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MOBILE LITERACY REQUIREMENTS IN THE CONTEXT OF LIFELONG LEARNING

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ABSTRACT

Today we create and update information faster, and access this information more easily, than ever before. Modern society, therefore, is in need of people who are eager to progress and whose lifelong learning skills are high. Mobile technologies, which have become an indispensible part of our lives, have great potential to support lifelong learning. However, there are numerous mobile operating systems in existence, including Android, iOS and Windows OS, and all of these operating systems offer a different user experience. For an efficient mobile experience, users need to acquire technical control of the device and to understand its limitations at both the hardware and software levels. In addition, there are crucial skills that are needed, such as the ability to access required information, to search for apps, and to assess their reliability and suitability. The concept of mobile literacy covers all of these skills. This study will discuss current levels of mobile literacy in the context of lifelong learning.

Keywords: Globalization, Lifelong Learning, Mobile Literacy, Mobile Technology, Mobile Applications.

INTRODUCTION

Individuals, society and technology are in a process of evolution in which each directly affects the other, and must evolve together in a way that will allow them to be able to respond and adapt to new requirements. Individuals (who make up societies) are affected by technological advancements sociologically and even physiologically. The recent discoveries about neuroplasticity make the essence of the intellect more visible, its steps and boundaries easier to mark. They tell us that the tools man has used to support or extend his nervous system – all those technologies that through history have influenced how we find, store, and interpret information, how we direct our attention and engage our senses, how we remember and how we forget – have shaped the physical structure and workings of the human mind. Their use has strengthened some neural circuits while leaving others to fade away. (Carr, 2010). Technological products, which are increasingly equipped with more advanced features and which provide users with new possibilities, also shape our relationship with information. In addition to the consumption of these technologies, the industry conditions and production regimes that allow for their production have also deeply affected both the individual and wider society. According to Womack, Jones and Roos (1990), how we make things dictates not only how we work but what we buy, how we think, and the way we live. Our changing lifestyles have been shaping all individual and social dynamics, including the literacy requirement, which is the subject of this study.

It can be said that the most important factors that allowed for the rapid development of high technology products during the past century were changes in our regimes of production and consumption. Making modern technological products requires organization, automation and build-up, which are far beyond the capabilities of a craftsman or a small atelier. The foundation of techniques and organizations, which made the production of high technology products possible, started to be laid out at the beginning of the twentieth century. In line with changing market conditions, and beginning in the 1970s, the Fordist production type – which emerged at the beginning of the twentieth century, and in which industrial production to a great extent was performed as mass production, administrative tasks and hand-power-dependent tasks were determined by Taylorist differentiation, the division of labor and job descriptions were strictly followed, and in which product standardization resulted in efficiency increases, increased demand accelerating this standardization (Eraydın, 1992) – gave way to the Flexible System of Manufacturing and Accumulation (Post-Fordism), a manufacturing and accumulation regime in which production is performed in a flexible model to meet the demands of consumption, flexible specialization is attained in manpower and mechanization, and information and communication technologies are widely used in production (Sakli, 2013). The organization and automatization experiences that Fordism brought about have facilitated the implementation of creative and visionary ventures.

According to the OECD (1999) Over recent years, the environment in which companies operate has changed considerably. Firms are faced with a need to achieve greater economic efficiency, and to adapt more quickly to changing product market conditions. Many commentators have claimed that these pressures are being reflected in changes in work organization, towards what are often called “new”, “innovative”, “high-performance” or “flexible” workplaces. Flexible manufacturing has brought along the need for creative employees who have flexible specialties. According to Cox (1980) this change in production regimes has caused technological development and innovation to be concentrated in center countries, while production processes have shifted to peripheral countries which provide cheap labor. In addition, flexible and innovative production regimes have increased center countries’ need for qualified workers and expanded the workforce market to global dimensions. This rapid transformation experienced by the workforce and by capital has accelerated the phenomenon of globalization, which is as old as human history, much faster than ever before. In addition, it has reshaped the educational needs of both the individual and society. This change has caused traditional learning habits to be questioned with regards to whether they are responding to our needs in the twenty-first century. Today, when information is increasing exponentially, and is updated and distributed constantly, the ability to use the information technologies that provide these possibilities has become something that directly affects an individual’s learning potential. Within this context, the purpose of this study is to draw attention to the importance in our era of skills in using the mobile technologies that are increasingly gaining strength and becoming widespread.

Globalization and Learning

Globalization is an ancient phenomenon, which started when people settled in different parts of world, searching a better life. Nowadays, relations between continents and countries are much more dynamic because people, business and material and information flows are moving faster and international relationships of all sorts are closer than ever. All that progress is pretty much related to increased use of new technologies in all economic, social and cultural areas (Bran, 2015). Both a reason and a result of the process of globalization gaining momentum is an increasing migrant population. According to the Migration Policy Institute (MPI) (2013) the total worldwide migrant population has increased twofold during the past 55 years. In addition to these migration movements, a brain-drain within the countries in need of qualified labor has been increasingly intensifying. According to the OECD (2013), the rate of highly educated migrants in OECD countries is continuing to rise. The number of migrants who are university graduates or equivalent in OECD countries has increased much faster than expectations in the past decade (+70%); it reached 27.3 million as of 2010/2011.

Migration takes place not only on an international scale but also on a national scale. According to World Bank (2014) data, rural-urban migration movements that began at the dawn of industrial society have been

continuing even in the 2000s. While populations living in rural areas are continuing to decrease, cities have been becoming ever more populous. Increasing migrant numbers have also led to the problem of increased levels of social exclusion. Migration is one of the greatest reasons for social exclusion, because the "inability to join the social life" constitutes the foundation of social exclusion. Being deprived of one of the fields which allow for joining the social life constitutes a process that brings about deprivation from other fields as well. For example, exclusion from the economic field can lead to exclusion from social, political or cultural processes too (Tartanoğlu, 2010). While exclusion from the social and economic fields can increase poverty and crime rates, it can also be said that exclusion from political and cultural processes poses a threat to social structure and democracy.

According to Fryer (1997) the need for a change of culture is presented as necessary for a number of reasons, including widening inequalities, increasing poverty and increasing social exclusion and disaffection. In the new culture, lifelong learning will enable competing values to be reviewed, their relevance for society today and tomorrow to be assessed and newly emerging values can be transmitted. In addition, Fryer (1997) has mentioned that lifelong learning can change people's lives, even transform them and that promise needs to be encapsulated in a learning culture for all. Preventing people from becoming excluded from the economic field is possible through personal and professional training, which is compatible with employers' innovation and growth targets. In a report published by the European Union in 2010 it was mentioned that innovation and growth, as well as knowledge, skills and abilities that foster individuals' skills and creativity, could be attained by a lifelong updating that starts from an early age, i.e. by lifelong learning.

Lifelong Learning and Information Literacy

While the post-Fordist period that began in the 1970s gave birth to new educational needs, it has also been a period in which new technologies have been developed in response to those needs. These were the years that saw the foundation of companies such as Apple and Microsoft, which attained great commercial success, and this period has been called the period of small companies generating high technology. According to Kline, Dyer-Witheford and De Peuter (2003) , The new digital production processes and changing technology put small firms that could rapidly adapt to new market conditions in an advantageous position. This period is also called the era of dynamic and individual-scale ventures, constituted by digital craftsmanship, a mass of small entrepreneurs and high technology production processes. This period, in which communication technologies have rapidly advanced as well, has also made the concept of the information society a current issue. According to Balan (2013) the information society is a new stage of humanity, in which information is intensely used at every stage of human existence and human activities; this has serious social and economic consequences, and provides a high quality standard of living.

Technological advancements have brought along new multimedia possibilities and information technology applications. Information and communication technologies gaining new meanings increase competition, provide new perspectives from which to develop business organizations, and create new professions. In addition, progress is made in such fields as social work, healthcare and environmental management, and new communication channels are opened between the state and its citizens. Information technologies overcome problems of location and age and allow for all segments of a society to have access to a wide range of educational and cultural possibilities. However, in order to benefit from these possibilities it is necessary to have certain skills and competencies.

The foremost feature that individuals within an information society should possess is information literacy. Information literacy is also the most important skill that the individual will need in order to fulfill the process of lifelong learning. Lifelong learning is the development of knowledge and competences that will enable each citizen to adapt to the knowledge-based society and actively participate in all spheres of social and economic life, taking more control of his or her future (European Society of Association Executives, 2007).

In today's information society, the most important learning outcome for all students is their ability to function as independent lifelong learners. The essential enabler to reach that goal is information literacy.Information literacy refers to the abilities to know when there is a need for information, and to be able toidentify, locate

and effectively use that information for the issue or problem at hand. In a world in whichinformation is expanding at an exponential rate, and the technology, which provides access to much of that information is rapidly changing, such abilities are fundamental to lifelong learning, So on the one hand,information literacy abilities both enhance student performance in formal learning settings and allow students tolearn independent of such offerings. On the other hand, information literacy is a solution without a problem or audience, if people do not understand their need for lifelong learning (Tamilchelvi and Senthilnathan, 2013).

Table 1: Relationship between Information Literacy and Lifelong Learning (Thamilchelvi, 2013 as cited in Horton, 2005)

Inter-relationships	Both improve	Differences
Self-motivated	Set of personal choices and options	Information literacy is a set of skills
Self-directed	Quality and utility of education and training	Lifelong learning is a good habit
Self-empowering	Prospects of finding and keeping a job	
Self-actuating	Effective participation in social contexts	

Mobile Literacy

Parallel to developments in media literacy and information technologies, the concept of information literacy – defined for the first time by Paul Zurkowski in 1974 as the ability to recognize, access, evaluate and effectively use information – has begun to be discussed within new concepts such as digital literacy and computer literacy. Finally, the mobile technologies which have developed and become widespread in recent years, which have their own operating systems and which provide new user experiences, have placed the concept of mobile literacy onto the agenda. Although the debate around which devices are mobile or not is evaluated differently in different contexts, according to ADL (Advanced Distributed Learning) mobile learning or “mLearning” is the use of handheld computing devices to provide access to learning content and information resources (Haag, 2011).

Mobile phones, which entered our lives in the ‘90s, have evolved into “smartphones” that are fully functional computers with powerful and efficient processors, modern operating systems and user friendly interfaces (Wang et al., 2014). Modern smartphones provide the opportunity to access wireless internet connections or services provided by GSM operators, to determine locations through GPS systems, to take high quality photos or shoot videos through both front and rear cameras, to record voices, and to access and arrange different types of file types such as MS Office file formats, PDF or e-pub. Besides this, mobile devices provide other advantages, such as access to content in the HTML5 format through advanced web browsers, the ability to play multimedia content such as mp3, wav, mp4, the ability to use data matrix connections and mobile signature technologies, and the provision of web access over protocols such as http and ftp.

With millions of available applications, mobile devices have many advanced features that other information technologies can or cannot provide, spanning from education to social media and from banking services to games. The fact that smartphones are increasingly becoming widespread and decreasing the need for other information technology devices makes these devices and the ability to use these devices more important than ever. According to data from Statista (2016) the market share of smart devices that can connect to the internet (PC, Notebook, Tablet, Smartphone) has been changing every year. This data envisions that each year until 2019 smartphones will increase their market share and that the market share of other devices will decline.

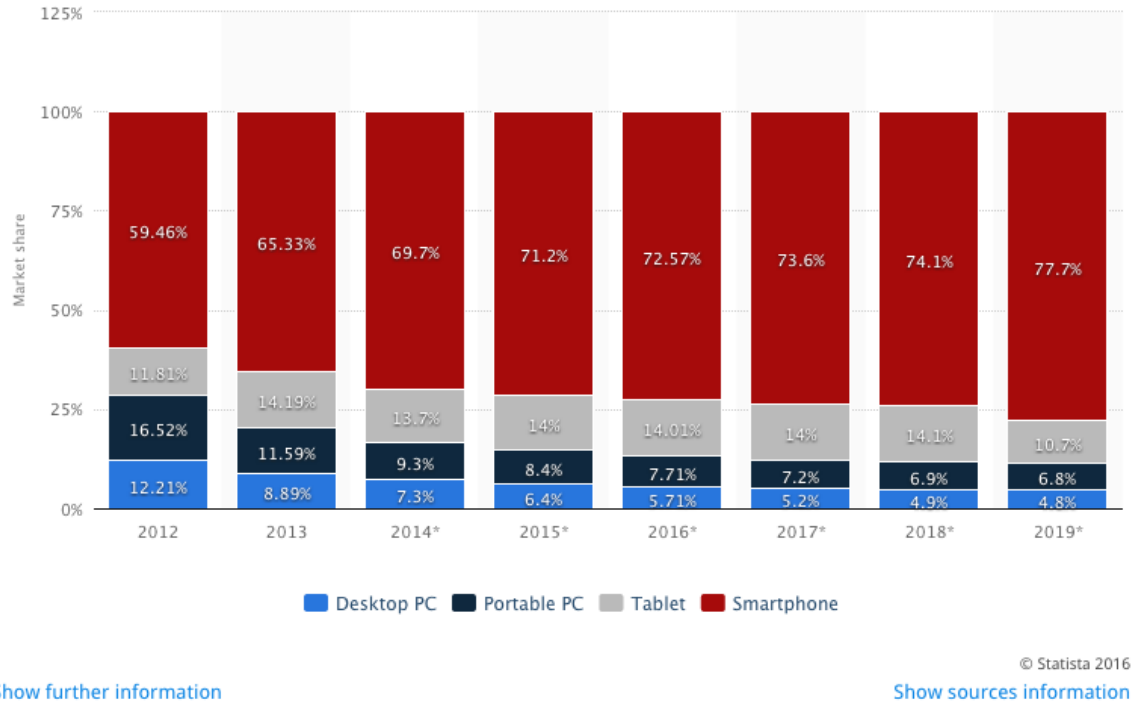

Figure 1: Information Technology Devices Market Shares

The fact that mobile devices are reachable ubiquitously, opens up new learning possibilities for their users. However, the benefits to be derived from these possibilities are directly proportional to the individual's ability to use mobile devices. Mobile literacy is separate from concepts of computer literacy or digital literacy. It can be said that in line with the general mood of our modern era, having access to a piece of information or educational content that we need at any time and from any place has created a new technology and learning culture.

In addition to access to information, our capacity to produce and share information has also gained a new dimension thanks to mobile technologies. Visual materials shot by smartphones that have a high resolution, and the ability to share these instantly on social media, have led to an increase in social movement. Societies which cannot fight against social, economic and political exclusion through democratic methods have witnessed events in which accumulated opposition energy mobilized as a result of this rapid increase in organization and news-gathering possibilities. One of the most recent examples of this is the social movements referred to as the Arab Spring which took place in North Africa and the Middle East. The rapid spread of multimedia materials in social media have turned each individual into a reporter and even afforded non-professional individuals the opportunity to provide news materials to mainstream media outlets. In an interview in 2011 with Castell about the Arab Spring, he mentioned that Al Jazeera has collected the information disseminated on the Internet by the people using them as sources and organized groups on Facebook, then retransmitting free news on mobile phones. Thus was born a new system of mass communication built like a mix between an interactive television, Internet, radio and mobile communication systems. The communication of the future is already used by the revolutions of the present. […] Obviously communication technologies did not give birth to the insurgency. The rebellion was born from the poverty and social exclusion that afflict much of the population in this fake democracy (Gjergji, 2013). This underlines the fact that mobile technologies are not just learning tools which offer opportunities for preventing social exclusion but also are instruments to fight it directly.

According to Walsh (2012) mobile information literacy embraces the portable nature of mobile devices and thus "search no longer happens in fixed, controlled environments, but in random, messy, uncontrolled ones, from crowded public transport on the way to work, to the loneliness of Mount Everest.

Table 2 lists the differences between information search using mobile devices and information search using fixed devices such as desktop computers.

Table 2: Differences between Mobile Information Search and Fixed Information Search

	Fixed Information Search	Mobile Information Search
Where?	Largely in "set" places. At a desktop computer (with little variation in software); at a fixed workplace; within a library.	Anywhere. Any mobile device (phone, games console, e-book reader – massive variety of devices)
What?	Anything and everything.	Normally quick information, often context- or location-specific.
How?	Range of established tools to access and manage wide range of information sources. Standard search engines.	Often narrow apps and individual specialist sites rather than open web.
Time spent?	Varies. Often slow, long access. People spending long periods searching for, organising and extracting information, especially for academic use.	Quick / fast only. Shorter searches. Little pondering and extracting information. Favour short chunks of information. Convenience of device.

According to Librarian (2011) mobile literacy is the collection of skills required to reach useful information and to produce information by means of mobile devices in the mobile-connected world. Parry (2011) states that the teaching of mobile literacy is a fundamental skill on par with teaching basic literacy. For him, practicing "the skill of quick information access and credibility detection" via mobile devices is not a one-time exercise to be conducted within the walls of a classroom. It is a skill necessary for current and future generations if they are to become lifelong learners. Being beyond the skills necessary to reach the desired information only within the context of informal learning processes, mobile literacy is also necessary to benefit from the formal educational possibilities that mobile technologies provide.

In order to teach and learn with mobile devices, educators and students need to acquire technical control of the device and understand its limitations at both the hardware and software levels. For the educator, knowledge of how to search for suitable apps and assess their suitability is also required. In a society where having some control over the authoring of apps to adapt them to one's use is encouraged, being able to code or re-code apps would be an advantage (Ng et al., 2015). In Figure 2 mobile devices' functions used in educational processes are classified with respect to skill levels.

Basic skills such as the ability to make phone calls using a smartphone, to use SMS, MMS or other instant messaging services (Whatsapp, Viber, Skype etc.), and to send and receive e-mail, can be considered within the framework of communication skills. The ability to produce media such as photographs, video, voice recordings, or to take notes using smartphones, are within the scope of content generation. Social media skills refer to the ability to access social media platforms (Facebook, Twitter, Instagram, Periscope, Snapchat etc.) via mobile applications or browsers. The ability to access educational content, which is considered an advanced skill, means being able to access web pages and applications that were prepared specifically for educational purposes in both a formal and an informal context. In addition to technical competency, this task often (other than cases stipulated by formal educational institutions) requires awareness of the need for education, and an understanding that this need can be met by mobile technologies. Likewise, the skill of being able to access useful information is a multidimensional concept. The ability to use search engines, skill in determining how

one can reach the required information (wikis, scientific studies, forums, or social media?), and whether the information obtained is reliable, valid and useful, are all within the scope of skill in accessing useful information. Application development skills, which are defined as very advanced skills, are within the scope of computer programming and are not directly related to learning; these are far from being attainable by everybody. However, it is important to determine that skill in accessing educational content and useful information is beyond the level of basic skills.

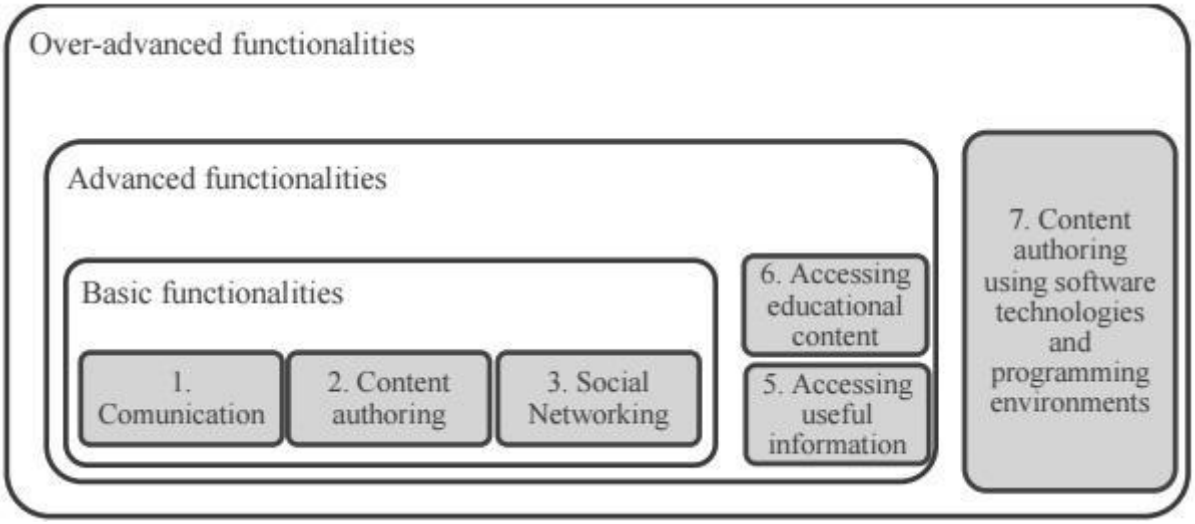

Figure 2:Mobile literacy levels (Nielsen, 2015 as cited in Ion, 2015)

Widespread formal educational possibilities for the development of mobile literacy skills within society are virtually non-existent, and individuals have been developing the skills they need via their own efforts. The fact that individuals, who do not encounter with any problems while using social media through mobile devices, have problems while reaching out for information and learning, is related to the fact that the need to develop these skills has not been adopted, and education about this matter has not been provided.

Ng (2012), argued that the purposeful use of technology by young people in informal settings is not characterised by exploring educational technologies but rather consists of social networking where there is value and purpose in keeping in touch with friends and family, making more friends and finding out about the world through their social network. He therefore argued that it is the role of educators to teach young learners about learning with technology and to raise awareness about the types and flexibility of available applications that could be used for learning. Educators therefore challenged to help students reverse unfavourable habits that they may have developed in their informal development of digital literacy, for example their underdeveloped web-based search and assess skills and the use of digital content ethically for academic purposes.

Effective use of mobile technologies has made accessing information and educational content easier than ever, and brought the related problems of time and space to a minimum. The fact that mobile technologies are accessible by all segments of society has also made these technologies a very powerful instrument for lifelong learning.

DISCUSSION AND CONCLUSION

Developments both in society and in technology have been transforming the individual, as well as the individual's social, economic and personal needs. The need for education is one of these needs. New social and economic realities have also resulted in a need for a new educational culture. In order to be a part of an information society and an information economy, individuals should have the possibility to constantly update their knowledge and skills; in other words they need to be lifelong learners. The first characteristic needed for

this is to be aware of the need for knowledge, learning and education, to know one's own mind, and therefore to have the necessary motivation. Determining the need for information, the ability to assess the validity, applicability and reliability of information reached, and using this information in line with ethical rules, require intellectual accumulation and perception beyond mere technical skills. In addition to this, skill in effective use of up-to-date technologies, which have become indispensible for accessing information, learning, and education, is needed. Here the emphasis on up-to-date technology is especially important. For example, the "ability to use the library very effectively" is no longer enough on its own.

Effective participation in social and economic life also requires to keep up-to-date. Mobile technologies provide a platform via which all of the contextual, positional, just-in-time, social and gamificated learning approaches can be realized. They also present new and developed possibilities for both instructors and learners in the fields of education and learning. Gaining the skills and perspectives necessary to benefit from these possibilities will make it easier for the individual to join social and economic life. Although these technologies are produced for their end users, within the context of their usage for lifelong learning, enhancing the awareness in society and developing individuals' mobile literacy skills are the duty of educators.

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