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NEW FORMS OF INTERACTION IN HIGHER EDUCATION

Review Article

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Abstract

Interactivity in the academic environment is a key element of the communication policy of higher education institutions. In the teaching-learning process, mobile technology creates interactivity and offers the ability to access learning resources anywhere and anytime. The main objective of this study is to highlight the importance of mobile technology in the communication and learning process in academia. The results reveal that learning activities which are engaged in the university classroom could be continued and developed through mobile interaction which has become a great tool for the higher education institutions to communicate virtually with anyone despite physical distance. Mobile technologies offer new ways of creating and disseminating knowledge and can be used to improve the overall learning experience of students and teachers.

INTRODUCTION

The concept of interactivity strengthens the idea of communication process by which ideas, information, opinions, attitudes and feelings are transmitted from one person to another. (Duță, 2015). The unprecedented development of information technology has led universities to increasingly use of interactive communication, so interactivity and interaction are two terms that have been used very often in the literature of higher education. (Kahveci, 2007)

„**Interactive Learning** is a pedagogical approach that incorporates social networking. Interactive Learning has evolved out of the hyper-growth in the use of digital technology and virtual communication, particularly by students." (https://en.wikipedia.org/wiki/Interactive_Learning) Interaction is a key feature of all social processes, including education. Describing this form of educational interaction, scientists use such terms as "online interaction", "web-based interaction", "distance interaction" (Grebenshchikova and Nefedova, 2015). Today"s students have spent less hours of their lives reading, but many hours playing video games, watching TV and using social networks, like Facebook, Instagram, YouTube, or others. Instant messaging and social networks are integral parts of their lives. It is now clear that as a result of this modern environment today's students think and process information fundamentally differently from their predecessors (Prensky, 2001) because the internet facilitates the access to any kind of information.

This papaer emphasizes the importance of using mobile technology and the interaction it creates in higher education.

LITERATURE REVIEW

There are numerous studies in the literature that discuss interactivity through mobile technology in higher education. Verčič and Verčič (2013) explore media preferences of digital natives, a generation born after introduction of digital technologies. „*The Net Generation or Generation Y is the first generation to grow up in constant contact with digital media. Also known as digital natives, their techno-social, community bonds to their naturalized use of technology in every aspect of learning, to their ability to learn in new ways outside the classroom, this generation of students is pushing the boundaries of education. The use of digital media in education has led to an increase in the use of and reliance on interactive learning, which in turn has led to a revolution in the fundamental process of education*." (https://en.wikipedia.org/wiki/Interactive_Learning). This generation shares some common characteristics: think and process information very much different from their predecessors', do multitasks, prefer multimedia to written texts, collaborate and network, want to have fun at work and at school, speed and innovation are part of their life (Bidin and Ziden, 2013; Prensky, 2001).

The term digital native is generally taken to refer to the first generation that was born into a world of technology. "Digital natives are also said to naturally assume multiple virtual identities and view privacy differently than older generations. They also acquire the necessary skills to interact competently in groups and establish relationships." (Mäntymäki and Riemer, 2014) .

Veinberg (2015) emphasized the existence of two categories of people in terms of news consumption: those who still read their news on paper and those who read it only via a screen and the first source of information is the phone. The digital technology has penetrated a lot in higher education. The penetration of information technology (IT) has made learners to become increasingly computer literate. The increased use of these mobile devices is an international phenomenon (Goggin, 2006). Engagement in virtual worlds (VWs) is increasing rapidly, particularly among young people and especially in higher education. (Mäntymäki and Riemer, 2014) Mobile learning may includes various kinds of instruction and learning methods that is only emerge in cell phone screens or it also can emerge in mobile tools such as personal mobiles, iPAD, intelligent phones or laptops. By using these mobile instructional tools it is not necessary that the instruction take place in a definite time or place. (Akhshabi et al, 2011) Mobile learning decreases the restrictions of learning environments by creating more flexibility, focusing on mobile technology and the mobility of learning environment.

Almaiah et al (2016) developed a model in which have illustrated the main qualities of mobile technology: trust, personalization, responsiveness, availability, as can be seen in the Figure no. 5. Educators should look upon this qualities of mobility technology. The concept of 'anytime' and 'anyplace' of mobile learning should be utilized in enhancing the pedagogical activities in delivering lessons (Bidin and Ziden, 2013).

THE IMPORTANCE OF USING MOBILE TECHNOLOGY IN HIGHER EDUCATION

Communicate effectively is an art. (Duță, 2015). The modern society is the society of information flows and rapidly upgrading technologies,

expanding international relations and overcoming space-time boundaries, the society of people who are able to adapt and interact. (Grebenshchikova and Nefedova, 2015) The universities and educational institutions have been trying to find new ways and methods to use internet-based technologies successfully in teaching and learning. The use of an online discussion forum has emerged as a common tool and an effective way of engaging students in pedagogical discussion outside the classroom. (Maboe, 2017) Mobile learning is a technology that was developed to support learners and teachers through Internet via electronic devices. M-learning is defined as "any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learners takes advantage of the learning opportunities offered by mobile technologies". (Mohammad et al, 2012)

Considering the learning availability anytime and anywhere lead to M-learning as a new model of e-learning technology (Sarrab, 2015) as can be seen in Figure no. 1.

E-learning gave many advantages for learners, for this reasons M-learning is a component part of it. E- learning is the delivery of teaching materials via electronic media, such as the Internet, it is collaborative, media rich, formal, is used in distance learning, presents standard tests, a restricted amount of time and usually delay feedback (Ozuorcun and Tabak, 2012) Mobile learning opens the boundaries of learning to support learners and enables students to learn anytime and anywhere. (Kularbphettonga et al, 2015), (Cabot et al, 2015), eliminate geographic boundaries and provide a collaborative learning environment between students, it is networked, informal, instantaneous, at any amount of time, offering an instant feedback and individualized test. „The main advantage arising from mobile learning characteristics is that the study can be done by anyone, in any place, at any time when the user willing to learn. M-learning has a focus on sharing information. All learners, through the interactive system, can interact with each other and they can share knowledge and experience" (Ozuorcun and Tabak, 2012), creating interactivity in higher education.

Another important component of M-learning to be taken into account is the tools/applications as well as approaches (i.e. mobile application – whatsapp, Facebook, Pdf Wiewer, ecc) that were used (Alioon and Delialioglu, 2014). Mobile learning is gaining its popularity as it is accepted to be an effective technique of delivering lessons and acquiring knowledge as its main strengths are anytime and anyplace but also anything (Bidin and Ziden, 2013), and allows learners to obtain learning materials from anyone using mobile technologies and the Internet (Ozdamli and Cavus, 2011).

Based on the features of M-learning, four types of learning approaches can be supported by mobile devices, including *individualized learning*, *situated learning*, *collaborative learning*, and *informal learning*. "First, m-learning supports individualized learning by allowing students to pace learning at their own speed. Second, the situated learning is realized as students use mobile devices to learn within a real context. Third, M-learning enables collaborative learning when students use mobile devices to easily interact and communicate with other students. Finally, informal learning is realized when students learn out of class at their convenience" (Cheon et al, 2012).

M-learning creates mobility: mobility of technology, mobility of learners, mobility of educators, and mobility of learning (Al-Emran et al, 2016) and changes the way in which students learn to be more interesting, interactive and flexible. The use of mobile technology in academia is an effective method that encourage students to learn and get knowledge without traditional education system restrictions. The concept of M-learning combines the advantage of network wireless technologies and mobility in the teaching and learning processes.

INTERACTION THROUGH MOBILE TECHNOLOGY

The interaction in education is a key feature of the educational process. Network interaction is a new form of educational interaction, that has been much discussed in recent scientific literature. Describing this form of educational interaction, scientists use such terms as "online interaction", "web-based interaction", "distance interaction". Others tend to operate with the term "network interaction" (Grebenshchikova and Nefedova, 2015).

Interactivity, mobility, ease of use and an active and direct communication are some of the advantages of learning using mobile devices. Smartphones are being utilized in collaborative learning and provides opportunity for change. (Khan et al, 2015)

Miloševic´ et al (2015) have identified several benefits of interaction through M-learning:

- Interaction: the student may have an interaction with professors.
- Portability: mobile devices are lighter than books and allow students to take notes, type text or record sound.
- Cooperation: enables easier cooperation among students. Students can collaborate even in remote locations.
- Engaging students: new generations like to use mobile devices.
- Practicality: Students can study whenever they have time.

- It can assist students with disabilities.
- Speed: the traditional learning materials and training take a lot of time in order to be prepared, materials for mobile learning can be prepared and be available relatively quickly.
- Retention of knowledge: mobile learning is a powerful learning tool that provides quick reminding and adding materials to already learned.
- Reduces the cost of printing literature.
- Enables easier data management

Others benefits include: access to academic library, information, support of interactive and collaborative learning, expand student communication, and extend engagement with course content. Advancement of technology has driven a strong demand for more sophisticated teaching instruments such as computer application, video, and various different equipment which able to combine visual, audio and text elements (Irwan et al, 2013). Computer and mobile-mediated communication provide users the opportunity to facilitate social affinity and social presence. Users have control over *when* and *with whom* they interact. Instead, the traditional method of teaching such as face-to-face lectures and tutorials was supplemented with the delivery of succinct instructional materials and activities through Facebook and WhatsApp outside school hours. This social networks were used to extend and re-enforce the concepts learnt in the class, and provide a channel for the students to communicate with the teachers and their peers ubiquitously (So, 2016).

Grebenshchikova and Nefedova (2015), have developed a portrait of the evolution of interactivity in the academic environment as can be seen in Figure no. 2. Thus, the main socio-historical conditions of network interaction in higher education at the level of society are:

- changing of the ways of information use – the development of technology, the accumulation of knowledge and the achievement of higher levels of information processing;
- individualization of labor, the appearance of new types of employment such as working part-time, temporary work, self-employment;
- transformation of "space and time" definition, caused by the spread of information and communication technologies (Grebenshchikova and Nefedova, 2015).

Bidin and Ziden (2013, p. 722-724) have identified different factors influencing interaction in higher education through mobile learning:

- *Features of the devices* in terms of usability and functionally
- *User's expectations:* learners will become more **motivational,** more active in communication and learn much better.
- *Mobile applications* provide the **private** virtual world to the learners that make them feel safe and motivated.
- *High mobility of learners* today makes **flexible learning** imperative. Mobile learning opens up more opportunities for learning to take place regardless of place and time. Mobile learning is seen as one tool that can materialize **lifelong learning** and have **fun**.
- *Pedagogical advantage:* The learners work together towards one common goal, and this is the key to **collaborative learning**. The mobile devices function as the interactive agents that allow varying levels of **interactivity** and engagement with the technology.
- *Mobile technology* permit to **solve the problem** given by the teacher.

Ozdamli and Cavus (2011) have developed a model explaining the interaction created by the use of the mobile technology in higher education as can be seen in Figure no. 3. The main elements described by the authors are:

- *Learner* - at the center in all teaching and learning activities according to new education approaches. Mobile learning builds on the learner's interests, experiences and needs and his role is a major one: access information, responsible for own learning, create and share new information
- *Teacher* - support more accessible information for students
- *Content* – should be decided in consultation with all stakeholders
- *Environment* - must design properly to obtain positive learning experiences
- *Assessment* - student evaluation should make via database logs, software packages, online exams, discussion board, online quizzes, or project evaluation. Also students should evaluate themselves and others. It provides the pieces needed to accurately evaluate a learner's knowledge, skills.

Almaiah et al (2016) have developed a model in which have illustrated the components of mobile technology as can be seen in Figure no. 4. This components include: functionality, accessibility, interactivity, easy of use, interface design. Mobile technology allows different levels of interactivity. So they may be used for collaborative learning activities giving instant information (Ozdamli and Cavus, 2011).

FINDINGS ABOUT MOBILE TECHNOLOGY IN HIGHER EDUCATION

The main objective of this study is to highlight the importance of mobile technology in the communication and learning process in academia in creating interactive communication.

M-learning will be no longer a choice but a necessity in the modern way of learning so that students would be able to keep pace with the times and technology. The popularity of this type of learning was growing rapidly in the past few years, especially after the development of smartphones, iPad and tablets that use wireless technology and have the performance of a computer (Miloševic´ et al, 2015). Mobile technology is a fundamental infrastructure to support mobile learning which suggests: learners' mobility, learning virtually anywhere, anytime, anything via mobile devices (Bidin and Ziden, 2013).

Akhshabi et al (2011) have identified several advantages of using mobile technology in higher education like: enjoyment from a flexible method of study, no need to buy books, no need to go to the university library, increase the cooperation between teachers and students, quick access to learning resources.

Teodorescu (2015) has made a research in which has illustrated the main activities where mobile technology is needed in the academic environment. These include socialization because students' main purpose in using their mobile devices for socializing and communication with others students and teachers, followed by learning, doing homework, games, personal development, and e-commerce. The most used applications are social network apps, such as Facebook, Twitter and Instagram through which students share information and learning materials (Teodorescu, 2015).

Based on the literature review, I have developed a conceptual model where I have illustrated the importance of using the digital technology in the academic environment in creating interactive communication as can be seen in the Figure no. 6. This conceptual model represents a starting point for a future research and explains how an interactive communication can be created through mobile technology in higher education. Thus, digital technology contributes to ***facilitating access to the learning process***, providing instant access to learning resources, offers ***flexibility***, as learning materials can be accessed anytime, anywhere and by anyone. Mobile technology also ***facilitates the mobility*** of teachers and students who no longer depend on a physical place and a time clearly set for the learning process. Mobile technology ***leads to performance and efficiency*** by using smartphones, tablets, laptops or other devices, allows ***socialization***, especially through social networks, email, or using discussion forums on the faculty website. The modern learning process involves the widespread use of social networks which are becoming increasingly popular in the research on the potential of Social Media for higher education. Specific attention has been paid to the use of social network sites such as Facebook, Twitter and YouTube. An increased use of Social Media in higher education would lead to reconnecting academic institutions to the new generations of students (Manca and Ranieri, 2016). The use of mobile technology in higher education supports ***personalized communication*** by sending messages that respond to individual needs and offers the opportunity to receive feedback.

CONCLUSIONS

The development of mobile technology has revolutionized the academic environment and the whole educational process. Learning activities which are engaged in the university classroom could be continued and developed through mobile interaction by communicating virtually with anyone despite physical distance. The new devices, developed with the widespread use of the Internet, provide increased flexibility and efficiency by allowing instant access to learning resources, offer the possibility to ask personalized questions to teachers or other students and new ways of creating and disseminating knowledge and facilitate the learning process by using online texts and video presentations.

Mobile technologies ensure the academic mobility and can be used to improve the overall learning experience of students and teachers.

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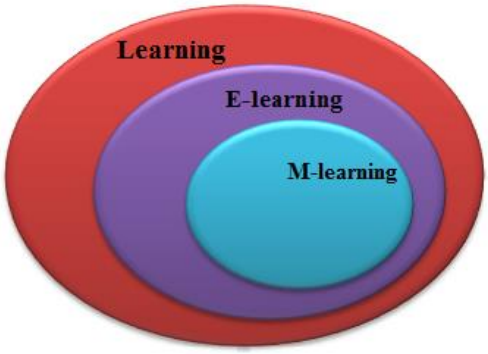
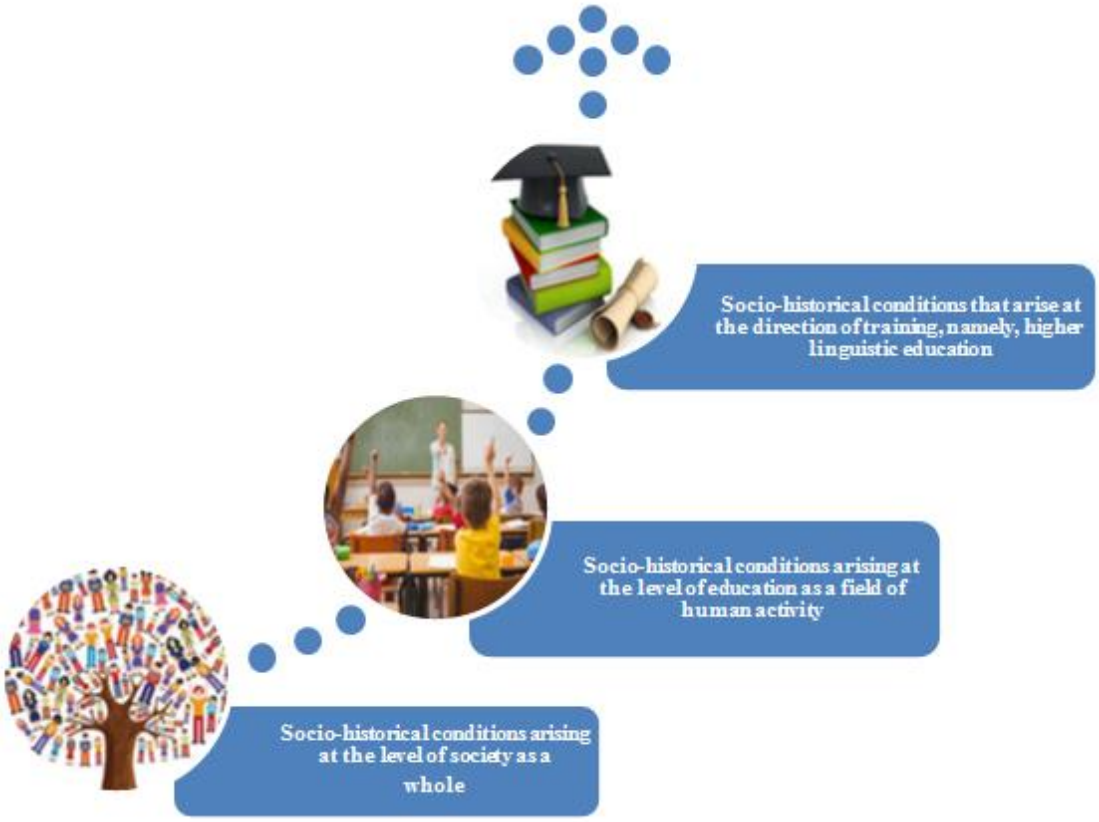
Appendices

Figure no. 1
M-Learning component part of E-learning



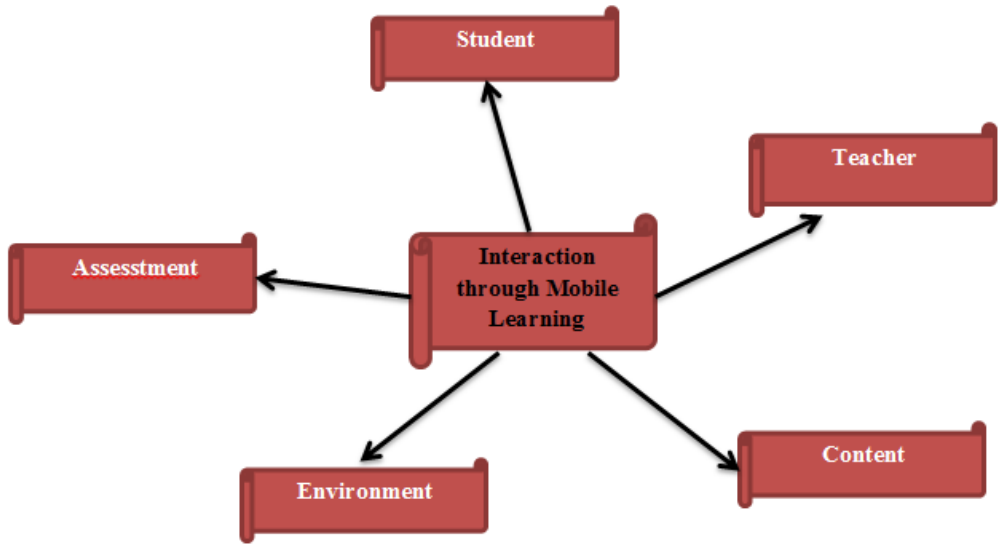
Source: Sarrab M., (2015). M-learning in education: Omani Undergraduate students perspective. *Procedia - Social and Behavioral Sciences*, 176, pp. 834 – 839, ISSN 1877-0428, p. 835.

Figure no. 2
Networking in Higher Education



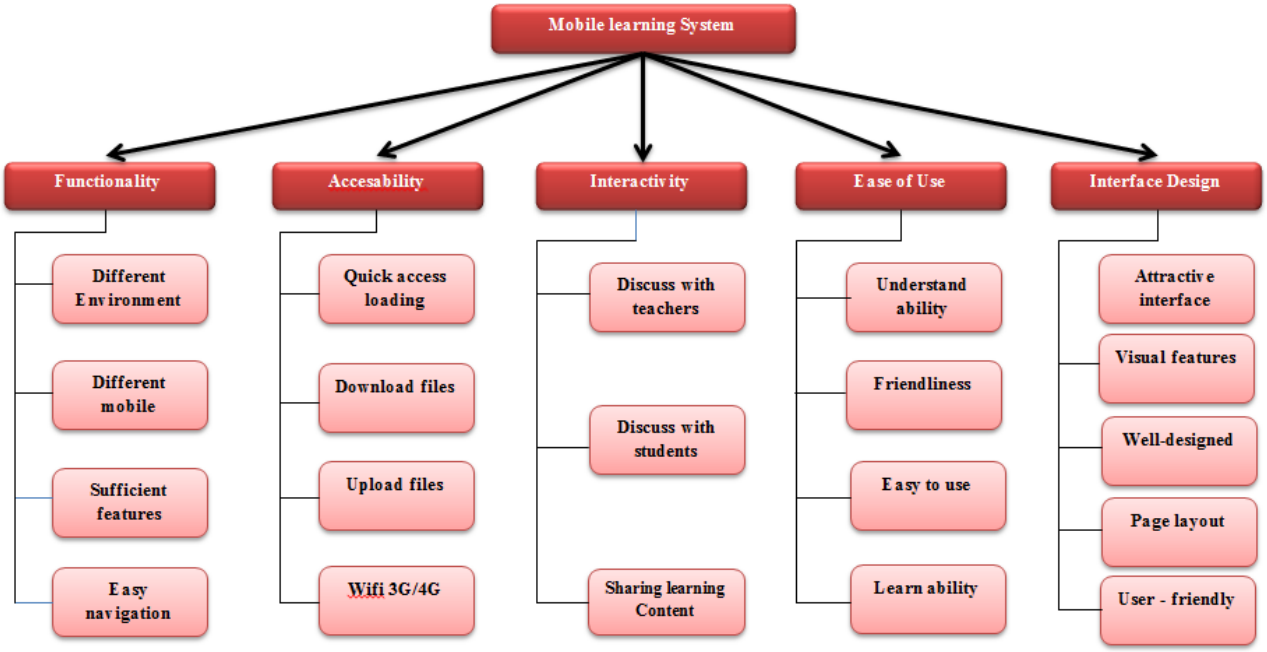
Source: Adapted by - Grebenshchikova A., Nefedova L., (2015). Network Interaction Trends in Higher Linguistic Education. *Procedia - Social and Behavioral Science*, 186, pp. 690.

Figure no. 3
Interaction through mobile learning



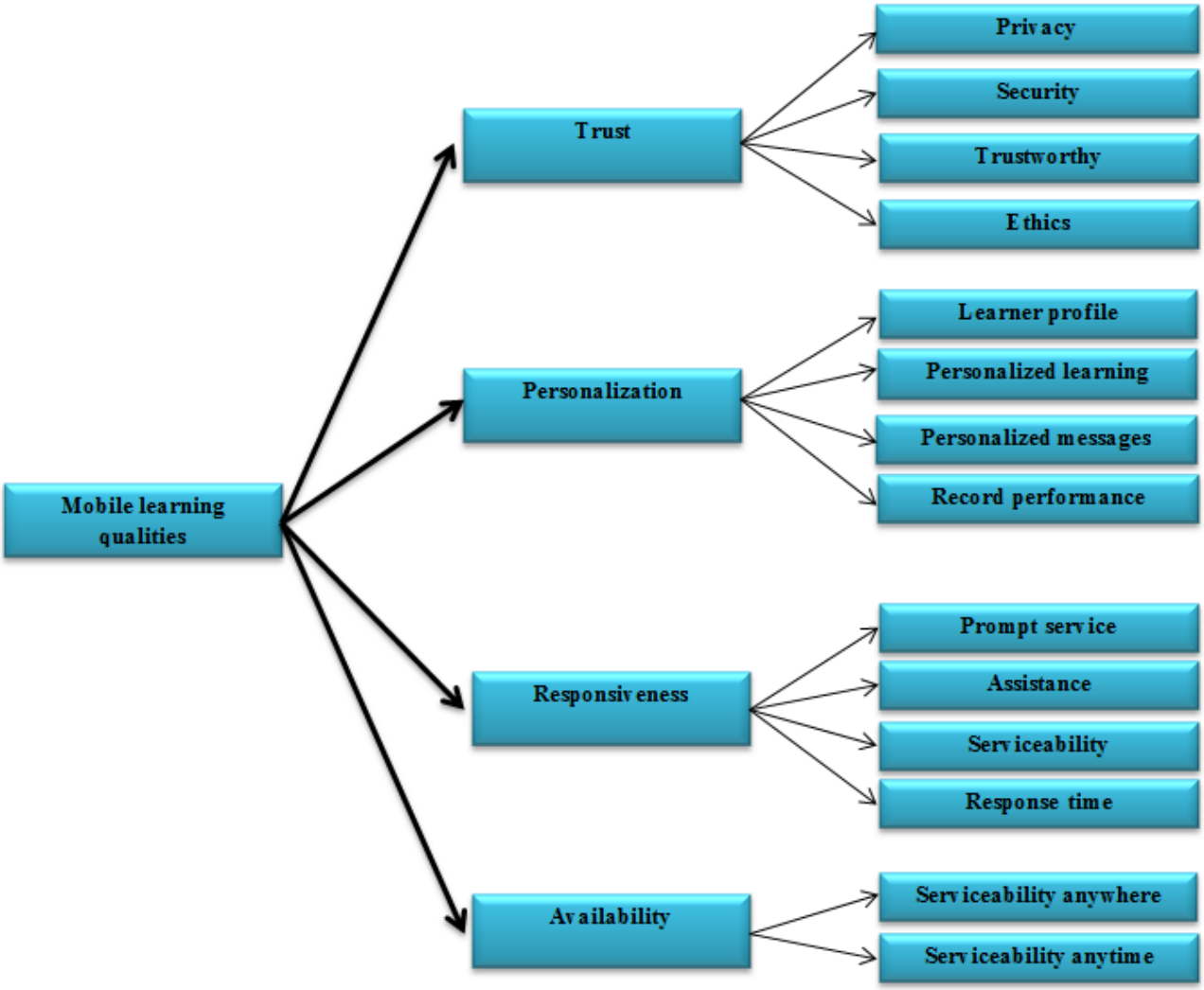
Source: Ozdamli F., Cavus N., (2011). Basic elements and characteristics of mobile learning. *Procedia - Social and Behavioral Sciences*, 28, pp. 937 – 942, ISSN 1877-0428, p. 938.

Figure no. 4
Mobile learning System



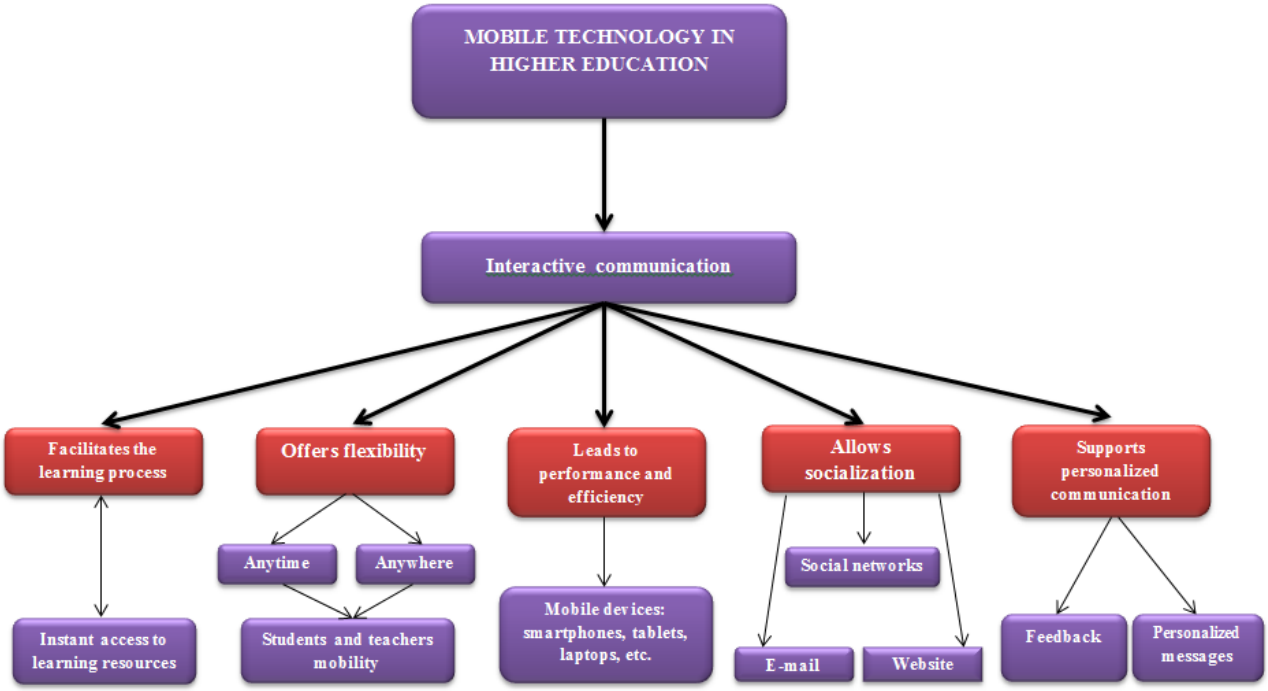
Source: Almaiah M.A., Jalil M.M.A., Man M., (2016). Empirical investigation to explore factors that achieve high quality of mobile learning system based on students' perspectives. *Engineering Science and Technology, an International Journal*, 19, pp. 1314–1320, ISSN 2215-0986, p. 1316.

Figure no. 5
The qualities of the mobile learning



Source: Almaiah M.A., Jalil M.M.A., Man M., (2016). Empirical investigation to explore factors that achieve high quality of mobile learning system based on students' perspectives. *Engineering Science and Technology, an International Journal*, 19, pp. 1314–1320, ISSN 2215-0986, p. 1317.

Figure no. 6
Mobile technology in higher education and interactive communication



Source: Own research based on literature review