



Digital Games as Informal Medium in English Language Learning

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Abstract: *The results of many recent surveys in the Western Balkan region indicate an increase in the number of lower grade elementary school students with significant amount of EFL knowledge or successful proficiency in English as a foreign language. One of the reasons may lie in the large number of language lessons that students attend weekly in formal education, but the reason may also lie in the informal educational impact of the digital media that the children are surrounded by, especially digital games. This paper reviews the results of various research carried out with the aim of identifying adequate and current digital games for learning the basics of English, especially in the process of mastering new words and pronunciation.*

Keywords: English language; digital games; informal education

1. INTRODUCTION AND RELATED RESEARCH

Digital games are complex software products with a number of subsystems which affect the gameplay, a large number of stories to follow or secrets to discover, all with the aim of providing entertainment for the players. The influence of digital games on the interaction of early adolescents and their motivation for communicating in a foreign language has been the topic of many studies conducted over the last two decades [1]. It has been found that the students who actively play digital games, including those who passively watch someone else play, significantly expanded their English vocabulary [2, 3]. In addition, the results show that the students who observed someone else play had better performance on vocabulary tests compared to those who actively played the digital game. This can imply that interactivity is not a necessary element for expanding the vocabulary. However, there are some shortcomings that need to be addressed. Namely, the aim of the games that were played was not to learn languages, they were intended for entertainment, and therefore understanding and possibly expanding vocabulary was not really necessary [4]. Another problem is that the digital game genre is closely related to narrative, which can be problematic in arcade games, which do not require players to understand the plot and context in order to adequately respond to the challenges of the game. Researchers often use Role-Playing Games as a genre that is particularly suitable for language learning through the use of students' positive motivation to practice linguistic skills on their own [5, 6]. A positive

correlation was found between students' experience in playing Role-Playing Games with the level of language skills they present. The reason for this connection may lie in the fact that for the successful acquisition of a language, especially a non-native one, the student must be able to create "comprehensible sentences" in the language he is practicing [7]. Since most Role-Playing Games use communication abundantly in the English language and provide an opportunity for players to use it in mutual synchro communication, they present a very desirable medium in informal learning.

The desire for communication is crucial in learning a new language and is the best way to increase performance, not only for academic purposes but also in everyday life. The genre of digital games that stands out in this aspect is Massively Multiplayer Online Role-Playing Games (e.g., MMORPG). In this genre, the multiplayer component stands out, providing an easy and natural way to produce the language through direct interaction with other players online [8, 9]. There are two distinctive types of skills that MMORPGs develop in players: understanding and expression. The way the digital games cultivate the art of understanding is by offering the player an expanded set of vocabulary used in an appropriate context. This is done spontaneously in combination with other sensory stimuli by the player perceiving the corresponding images/video or by expecting the player to perform a certain action. Interacting with non-player characters (e.g., NPCs) as intelligent agents controlled by some of the AI algorithms in modern games is also very useful. Digital games represent a great way to learn a

variety of accents. Understanding what NPC is saying is a very important part of completing the goals in the games. Expression skills are spontaneously cultivated during playing in two ways- by using "transmediality" and "culture of participating". The requirements of contemporary digital games are very complex, so it is often necessary to use the experiences of other players and communicate with them to successfully pass them. Transmediality is reflected in discussions in other forms of media (forums, chats, social networks, etc.). As already stated, MMORPG players in the international community communicate in English, which is most often not their native language. This creates a direct correlation for its improvement [10].

Players usually pay more attention to keywords which convey meaning. Task-Based Language Learning is a method of creating tasks which is successfully applied in the research of the use of digital games as a medium in informal learning [11]. The idea is to set a "task" as a focus of planning and studying. Although the definitions of the tasks vary among different research, there is an agreement that a task represents an activity or a goal which is being done, namely fulfilled by using the language, e.g., problem solving, puzzles, map reading, giving instructions, phone calls, writing letters, reading tutorials etc. This method helps to better understand the way the digital games can afford the potential as a language learning tool, given that the player is active within a virtual world that provides them with often unlimited opportunities for linguistic input combined with visual and audio feedback and context. Several elements of digital game design are particularly useful for language learning and can be found in almost every contemporary game. The most important principle is the instant availability of information, that is instant feedback, which is the key to progress in most digital games. The same applies to the language used in a game. The linguistic message is always presented in context, but it is crucial for it to be a direct result of the player's actions, which makes him emotionally "attached" to the game narrative and to better acquire the language. Digital games connect language with visual elements as well as sound signals [12]. Such a hypermedia environment enables the player to create associative linguistic phenomena using multiple senses, which improves the retention of what has been learned. The ability to replay the dialogue from the game allows the players to incorporate spoken words into their vocabulary and later use them in real life.

Playing digital games in a social environment is not a mandatory condition for acquiring and developing language skills [13]. Digital games provide a set of stimuli that help the player to adapt to the "language" of the game through virtual gameplay. Visual indicators, voice acting, narrative, virtual

environment and context are combined with linguistic resources to enhance the language learning process. Digital games enable informal learning through a pre-established contest that places the player with the role to guess the meaning of unknown words. Students use dictionaries very rarely nowadays, not even in digital forms. Digital games are mainly for entertainment. Although the researchers have been trying for years to design high quality Serious Games (e.g., SG) with the purpose of learning the English language, the results of numerous findings show that Commercial Off-the-Shelf Games (e.g., COTS) have a significant potential for this application and represent a valuable tool for informal learning [14]. Gaming communities provide additional motivation to use the language, thereby indirectly increasing the quality of pronunciation of the language being used. A potential problem lies in the fact that playing digital games can cause cognitive overload, during which the brain will not have enough capacity for active language learning when playing certain complex digital games [15].

2. DESIGN OF DIGITAL GAMES FOR LEARNING LANGUAGES

Well-designed digital games for the development of reading and writing in English should consider several key principles in order to be effective and motivating for students [16]. Here is a list of features that need to be fulfilled in order to meet the quality criteria:

- Simplicity and clarity – digital games should be easy to understand and guide the users clearly throughout the learning process. Precise steps and instructions are important in order to avoid confusion, especially with younger students;
- Interactivity – interactive elements in the game, such as selecting, dragging or entering text/characters, enable students to actively participate in the activities. This makes them engaged and makes it easier for them to understand the material;
- Motivation and rewards - using a reward system, such as points, stars or unlocking new levels, motivates students to continue playing the game and achieve better results;
- Adapting the difficulty level – games should be designed to meet the individual needs and abilities of students. At the beginning of the game, easier tasks may be offered that gradually become more complex as you progress;
- Variety of content – various tasks and activities within digital games enable the development of different reading and writing skills. This can include word games, puzzles, reading stories or even creative writing;

- Appropriate visual design – the visual elements of the game should be attractive and pleasant for students. Clear pictures, colorful characters and animations can motivate them to engage in the game;
- Customizing feedback – the feedback allows the students to see their progress and understand possible mistakes. This helps them understand the material better and motivates them to continue learning.

In our opinion, in order for the game to be adapted to the different development levels and abilities of the students, it is crucial to provide options for adjusting the level of difficulty or adapting the tasks based on individual needs. For example, it may be possible to choose among multiple difficulty levels or to adjust the speed and complexity of the tasks based on the player's performance during the game. It is also important to have personalization options that allow parents or teachers to adjust the game according to the specific needs and goals of the students. This may include choosing a topic, exercises or assignments that match student individual's interests and preferences.

2.1. Implementation

Implementation in the educational process involves the application of various methods, tools and resources in order to achieve the ultimate goal - learning. For example, the use of mobile games in informal education can be extremely useful [17]. Digital games can be designed to stimulate children to develop critical thinking and problem-solving skills. This can be achieved through games that require problem solving or strategic thinking. Teaching staff should receive a training on how to successfully integrate digital games into their educational practice. All actors in the educational process should communicate with parents about the importance of using digital games in an informal educational context [18]. An explanation of how games support children's development and how parents can incorporate games into everyday activities can alleviate acceptance and cooperation. Cooperation may be sharing resources and tips about the games with parents, helping to create game supports, recommendations for games that support learning and development, and ways to integrate games into daily schedule. It is useful to discuss on how the games affect students' development. This type of communication can help identify best practices and adjust digital games to students' needs. The inclusion of mobile games in working with students requires planning, training and cooperation with all participants in the educational process, but when successfully implemented and integrated, they can be a powerful tool to support children's development, especially in preschool institutions and lower grades of elementary school.

2.2. Monitoring and evaluation

Monitoring and evaluation of the progress in the development of language skills by using digital games can be challenging, however there are different methods and techniques that can be applied. Digital games may include built-in mechanisms to track player progress [19]. For example, a game can track the number of tasks a student successfully completes or the speed and accuracy of their answers. Such data can be used to monitor the development of writing and reading skills or other aspects of language literacy. In addition to the built-in mechanisms in games, specialized tests and assessments can be applied to monitor the progress. These segments can be composed by an educational professional based on specific learning objectives.

The use of digital games in children's development can have significant ethical aspects, both positive and negative. It is important to be aware of the risks and apply only good practices in the use of digital games in an educational environment. For example, too much time spent in playing games can have negative consequences on students' health and development, including cognitive, affective and psychomotor problems [20]. Certain digital games may contain inappropriate or aggressive content that is not suitable for an educational context, while excessive addiction on digital games may lead to a loss of interest in other forms of learning.

Parents and teachers can use surveys and questionnaires to learn about children's opinion about the games and notice changes in their abilities and interests related to the development of the English language literacy [21]. Teachers can actively observe children playing digital games and document their progress and reactions.

This may include notes on how children interact with the game and how they apply skills in the context of the game. Progress data can be used to adjust learning for each child individually. For example, students who show faster progress can be exposed to new challenges, whereas children who struggle can be given extra help and support.

Games should be fun and interesting in order for children to be motivated to participate in the work. Interaction with the child through a game can further stimulate interest in reading and writing. Using funny sounds can help children recognize letters and words. Attractive visual effects can further enrich the gaming experience. The games should include various exercises that encourage reading and writing in English, such as recognizing letters, sentences, putting words together, etc. It is possible to integrate interactive exercises that help children recognize sounds.

2.3. Examples of digital games for learning the basics of English

Endless Alphabet is an interactive educational game designed for young players to learn the English alphabet and pronounce letter sounds. Interactive and funny animations are used to introduce different words. Each word is illustrated with animated characters and situations which enable the students to understand their meaning in an interactive way. The player can choose each letter of the alphabet and follow its pronunciation.

In addition to learning letters, the game also offers various activities that encourage the development of skills such as the ability to differentiate letters, understand the word meaning and improve vocabulary. *Endless Alphabet* game is free and designed without ads.



Figure 1. The layout of *Endless Alphabet* Game

Writing Wizard is a digital game designed to help learn and practice writing letters, numbers and words. The game allows a user to gradually progress through various exercises in writing letters and numbers on the screen of your phone or tablet using your fingers or a digital pen. The game supports a variety of writing styles, including freehand, print, and cursive. With this, students practice different writing styles and skills.

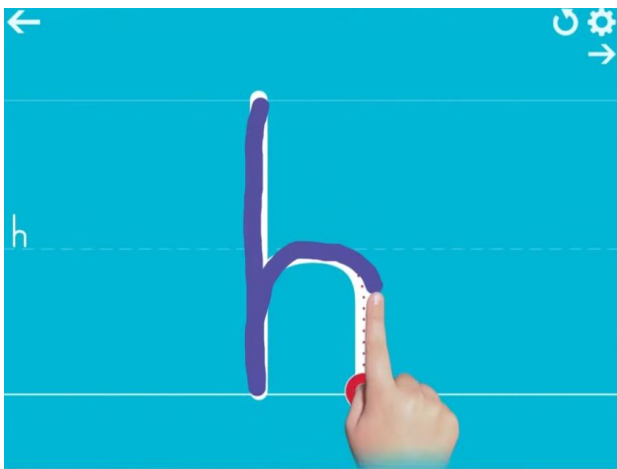


Figure 2. The layout of *Writing Wizard* game

Reading Eggs is a game designed to help students learn to read and develop language skills in English. The game offers a wide range of interactive lessons and activities which encourage the development of

phonetic awareness, text comprehension, word recognition and other skills. The game has a progressive level system that allows different challenges and activities according to the student's abilities. The game contains different type of content, including e-books, interactive displays, songs, audio and video materials, which allow children to learn in different ways and in different contexts. *Reading Eggs* is designed as a safe environment for students with privacy protections and controls that allow parents to monitor their children's activities in the app.

Starfall is an educational game designed to help young students learn reading, writing and other basic English language reading and writing skills. The *Starfall ABCs* modules are designed to help teach the alphabet and basic literacy skills. It offers a variety of interactive activities that help learn the alphabet, pronounce letter sounds and develop basic language skills. Activities include games, songs, interesting stories and other interactive exercises. The game is designed as a progressive level system that allows progress through various challenges and activities. This helps the student to gradually learn and develop language skills according to their ability. *Starfall ABCs* game is available on various platforms including PC, Android and iOS devices.

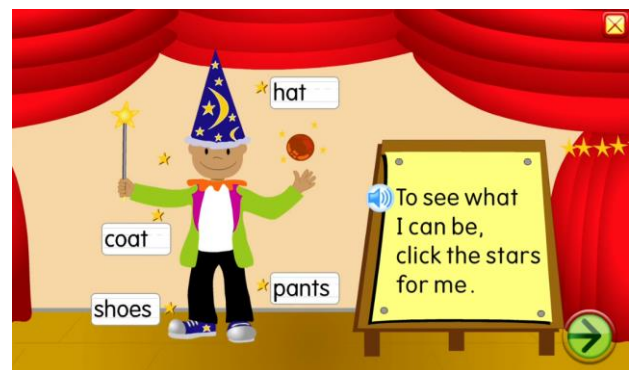
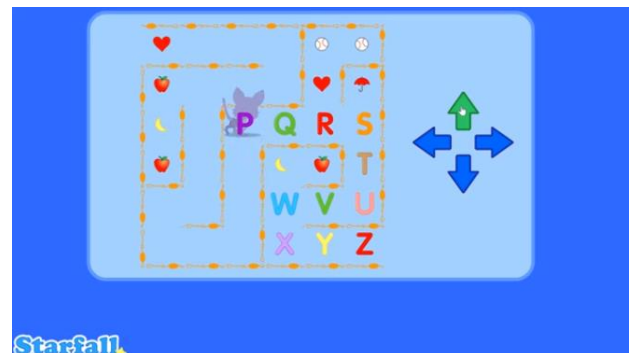


Figure 3. The layout of *Starfall* game

Starfall Learn to Read is a module designed to help children in the reading process. It promotes a phonetic language learning methodology to encourage students to know letter sounds and combine them to form and read words. The game offers different activities that help understanding the connections between letters and sounds. The game uses a progressive level system that allows

gradual progress through the different stages of learning to read, from learning the basics to reading more complex words and sentences. The Starfall It's Funny to Read module is a part of the game designed to help you learn to read. This module focuses on various aspects of learning to read through fun and interactive activities including phonetic reading, word recognition, text comprehension, etc.

3. CONCLUSION

Digital games have many advantages in learning English. The most obvious one lies in the use of visual indicators to show the player the names of game objects, which is not possible with other non-interactive media such as films or books. Interactivity is a major advantage, because an accurate understanding of the task and the environment is necessary to achieve the goals of any digital game. This environment encourages players to explore and find out what the game is about, resulting in active learning of unfamiliar words and phrases. The connection between digital games and other digital media is obvious. Researchers suggest many ways in which digital games can be used for language acquisition, so they can be seen as a valid tool and a medium in informal education.

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