

EDUCATIONAL GAMES FOR LEARNING

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ABSTRACT

Video games is a developing industry that caught the attention of the scholars across a variety of disciplines. This paper argues that video games have a big influence on the learning process in many aspects. It aims to show whether video games can be used as a tool to feed the students with more exercises and test their understanding of a particular subject. It is hypothesized that educational games can be used as an effective tool in the learning process. The participants are selected from an Iraqi intermediate school for girls.

An experiment is conducted on two classes of first intermediate school students. Only one of them is allowed to play video games. Both classes are subjected to a test which is used in the analysis of the data. The outcomes reveal that video games can indeed help students to better understand the subjects explained in the classroom and make them more interested in learning than the traditional approach. This proves our hypothesis to be correct.

1. INTRODUCTION

A video game is "a mental contest played with a computer in accordance with specific rules that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives" (Zyda, 2005).

Over the years, the use of video games increased significantly in teaching community. The term 'edutainment' was first demonstrated in Poor Richard's book entitled 'Almanack' in 1739 with a help of Benjamin Franklin combining entertaining and educational content.

Some evidence suggests that important skills may be built or reinforced by videogames. For example, spatial visualization ability (i.e., mentally, rotating and manipulating two -and three-dimensional objects) improves with video game playing. The traditional approach to learning considers video games in general as entertainment tools that cannot be used for educational purposes.

To test the hypothesis of the study, a group of first intermediate school students are selected. They are divided into two classes; one class is asked to play a video game at school during the lesson time, while the other is not asked to do so. The analysis is done by comparing the results of the test of both classes.

The study is divided into three sections. Section one gives a general introduction about the topic of the paper. A theoretical background is given in section two, which includes a historical overview, the use of video games in learning, types of video games, and the difficulties encountered in using video games. Finally, section three contains the data analysis and results.

2. THEORETICAL BACKGROUND

2.1 Educational Games: A Historical Overview

In the early 80s, the widespread of games like PAC-Man (well-known game which dated back to the 80s) led some educators to think of using video games in the classrooms to enhance students' involvement, enjoyment and commitment (Bowman, 1982). After a series of observations, Malone (1981) comes up with three main elements that make video games enjoyable: challenge, fantasy and curiosity, and then he uses these elements for creating enjoyable and educational program. Malone in (1981) argues that educational program should have the following criteria:

- Clear goals that students find meaningful.
- Multiple goal structures and scoring to give students feedback on their progress.
- Multiple difficulty levels to adjust the game difficulty to learner skill
- Random elements of surprise,
- An emotionally appealing fantasy
- Metaphor that is related to game skills.

Bowman (1982) gives a similar theoretical framework to Malone's, in which he explained the underlying mechanism of video games and how to design an engaging learning environment. Bowman also illustrates the differences between students using video games and students in using traditional ways of learning. Students in teachers' oriented classes are passive recipients and have little control over what they learn. In contrast, students using video games have control over how much they play and can engage in quick and varied activities. Teachers and learners need to interact and collaborate within the education process, (Sizer, 1989).

More recently, Cordova and Lepper (1996) have started linking the basic elements suggested by Malone (challenge, fantasy and curiosity) to specific learning results. According to them, enhancing the internal motivation is a complex process depends on the individual's tastes and preferences.

2.2 Why Use Games for Learning?

Children these days are brought up in a digital society, for most of them; video games have become important part of their life and one of the most common activities in their free time. From educational point of view, it is believed that children learn better when it is fun and they also can acquire skills unconsciously while playing.

According to Fuszard (2001), games provide a distinct structure to complement traditional teaching strategies and infuse teaching with energy, spark innovative thinking and provide diversity in teaching methods. Games offer a platform for learners and encourage their creative and divergent thoughts. Games are considered as an excellent ice breakers and learning triggers.

Prensky (2005) mentions that the reason why video games are used for learning is that learners these days have changed completely and they need new ways of motivation. Therefore, video games are considered as one of the best (edutainment) methods.

A research by Fuzard (2001) shows that games play a vital role in building students' self-confidence and reducing the gap between quicker and slower learners. Numerous institutional studies (Federation of American Scientists, 2006; Project Tomorrow, 2008) have confirmed the idea that video games could provide players with skills that are useful on a degree course and which could, moreover, be transferred to the business world. However, some researchers believe that the intrinsic value of games as a means of education needs to be tempered (de Freitas, 2006; Pivec & Pivec, 2009).

In 2008, Project Tomorrow (a national, education nonprofit organization), in its report, explained that educational games help today's students to be well prepared and to be tomorrow's innovators, leaders and engaged citizens of the world (Project Tomorrow, 2008).

Griffiths (2002) asserts that there are several advantages of using video games for learning. First, videogames attract participation by individuals across many demographic boundaries (e.g., age, gender, ethnicity, educational status). Second, videogames can assist children in setting goals, ensuring goal rehearsal, providing feedback, reinforcement, and maintaining records of behavioral change. Third, videogames can be used when examining individual characteristics such as self-esteem, self-concept, goal-setting and individual differences.

2.3 Types of Video Games in Learning

There are a huge number of video games, only some of them can be used effectively in the learning process, such as:

1. Simulation games: which attempt to model a system in a manner that is consistent with reality, such as a developing city or controlling a character's life. For example, SimCity (<https://simcity.en.softonic.com>)
2. Strategy games: in which players control units in a battle-field, online arenas and armies. For example, Civilization (<https://en.softonic.com/downloads/civilization>)
3. Puzzle games: which include solving a problem or completing a task in a logical way. For example, The Room (<https://the-room.en.softonic.com>)
4. Fantasy games: (role-playing), in which the players get to act out the part of the main character or the hero within the game's story lines. For example, The Witcher (<https://thewitcher.com/en/>)
5. Educational games: that help in training the child in a variety of subjects, they usually include answering multiple-choice questions in fields such as math and science. For example, Scribblenauts (<https://www.scribblenauts.com>)

Since this study is focusing on students in schools, the researcher will use educational games to tackle specific subjects from their curriculum. One of the most crucial factors for successful educational games is their ability to maintain an individual learner's motivation and interest by adapting his learning and gaming experience to his needs, preferences, goals, and abilities.

2.4 Difficulties of Video Games in Learning

Teachers may face several obstacles in using video games in classrooms such as:

1. Video games may take quite a long time especially in motion videos that cannot be skipped whereas the time of individual classes is limited.
2. Children can get too engaged by the game trying to finish the challenges.
3. Teachers may face difficulties in measuring what the students had exactly learned.
4. Teachers may waste much time in learning the above games or solving technical problems.
5. Some games may have irrelevant or inappropriate content.

The previous problems can be avoided by:

1. Limiting the video games to the free time between classes.
2. Using games that have (save option) so students can stop at the end of the class and resume at the same place in the next class.
3. Having sport materials or manuals that provide teachers with all the instructions and information needed to set the video games without wasting much time.
4. Verifying the game's brand to make sure it is suitable for learning purposes.

3. DATA COLLECTION AND METHODOLOGY

3.1 participants

To test the hypothesis, the study is applied to a group of fifty first-intermediate students taken from an Iraqi intermediate school for girls. Participants are divided into two classes: Class A and class B, each class consists of twenty five students. Their ages range between (13-16) years old.

3.2 Data

The game used for this experiment is an educational game taken from the website (ESL Games Plus) which can be found in the following URL (<https://www.eslgamesplus.com/present-perfect-vs-past-tenses-rally/>). This game is considered as an exercise about the past simple tense and present perfect tense which correspond to the material found in the first intermediate curriculum (English for Iraq, Chapters one and three, lesson one).

3.3 Procedures

First of all, the teacher gives a quick review about the two subjects (past simple tense and present perfect tense) for both classes A and B, then she asks them to solve the exercises found in the activity book which can be found on p.5-6 and p.31-33 (See in appendix A). Then, students in class A are asked to play the educational game mentioned above for ten minutes of the lesson time. While class B only sticks to the book.

The game is designed in the form of four cars which are played by four players. The students must answer questions by choosing the correct option to make their cars move. All the questions are concerned with past simple tense and present perfect tense.

3.4 Data analysis

In the last five minutes of the lesson time, the teacher distributes papers of multiple choice questions for each student in both classes. A sample can be found in the appendix B. Then the results of the test are compared between the two classes.

3.5 Results

The analysis reveals that most of the students in class (A), who played the video game, scored higher marks in the test than class (B). They were more familiar with the treatment of auxiliaries and irregular verbs. On the other hand, students in class (B) who did not play the video game were not able to reach the level of class (A).

CONCLUSIONS

In conclusion, it seems reasonable to assume that playing video games has advantages in exposing the students to more exercises about their curriculum. Video games can also provide an active avenue for the students' engagement in learning process. Moreover, video games lessen the stress and make the school's environment more fun and entertaining, which leads students to continue to go school every day.

Hence, the hypothesis proposed at the beginning of this study, (Educational games can be used as an effective tool in the learning process) is verified.

Therefore, it is advisable to use video games as one of the vital tools in the learning process, because it motivates the students and facilitates the obstacles that they might face.

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Appendix A

Simple Past

Unit 1

Lesson 3

A Complete the table.

Infinitive	Past tense	Infinitive	Past tense	Infinitive	Past tense
listen	_____	see	_____	put	_____
learn	_____	make	_____	read	_____
stay	_____	go	_____		
		take	_____		
		get (up)	_____		
		am/is	_____		
		do	_____		
		have	_____		

2

B Can you find 13 Past tense forms hidden in this puzzle?

g	l	o	o	k	e	d	e	r	y	_____
t	c	u	t	m	s	r	a	n	d	_____
i	s	d	r	o	v	e	d	u	r	_____
h	o	h	e	l	p	e	d	m	o	_____
s	a	t	v	h	e	a	r	d	u	_____
f	a	f	e	l	l	t	z	k	h	_____
p	a	t	e	p	t	h	r	e	w	_____
t	k	n	o	c	k	e	d	q	u	_____
o	v	s	h	o	u	t	e	d	e	_____
z	s	c	a	m	e	r	l	n	m	_____

Unit 1

C

Remember!

There are two ways of talking about the past:

1 Richard **went** to Iraq in the holidays.

↑ Past simple tense

2 When he **was staying** in Iraq, he went to a football match.

↑ Past continuous tense

Read and complete this paragraph about Richard. Use the verbs in brackets in the Past simple or Past continuous tense.

When Richard was in Baghdad, he (want) _____ to buy a sweater. His father (ask) _____ a man in the hotel where to go. The man (give) _____ them the name of a shop. When they (walk) _____ along the street, they (forget) _____ the name of the shop. Then they (see) _____ a street market. A man (sell) _____ sweaters, T-shirts and trainers. Richard (not like) _____ any of the sweaters, but he (buy) _____ a pair of trainers and two T-shirts. His father (not buy) _____ anything.

D

These words are called *adjectives*. They describe how you feel or what you think about something. Say each word and underline the strongest part.

fantastic horrible delicious boring beautiful terrible lovely

Now use a suitable adjective in these sentences.
You can use each word once only. Think before you write.

Unit 3

Lesson 3 Complete this table.

	Infinitive	Past tense	Past participle
Regular verbs	1 cook	cooked	cooked
	2 clean	_____	_____
	3 paint	_____	_____
	4 talk	_____	_____
	5 mix	_____	_____
Irregular verbs	6 see	_____	_____
	7 hear	_____	_____
	8 give	_____	_____
	9 do	_____	_____
	10 forget	_____	_____
	11 go	_____	_____
	12 eat	_____	_____
	13 drink	_____	_____
	14 buy	_____	_____

Lesson 4

A  Listen to different people talking. Write one more word in each set.

- 1 bowl, glasses, _____
- 2 clue, puzzle, _____
- 3 farther, higher, _____
- 4 brush, paint, _____
- 5 purse, bag, _____
- 6 game, difficult, _____

Unit 3

D Now use your answers in Exercise B to write sentences.

- 1 The two ladies _____ .
- 3 _____
- 4 _____
- 5 _____
- 6 _____

Lesson 5

A Look at page 23 of your Student's Book. Find the verbs and complete the table.

Verb	Past participle	Verb	Past participle
go	_____	buy	_____
eat	_____	read	_____
drink	_____	forgot	_____
take	_____	give	_____

B Now complete these questions and answers about the people on page 23.

- 1 Has Ahmed gone to the park?
No, he _____. He _____ .
- 2 Has Tamara forgotten her pen?
No, _____ .
- 3 Why is Zeena excited?

- 4 Why is Salman frightened? _____

Appendix B

Quiz

Q/ Choose the suitable answer:

1. Ahmed and his friends _____ to the mall yesterday.
(go , goed , went , gone)
2. I _____ tennis since July.
(play, plays, played, have played)
3. She _____ a sandwich yesterday.
(didn't eat, didn't ate, didn't eats, didn't eaten)
4. John _____ an e-mail for three hours.
(hasn't write, hasn't wrote, hasn't written, didn't written)