

Exploring Saudi Arabian Traditions Through Roblox Puzzles For Children

Alaa Aljurais¹² , Erik Champion¹³⁴ 

¹ University of South Australia, Australia, ² Al Imam Mohammad Ibn Saud Islamic University, Saudi Arabia, ³ University of Western Australia, Australia, ⁴ Curtin University, Australia.

Abstract

The video game sector in Saudi Arabia is experiencing significant expansion due to technological development, along with governmental strategies such as Vision 2030 [AKM23]. The expansion of the gaming industry in Saudi Arabia is currently far more advanced than the range and accessibility of Saudi cultural heritage on digital platforms. Museums, along with documentaries, fail to match the contemporary audience's expectations because they don't provide interactive capabilities, which are preferred by modern listeners, especially younger generations. Roblox is rated as the second most popular game among Saudi children, according to Albaqami's [Alb22] report, making it an ideal platform for offering cultural heritage content via an interactive digital system. This study explores how Roblox can be used to design culturally informed educational games that promote awareness of Saudi Arabia's intangible cultural heritage (ICH).

By assessing existing heritage games and theoretical frameworks, a game design prototype with an emphasis on interactive storytelling, exploration, and collaborative gameplay was developed. For children between the ages of 8 and 10, the prototype incorporates traditional elements such as clothing, folklore, and customs. In addition, the prototype will be tested by 30 participants, including both children and their parents, at the project stage. Through exploration of game environments as well as interactive challenges with roleplaying opportunities, active participation in the game model is enabled. Thus, the research will analyse how educational games in Roblox could preserve Saudi historical heritage. Also, design components affect cultural education through player assessments of Saudi tradition understanding, and their knowledge acquisition, together with cultural material contacts. Then, this research develops operational guidelines that help Saudi Arabia include cultural heritage content in its gaming domain for children's cultural heritage connection.

CCS concepts

• Human-centered computing → Collaborative and social computing design and evaluation methods; Applied computing → Arts and humanities → Cultural heritage; Software and its engineering → Interactive games;

1. Introduction

The need to protect cultural identity has become essential in our globalized digital era because younger generations spend so much of their free time in digital environments. Saudi Arabia's diverse intangible cultural heritage, passed from generation to generation, maintains a key position in developing national identity and social unity alongside maintaining intergenerational ties [Als24]. Despite the value of traditional cultural education, such as museums, books, and documentaries, modern learners are increasingly demanding interactivity and immersion.

Furthermore, initiatives such as Vision 2030 emphasize the importance of cultural preservation and education

under the broader vision of national transformation. A key objective of this initiative was the development and documentation of intangible cultural heritage. 13 Saudi elements are already listed on UNESCO's list of intangible cultural heritage [SCE16]. The Ministry of Culture stepped forward to serve as the leading organization promoting cultural accessibility and cultural heritage innovation development [MoC-n.d.]. Additionally, there is a need to develop modern interactive educational methods for cultural learning because the younger generation continues to deepen its digital connections. The incorporation of elements from ICH into video gaming presents a valuable method to reach today's young people and support national cultural initiatives.

Therefore, video games present an effective solution for achieving this goal. The gaming industry of Saudi Arabia continues expanding because of expanding smart device availability alongside faster internet access and its young population [AKM23, AMB21]. Consequently, this presents a unique opportunity to integrate digital interaction with an enhanced understanding of culture and to distribute it internationally in the future. In spite of the fact that Western and English-language video games control the majority of the current gaming market, they do not address local cultural values [ESP19, CRGM23].

The main objective of this study involves the development, followed by the evaluation of an educational video game prototype that has been tailor-made for Saudi children between 8 and 10 years old. The game exists on Roblox and includes Saudi ICH components, which include traditional styles of dress together with folklore elements and customs. The game works through a combination of storytelling with exploration alongside role-playing, which enhances user engagement according to Vygotsky's social constructivist approach through collaborative tasks and scaffolding elements [Gar07, Mil10].

Consequently, this study aims to answer the following question: What impact can a video game have on raising awareness of Saudi Arabia's intangible cultural heritage among future generations?

To contribute to academic discussions on digital heritage preservation, the study provides practical guidelines for using video games to support cultural education. As a result of this initiative, it is hoped that Saudi children will develop a stronger sense of cultural identity and belonging by utilizing tools that are engaging, interactive, and relevant to their digital lifestyles.

2. Background and Motivation

Digital games are known as entertaining and are educative. They enhance an excellent method of exchanging stories, attracting people to history, cultivating an understanding of diverse cultures. However, not all the scientists like such a solution because there is concern that children are being excluded of traditional games and practices because of the hours they spend with digital environments. Gurel and Cetin [G CH19] suggest that exposure to technology at a young age may develop a feeling of being disconnected with cultural roots. Nevertheless, games with culture in mind can assist children to associate themselves with their cultural heritage in a personally and interesting manner.

Although the educational potential of video games has become increasingly appreciated, it can be still seen that the gaps in the research about the benefits of video games to help Saudi children learn more about their own

intangible cultural heritage (ICH) still exist. AlKhamees [AlK23] points out that it is not enough to refer to the so-called Arab identity and requires paying more attention to Saudi-specific traditions. Moreover, future research questions need to be answered as to what aspects of game design should be used to ensure cultural learning such as storytelling, visual presentation, or reward systems. Cultural relevance and accessibility additionally matter quite frequently, including in the digital era where children are interacting with interactive platforms as an essential component of their daily learning experience.

The present case study is an attempt to solve these problems, by considering how to introduce Saudi children to their heritage using the cases of the Roblox platform. Roblox ranks as one of the most preferred games amongst Saudi children [Alb22] as shown in the Figure 1 of the research and being multi-device, compatible opens up a perfect opportunity in terms of utilizing them in education [Alh23]. Where projects like Assassin Creed and Valiant Hearts have shown what interactive narratives may be capable of in terms of communicating diverse cultural and historical information [CCC23, Bla15, OBr21], our projects are not intended to be of the same scale of production. Actually, it is upon their design strategies that it will depend on to come up with a culturally customized and friendly to a child setting.

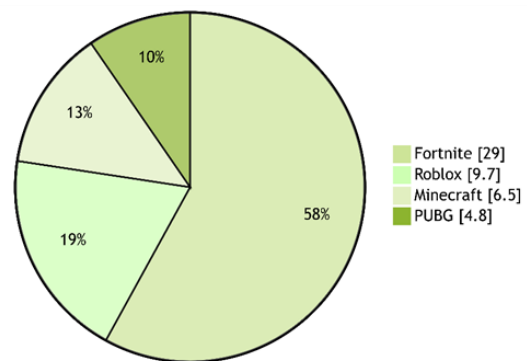


Figure 1: The most popular online games among children in Saudi Arabia [Alb22, p. 251]

The Roblox platform also has in-built safety measures like parental control, chat filter and it is in accordance with the Children Online Privacy Protection Act (COPPA). It is on the base of these strengths that this research project will: establish a significant digital experience that enables the Saudi children to identify with, discover, and appreciate their cultural traditions in the fast-paced digital environment.

3. Game Design Approach

The main idea of the project was to create this virtual environment game with specific attention toward

including traditional Saudi cultural spaces that integrate simulated Majlis areas for interactive Saudi hospitality lessons. The game provides players with support for immersion through both sounds and visual cues, which direct navigation between zones as well as activities. The heritage-inspired game map layout displays traditional place organization, which shows both communal areas alongside traditional buildings, along with designated activity locations. The design presents a realistic environment that promotes genuine exploration across a virtual reimaged Saudi landscape.

When it begins, children select an avatar and dress him/her in national Saudi costumes of such areas as Najd, Hijaz, or Asir. It is not only a matter of appearance, it makes them more connected with their cultural background starting at an early age. The attire they wear remains with them as they navigate the game, and it is one of the ways in which they will complete the various task of various cultures.

For example, during one of the activities, players find their ways in a digital Majlis searching where they can find typical items such as a dallah (coffee pot), incense burner, and cushions. In another activity, they will paint a wall by applying Al-Qatt Al-Asiree designs by selecting patterns and colors as Figure 2. There is also their folklore quiz when they dance the steps of the Ardah dance using sound and visuals as an aid.



Figure 2. A task within the game requiring players to recreate Al-Qatt Al-Asiri patterns.

These minor tasks are supposed to be some fun yet teach kids about Saudi traditions interactively. It is like a personal experience to them the avatar that they select is their cultural experience through the game. The design philosophy targets an entertaining educational encounter that lets children engage directly with Saudi cultural values while absorbing them through their digital experiences.

4. Evaluation Design

This study will employ a mixed-methods research design to assess the suggested educational game's usability as well as its functional aspects. Subjects from the age range of 8 to 10 will be invited from a child development centre through a collaboration with the Saudi Ministry of

Culture. Potential participants must fulfil multiple qualifications, which include previous use of Roblox, showing interest in their Saudi cultural identity, speaking Arabic, and feeling at ease in digital interactive spaces.

Assessments begin with a pre-test about Saudi Arabia's intangible cultural heritage before conducting post-tests following the game's conclusion. Children who had played the game were then instructed to fill a short questionnaire which was used to help assess what had been learned as well as how they felt about their experience. The questionnaire was composed of 11 questions: 8 were multiple-choice with 5-point scale and 3 were opened so that children could express their ideas.

The questions were also concentrated on how the children believed they learned cultural tradition to play it, and whether the children were advantageous to know individual Saudi customs, such as Alardah Alnajdiyah, Al-Qatt Al-Asiri, and the Majlis. One of them was a question whether they learned something about old traditional games and others were whether the game made them more interest to know about Saudi culture or whether they would want to play such games in future.

They also inquired as to whether children had enjoyed the game and whether they would suggest a friend to play the game and what were their favourite parts of the game. Open-ended questions gave them a possibility to describe what they would like to know more about (stories, food or customs) and the ways the game can be enhanced.

This combination of formative and free questions gave clear as well as subjective answers that enabled the researchers to make conclusions on the cultural and educative value of the game. The questions were the modified variants of the previous validated examinations (Kara [Kar24], Zhang [Zha13]), yet they became simpler regarding younger children and cultural and digital awareness.

Additionally, a sample of 30 semi-structured parent interviews (drawn from the participant children) will improve data quality. The project will utilize open-ended questions in the interviews, based on Mortara et al. [MCFD14] (which investigated parent perspectives about their children's participation, educational achievements, and cultural awareness). This qualitative section will provide the project with detailed information about how game content interacts with students and will inform recommendations for how to improve it for future versions.

The study will use collected data from surveys and interviews to enhance the instructional effectiveness of the game after incorporating the obtained recommendations. A professional evaluation document will be delivered to the Ministry of Culture for supporting wider adoption and

distribution. The proposed game development pursues goals from Saudi Arabia's Vision 2030 that stresses cultural protection together with gaming and entertainment sector advancements [SCE16, AKM23].

5. Expected Results:

Regarding the cultural component and interactive implementation of the game, one should expect that the involved children will demonstrate an inducible augment in the levels of cultural knowledge and awareness of the Saudi traditions and customs. Comparisons made before and after the test ought to show a greater appreciation of some of the main components of intangible heritage like Majlis traditions, Al-Qatt art, and traditional clothing. Also, the qualitative results referring to the interviews with parents should verify better child involvement and favourable cultural learning perceptions with the help of play.

6. Projected Contributions

This research project will deliver practical and theoretical results that serve as outcomes. Practical findings from this study will produce an educational video game prototype featuring collaborative elements and scaffolding techniques that promote learning about traditional heritage in Saudi Arabia. Pre- and post-test assessments indicate the designed game will help children develop measurable improvements in their cultural knowledge retention, along with improved cognitive abilities.

The lead researcher seeks to determine which elements, such as interactive storytelling, real-time feedback, and collaborative tasks, best promote student participation and educational achievement in the designed game prototype.

The main output establishes the first cultural Saudi game in Roblox to link Saudi children with local cultural traditions. Additionally, it develops a video game that accurately portrays Saudi intangible cultural heritage by allowing meaningful cultural learning and respecting Saudi heritage. The project seeks to create both a set of practical guidelines and best practice documents to guide educators and game designers aiming to develop educational games with embedded social constructivist principles.

Moreover, the study will contribute to Vygotsky's theory of social constructivism by establishing effective methods that implement his concepts of ZPD and scaffolding for digital game-based learning. The related analysis will examine digital environment tools that facilitate cultural learning along with social collaboration practices that enhance cognitive development. The project develops a unified theoretical structure to unite cultural education with game design principles, creating fresh possibilities

for both researchers and practitioners to use digital games as complex cultural concept teaching tools.

The completed game copy will be released on the open platform of Roblox and targeted at being accessible on the mobile, tablet, and desktop platforms. They will promote it with collaboration with child development centers and Saudi culture institutions. It is projected that the game would take off to between 2,000 to 5,000 players in its initial 6 months, basing on exposure and institutional coverage.

In addition to its academic value, the practical gameplay resources will help educators teach Saudi heritage to children by providing interactive, collaborative learning spaces.

7. Conclusion

This continuing research project focuses on understanding how educational video games can serve as instructional resources to teach Saudi Arabian intangible cultural heritage to children. The project tests and builds an educational Roblox game to deliver interactive cultural experiences through themed team activities and storytelling content for students. Reviews and assessments during the initial phase of development will lead to improvements in the game system while delivering important findings about interactive gameplay for cultural education.

The research project will generate useful knowledge that will benefit both educational institutions and video game developers, alongside cultural heritage managers. In line with Saudi Arabia's Vision 2030 goals, we hope this work contributes to the growing interest in using interactive video games to strengthen cultural identity and connect future generations with their heritage.

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