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PAPER

Roblox in Higher Education: Opportunities, Challenges, and Future Directions for Multimedia Learning

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ABSTRACT

Roblox is widely recognized as one of the most popular metaverse games, boasting millions of users across the globe. The focus of this paper is on the impact of Roblox on higher education, exploring how it can be utilized as a valuable educational tool and the benefits and opportunities that can be created by integrating it into university courses. Additionally, this study investigates the challenges faced by students and educators when attempting to integrate Roblox into curricula. Previous research has primarily focused on Roblox's impact on elementary schools, leaving unexplored its potential as a metaverse learning platform for higher education. To address this gap, a systematic literature review was conducted to extract themes from the selected literature, identify gaps, and draw conclusions. The study reveals that Roblox can be an effective tool for higher education and has the potential to gamify any university course. However, there is little awareness among educators about metaverse, and creating a customized 3D environment and coding it using Lua to create games can be a challenging task for them. The potential of Roblox as a learning platform for higher education has not been explored much. This study aims to investigate the perspective of students on Roblox's integration as an educational tool using the TAM model, which states that computer acceptance depends on perceived usefulness and ease of use. The study will examine the potential of Roblox as an educational tool for higher education, as previous research has been limited to elementary schools.

KEYWORDS

Roblox, higher education, metaverse, Technology Acceptance Model, Gamification

1 INTRODUCTION

In recent years, the use of video games in education has gained increasing attention as a potential means of enhancing student engagement and learning outcomes. Despite previous perceptions of video games as being juvenile and immature, contemporary research has revealed that gaming interventions

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have the potential to enhance the academic performance of university-level students [7]. Specifically, Barr's research suggests that playing commercial video games can enhance communication skills, flexibility, and resourcefulness in adult learners, and that video games may have a role to play in higher education. These findings have important implications for the design of game-based learning interventions and the adoption of video games in educational contexts. In addition, the gamification system makes the students more compliant with the rules and laws of each assignment, ensuring they are rewarded accordingly. This highlights the potential of utilizing gamification to enhance academic performance and engagement [1].

Among the many online gaming platforms available, Roblox stands out as the world's largest user-generated online gaming platform, with over 55.1 million user-created games and a large user base of children and teenagers [6]. Despite its popularity, there has been limited empirical research on the effectiveness of Roblox as a teaching and learning tool, particularly in higher education [15]. Moreover, to the best of the authors' knowledge, there has been no prior investigation utilizing the Technology Acceptance Model (TAM) to forecast the feasibility of incorporating Roblox into educational settings. This gap in research presents an opportunity for investigating the potential value of Roblox in higher education using the TAM model.

Given the growing interest in game-based learning interventions and the potential of Roblox as an educational tool, this case study research aims to explore the opportunities and challenges of integrating Roblox into higher education. Specifically, the present study aims to examine the viability of utilizing Roblox as a means of augmenting student engagement, improving learning outcomes, and enhancing graduate-level competencies in the context of higher education. The research will examine the factors that influence the acceptance and adoption of Roblox as a teaching and learning tool, using the TAM model as a theoretical framework. Through this investigation, the study aims to provide evidence-based recommendations for the successful integration of Roblox in higher education settings, with a focus on optimizing student engagement and learning outcomes, as well as fostering the development of graduate-level competencies.

2 RESEARCH PROBLEM & SIGNIFICANCE

The use of digital platforms in education has increased in recent years, and Roblox is one such platform that has gained popularity among students. However, the literature on the use of Roblox in higher education is limited, and there is a need to explore its potential benefits, challenges, and shortcomings. Therefore, this study will investigate the subjective views of students on the use of Roblox. By exploring the range of interpretations held by participants, this study seeks to provide insights into the attitudes toward the utilization of Roblox in higher education.

Based on the authors' perspective that reality is a socially constructed concept rather than a fixed substance, this research aims to investigate the subjective views of students on the challenges and opportunities presented by the use of Roblox. As Roblox is susceptible to independent interpretation, this study seeks to explore the range of interpretations held by participants. Moreover, the study will focus on synthesizing literature that presents divergent views, in line with an

epistemologically interpretivist perspective. The following research questions will guide this study:

1. What is the perceived usefulness and ease of use of Roblox among students?
2. What are the attitudes of students towards the utilization of Roblox in higher education?
3. To what extent do students intend to use Roblox as a Metaverse Learning Platform?
4. What are the potential benefits, opportunities, challenges, and shortcomings associated with integrating Roblox into higher education?

This research attempts to find answers to the above questions by surveying students and conducting empirical research in the classroom at the American University of Bahrain. The study's significance lies in its potential to inform educational practitioners and policymakers about the opportunities and challenges of using Roblox as a learning platform. The empirical research conducted at the American University of Bahrain will provide valuable insights into the practical implementation of Roblox as a learning tool.

3 METHODOLOGY AND APPROACH

This research adopted a descriptive case study approach involving a bounded group of participants. Purposive sampling was employed to select ten undergraduate students who are active users of Roblox for the purpose of conducting semi-structured interviews. The interview questions were specifically crafted to address the research inquiries delineated beforehand. The students were specializing in multimedia at the American University of Bahrain and their ages ranged between 18 to 22 years. Faculty members were intentionally excluded from the study to investigate the Technology Acceptance Model (TAM) from the students' perspective.

The interviews were semi-structured and conducted using a set of predetermined guiding questions, which were intentionally left open-ended to allow for further discussion of other relevant factors. The questions were designed to elicit rich descriptions of practices and experiences. The interviews were recorded and transcribed, and a reflective diary was maintained by the authors to capture thoughts and insights related to the timeline of the interviews. Interviews were conducted both face-to-face and online, as required by practical considerations.

The discussions were analyzed using constant comparison coding in NVivo, and emerging themes were defined and categorized. Patterned coding was employed to identify patterns in responses among users regarding perceived usefulness, ease of use, and intent to use. Finally, these patterns were used to form themes related to each research question and develop findings.

To eliminate potential bias and ensure a robust methodology, a systematic literature review (SLR) approach was adopted. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were used as an evidence-based minimal set of components for systematic review and meta-analysis reporting, primarily intended for reviews assessing the effectiveness of interventions [20]. Figure 1 details the three stages of the analysis in accordance with the PRISMA guidelines.

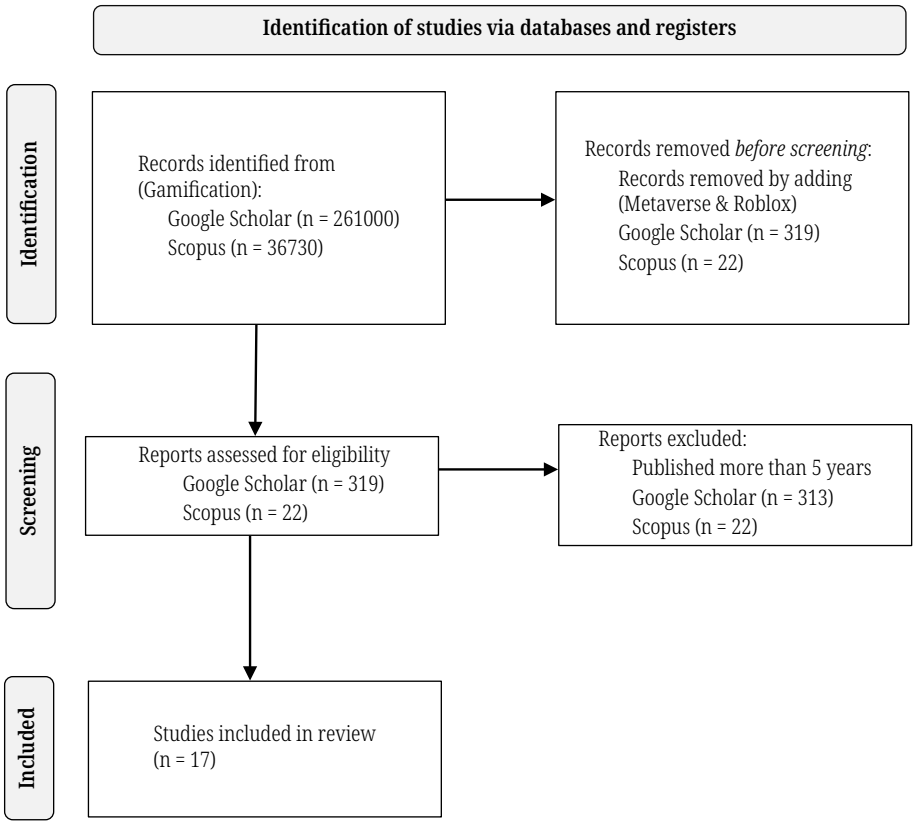

Fig. 1. Analysis stages of this research

This includes the number of articles identified at each stepping-stone alongside the screening and the final inclusion. Following the three stages of analysis in the PRISMA guidelines, the total number of results in Google Scholar that appeared in the initial search using only the keyword "Gamification" was 261,000. However, the number was reduced to 319 when the "Roblox" and "Higher Education" keywords were added (in Scopus, only 22). The screening and eligibility process was conducted to identify the most pertinent studies to the current research project, and the resulting selection of studies is documented in the reference section.

4 THEORETICAL FRAMEWORK

The concept of a metaverse, a virtual space where users can interact with each other and experience a simulated reality, has gained significant attention in recent years. With the rapid development of virtual reality technology, platforms like Roblox have emerged, offering users a fully immersive experience with advanced 3D visuals, avatars, and real-time communication capabilities. The word metaverse is referred to as virtual reality metaverse in this paper. Because Roblox is a metaverse that mimics the inner world through virtual reality, advanced 3D visuals, avatars, and rapid communication capabilities are all part of virtual reality technology [18]. It is a realm in which users believe they are completely immersed in a virtual environment. It is also defined as an internet-based 3D area that several users may access at the same time and engage in by creating an avatar that portrays the user's personality [13].

The metaverse roadmap by Acceleration Studies Foundation (ASF) illustrates the major four categories of metaverse using two perpendicular axes (see Figure 2).

The vertical axis reflects simulation versus augmentation, whereas the horizontal axis represents intimate versus exterior relationships [21].

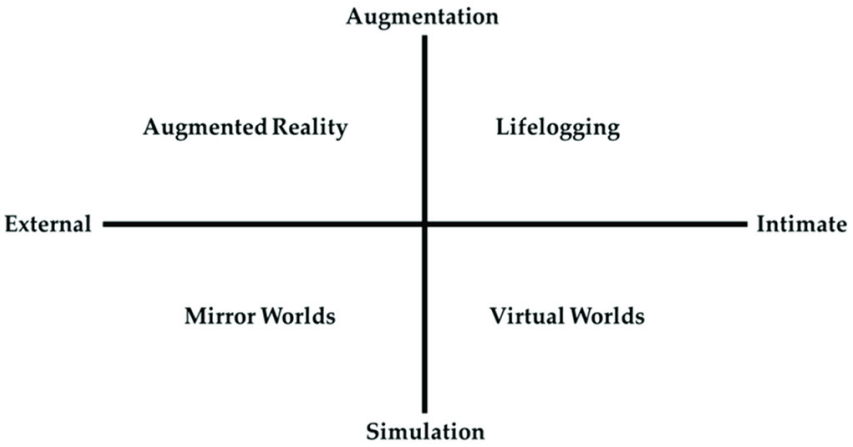

Fig. 2. Diagram of 4 types of the metaverse [21]

Augmented technology and simulation may be classified based on whether the information is applied in physical or virtual reality. Meanwhile, the metaverse is separated into two parts: the inner world and the outside world [16]. The inner world is concerned with the identity and behavior of an individual or object. In contrast, the external world often concentrates on features of external reality centered on the user, the metaverse's subject. As a result, the metaverse roadmap divides the metaverse into four categories depending on these two axes: augmented reality, lifelogging, mirror world, and virtual reality.

Roblox is more than simply an entertainment platform. Researchers predict that it will be the next significant development in education and edutainment [19]. The Roblox Company has created an educational portal for instructors to utilize, complete with ready-to-use lesson plans, tutorials, and exercises on coding and creativity. Roblox is a game that allows youngsters to construct, create, and express their creativity. It is also an educational tool, providing free software and curriculum to teach children of all ages computer science, digital literacy, and entrepreneurship, all of which match the STEAM learning objectives (Science, Technology, Engineering, Art, and Mathematics) [2]. Students may create 3D environments, compose games, and publish work online without the need for a subscription or license. This also allows students to learn digital citizenship, scripting, and other modules that can be applied to other coding platforms [3]. Consequently, it provides students the chance to expand their range of potential career paths to explore and enables them to gain confidence and expertise in previously unfamiliar domains [15].

Roblox is a social gaming platform with a large community and plenty of opportunities to build game strategy [4]. Participants in the game may create their own scenarios by employing all the elements offered by the game creator. These scenarios are available to the other players. Roblox is more popular as a learning tool than Minecraft since it is free and can be used to educate children in terms of computer literacy, creating, and constructing using Roblox Studio, and mastering principles of programming by bringing creative 3D worlds to life. It also provides free materials to teach coding, game creation, digital civility, and business skills to children of all ages [5].

Roblox has a huge potential for use as a teaching Metaverse platform [6]. Not only is this social game popular, but it also allows users to engage with other gamers

online creating collaborative playful learning experiences [7]. For example, students can participate in the creation of a virtual environment to learn about art museums, artists, and artworks [12].

In addition, Roblox enables instructors to create compelling learning content without having to deal with the complexity of programming required to create a game [23]. LUA coding language (the Roblox coding language) is much easier than C++ in Unreal Engine and C# in Unity [8].

Yet, there are a few drawbacks that researchers have identified. One of the most typical issues addressed by most researchers is prior software knowledge. Educators who have never used game engines before may find it difficult to generate material or explore the full possibilities of Roblox. Several of them also mentioned that there are other technical obstacles that are unrelated to the software, such as the requirement for a robust internet connection and PC [9]. Furthermore, several experts were concerned about the money involved with Roblox, namely the Robux currency. When purchasing power varies from one household to another, it may result in some discrepancies or educational inequality [10].

The TAM posits that the adoption of new technology is primarily driven by two factors: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which a user believes that technology will improve their performance, while perceived ease of use refers to the degree to which a user believes that technology is easy to use and understand. These two factors are then used to predict the user's intention to use the technology, which in turn predicts the actual use of the technology.

In the context of this research paper, the TAM is used to predict the possibility of integrating Roblox into higher education. Specifically, the perceived usefulness and ease of use of Roblox will be examined, to predict students' intention to use Roblox as an educational tool. Additionally, user experience will be considered as a potential outcome of using Roblox in higher education. By examining the factors that influence students' willingness to use Roblox as an educational tool, this research can provide insights into how to integrate this technology into higher education and maximize its potential benefits for students.

Overall, researchers wrote more advantages and favorable remarks about Roblox/gaming than negative ones [17]. The researchers' key benefit themes were how significant gamification is and how it may improve students' memory, engagement, and communication abilities [24]. Furthermore, several research papers underlined that Roblox has a large community with millions of users, which might be a huge benefit when it comes to motivation or familiarity with using it in education or for reasons other than entertainment [7]. Researchers predict that it will be the next significant development in education and edutainment [8]. Furthermore, Roblox Studios is a multi-platform application that can be used on any device, and educators have many options for personalization [22]. The LUA coding language makes it simple to construct and code any 3D virtual world for beginner users [10]. While some people are concerned about Metaverse's privacy, Roblox adheres to strict protocols that ensure the safety of all users [14].

4.1 Benefits and opportunities

In the past, the utilization of video games was often viewed as juvenile and lacking in maturity. However, as noted by Barr (2017), game-based learning interventions have the potential to foster graduate-level skills among students

in higher education. According to Barr, this sort of research indicated that playing commercial video games can improve communication skills, flexibility, and resourcefulness in adult learners. He also speculated that video games may play a role in higher education. His research also revealed that graduate abilities might be enhanced in a reasonably short period of time. His study assessed the impact of playing commercial video games on the acquisition of desirable skills in higher education [11]. Arts and Humanities undergraduates were randomly assigned to either an intervention or control group. Over the course of eight weeks, the groups played specific video games under controlled conditions. The findings confirmed the hypothesis that playing video games can increase self-reported graduate skills because of their significant impact size and statistical significance. The findings showed that game-based learning interventions might play a role in higher education [11].

Roblox is an online game that is far more popular than Second Life. It has more than millions of users, the majority of whom are young and devoted, unlike most people who tried Second Life [13]. The Roblox Company has created an educational portal for instructors to utilize, complete with ready-to-use lesson plans, tutorials, and exercises on coding and creativity. Roblox is a game that allows youngsters to construct, create, and express their creativity. It is also an educational tool, providing free software and curriculum to teach children of all ages (Science, Technology, Engineering, Art, and Mathematics). Students may create 3-D worlds, compose games, and publish work online without the need for a subscription or license [14]. This also allows students to learn digital citizenship, scripting, and other modules that can be applied to other coding platforms [15].

One of the primary benefits of utilizing Roblox is that it is a multi-platform tool. It can be played on personal computers, tablets, smartphones, and video game consoles, making it accessible to everyone. This allows students to easily access their information from any device, at any time. In addition, it is free and allows users to develop or play 3D games as well as share them with the community online. Its library includes a wide range of genres such as adventure, shooter, and scary. It also has a paid section where you can get extras, and anyone may make money if their creations become popular [16]. Roblox aimed to design games that are intended for children and families and ensure the safety of young children. It has features such as reporting systems, chat filters, and customizable parental controls to keep each player safe. It is recognized as part of the Family Online Safety Institute (FOSI) and the Children's Online Privacy Protection Act [14].

4.2 Challenges and shortcomings

A common barrier that arises from literature is the required familiarity before Roblox can be introduced as an effective learning tool in the classroom. Because technical challenges may develop due to unfamiliarity, a comprehensive study on how to use it successfully in the classroom must be completed. More materials are needed to help instructors and students comprehend its mechanics. An explanation of how to play Roblox from a user's perspective, for example, necessitates a step-by-step approach such as demonstrating how to establish an account, personalize an avatar, pick games to play, and upgrade the items [9]. Also, when importing a 3D file, Roblox Studio has a polygon restriction of 10,000. It can be difficult to work with sculpted 3D objects, especially those scanned using photogrammetry techniques. As a result, creators will need to re-topologise the mesh through a difficult procedure to

optimize the number of polygons on each mesh. There is, however, a quick option utilizing the Zbrush application [9]. It has a tool called Dynamesh, which will automatically minimize the number of polygons while retaining as much mesh details as possible [16].

Roblox is a massively multiplayer online role-playing game (MMORPG). Thus, some researchers are concerned about the demand for steady, powerful internet connection and suggest that it may be difficult for less privileged students to access the information or enjoy the full experience. Also, some Roblox games demand purchases with real money to utilize Robux; Robux is the currency used in the games to buy upgrades, pay for private servers, purchase equipment, and access extra features. Some young players cannot afford Robux, which might affect educational equality [9].

5 ANALYSIS

This section presents a comprehensive examination of the themes derived from the interviews. In particular, we discuss how the TAM model has been applied to evaluate participants' perceptions of the perceived ease of use and usefulness of Roblox for educational purposes. Several stages have been used to analyze the data from the semi-structured interviews with the ten participants from the American University of Bahrain. The interview questions were directly derived from the TAM model to predict the possibility of using Roblox as an educational tool in higher education. Figure 3 shows all the details about the process with some examples for one of the participants.

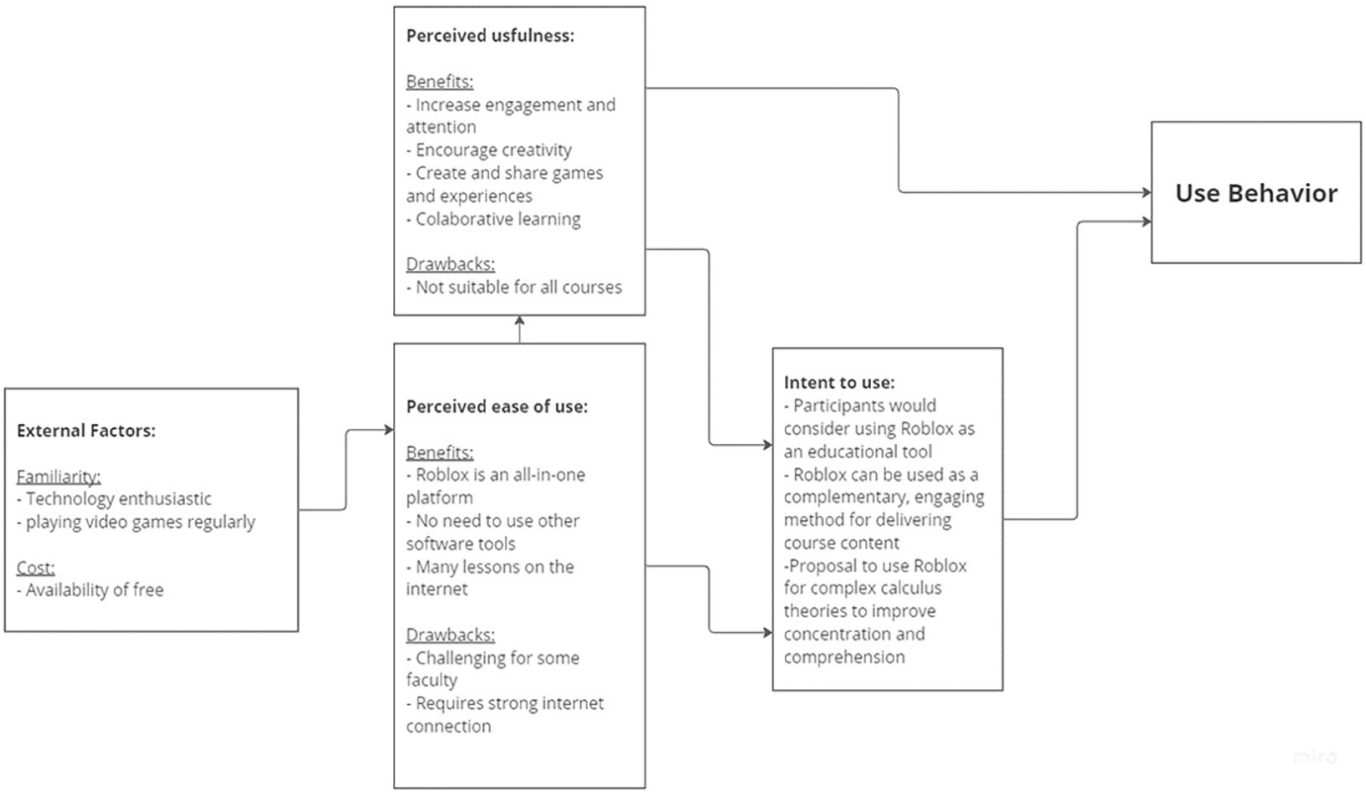

Fig. 3. TAM model diagram

5.1 Perceived ease of use

The following are the stages that have been used to derive data based on TAM:

1. Transcription and Data Preparation: There were a total of ten participants in the study, and each one of them was referred to in the paper as "Participant" followed by a number denoting the participant's order among the ten participants to maintain anonymity (Ex. Participant 1). The audio was recorded for all the semi-structured interviews and converted into text using NVivo (see Figure 4). Using the latest automation technology, NVivo Transcription provides verbatim transcription with high accuracy.
2. Coding and Categorization: The interview transcripts were carefully read while highlighting and taking notes on responses related to Roblox integration in higher education.
3. Assigning Codes and Categories: Following the TAM model, four primary themes were extracted to which codes were assigned (perceived ease of use, perceived usefulness, external variables, and intent to use) (See Table 1 as an example). To prevent forcing the units to fit with the TAM framework, we used a no-code option for responses that did not fit.
4. After coding all the interviews, the patterns within each theme's responses were examined. Within the provided data, common trends or divergent opinions could be identified. Based on the observed patterns, conclusions were drawn to develop a comprehensive understanding of the participants' experiences and to predict the potential integration of Roblox in higher education.

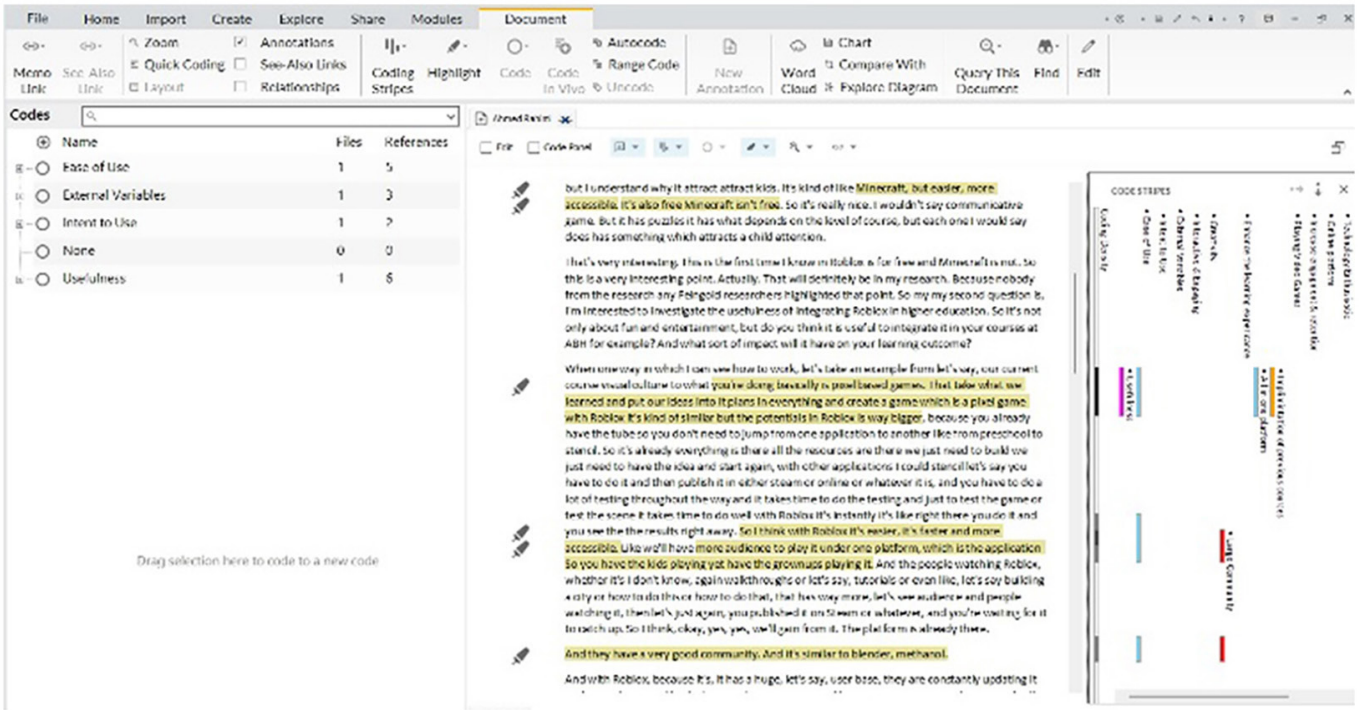

Fig. 4. Screenshot from NVivo for one of the participants

By following these steps, the TAM model has been used to understand and predict the possible adoption of Roblox in higher education.

Table 1. An example of coding one of the participants

Codes Assigned to Themes	Highlights from the Interview
Ease of Use	
All in one platform	"you don't need to jump from one application to another"
Accessible	"It's kind of like Minecraft, but easier, more accessible"
Large Community	"And they have a very good community. And it's similar to Blender"
External Variables	
Cost	"It is also free Minecraft isn't free"
Playing Video Games	"If a student is already a gamer that might encourage him to use it, or to adapt it much quicker than other students"
Intent to Use	
Popular	"More audience to play it under one platform, which is the application, so you have the kids playing yet have the grownups playing it, which might encourage students to use it"
Enhance the learning experience	"I would say that the current generation, the creative generation, I would say, our classes at our college would go with the Roblox option. They rather have something interactive, engaging than something static, something which doesn't move something ordinary"
Usefulness	
Uniqueness	"I think we would get bored reading slides and we are trying to put as much information in the slides while with Roblox, we have more freedom to let's say, present them in a unique way"
Engagement & retention	"It will be engaging for me I would learn better, and the information would stay with me even for a longer time other than let's say a PowerPoint"
Online platform	"Many people like online games because that's something which they can play with their friends with their family or relatives or whomever it is"
Chat feature	"what's really nice about Roblox is that you have the chat"

All participants have stated that they are very familiar with technology and especially games. In fact, 100% of the participants stated they play video games at least weekly on platforms such as cellphones, gaming consoles, or laptops. This creates a significant potential for gamification, particularly in higher education.

According to the students, using Roblox as a learning tool will be almost natural and there is no need for an extensive teaching course if they are interested in it. One of the participants stated, "I believe it may be easy for students to use Roblox because nowadays in our generation, already know how to use different types of applications, and even if there are students who never used it before, it is an easy app to learn from" (Participant 7). Many of the participants even mentioned that their much younger relatives introduced them to the platform and taught them how to use it. One of the participants stated that her relative is only 3 years old and she knows how to use it masterfully; "my youngest cousin is three years old. She is a master at Roblox games" (Participant 2).

In addition, one of the participants mentioned that Roblox is an all-in-one platform. This means that one does not have to use any other software to create or publish the end-game product; "With Roblox, it is kind of easy, because you already

have the platform, so you don't need to jump from one application to another, like other gaming engines" (Participant 1). Many participants also said that the significant number of free lessons available on the internet is one of the variables impacting ease of use. It is simple to navigate tutorials and learn to play, create, and code a game in Roblox relatively quickly.

5.2 Perceived usefulness

Roblox is an online game platform mostly used by children [9]. However, the platform's usefulness in higher education is investigated in this research. According to the selected participants, there are several possible advantages of incorporating Roblox into the university curricula, including increasing student engagement and creativity.

Most participants stated that they are bored by their lectures, particularly if the instruction is unidirectional. It is also essential to note that some of the courses they are required to take do not pique their interest, so it will be extremely beneficial to implement inventive methods of teaching and disseminating the course material. As a result, many of them thought that Roblox might be a beneficial tool for increasing engagement and attention; "If we are not doing something exciting in class, we get bored very quickly, so we use our phones or laptops to do something entertaining. So, for example, if you attend a class and something is exciting, you would like to participate in the course. So, for instance, playing Roblox in class might inspire students to show up, and complete their work" (Participant 10).

Another theme that came up is creativity. Creating games in the metaverse will cultivate creativity with many options and scenarios. Users of Roblox may create and share their games and experiences. By incorporating Roblox into higher education, students may be encouraged to use their creativity to create their own educational experiences.

5.3 External variables

There are many external variables that were mentioned in the interviews, including cost, accessibility, and perception of video games. An external element to consider is the perception of video games. While some students may perceive Roblox as a useful teaching tool, others may see video games as a distraction or even harmful to learning; "I think people who would be a little less tech-savvy or not gamers may have a negative experience, but I think that might be a very small percentage" (Participant 9).

Cost is a major external variable influencing technological adaptation. One of the participants mentioned that Roblox is free, and thus it could be installed easily by both educational institutions and students. However, all the necessary infrastructure to support the gamification teaching style must be available, which might be challenging for some institutions.

5.4 Intent to use

Most participants responded that they would use Roblox as an educational tool at the American University of Bahrain, and they believe that all their colleagues would as well; "I would say that the current generation, the creative generation,

would choose the Roblox option for our classes at our college. We would rather have something dynamic and entertaining than something stagnant and traditional" (Participant 1). Some users mentioned that they would love to use Roblox to study coding, game production, and virtual world design.

However, other participants have pointed out that incorporating Roblox into higher education will only enhance the course content rather than replace it; "It would be a good idea to have that option of education but not as a replacement for the traditional way" (Participant 6). It is critical to emphasize that using Roblox as a teaching tool in higher education may only be acceptable for specific courses and may need careful overall planning and supervision. Two participants, for instance, discussed their difficulties concentrating and comprehending complex calculus theories. They have proposed adding Roblox as a complementary, engaging method for delivering the course content.

It is evident from the presented data that most students find Roblox to be a valuable tool for stimulating enthusiasm, enjoyment, and greater engagement. In addition, participants suggested that Roblox can enhance the overall quality of the learning outcome, leading to improved student performance.

Additionally, it is also evident from the research that the platform is highly user-friendly, as the selected sample has clearly stated that they are already habituated to technology and video games. According to the participants, Roblox is an all-in-one platform that allows them to create, publish, and enjoy games without switching between multiple platforms. It is also compatible with any device, including mobile phones, tablets, laptops, and desktop computers.

However, there are concerns regarding violations of privacy and language. Consequently, some students recommended that Roblox adds a separate registration for educational purposes. This will provide a safe environment for young adults to learn and enable educators and students to be more engaged with the content by adding interesting educational features to the platform.

Based on the TAM model, incorporating Roblox to enhance the learning experience could have positive implications. This study suggests that students may utilize it for an engaging and enjoyable learning experience and further research can explore the possibilities for Roblox in higher education.

6 CONCLUSION AND RECOMMENDATIONS

This research paper revealed important implications for incorporating Roblox as an instructional tool in higher education. It provided insights into the factors influencing students' willingness to use Roblox for educational purposes by employing the Technology Acceptance Model (TAM) to predict user acceptance. The findings can assist higher education institutions and educators in deciding whether to integrate Roblox into their curriculum and how to do so most effectively.

This study has temporal limitations, as well as the fact that it relies on secondary data. One of the primary limitations of this study is the possibility of selection bias, as the sample may be representative of only some college students who were experienced Roblox users. In addition, the study did not consider the perspectives of educators or administrators, whose concerns and priorities may differ from those of students. A further limitation is the possibility of social desirability bias, as students may have provided responses they believed were expected, rather than their genuine opinions.

Despite these limitations, a review of literature targeting Roblox in education has revealed a range of conclusions, benefits, challenges, and finally gaps that can all be

associated with its potential implementation into higher education. Even with the challenges that educators face in adopting such a technology, numerous positive possibilities could be explored further to enhance higher education learning methods.

Roblox has a huge potential for use as a teaching metaverse platform. Not only is this social game popular, but it also allows users to engage with other gamers online creating collaborative playful learning experiences. In addition, Roblox enables instructors to create compelling learning content without having to deal with the complexity of programming required to create a game.

Even though Roblox promotes its service as safe, both parents and teachers must continue to supervise their students' activity. Teachers who use this game for educational purposes should have access to more than just the Roblox back end. They must be given special access to games that are considered educational. Roblox is faced with the task of identifying a plethora of games that are deemed safe for classroom use. It should be noted that this does not grant Roblox authorization to gather student information, but it does allow an adult to be registered as a teacher and have unique access.

This study offers numerous opportunities for future research. One direction is to investigate the efficacy of Roblox as an educational tool in specific subjects and compare it to the effectiveness of other educational technologies. An additional goal is to examine the perspectives of educators and administrators on integrating Roblox into higher education and identify institutional factors that may facilitate or inhibit its adoption. In addition, future research could examine the impact of training and support programs on college students' adoption and use of Roblox. As Roblox continues to evolve and expand, it will be essential to stay apprised of new features and functionalities and assess their pedagogical potential.

Prospective investigations should concentrate on an in-depth qualitative examination of the utilization of Roblox for educational purposes. The scientific literature currently offers scarce evidence regarding the efficacy of Roblox in teaching and learning, as underscored by Meier et al. (2020). Furthermore, there exists a dearth of empirical research on Roblox's potential application in higher education. Notably, no scholar seems to have yet employed any learning theories, such as TAM (Technology Acceptance Model), to prognosticate the feasibility of integrating such technology into education in the future.

7 ACKNOWLEDGMENT

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