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Exploring Iraqi EFL Students' Perspectives on Using Educational Games to Learn and Cognitive Development

ABSTRACT

The study aims at exploring Iraqi EFL Students' Perspectives on Using Educational Games to Learn and Cognitive development. Engaging content is essential for new technologies to reach their full potential in society. Video games or interactive applications that provide entertainment and knowledge in fields such as health, marketing, education, etc. are known as serious games or educational games. The study's sample comprises of 110 female and male third-year students from the College of Education for Human Science and the College of Education for Women-English Department at Tikrit University. This study is quantitative mode in nature by adopting a questionnaire consisted of 15 items. The questionnaire has three key sections: first, "students' motivation," second, "cognitive development," and third, "gaming interface." Findings indicate that students find out educational games as an ideal instrument for learning English and attaining these goals, as well as for communicating knowledge and values in an appealing and efficient manner.

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استكشاف وجهات نظر الطلاب العراقيين في مجال اللغة الإنجليزية كلغة أجنبية حول استخدام الألعاب التعليمية للتعليم والتنمية المعرفية

منال جودي محمود / جامعة تكريت / كلية التربية للعلوم الانسانية

الخلاصة:

تهدف الدراسة إلى استكشاف وجهات نظر طلاب اللغة الإنجليزية كلغة أجنبية في العراق حول استخدام الألعاب التعليمية للتعليم والتنمية المعرفية. يعد إشراك المحتوى أمراً ضرورياً للتكنولوجيات الجديدة للوصول إلى إمكاناتها الكاملة في المجتمع. ألعاب الفيديو أو التطبيقات التفاعلية التي توفر الترفيه والمعرفة في مجالات مثل الصحة والتسويق والتعليم وغيرها، تُعرف بالألعاب الجادة باعتبارها ألعاباً تعليمية. تكونت

عينة الدراسة من 110 طالبا وطالبة من طلاب وطالبات السنة الثالثة من كلية التربية للعلوم الإنسانية وكلية التربية للبنات قسم اللغة الانجليزية في جامعة تكريت. تعتبر هذه الدراسة ذات طبيعة كمية من خلال اعتماد استبانة مكونة من 15 فقرة. يتكون الاستبيان من ثلاثة أقسام رئيسية: الأول، "تحفيز الطلاب"، والثاني، "التطور المعرفي"، والثالث، "واجهة الألعاب". تشير النتائج إلى أن الطلاب يعتبرون الألعاب التعليمية أداة مثالية لتعلم اللغة الإنجليزية وتحقيق هذه الأهداف، وكذلك لتوصيل المعرفة والقيم بطريقة جذابة وفعالة.

الكلمات المفتاحية: الألعاب التعليمية، الألعاب الجادة، المهارات المعرفية، التحفيز، اللغة الانكليزية لغة اجنبية.

1. Introduction

Successful instructional games must keep learners motivated and interested by tailoring the experience to their unique requirements, preferences, objectives, and skills (Kickmeier-Rust et al. 2011). The tutor's function is critical in this regard, and various scholars are working on it. The concept originated in the field of adaptive/intelligent tutoring in traditional technology-supported teaching and learning, and was largely inspired by Benjamin Bloom, who stated in 1984 that students who received one-on-one tutoring performed on par with the top two percent of those receiving classroom instruction. Since then, psychologists, educators, and technologists have worked to create technology that may act as a private teacher, intelligently offering appropriate coaching to specific students. The range of methodologies, methods, frameworks, and applications employed is extensive (De Bra, 2008).

Serious games need teaching and dynamization; without them, the learning process is incomplete. This teaching allows for the monitoring of any anomalous activity on the side of the user, as well as the prevention of incorrect behaviour that is theoretically conceivable but socially undesirable. It also promotes the extra value that serious games provide to the educational process (whether on-site or online). Tutoring is essential for steering the learning process via serious games (Garris et al, 2002).

Previous studies have shown that using educational games as a learning approach may help students learn in a range of areas, including cognitive, affective, and psychomotor skills. Ibrahim et al., (2018). discovered that around 96% of students feel instructional games assist them understand the subject matter. Using educational games increases students' motivation to study (88%) and learn (100%). Osman & Bakar (2012), found that instructional games may increase student motivation. Garzotto (2007) discovered that multiplayer online games provided learning benefits on both an emotional and knowledge level, with students being constantly engaged, motivated, and thrilled during gaming. Educational games promote learning, offer immediate feedback, improve abilities, and influence behaviour and attitudes.

Based on the preceding research on a lack of drive to learn English and a high motivation to play games, combine these two elements. The goal is to assess users' early views about using games for learning. The study's findings will be utilized to inform future research. Building games with the purpose of motivating students to learn English. Combine exercises and lecture materials with game design qualities from certain game genres. The activities will supplement the traditional lecture format. The computer games are intended to promote students' drive to self-learn topics, so improving and deepening their interest in learning the subject. From this side the study aims at Exploring Iraqi EFL Students' Perspectives on using educational games to Learn and Cognitive Development. Based on this infestation the study objective as follow;

1. What is students' motivation towards Educational Games in EFL classroom?
2. how can Educational Games increase students' cognitive skill?
3. What is students' perspective towards educational game interface?

Literature Review

2.1 Educational Games

Clark Act was the first author to use the word in 1970. Serious games, he believes, are good teaching and training tools for students of all ages in a variety of settings because they are highly motivating and effectively transmit the principles and facts of many disciplines. They provide a fertile ground for risk-free active study of major intellectual and social issues (Act, 1970). Serious games are simulations of real-world events or processes created to solve a specific issue (Sawyer, 2002). Although serious games may be amusing, their primary goal is to instruct or educate users; they may also serve other functions such as marketing or promotion.

2.1.1 Design Characteristics of Educational Games:

Educational research (for short, EG) design challenges occur from a range of perspectives, including “psychology, education, and technology” (Grassioulet, 2002). Games incorporate humans as well as technology, therefore these two components must be carefully considered. The incorporation of the games' "educational" features introduced a fresh angle on education, a contentious and long-debated topic. Adapting to new ways of learning is essential if universities are to remain relevant in the modern day. A learning game combines elements of both play and enjoyment. Educational games are defined by Prensky (2001) as a hybrid of gaming elements, instructional content, and pedagogical approaches.

Olga et al. (2008) define educational games as a learning system that integrates learning theory, skill acquisition, and knowledge level estimate into a gaming environment. Jaspaljeet (2008) defines educational games as those which designed to educate individuals about specific topics, expand ideas, reinforce and boost development, “explore many historical events or cultures,” or aid in skill acquisition while playing. In essence, “educational computer

games combine game design principles and learning theories with learning materials from specific subjects or learning objectives to enhance learning for targeted audiences.”

According to Klopfer et al., (2008) add page number because it is a direct quotation) games designed expressly for education must demonstrate some effectiveness in order to be authorized by stakeholders. Researchers argued that effective games include excellent game design with suitable instruction. The concept of games design involves incorporating elements from entertainment games into educational games to ensure an equal level of engagement. The game design component incorporates captivating elements like challenges, objectives, feedback, and a compelling game plot. The features mentioned are derived from game principles (Novak, 2008). These features are crucial for a game to truly exhibit game-like behavior (Sauvé et al., 2007; Grassioulet, 2002). Games that lack these aspects cannot truly be considered games, but rather they are seen as outdated edutainment concepts by many.

The games will be designed to align with the learning goals outlined in the university's course curriculum and will be in line with the syllabus recommended by Fisch (2005). The learning objectives will be focused on Bloom's first three levels: knowledge, understanding, and application. The concept of scaffolding involves providing learning materials to support and enhance student learning (Fisch, 2005; Overdijk & Diggelen, 2006). Students may improve their understanding and evaluate their own progress in learning with the help of this game. Roslina & Azizah (2009) offers comprehensive information on game design aspects and pedagogical approaches.

2.2.1 Framework for Developing Educational Games

Garris et al. (2002) indicate the input-process-outcome game model by combining instructional game research findings. The primary goal of incorporating games into the learning process was to foster intrinsic and

extrinsic motivation among students, ultimately leading to highly independent and self-motivated individuals. The majority of studies that have included instructional games have relied on a tacit learning paradigm. First and foremost, the purpose is to develop an instructional program that incorporates certain game elements or characteristics. Second, these characteristics provide a feedback loop between user evaluations or sensations like pleasure or interest, user actions like tenacity or task duration, and machine input. Finally, Game play helps achieve training goals and learning results. This fits with our online game design goal of motivating English learners.

2.2 Cognitive Development and Functions

Cognitive abilities enhance the brain's essential activities of thinking, reading, learning, knowledge retention, reasoning, and attention. The information they absorb together is added to their knowledge bank, which they use every day at school, job, and in life. Cognitive talents are utilized to solve problems, recall information, and make judgments. "Cognitive control involves deliberately choosing thoughts, emotions, and behaviours depending on task demands, circumstances, and social context in order to repress unsuitable habitual activities at the same time" (Miller & Cohen, 2001). Cognitive control research has found three main areas: "working memory, inhibitory control, and task-specific cognitive flexibility."

Academic activities require recalling material from working memory. Suppose a pupil is reading a tale. If the pupil cannot understand the tale as it progresses, they will not like reading it. They may lose the plot. Because they often start a phrase, paragraph, or page again. To read successfully, kids need a good working memory and reading fluency. Conversations should be consistent. Having a question asked and then forgetting the answer might cause confusion

or communication breakdown among students. It takes effort to interpret the answer (Barac et al., 2014).

Tiego et al., (2018) define inhibitory control as suppressing actions and stimuli that are unrelated to the objective. Successful task completion requires attention, especially in the face of distractions, and control over emotional and behavioral responses to inputs. Consider a pupil writing while stopped by another student, noise, or other distractions. Dealing with anger and avoiding interruptions without losing focus requires inhibitory control abilities. Irritation management requires inhibitory control. Instead of losing focus, students must disregard disruptions to work fast. Cognitive flexibility—problem-solving—is the third component of cognitive regulation. This multifaceted approach stimulates creative thinking and adaptability in students. Without cognitive flexibility, creativity is impossible. Kids must speak in context rather than prepared words. They must generate sentences they've never heard or seen. They must be flexible, inventive, and spontaneous while reacting to another's discourse.

According to Yerys et al., (2019, p.184), “cognitive regulation is a function that develops in the brain of the learner.” Cognitive and language abilities evolve throughout time as a result of interactions with people and the environment. Thus, learning environment and training shape these capacities. Cognitive control functions appear to be interrelated, unlike muscular control processes. Working memory and inhibitory control often correlate. According to Best and Miller (2010), working memory abilities and the capacity to modulate inhibitions are important components of cognitive flexibility.

3. Methodology

3.1 Research Design

This study is quantitative mode in nature that aims to explore the perspectives of Iraqi EFL students on the use of educational games for learning

and cognitive development at Tikrit university college of education for human science and college of education for woman, English Department. The study's questionnaire consisted of 15 items. The questionnaire has three key sections: first, students' motivation, second, cognitive development, and third, gaming interface.

3.2 Population and Sample of the Study

Nikmanesh et al., (2017), state that population is any group of individuals that has one or more characteristics in common. The study's population comprises of 121 female and male third-year students from the College of Education for Human Science and the College of Education for Women-English Department at Tikrit University. This study's sample size is 110 students from the 2023-2024 academic year.

3.3 Data Collection Instrument

The questionnaire is adapted from the studies conducted by (Frazer, Argles, & Wills, 2007). Participants are asked to rate how much they agreed or disagreed on a “Likert scale” “(strongly agree - agree - not sure - not agree - strongly disagree).” The data has been condensed to three alternatives for ease of reading. The data were treated using SPSS 26. The findings are reported as percentages, means, and standard deviations.

3.4 Validity

The first factor to consider while constructing an instrument is its validity. Dunn (2020, p.34) defines “validity as the degree to which a test or instrument properly assesses or can be used effectively for its intended purpose.” There are several sorts of credibility, such as “face validity,” “content validity,” “construct validity”. To confirm the tool's substantive validity, the questionnaire was sent

to a five-person panel of experienced educators who specialize in teaching English as a second language and approved it with minor changes.

3.5 Reliability

"Reliability is one of the necessary characteristics of any good instrument. It should refer to the consistency of measurement which makes validity possible and indicates the amount of confidence that can be placed in the results of a test" "(Veram and Beard, 1981, p.860)." The questionnaire's reliability coefficient was determined using the Alpha-Cronbach Formula and found to be (0.930), which is regarded adequate.

4. Findings and Discussion of Results

4.1 Students Perspective Towards Motivation of Educational Games

Table (1) displays students' motivation for playing games to learn. The most notable conclusion from this section is that majority of students believe that utilizing computer-games makes the English topic more engaging (89%), with only 13% unsure. Additionally, the majority of students (81%) would rather finish their assignments using computer games than through the traditional method of taking quizzes in class. Majority of pupils with (67%) choose to answer tasks and questions utilizing computer-games instead of using text-books or papers. Students feel that playing games helps them study (76%). In the future, more than 80% of students would be open to adopting games to supplement their education. This shows that more than 80% of students think educational games make information more entertaining and choose to use them to complete their goals.

Table 1. Students' perspectives towards Motivation

No	Statements	"Agree"	"Not Sure"	"Not agree"	"Mean	Std. Dev"
1	I think this practice is good for me in many ways.	76%	24%	0%	4.00	0.707
2	I like this way of answering questions better than using books or paper.	67%	33%	0%	4.05	0.865
3	Using games to learn is something I'm really interested in in the future.	81%	19%	0%	4.19	0.750
4	I'd rather do tasks in games than take quizzes in class.	81%	19%	0%	4.19	0.750
5	Using computer games to talk about this makes it more interesting.	89%	13%	0%	4.29	0.717

4.2 Students Perspective Towards Integrating Educational Games in Cognitive Development

Table (2) discusses students' cognitive growth through the using of video games. The majority of pupils (almost 80%) believe that educational games help them develop better critical thinking abilities. Furthermore, they considered it highly engaging to answer the difficulties presented in the games (81%). More than 75% of them thought that seeking answers to the presented questions was an encouraging pastime. Approximately 71% of students feel that the game challenges their comprehension of programming. Because of the criteria listed above, more than 80% of students believe it is worthwhile to attempt educational games for learning in the future. These findings suggest that students find playing educational games to be a demanding activity that also helps them think critically.

Table 2. Students' perspectives towards Cognitive Development

No	Statement	Agree	Not Sure	Not agree	Mean	Std. Dev
1	These educational games teach me how to think critically.	77%	23%	0%	4.05	.740
2	It's enjoyable to figure out the tasks given.	81%	19%	0%	4.05	.669
3	It would be good to use games to learn in the future.	81%	19	0%	4.14	.727
4	It's fun to look for answers to questions that have been given.	76%	24%	0%	4.10	.768
5	These games make me think about what I know about the subject.	71%	29%	0%	4.05	.805

4.3 Students Perspective Towards Game Interface

Table (3) presents a perspective of the gaming interface. For EG to be successful, interface is key. It will be challenging for games to achieve their intended educational goals if they have excellent instructional content but bad usability. Around 67% of students said the menus were simple to grasp. They also praised the game's navigation and directions, as well as its audiovisual aspects. Additionally, almost 60% thought the games' colour scheme and layout were engaging. The clearest consensus among students is the amount of time necessary to understand how the game works. 86% claimed they needed very little time to learn how to play the game.

Table 3. Students' perspectives towards Game interface

No	Statement	Agree	Not Sure	Not agree	Mean	Std. Dev
1	The game's menus are simple and easy to understand.	67%	33%	0%	3.90	.768
2	The interface and navigation are simple and easy to use.	74%	26%	0%	4.00	.775
3	The multimedia parts of the games are enjoyable.	62%	38%	0%	3.86	.793

4	I only need a short time to find out how the game works.	86%	14%	0%	4.14	.655
5	There are some interesting ways that the games use colour and style.	60%	36%	0%	4.00	.894

4.4 Discussions of the Obtained Results

According to results of questionnaire, students projected a high level of interest in utilizing games as a learning activity. They have exhibited a strong incentive to utilize the games, particularly while performing their workouts, and the games make the material more engaging. This suggested that games could be appropriate for some courses, such as those that generate less motivation and engagement among students. Games may be one of the tactics used to increase pupils' interest in learning. Students are also enthusiastic about utilizing games, and they identify their cognitive growth, such as critical thinking and challenging their understanding of the content. Game interfaces are crucial to students because they want to be able to easily navigate through the games without becoming frustrated or giving up.

Students have shown a strong desire to include games into their learning, in line with their expectations. However, related to the immaturity of educational game research, particularly in Iraq, special attention must be paid to numerous aspects of game design, incorporating gaming genre, accommodating a variety of instructional goals, designing for various learning methods, and pupils. Furthermore, educational game production is not a simple process owing to its interdisciplinary requirements, which include game developers, content experts, instructional designers, and user preferences.

5. Conclusions

This paper explores the perspectives of Iraqi EFL students on the use of educational games for learning and cognitive development. The three variables were employed to assess perceptions: motivation, cognitive development, and

gaming interface. To produce a good educational game, the authors combined a variety of game design elements with pedagogical characteristics. The traits are then coupled with Garris et al.'s (2002) Input Process Output Model to include motivation into instructional games.

The results suggested that majority of students are very interested in utilizing video-games to be one of learning methodologies, which could be attributed to interaction, embedded game design elements, and the scaffolding idea, which provides rapid feedback to the learner.

This paper focuses on student perspectives through the use of two mini games: crosswords and shooting games, and results are specific to these genres. Game creation experience has proven that some genres work better than others when trying to depict different degrees of knowledge, like memorizing or memory. Although proper question design is necessary, it may also be used to test understanding levels. Another issue is the small number of samples included in the research; it would be more interesting to investigate variations between men and women. Colleges that mostly employ conventional teaching methods view computer games as a valuable way to supplement their teaching techniques. Hopefully, this paper will give a better understanding of the elements influencing students' use of games for self-learning, particularly in Iraq.

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