonized with national academic traditions?

The respondents were allowed to give several answers to each question.

Based on the Likert scale, teachers were also asked to determine the extent to which important educational trends related to traditional values were implemented through mobile applications, as well as the degree of usefulness of mobile applications for introducing these trends (5 points - "fully implemented" and "most useful," 1 point - "almost never implemented," "hardly useful").

The survey was based on an online panel. That is, the respondents were registered Internet users who agreed to participate in the research. The authors believed this approach to be appropriate and provide reliable results.

Data quality control involved the following procedures:

- Survey results were compared with profiling data and the data obtained in other projects.
- Participation was restricted by a certain time frame.
- Multiple registrations were checked with the help of built-in functions.
- Uniqueness was controlled.

The sampling error did not exceed 5%. Questionnaire questions were developed by the authors.

4 Results

The results of the survey are described in Table 2.

Table 2. Teacher survey results

Gender	Age			Work experience		Academic degree		
	Under 30	30-50	Over 50	Up to 10 years	Over 10 years	No	Candidate of Sciences	Doctor of Sciences
What trends can you observe in higher education?								
Widespread use of information and communication technologies	5	12	8	11	7	2	15	15
Increased share of practical activities in education	4	19	15	12	7	5	18	14
Growing individual focus of education	8	18	11	17	7	8	19	3
Involvement of all population categories in education	3	8	8	4	5	9	11	11
Other	-	-	-	-	-	-	-	-
Do the trends in the development of higher education in Azerbaijan have any particularities?								
Yes	23	43	19	36	52	14	53	20
No	4	9	2	6	5	2	4	6
What are the development features of Azerbaijan higher education?								
The priority of globalization over national traditions	4	11	4	11	14	3	11	6
National traditions and global approaches are equally important	14	28	10	19	25	7	28	12
The priority of national traditions over globalization	8	10	6	11	18	6	17	8
Cannot say	1	2	1	1	0	0	1	0
What modern learning methods are most harmonized with national academic traditions?								
Involvement of lecturers having practical experience (tradition of respect for elders, respect for experience)	15	18	22	14	17	11	11	8
Increasing importance of practical exercises (tradition of respect for work and experience)	18	15	17	21	22	13	8	10
Use of the project-based approach and startups (the tradition of the practical focus of classes, a comprehensive assessment, rationality and the transfer of experience)	25	14	18	21	22	18	17	15
Personalization of classes (learning at a comfortable pace)	14	13	18	19	22	23	18	2
Use of e-learning (the tradition of involvement of each family member in hard work)	11	11	17	18	23	21	17	15
Other	-	-	-	-	-	-	-	-

The survey results allow concluding that the respondents noted global trends that are characteristic of both global higher education and national education regardless of their gender, experience, and academic degree. These include increased use of information and communication technologies, an increase in the practical component of education, increased individualization of education, and the involvement of all categories of the population in education. These trends are naturally implemented through mobile learning [4].

About 48% of respondents consider the influence of traditions and global trends on higher education to be equal. In general, the respondents noted the positive impact of globalization on higher education, but they did not contrast national traditions with globalization processes. According to the survey results, global introduction of innovative learning methods and the use of information and communication technologies are positively perceived by both teachers and students.

The survey demonstrated that national traditions and modern global trends are interconnected in education. Sixty-three percent of respondents noted that they rely on both traditions and innovations in their professional activities. Traditional teaching methods included explanations, lectures, discussion, etc. The tradition of respect for elders and experience increased the importance of lectures and theory classes. Lectures given in cooperation with highly skilled business specialists were of particular interest to students. It is of importance that all classes and various types of content (video, podcasts, audio recordings, texts, and others) could be accessed by students from their mobile phones at any time during the learning process. Startups and the project-based approach that underlies most mobile learning programs in the world [22,33] were highly appreciated by students as they rely on the traditions of the practical focus of work, a comprehensive assessment, rationality, and transfer of experience.

The method of comparison allowed gaining a better understanding of the characteristics of national culture (through excursions, meetings, discussions). The method of associations made it possible to determine the theoretical awareness of the relevant issues and provided students with the opportunities to demonstrate their creativity.

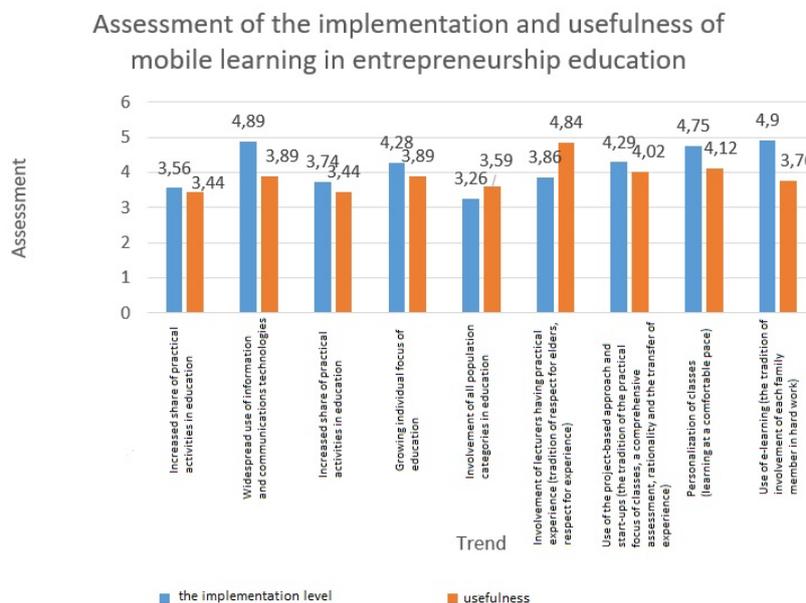


Fig. 1. Assessment of the level of implementation and usefulness of mobile learning in entrepreneurship education

Fig. 1 shows the results of the survey on the impact of mobile learning on entrepreneurship education. The teachers highly praised the importance of mobile learning in the implementation of the most important modern educational trends. It should also be noted that, according to teachers, the level of implementation of most educational trends through mobile learning methods was higher than their usefulness. With respect to the trend of involving all categories of the population in education, the benefit of using mobile applications (3.59) was rated higher than the level of its implementation in mobile learning (3.26). According to the respondents, in mobile learning, the most fully implemented trends were e-learning (4.9), the use of information and communication technologies (4.89), the individualization of the pace of learning (4.75), the use of the project-based approach (4.29) and increasing individualization of education (4.28). On the contrary, mobile learning projects had the most beneficial effect on entrepreneurship education through the involvement of lecturers with practical experience in teaching (4.84), the individualization of classes (4.12), application of the project-based approach and the development of startups (4.04).

It should be noted that each of these trends correlated with the traditional values of the Azerbaijan culture. Thus, the high assessment of the importance and level of implementation of mobile learning programs from the perspective of teachers positively affects the transit of national values to the business environment.

5 Discussion

Entrepreneurship education requires universities to comply with modern trends, which have turned a student into an active subject of the development and improvement of his/her own professional competence. The modern global trends in education include increased use of information and communication technologies, an increase in the practical component of education, increased individualization of education, and the involvement of all categories of the population in education [37]. The central challenge for entrepreneurship education is the need to integrate with practice in the digital and rapidly changing world of technology [30]. The answer to this challenge is the widespread use of online and mobile learning, not only in the academic environment but also in the process of business practice. It can be argued that today the vast majority of higher education institutions use mobile technologies and implement specialized courses based on mobile technologies [4,37]. Mobile learning creates a technical and informational basis for turning modern education into a continuous process. Increased share of independent student activities and filling entrepreneurial disciplines with creative content will help to provide both information and tasks aimed at the creative activity of an individual. Independent work can be effectively encouraged through the development of individual tasks aimed at decision making based on mobile access to information. The student has to address such problems based solely on personal experience in the context of direct and constant teacher's support and control through social networks and specialized applications [9,22].

A number of modern countries with the richest national traditions, for example, South Korea, have faced the urgent task of the predominant use of mobile learning technologies in entrepreneurship education. The high requirements for entrepreneurs, as well as the high economic competition with the most developed countries, make the country dependent on mobile applications as a means of learning available whenever and wherever a person is without being distracted from the business activity or regular job [4]. Korean researchers, as well as experts from a number of developing countries that are actively introducing mobile learning technologies, emphasize the importance of integrating traditional values and knowledge transfer methods into mobile learning [5,9,22]. At the same time, the authors were practically unable to find studies on the role of traditional entrepreneurship teaching practices in the modern academic context, which determines the novelty of this study.

Modern models for the formation of entrepreneurial competence [8,25] provide for the development of knowledge, skills, as well as motivation to engage in entrepreneurial activities. Within the framework of the present study, it is feasible to enhance the model with the component of reflective thinking, most fully implemented with the help of national traditions [5,8,33]. Thus, entrepreneurial competence can be formed through the completion of a number of tasks, namely:

1. Formation of motivation.
2. Development of knowledge.
3. Development of skills and abilities.

4. Formation of the reflective attitude, which is most fully implemented with the help of national traditions.

The formation of entrepreneurial competence directly depends on the use of modern learning methods and technologies, including mobile learning [25,33], that can be supported by national traditions.

According to the developed model, entrepreneurial competence is initially based on goal setting as the core component of any activity [25,38,39]. The model for the formation of entrepreneurial competence includes targeted, theoretical and methodological, informative, and productive blocks. All of these blocks of competencies correlate with elements of traditional training approaches that were used and discussed in this study. This indicates the natural integration of traditional values and modern entrepreneurship training modules.

The formation of entrepreneurial competence is based on methodological approaches, pedagogical principles and competence components. From the perspective of the systemic approach, entrepreneurial competence cannot be developed discounting the national environment and traditions. The approach allows integrating innovations and traditions within the framework of the entrepreneurial competence formation, which has been emphasized by a number of studies in different countries based on both national experience and global practices [4,5,9,22].

Entrepreneurship education provides for the use of the interdisciplinary approach, which is the interpenetration of knowledge aimed at holistic perception and comprehensive learning. A review of numerous studies on the development of entrepreneurship education indicates that the interdisciplinary approach is more effectively implemented through mobile learning [9,10,29].

According to researchers, the key function of the systemic approach is the development of such qualities as dynamism, responsibility, independence, ambitiousness, and creativity [22]. In mobile learning, independence is fostered through the constant separation of the student from the traditional classroom context and the teacher presence. The development of important entrepreneurial qualities is facilitated by problem-based learning, which encourages a student to initiate an independent search for optimal solutions to the problems [10,29]. Mobile learning also includes an interactive component, which actively involves each student in teamwork, in particular small group work that occurs in the atmosphere of empathy and tolerance. This approach contributes to the development of initiative, independence, ability to make decisions, communicate and defend one's own opinion. According to modern scientific research on the formation of entrepreneurial competence [39], there is a need to maximize the share of practical exercises in order to develop entrepreneurial skills.

A positive factor in the use of project-based learning that is characteristic of mobile learning is its focus on the completion of certain tasks based on various creative and research activities; this is a prerequisite for the formation of independence in the planning, organization and control of entrepreneurial activities. Mobile technologies can significantly expand the teacher's ability to develop entrepreneurial competence in students.

Most researchers distinguish the following components of entrepreneurial competence formation. These involve the need to create a number of pedagogical conditions, which include:

1. Encouragement of the positive attitude of students to entrepreneurship and preparation for independent activities.
2. Achievement of the integrity and continuity of the entrepreneurial competence formation by integrating the content of academic disciplines with the solution of practical problems.
3. Development of important professional and personal qualities and abilities in students by means of innovative educational technologies, including mobile learning, active learning, collaborative learning, etc.
4. Expansion of the share of practical exercises in educational activities [4,9,33].

The data on the components of the entrepreneurial competence formation and the criteria identified on the basis of the study of researchers' work correspond to the highly appreciated areas of implementation of mobile and online learning technologies discussed in this study.

6 Conclusion

The education sector of the Republic of Azerbaijan is characterized by the presence of national traditions that do not contradict global trends but only contribute to the improvement of entrepreneurship education quality and the formation of entrepreneurial competence in students. A survey of 97 teachers conducted at five universities in Azerbaijan also showed a high level of implementation of mobile learning mechanisms. For example, the tradition to respect older people, their experience and work, as well as the practical focus of studies, comprehensive assessment, rationality and transfer of experience are consolidated through advanced learning methods, including the involvement of skilled lecturers, increase in the number of practical tasks, the use of project approach and startups, the use of mobile applications to assess knowledge, personalization of classes, introduction of distance learning, etc. The research participants assessed the implementation of the indicated learning methods and trends in mobile learning based on the Likert scale in the range from 3.26 to 4.9 (on a 5-point scale). In the era of globalization, the use of the best national traditions in higher education can become a competitive advantage of a university and an education system for entrepreneurial teaching, and mobile learning contributes to both the competitive advantage realization and the transfer of national academic traditions to the next generations. National traditions in education (consistency, psychological climate, respect for knowledge and work, etc.) can be a competitive advantage of a single university and an education system; they are effectively implemented on the basis of mobile applications and "cloud" services to train entrepreneurs.

7 References

- [1] O'Donovan, N. (2020). From Knowledge Economy to Automation Anxiety: A Growth Regime in Crisis? *New Political Economy*, 25(2): 248-266. <https://doi.org/10.1080/13563467.2019.1590326>
- [2] Smolentseva, A., Huisman, J., Froumin, I. (2018). Transformation of higher education institutional landscape in post-Soviet countries: From Soviet model to where? In *25 Years of Transformations of Higher Education Systems in post-Soviet Countries*. Palgrave Macmillan, Cham, pp. 1-43. https://doi.org/10.1007/978-3-319-52980-6_1
- [3] Azimbayeva, G. (2017). Comparing post-Soviet changes in higher education governance in Kazakhstan, Russia, and Uzbekistan. *Cogent Education*, 4(1): 1399968. <https://doi.org/10.1080/2331186x.2017.1399968>
- [4] Kim, H.J., Rha, J.Y. (2018). Predicting the Drivers of the Intention to Use Mobile Learning in South Korea. *International Journal of Interactive Mobile Technologies*, 12(1): 116-132. <https://doi.org/10.3991/ijim.v12i1.7688>
- [5] Nygren, M. (2016). Developing a Mobile Learning Application for Entrepreneurship Education in Uganda and Zambia. Linköping's university.
- [6] Bernick, M.L., Greene, J.A., Crompton, H. (2020). Mobile technology, learning, and achievement: Advances in understanding and measuring the role of mobile technology in education. *Contemporary Educational Psychology*, 60: 101827. <https://doi.org/10.1016/j.cedpsych.2019.101827>
- [7] Ziyadin, S., Shash, N., Levchenko, T., Khudaibergenova, S., Yessenova, G. (2019). Modeling of resultant effects in assessment of innovative activity of the hotel organizations. *Entrepreneurship and Sustainability Issues*, 6(4): 2180-2193. [https://doi.org/10.9770/jesi.2019.6.4\(43\)](https://doi.org/10.9770/jesi.2019.6.4(43))
- [8] Gianesini, G., Cubico, S., Favretto, G., Leitão, J. (2018). Entrepreneurial competences: comparing and contrasting models and taxonomies. In *Entrepreneurship and the industry life cycle*. Springer, Cham, pp. 13-32. https://doi.org/10.1007/978-3-319-89336-5_2
- [9] Qureshi, M.I., Khan, N., Gillani, S.M.A.H., Raza, H. (2020). A Systematic Review of Past Decade of Mobile Learning: What we Learned and Where to Go. *International Journal of Interactive Mobile Technologies*, 14(06): 67-81. <https://doi.org/10.3991/ijim.v14i06.13479>
- [10] Onyema, O.G., Daniil, P. (2017). Educating the 21st century learners: are educators using appropriate learning models for honing skills in the mobile age? *Journal of Entrepreneurship Education*, 20(2): 1-15.
- [11] Alderete, M.V. (2017). Mobile broadband: A key enabling technology for entrepreneurship? *Journal of Small Business Management*, 55(2): 254-269. <https://doi.org/10.1111/jsbm.12314>
- [12] Mackay, M., Nelson, T., Perkins, H.C. (2018). Interpretive walks: advancing the use of mobile methods in the study of entrepreneurial farm tourism settings. *Geographical Research*, 56(2): 167-175. <https://doi.org/10.1111/1745-5871.12275>
- [13] Agayev, F.T., Mammadov, G.A., Melnikov, R.T. (2019). Analysis of ICT education in Azerbaijan: current state, foreign experience, problems and prospects. *Open Education*, 23(2): 50-60. <https://doi.org/10.21686/1818-4243-2019-2-50-60>
- [14] Soetanto, D. (2017). Networks and entrepreneurial learning: coping with difficulties. *International Journal of Entrepreneurial Behavior & Research*, 23(3): 547-565. <https://doi.org/10.1108/ijeb-11-2015-0230>
- [15] Topuz, B. (2011). Historical development of Azeri education system and the effects of the private Azerbaijani-Turkish schools. *Journal of Educational and Social Research*, 1(5): 11-11.
- [16] Jenssen, E.S., Haara, F.O. (2019). Teaching for Entrepreneurial Learning. *Universal Journal of Educational Research*, 7(8): 1744-1755 <https://doi.org/10.13189/ujer.2019.070813>

- [17] Kapinga, A.F., Suero Montero, C., Mbise, E.R. (2019). Mobile marketing application for entrepreneurship development: Codesign with women entrepreneurs in Iringa, Tanzania. *The Electronic Journal of Information Systems in Developing Countries*, 85(2): e12073. <https://doi.org/10.1002/isd2.12073>
- [18] Kalogiannakis, M., Papadakis, S. (2019). Evaluating pre-service kindergarten teachers' intention to adopt and use tablets into teaching practice for natural sciences. *International Journal of Mobile Learning and Organisation*, 13(1): 113-127. <https://doi.org/10.1504/ijmlo.2019.10016617>
- [19] Papadakis, S. (2018). Evaluating pre-service teachers' acceptance of mobile devices with regards to their age and gender: a case study in Greece. *International Journal of Mobile Learning and Organisation*, 12(4): 336-352. <https://doi.org/10.1504/ijmlo.2018.10013372>
- [20] Papadakis, S., Kalogiannakis, M., Sifakis, E., Vidakis, N. (2017). Access Moodle using smart mobile phones. A case study in a Greek University. In *Interactivity, Game Creation, Design, Learning, and Innovation*. Springer, Cham, pp. 376-385. https://doi.org/10.1007/978-3-319-76908-0_36
- [21] Papadakis, S., Kalogiannakis, M., Sifakis, E., Vidakis, N. (2018). Evaluating Moodle use via Smart Mobile Phones. A case study in a Greek University. *EAI Endorsed Transactions on Creative Technologies*, 5(16): 1-9. https://doi.org/10.1007/978-3-319-76908-0_36
- [22] Singh, S., Zolkepli, I.A., Kit, C.W. (2018). New wave in mobile commerce adoption via mobile applications in Malaysian market: investigating the relationship between consumer acceptance, trust, and self-efficacy. *International Journal of Interactive Mobile Technologies*, 12(7): 112-128. <https://doi.org/10.3991/ijim.v12i7.8964>
- [23] Educational reforms in Azerbaijan (2020). Available online: http://www.azerbaijans.com/content/1729_ru.html (accessed on 30 June 2020).
- [24] Keengwe, J., Bhargava, M. (2014). Mobile learning and integration of mobile technologies in education. *Education and Information Technologies*, 19(4): 737-746. <https://doi.org/10.1007/s10639-013-9250-3>
- [25] Ivanova, D. (2020). Risk management and its contribution to sustainable development of mining enterprises. *Scientific and Practical Studies of Raw Material Issues*. Taylor & Francis Group, London, UK, pp. 182-190. <https://doi.org/10.1201/9781003017226-26>
- [26] Gulaliyev, M.G., Muradov, R.S., Hajiyeva, L.A., Muradova, H.R., Aghayeva, K.A., Aliyev, E.S. (2019). Study of Human Capital Development, Economic Indicators and Environmental Quality. *Ecology*, 28(107): 495-503
- [27] Mukhtarov, S., Mammadov, I., Humbatova, S. (2020). The Relationship Between Government Expenditures on Education and Economic Growth: The Case of Azerbaijan. *Research in World Economy*, 11: 195. <https://doi.org/10.5430/rwe.v11n1p195>
- [28] Ibadoghlu, G. (2019). Higher Education System of Azerbaijan: Country Report. 10 Years Eastern Partnership Civil Society Forum. Available online: <https://ssrn.com/abstract=3458560> (accessed on 30 June 2020).
- [29] Zidoun, Y., Dehbi, R., Talea, M., El Arroum, F.Z. (2019). Designing a Theoretical Integration Framework for Mobile Learning. *International Journal of Interactive Mobile Technologies*, 13(12): 152-170. <https://doi.org/10.3991/ijim.v13i12.10841>
- [30] Radović-Marković, M., Marković, D., Simović, V., Medic, Z., Zivadinović, J. (2017). E-learning as a tool for empowering entrepreneurship. *Journal of Women's Entrepreneurship and Education*, 3-4: 65-72.
- [31] Ehrenhard, M., Wijnhoven, F., van den Broek, T., Stagno, M.Z. (2017). Unlocking how startups create business value with mobile applications: Development of an Appealed Business Innovation Cycle. *Technological forecasting and social change*, 115: 26-36. <https://doi.org/10.1016/j.techfore.2016.09.011>
- [32] Chang, C.T., Hajiyev, J., Su, C.R. (2017). Examining the students' behavioral intention to use e-learning in Azerbaijan? The general extended technology acceptance model for e-

- learning approach. *Computers & Education*, 111: 128-143. <https://doi.org/10.1016/j.compedu.2017.04.010>
- [33] Abdullah, F., Ward, R. (2016). Developing a General Extended Technology Acceptance Model for E-Learning (GETAMEL) by analyzing commonly used external factors. *Computers in Human Behavior*, 56: 238-256. <https://doi.org/10.1016/j.chb.2015.11.036>
- [34] Abdullayev, A. (2019). Quality Assurance Mechanisms in Azerbaijan Higher Education Institutions. *Cultural identity of Azerbaijan*, 38: 369-376. https://doi.org/10.18485/kud_kiaz.2019.ch38
- [35] Gentile, T.A.R., Reina, R., De Nito, E., Bizjak, D., Canonic, P. (2020). E-learning design and entrepreneurship in three European universities. *International Journal of Entrepreneurial Behavior & Research*, 26(7): 1547-1566. <https://doi.org/10.1108/ijeb-06-2019-0407>
- [36] Ahadov, A., Asgarov, E.S., El-Thalji, I. (2019). A summary of adapting Industry 4.0 vision into engineering education in Azerbaijan. In *IOP Conference Series: Materials Science and Engineering*. IOP Publishing, pp. 012063. <https://doi.org/10.1088/1757-899x/700/1/012063>
- [37] Maresch, D., Harms, R., Kailer, N., Wimmer-Wurm, B. (2016). The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs. *Technological Forecasting and Social Change*, 104: 172-179. <https://doi.org/10.1016/j.techfore.2015.11.006>
- [38] OECD (2019). *Evaluation of Programmes Concerning Education for Entrepreneurship*. OECD Working Party on SME's and Entrepreneurship, Paris.
- [39] Sukavejworakit, K., Promsiri, T., Virasa, T. (2018). OETEL: An innovative teaching model for entrepreneurship education. *Journal of Entrepreneurship Education*, 21(2): 1-11.

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Article submitted 2020-09-11. Resubmitted 2020-10-21. Final acceptance 2020-10-21. Final version published as submitted by the authors.