AN INCREASE IN THE PERCEPTION OF KNOWLEDGE USING THE MECHANISM OF GAMIFICATION

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Abstract

The omnipresent digitization of business and social networks has made the impact of virtual environment increasingly visible in many areas of life. Advanced technologies and ICT tools transform the ways in which teams communicate, acquire new knowledge and develop them. Civilization changes involve a need to seek new and more effective models of education using the potential of new media. The aim of the paper is an attempt to identify the tools and mechanisms, which allow for an increase of motivation of learners and the perception of knowledge to achieving the desired educational goals. Considerations in the area of the object of study have been focused on the concept of gamification and its implementation in the educational process. The article was developed based on a review of services and educational applications proving the effectiveness of using the mechanism of gamification in educational practice.

Key words: *ICT, gamification, interactive communication, perception of knowledge, education process, virtual environment*

1. INTRODUCTION

Information and communication technology (ICT) is today one of the most important factors shaping the creation and the transfer of knowledge. Significant civilization changes, which result in the formation of a network society, involve a need to search for new, more efficient models of education using the potential of new media that will support the search and selection of information valuable to users. In the phase of open networks both senders and recipients have received the tools to enable interactive communication, but broadcasters have been forced to continuously provide new value in the process of knowledge transfer. The potential of a network as an effective tool for the rapid transfer of knowledge has also been recognized on the education market.

Web 2.0 and 3.0 technology; an open access to created content; conditions for common data collection; editing content; commenting, correcting and updating information; all allow the use of collective knowledge, which belongs to the users of online resources. They also facilitate sharing experiences and opinions. By using interactive communication and educational services tailored to execute a wide variety of group projects it is possible to significantly stimulate the cognitive activity of learners and prepare them for teamwork. The process of education should support the diffusion of knowledge, and an appropriate system should facilitate data analysis and the extraction of knowledge in order to explore the relationships and similarities and to ensure an appropriate level of data security. For the content to be useful and used effectively, especially in the education process, it is necessary to prepare the public to make certain choices, decisions and actions. Crucial to the process of education-based network is to master the skills of precise search and selection of required information to develop a critical approach to the content, and to process it in order to solve problems. While using network resources for educational purposes it is essential to set certain tasks and determine the levels that would require learners to reach the materials and information from a variety of resources and areas (Badzińska 2014, pp. 256-260).

The cognitive purpose of this article is to identify tools and mechanisms, used mainly in a virtual environment, that increase the motivation of learners and enable an increase in the perception of knowledge, and thus, contribute to the achievement of the desired educational goals. Considerations in the area of the object of study have been focused on the concept of gamification and its implementation in the educational process. The article was based on a review of services and educational applications confirming the efficacy of the use of a gamification mechanism in the

transmission of knowledge and its perception. Numerous examples of how this approach is used in educational practice have been presented. The article is, moreover, of a review-conceptual nature and may provide a contribution to the in-depth empirical research.

2. VIRTUAL ENVIRONMENT – THEORETICAL BACKGROUND

A significant contribution to the development of research on the economics of virtual worlds was conducted by Castronova (2001), Lehdonvirta (2005), and Heeks (2010), while the so-called virtual consumption in relation to the behavioral theory was undertaken by Lehdonvirta (2009) and Lehtiniemi (2007). In turn, other researchers in their studies presented brand value perceptions of consumers in virtual worlds (Barnes 2011; Barnes and Mattsson 2011), purchasing behavior and the effectiveness of a virtual environment as a new medium of advertising and the placement of real brands (Guo & Barnes 2012; Barnes & Pressey 2012).

Virtual environment has become a completely new space in which it is possible to conduct interactive communication and offer new products and services, including education. It is widely accepted that this is a multidimensional system of computer networks, devices, applications and data. Virtual environment implies a number of changes in the functioning of modern enterprises and socio-economic life due to the possibility of using the above by a wide range of users. Virtual space is primarily created via the Internet, but also extranet and intranet and the applications and hardware infrastructure that determine the functionality and usability of the technology for users. Moreover, this is also achieved by technological and information solutions in the field of data transmission, sharing information resources and the co-creation of content shape virtual environment (Badzińska 2015, pp. 30-31).

Subject literature also includes other terms characterizing the multi-component system, such as the infomedia or network environment (Grandys 2000, p. 67; Maciejowski 2003, p. 39). From the global perspective, environment is referred to as cyberspace, whose distinguishing feature is a virtual reality understood as a possibly perfect reproduction of the real world by using computer techniques. On the other hand, the notions of virtual world or virtual reality are not clearly defined. The original interpretation of the phenomena involved immersing the user in a world entirely generated by computer technology, providing an impression of reality. Virtual reality used to provide idealized experiences created by computers, while human activities determined what was happening in a given environment (Filip 2013). Mutual relations between the elements of virtual environment are characterized by both multi-tasking and interdependence. Key features of the studied area include the speed relationships, interactivity and media convergence, which refer to a multi-channel approach to customers, so that every single ingredient complements and promotes one another (Badzińska 2013, p. 32). Technological infrastructure used in the virtual environment allows multimedia information transfer and certainly increases the attractiveness of this environment for many audiences, thus expanding its functionality and usability. The player's determination to achieve the goal, overcome obstacles and achieve higher levels of ‘initiation’ constitutes a challenge for many educators to use gamification in educational activities.

3. THE CONCEPT OF GAMIFICATION IN THE EDUCATIONAL PROCESS

Gamification (Oxford Dictionaries Word 2011) refers to using the elements of games around the world – starting with a school bench and ending up in a shopping mall (Shapiro 2014). It is about transferring well-known computer game mechanisms, i.e. motivation, competition, altruism to the real world in order to change human behavior. Forecasts indicate that gamification will be one of the leading trends in the second decade of the twenty-first century (Tkaczyk 2012, p. 10). The world of games is available today not only via specialized platforms, consoles like XBOX or PlayStation, but practically any interactive device including Smartphones and tablets. Users are more and more often looking for an opponent not only created in a game's plot, but also a more realistic one, as in multiplayer MMOG (Massive Multiplayer Online Games) played on the global network. The player

can act as an observer of events using the monitor, and thanks to an optical illusion, experience a sense of real existence in the world. However, emotional and mental attachments to the application remain crucial. Due to interactivity, multiple users can gain access to the world of the game, and the players' actions influence the character of the game for all the other participants, and can be observed by them. MMOG games are characterized by a large variety of forms and genres, starting with games available for free in browsers, through high-budget MMOSG (Massively Multiplayer Online Strategic Game) and MMORPG (Massively Multiplayer Online Role-Playing Game) based on role-playing, and up to social media productions available via social networks.

Users get involved in games if they contain curiosities, mysteries and rewards that satisfy their information gap. It is also essential to clearly define objectives and spectacular obstacles and numerous challenges. Players who overcome them obtain farther levels of experience. An extensive system of character development is extremely important. It includes the growth of skills and/or the level of characters using the collected experience points. For a virtual game to provide a sense of satisfaction it must involve a pleasure of discovering something new and contain significant deposits of humor or horror. Using the potential of networks for educational purposes, it is necessary to properly prepare tasks and set stages of initiation, the execution of which will depend on the correct methodical use of online resources.

A prerequisite for the use of gamification in the educational process is an appropriately designed structure of the game and clearly defined rules, called game mechanics. They refer to, inter alia, the forms of game world generation, the generation of further tasks, as well as the principles of creating a character and its interaction with the world. Game mechanics is an adhesive that allows a unified interaction of all participants with the virtual world. The condition for the increase in user knowledge and competence is to design an appropriate dynamic action by setting up creative tasks (e.g. using a combination of rewards and punishments) that would motivate participants to take up new challenges that require gaining different types of information. Another very important aspect is what determines the status in the game. For example, transition to higher levels, scoring the appropriate number of points, scorecards that must be visible to other players. While designing educational activities as a game, it is necessary to consider this aspect of competition. The achieved status is a powerful motivator and participants are able to strongly commit themselves in order to achieve it. Just like in a game, a unique combination of badges allows users to express themselves and remains an indispensable element of competition. Thus, educational activities also require attractive motivators. An interesting plot and a large number of activities offered in the game, which encourage users to acquire new information and interact with other players, can all turn out to be an effective educational tool.

4. AN INCREASE OF MOTIVATION OF LEARNERS AND THE PERCEPTION OF KNOWLEDGE

The use of modern ICT technologies combined with game mechanisms allows one to create a wide range of interactive tools favoring the perception of information and diffusion of knowledge and can, therefore, be used successfully in educational services. In the light of technological development and modern techniques for designing virtual environments, games are characterized by an increasingly attractive graphic design and realism. As in the game environment, where the emphasis is on the emotional attachment of the player, this mechanism can also be implemented in educational services. The research question is as follows: How to use the mechanism of game in educational services in order to engage and motivate learners to acquire knowledge?

Educational usefulness of gamification has been confirmed by research and the work of authors who regularly implement the mechanism of game in their teaching process. One of the pioneers in this area is Sheldon, a professor at Indiana University in Bloomington. Looking for a way to engage students to learn, gain experience and stimulate cooperation, he designed classes based on techniques used in multiplayer games. Sheldon described his model as ‘designing the class as a game’ (Sheldon 2010). The author himself designed a game in which students perform specific missions, prepare

presentations and conduct research in order to earn points, which allow transition to higher levels of sophistication. He has been looking for solutions to stimulate cooperation between learners, motivating them to help one another. At the end of the course he determines the final grade on the basis of scored experience points. The effectiveness of this method has been confirmed by results – since the start of gamification, a significant increase in the average grade has been observed as well as an improved student attendance. Due to the system of points, participants not only feel like being in the game, but confirm that the assimilation of new knowledge allows them to gain new levels of sophistication instead of losing them as a result of wrong answers (Sheldon 2010). Educational utility of gamification stems primarily from the way in which knowledge is presented.

A similar approach to the use of gamification has been presented by Schell, who claims life itself is a game. His classes are designed as multiplayer games where students overcome 'monsters' (tests), conduct search and solve puzzles (presentations, research projects), and in return gain experience points (Schell 2010). Performing such tasks is also the basis for education based on an independent road to knowledge, and not 'pursuing the trail' (Osinski 2013). Planning activities in which learners can create their own tasks, plan the subject matter and the scope of the area of expertise, evaluate and verify collected material and create new solutions, can all significantly contribute to the growth of their competence. From the educational point of view it is extremely important that creating one's own solutions or group projects requires knowledge structuring, using unequivocal concepts and selecting critical information. This forces students to think both creatively and critically, and also encourages the use of multimedia tools in order for the result to guarantee the achievement of a desired status.

On the other hand, Hübner (2012, pp. 1-20) presents a number of possibilities for the use of computer games in school education, highlighting the effectiveness of the gamification mechanism to acquire new knowledge by beginners, the advanced and the professional. The use of gamification in educational services has been widely discussed by Buchem (2011), who has conducted both research and teaching in the field of digital media & diversity. The author points out that designing classes using the mechanism of gamification is not identical to designing educational games. It refers more to the transfer of knowledge on what we know about games' potential used to build commitment, motivation to work and returning to educational institutions 'for more'. More and more often thematic Internet blogs are becoming a platform for exchanging views on Gamifying Education, where teachers describe their experience with gamification in the educational process (Anderson 2012; Paul 2012; Proto 2014).

The mechanism of gamification is designed to motivate users to search for information from a variety of resources and areas. The adequacy of results in relation to objectives should be confronted with the skills necessary to select an appropriate search and apply appropriate strategies to obtain information. The tasks faced by learners should allow for the comparison of results obtained from general search engines (e.g. Google, Bing, Yahoo), from sites created by amateurs (especially discussion forums and social networking sites) and specialist services, such as: World Wide Science, Google Scholar, Microsoft Academic Search or the bibliographic databases (e.g. The Central European Journal of Social Sciences and Humanities, Scopus, Web of Science). The tasks should be designed in a way to allow learners to acquire confidence regarding the universal availability of valuable information resources and, on the other hand, the need to make the selection of the source data, its creative processing and the creation of concepts and syntheses (Osiński 2013). In the end, they should understand that not everything on the Internet is valuable and that an ability to distinguish reliable resources from the useless ones is crucial, along with sharing scientific knowledge and expertise. Reaching the confirmed source data created by specialized institutions, organizations, research institutes, associations and professionals should be rewarded by achieving a higher status – level of experience. It is also important to build a belief that education is based on a self-discovery and the verification of obtained information (Żylińska 2013, pp. 238-252). Cognitive curiosity arises from contact with new, unknown network resources.

The future use of gamification in education looks promising if it continues to stimulate the integration and learning, inspire to create new solutions, critical data selection and the synthesis of knowledge. It is worth noting, however, that the value of information and diffusion of knowledge are determined by

humans who are able to assess the reliability of communication, use available information, identify problems and take appropriate actions (Badzińska 2014, p. 254). It is also important for the information not to remain on a digital medium only, but reach minds and to be deeply processed and combined with the already established knowledge (Carr 2012, p. 187). Just then the learning process will take place: shaping skills and acquiring new knowledge.

5. CONCLUSIONS

The mastery of precise search and selection of relevant information, developing a critical approach regarding the obtained content and its adequate processing to solve problems, may be one of the key competencies in the education process involving virtual environment. It is necessary, however, to be able to transform certain data and information into knowledge, which leads to the achievement of cognitive and educational objectives tailored to the reality of today's society. The process of education must, therefore, become more innovative and make use of the creativity of learners and implement new concepts and ICT technologies into the process of learning. A broad spectrum of interactions in the game world is one of the areas of new media, where co-creating a 'world' greatly increases user involvement. A properly prepared plot of the game can significantly increase the perception of the media and encourage players to undertake certain behaviors. Such a properly designed storyline can be used in promotional activities, as well as educational services, even in strategic management and the creation of new services and products or in the implementation of team projects.

The use of gamification in educational services reveals new opportunities to acquire knowledge and undoubtedly enriches the educational process for the learners. A properly constructed game allows one to develop creativity, learning by doing, interactivity, collaboration, and the practical use of knowledge. A thought-out and well-designed structure of classes based on the mechanism of the game, as well as clear rules and objectives should help to increase motivation among students to seek reliable information from credible sources.

Undoubtedly, new ways to utilize the enormous potential of the Internet have become an increasingly important element of the offer of educational services. It is worth noting, however, that the most effective measures will be carried out regularly on multiple levels, and they will provide useful information according to the learners. It is necessary to promote the educational use of modern ICT solutions, but one must be aware that the effectiveness and usefulness of new applications and mechanisms depend on the skill of their creators. An important benefit of using games as educational models is building a sense of authenticity among learners. The richness of games points to the level of skills of their authors. It is necessary to carry out in-depth studies verifying the manner and extent of the implementation of innovative approaches in the field of education.

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