

Sajjad Khademi Zare*, Ahmadreza Varnaseri and Niloufar Bayati

Identifying the Applications of Gamification for Audience Attraction in Public Libraries

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Abstract: Gamification has emerged as an engaging approach to motivate participation and enhance experiences in diverse contexts. This study aimed to identify potential applications of gamification for attracting audiences to public libraries. Data was collected through semi-structured interviews with gamification experts, using purposive and snowball sampling, with thematic analysis revealing 16 main themes and 56 sub-themes. Our results show the potential of gamification to increase reading rates, help organize interesting events/challenges, and improve interactivity, the book lending process, library appeals, program awareness, user experience, educational activities, brand loyalty, participatory/volunteer activities, patron guidance, book searching, resource returns, marketing, and scientific/economic outputs in public libraries. This study highlights the fundamental and influential role of gamification in advancing public libraries and improving services in libraries. A dedicated gamification platform and system could enable libraries to engage librarian visitors, with further research needed to continue building knowledge in this emerging area.

Keywords: gamification; public libraries; Iran; game design; library services

1 Introduction and Problem Statement

The emergence of the digital era has significantly transformed people's lives (Zeng, Tang, and Wang 2017). Specifically, individuals now allocate substantial amounts of time, financial resources, and energy to gaming activities, which has sparked the interest of researchers in the incorporation of game elements, a concept known as “gamification,” into non-gaming contexts (Zeng, Tang, and Wang 2017). While research on the effectiveness of gamification has a well-established history, recent empirical attention has been directed towards understanding the motivational mechanisms that underlie its success (Mekler et al. 2017).

In the history of marketing, numerous applications of gamification have been observed (Jamshidi and Yavari 2013). Since the inception of marketing tools such as sales and advertising, marketers have consistently sought methods to actively engage customers and reap ongoing benefits from their repeat purchases. With the rapid growth of the internet in the 1990s and the advent of online marketing, gamification underwent a significant transformation (Jamshidi and Yavari 2013). Online internet tools offered marketers powerful means of communication, altering the way they interacted with customers. Furthermore, the evolution of computer games and animations, alongside increasing market acceptance, created fresh opportunities for scientific game design. The term “gamification” was initially coined by Nick Pelling in 2002, but it didn't gain global attention until the latter half of the 2010s (Jamshidi and Yavari 2013). In 2005, Bunchball introduced the first gamification platform called Badgeville, primarily focusing on marketing objectives, however, the adoption of gamification solutions by organizations has since expanded into various models and domains (Deterding et al. 2011).

Gamification leverages the induction of a sense of empowerment and capability in users to attract them and foster increased commitment in interacting and engaging with customers (Hsu and Chen 2018; Sarangi and Shah 2015). This is achieved through the use of elements such as points, rewards, cash incentives, and discounts (Burke 2012), positive feedback, and loyalty reinforcement (Marlow et al. 2016), enhanced financial gamification engagement (Rodrigues, Oliveira, and Costa 2016), and increased productivity (Hamari

Correction note: Correction added after online publication June 17, 2024: Mistakenly this article was already published ahead of print with a wrong author line that read “Ahmadreza Varnaseri, Sajjad KhademiZare* and Niloufar Bayati”. Also, the spelling of the corresponding author's name was corrected from “Sajjad KhademiZare” to “Sajjad Khademi Zare”.

***Corresponding author: Sajjad Khademi Zare**, University of Tehran, Tehran, Iran, E-mail: sajjadkhademizare@gmail.com

Ahmadreza Varnaseri, Information and Knowledge, Faculty of Management, University of Tehran, Tehran, Iran, E-mail: ahmadrezavarnaseri@gmail.com. <https://orcid.org/0000-0001-7222-7165>

Niloufar Bayati, NC State University, Raleigh, USA, E-mail: nilaabayati@gmail.com

2015). These practices have led modern organizations to place a strong emphasis on positive conversations and interactions with users. They utilize gamification to enhance consumer loyalty, increase the appeal of activities, and improve service and communication performance (Leclercq, Poncin, and Hammedi 2017).

Upon examining public libraries as valuable cultural, scientific, and social institutions, it is apparent that they coexist with media and information service providers such as social networks, the web, and television (Brühlmann, Mekler, and Opwis 2013). This highlights the importance of libraries adopting innovative strategies and approaches to remain competitive and attractive in this digital world.

One such strategy is the implementation of gamification within libraries or organizations. Given that the primary objective of gamification efforts is to enhance enjoyment and satisfaction in performing a task or activity while achieving high productivity for both users and staff (Brühlmann, Mekler, and Opwis 2013), focusing on innovative gamification technologies can improve the competitive edge and appeal of libraries. This is essential for the quantitative and qualitative development of public libraries.

Implementing gamification in libraries has proven to yield positive outcomes, including increased acceptance of modern library functions and digital integration (Sutton and Womack 2006; Womack, Smith, and Lock 2015). According to Deterding (2011), adopting gamification in organizational processes, including libraries, leads to enhanced participation, improved efficiency, and elevated loyalty. This fosters enjoyment and satisfaction among users while reinforcing the library's relevance to the digital landscape.

Despite having rich resources, tranquil environments, knowledgeable librarians, educational and cultural content, and up-to-date facilities, public libraries in Tehran province require adequate awareness of resources offered (Varnaseri and Bayati 2020). The Iranian library system is in line with many IFLA (International Federation of Library Associations and Institutions) standards and criteria, which leads to similarities in the library system and how members utilize it.

Moreover, the incredibly fast-paced world of new communication and social media has created high levels of commonality in taste and behavior in today's society. However, what is particularly noteworthy is the innate and physiological similarity of human beings, which fundamentally does not differ among people around the world. According to research conducted globally by Wut et al. (2021), Rapp et al. (2019), Qin (2021), Nicholson (2013), and Powell (2009), the use of game elements to perform tasks has significant effects on individuals of different ages, with little variation across different regions. From the earliest stages of

life, humans are introduced to and engage with society through play and game-like interactions, making play an integral part of the human experience and a universal aspect of socialization across all cultures. It can be said that play is a necessity and, in a sense, a common language across all cultures worldwide.

While public libraries in Iran align with International Federation of Library Associations and Institutions Standards (IFLA), the country has its own unique and diverse culture that sets it apart from other nations. Iran is home to a rich tapestry of languages and cultures, including Turkish, Kurdish, Lori, Azeri, and Bakhtiari, among others. These distinct linguistic and cultural groups contribute to the vibrant and multifaceted nature of Iranian society, influencing the ways in which public libraries operate and serve their communities. Despite adhering to international library standards, Iranian public libraries must adapt their services and resources to cater to the specific needs and preferences of these diverse populations, ensuring that they remain inclusive, accessible, and relevant to all members of society. It's important to note that while the benefits and implementation of gamification can be applied to libraries worldwide, the specific game elements should be adapted to cater to the unique needs and preferences of the cultures and their target participants. This localization process involves modifying game components to align with the cultural context, values, and interests of the diverse communities. In the case of Persian culture, by tailoring the gamification strategies to resonate with different cultures and languages, libraries can create more engaging, relevant, and meaningful experiences for their users. However, the precise details of how to adapt game elements to meet the particular requirements of Persian culture and its various subcultures are beyond the scope of this research and would require further investigation and collaboration with local experts and community members to develop appropriate guidelines and best practices. For instance, while public libraries in Iran work to promote literacy and access to information, reading engagement and user engagement of libraries remains relatively low across the population. Introducing gamification approaches should focus on making libraries more appealing spaces, particularly for youth demographics and for women who have less access to resources and education, especially in rural areas. By gamifying reading and libraries in developing countries like Iran, libraries enable equitable access to not just material resources, but also enjoyable reading experiences tied to intellectual growth. Moving forward, this study aims to provide an overview of the benefits of gamification in public libraries to draw policymakers' attention to building and implementing gamified experiences for users.

2 Research Questions

Public libraries continually seek to strengthen their presence in communities through initiatives like creating appealing library spaces, expanding collections, and organizing content programs. However, despite these endeavors, libraries face ongoing challenges such as attracting a broader audience, raising awareness among citizens, and maximizing service utilization. In response, it becomes crucial for libraries to explore methods that enhance the appeal and visibility of their offerings, effectively engaging and captivating their intended audience (Varnaseri and Bayati 2020). This study aims to investigate the benefits of implementation of gamification as a promising solution in public libraries and provide insights for policymakers to adopt this strategy for enhancing library services and fostering greater community involvement. Therefore, the research questions guiding this study are as follows:

Q1: What are the potential applications of gamification in public libraries?

Q2: What benefits can gamification offer for engaging audiences in public libraries?

3 Literature Review

Introducing the gamification concept into library spaces is a unique and engaging initiative to achieve desirable outcomes in a strategic plan. Games provide individuals with a safe and pleasant environment to learn and gain experience in new ways (Anderson 1994). Utilizing game elements and implementing gamification has therefore been recommended for attracting individuals to libraries (Buchanan and Elzen 2012; Nicholson 2013). An organization like a library can attract individuals by enhancing motivational aspects across dimensions such as culture, commitment, trust, and creativity (Kurt, Kurt, and Medaille 2010).

Public libraries provide an engaging platform for implementing gamification. Gamification in libraries serves a dual purpose by fulfilling educational and cultural objectives, while incorporating a semi-commercial aspect. Gamification in libraries serves a dual purpose by fulfilling educational and cultural objectives, while also incorporating strategies to market programs and raise awareness of diverse learning resources. Although these activities do not directly generate revenue, as public libraries are non-profit, they contribute to demonstrating the library's impact and value to stakeholders and the community.

Games are structured forms of play encompassing elements like goals, rules, art, environments, narratives, challenges, characters, items, powers, rewards, exploration, and player interactions (Bakker et al. 2018; Deterding et al. 2011). The concept of games is associated with entertainment,

recreation, and leisure (Deterding et al. 2011). Becker (2021) notes games have defining characteristics such as interactivity, rules, objectives, measurable progress/success, and a clear endpoint.

Playing games is a natural and enjoyable learning method for all ages. Games provide a platform to seamlessly acquire skills, as they are recreational activities that are enjoyable and easy to engage with (Bergen and Fromberg 2009). Game thinking and mechanics have, in turn, gained popularity as a means of engaging users and solving problems (Zichermann and Cunningham 2011); just as social layers connect individuals to social elements, the gaming layer transforms gameplay into tangible reality. Rather than confining games to virtual realms, these programs enhance real-world experiences visually. Everyday activities can be imbued with gaming opportunities like earning rewards, providing motivation to accomplish objectives.

Gamification, with its various interpretations and definitions, encompasses different perspectives and approaches. One way to understand gamification is incorporating game elements into non-gaming contexts (Ding, Er, and Orey 2018; Deterding et al. 2011; Schöbel, Janson and Söllner 2020; Zimmerman and McMeekin 2019). Researchers have defined gamification as utilizing game mechanics, features, design, and structure in non-game environments (Attali and Arieli-Attali 2015; Dale 2014; González, Toledo, and Muñoz 2016; Hanus and Fox 2015; Kapp 2013; Koivisto and Hamari 2014; Zichermann and Cunningham 2011).

According to Huotari and Hamari (2011), gamification can be described as a comprehensive process that aims to enhance performance by utilizing game-like experiences, specific elements, encouragement, motivation, and support. It serves as a method to encourage and motivate achieving predetermined goals through game industry application.

Although “game” and “gamification” are often used interchangeably, they have distinct meanings. Unlike games serving various purposes, gamification specifically emphasizes goal-oriented playful interaction and is increasingly used across fields to enhance participation motivation in products and systems (Chapman and Rich 2018). Additionally, while a game is defined within a specific autonomous environment, gamification applies game-like elements to a situation or activity. It is often said gamification constructively creates motivation (Hemmings-Jarrett, Jarrett, and Blake 2018).

Gamification describes a global phenomenon incorporating entertainment alongside serious issues. It can motivate, excite, enhance understanding, foster interaction, and lead to innovation and sustainable progress across industries and domains. In this regard, gamification's benefits as a powerful tool have been widely utilized in diverse fields like education, healthcare, entertainment, government, and non-governmental organizations (Koivisto and Hamari

2019). Gamification can address motivational challenges in numerous areas (Sailer et al. 2017).

3.1 Elements of Gamification

The use of game design elements like points, badges, and leaderboards has become ingrained in society (Rapp et al. 2019). These mechanics, known as gamification elements, promote engagement in activities and evoke competitiveness, enthusiasm, willingness to embrace challenges, and achieve larger goals. They stimulate users to enjoy repetition, collaborate, and establish friendly competition, ultimately enabling them to reach desired objectives (Ding 2019).

3.2 Interaction of Gamification Elements

While the previous section discussed gamification elements, merely providing points, badges, or leaderboards is insufficient (Guo and Goh 2016). A gamified system needs careful design and integration for effectiveness; Werbach, Hunter, and Dixon (2012) provided insights on aligning game elements, noting that gamification, interaction, and design all play a role in constructing an interactive program where various elements combine and interact.

3.3 Applications of Gamification

Gamification has been applied in numerous settings like marketing, advertising, brand loyalty, information literacy, organizational culture, human resources, customer engagement, healthcare, education, software engineering, lifestyle promotion, sustainability, production operations, tourism, military contexts, political participation, and libraries. However, the primary focus of this study is on gamification in libraries.

Dehghanzadeh et al. (2021) examined gamification effectiveness on student engagement in an English course at the University of Tabriz. Results showed the gamified electronic environment was more effective in promoting engagement compared to non-gamified electronic and traditional teaching methods. Findings recommended incorporating gamification in higher education to enhance learning and engagement.

Rodrigues, Oliveira, and Costa (2016) affirm gamification's significance for researchers and business developers based on connections to gaming, users, interaction, utilization, commerce, learning, and related aspects. Similarly, Parastesh (2020) showed gamification elements like rewards and discounts can engage and incentivize superior insurance policyholders.

Elsewhere, De Paula Porto, Ferrari, and Fabbri (2019) examined the relationship between motivation and gamification for improved performance, finding that gamification enhances employee motivation and subsequent performance but that engaging gameplay elements are needed to make it more appealing; De Paula Porto, Ferrari, and Fabbri believe similar ideas on utilizing gamification can benefit other service organizations involved in customer engagement. In a similar study, Soler-Porta et al. (2019) examined interactions between game-based instruction, student well-being, and early school dropout decisions. Results indicated a significant positive correlation; gamification had a positive impact on academic paths, health, and student-school interactions due to improved well-being. Acosta-Medina, Torres-Barreto, and Cárdenas-Parga (2021) found students prefer gamification over traditional learning, especially virtually, as it creates comprehensive environments facilitating knowledge acquisition and enhancing motivation.

3.4 Gamification in Libraries

Research indicates academic libraries began exploring gamification in the 1990s, with more widespread adoption in the late 2000s (Crowe and Sclipa 2020). Elsewhere, Panopoulou-Huovila (2020) investigated gamification's impact in information retrieval training using a control group, with findings revealing the possibilities gamification offers library users by promoting skill development and active learning for an enhanced experience. Gamification can transform perceptions of libraries, improving services and experiences. Through gamification, libraries can positively influence opinions and understanding of offerings, potentially increasing resources, services, and advocacy (Panopoulou-Huovila 2020).

Libraries implementing gamification have reported benefits like reducing anxiety, growing skills, retaining information, and increasing interaction and motivation (Boonekamp et al. 2019; Crowe and Sclipa 2020; Walsh 2014).

Gamified approaches encourage users to share content, information, and opinions, increasing interaction and resource utilization (Carlile 2007). Integrating video games and game-like programs has proven impactful, especially in public libraries (Harris 2008; Kankanhalli et al. 2012). Using games, entertainment, and play in gamification research offers meaningful applications and positive reception by members, enabling further advancements in libraries and education (Danforth 2011). According to Kalogiannakis, Papadakis, and Zourmpakis (2021), gamification benefits work environments. Successful initiatives by global companies like Xerox, L'Oréal, Deloitte, and Google indicate further growth potential (Desai and Nagaraju 2018).

Kalogiannakis, Papadakis, and Zourmpakis (2021)'s comprehensive literature review over eight years provided insights on gamification in science education. It examined approaches like understanding implementation roles, optimizing shared content benefits, and demonstrating research data collection capabilities through assessment tools.

4 Research Method and Material

4.1 Research Methodology

This study employs a qualitative approach to explore the application of gamification in public libraries and inform policymakers of its potential benefits and implementation. Tracy (2019) shared that qualitative research starts with broad, exploratory questions geared toward understanding of the research and research questions. Qualitative methods like interviews, observations, and document analysis allow for an in-depth understanding of perspectives and experiences of both library users and professionals regarding gamification (Hammarberg, Kirkman, and de Lacey 2016). This facilitates a comprehensive examination of various aspects like effectiveness, challenges, and potential benefits. Ultimately, the findings aim to contribute knowledge on gamification applications to inform public library policy and practice.

4.2 Data Collection

Data collection involved semi-structured interviews with gaming/gamification experts, using purposive and snowball sampling (Quinn Patton 2002; Waters 2015). Initial experts were selected based on experience in game design and implementation as described in the table etc., with additional experts introduced through snowball sampling until saturation was reached. The focus was collecting qualitative data on research variables.

4.3 Participants

Experts in gamification were selected based on established criteria, having experience in implementing gamification or being considered expert in gamification by at least working two consecutive years in the gamification industry, to provide perspectives from the field. Data saturation is an essential concept in qualitative research, and its measurement is crucial for evaluating sample sizes. Data saturation occurs when gathering additional data fails to uncover any new themes or information (Guest, Bunce, and Johnson 2006).

We had a total of 13 participants. The initial sample size of seven participants was small, and the researchers recognized the importance of reaching data saturation and subsequently expanded the sample to include a total of 13 respondents. This approach ensured that the study captured a comprehensive range of perspectives and experiences relevant to the research question.

4.4 Data Analysis

Content analysis was used as the evaluation approach for this study. This qualitative method identifies patterns like similarities and contradictions in data to help create a structured approach for data management and a clear, organized final report by summarizing key dataset characteristics (Smith and Firth 2011). Stemler (2000, 2) mentioned that "Content analysis is also useful for examining trends and patterns in documents"; it is a flexible qualitative research tool that identifies, analyzes, and interprets patterns and themes within data to provide rich, complex insights (Braun and Clarke 2006; Creswell and Creswell 2017).

5 Findings and Conclusions

To answer the research questions, a semi-structured interview approach with experts in the field of gamification was implemented. After conducting interviews with participants, the researchers transcribed each interview in order to analyze the collected data. Content analysis method was utilized to examine and analyze the raw content of the interviews.

To analyze the data Braun and Clarke (2006)'s process was implemented. Six step-by-step stages were followed, which are described in detail below:

- Step 1: The researchers immersed themselves in the data by reading and re-reading the interview transcripts multiple times, noting initial ideas.
- Step 2: Generating initial codes: in this step, after reviewing and rereading the transcribed interviews, sentences containing valuable themes were identified and extracted as initial codes.
- Step 3: Searching for themes: in the third step, after the initial coding of the interviews, the categorization of initial thematic codes was performed, resulting in the identification of 46 sub-themes for the main research question.
- Step 4: Reviewing themes: in this step, after reviewing the themes again, the previous results were obtained, resulting in a total of 54 sub-themes and 16 main themes. Subsequently, we gained sufficient understanding of which

themes were the main ones and determined their relationship and relevance to the data, as shown in the table below. Table 1 illustrates the main themes and sub-themes.

Step 5: Defining themes: in this step researchers defined the meaning of each theme and what each theme's meaning is.

Step 6: Writing up: compelling extract examples were chosen to demonstrate the themes, relating the analysis back to

the research questions and literature. Overall, based on the results obtained from the analysis of interviews and review of research studies, various applications of gamification can be identified for attracting audiences to public libraries.

Based on the results obtained from the analysis of interviews and the review of research studies as shown in Table 1,

Table 1: Analysis of interviews and review of research studies.

* Main themes	Sub-themes
1 Holding events and challenges in public libraries	Creating and making competitive and attractive environment Making events and challenges more attractive Making competitions and festivals attractive
2 Promoting reading habits	Helping to create a habit of reading Creating enjoyable reading experiences Motivating for reading Encouraging users to improve their knowledge and awareness Positioning people as readers Promoting group reading
3 Making public library interaction spaces more attractive	Creating interactive spaces for different interests and tastes Facilitating interaction between different organizations Making and forming group activities Encouraging sharing of information and experiences
4 Improving book lending per capita in public libraries	Making the book lending process attractive Motivating for borrowing books Encouraging increasing use of library resources
5 Improving the attractiveness of attending public libraries	Making activities and their processes attractive Making tours attractive for different tastes Encouraging audiences to attend the library Making library achievements useful and valuable Creating unique library experiences
6 Increasing audience awareness of activities and programs in public libraries	Increasing the number of times and duration of visits to the website and information spaces Attractive information and advertising of library activities Increasing the visit rate of public library activities and content in the community
7 Improving user experience in public libraries	Simplifying and making content, resources, and activities attractive Personalizing activities
8 Improving the quantity and quality of educational activities in public libraries	Making participating in courses valuable Helping to provide training content attractively Helping to engage more people with training activities
9 Improving loyalty to the brand of public libraries	Motivating to retain audience Increasing return rate Creating a sense of belonging to the brand
10 Increasing the level of participatory and voluntary activities in library affairs	Increasing users' motivation for participatory activities Making participatory and charitable activities attractive
11 Nurturing audience talents and skills in public libraries	Human resource development Making the process of promoting skills and abilities attractive Stimulating the desire for progress in audiences and users
12 Goal setting and guiding people to help achieve public library goals	Making purposeful activities for users Making guiding audiences towards the goal attractive
13 Searching for books in public libraries	Producing and developing knowledge and content Promoting user innovation
14 Promoting and developing scientific economic products and activities in public libraries	Generating economic income Establishing a system of reward and punishment for on-time return of resources
15 On time return of borrowed resources in public libraries	Improving users' responsible behavior in relation to services
16 Conducting marketing activities in public libraries	Marketing techniques

various applications of gamification in attracting audiences to public libraries can be identified. In the following paragraphs the findings will be represented.

1. Organizing events and challenges in public libraries: by leveraging innovative technologies, public libraries can make library events and challenges more engaging. Public libraries have the opportunity to elevate the engagement level of their events and challenges. Through the implementation of gamification strategies, these libraries can create dynamic and competitive environments that boost the attractiveness of their events, competitions, and festivals. Gamification facilitates the active participation of a diverse population, fostering stronger connections between individuals and public libraries. This approach not only adds excitement and motivation to library activities but also encourages broader community involvement and interaction.

The strategic incorporation of motivational game elements in public libraries can significantly enhance user engagement and participation. By thoughtfully employing gamification techniques such as challenges, competitive and cooperative dynamics, immediate feedback, enticing rewards, interactive experiences, and a sense of achievement, libraries can captivate their patrons' attention and drive them towards desired behaviors and outcomes.

2. Promoting reading habits: gamification in public libraries has the power to revolutionize the reading experience and ignite a passion for learning among individuals. By leveraging the engaging mechanics of games, libraries can create an environment that not only motivates people to embrace reading but also fosters the development of a lasting reading habit. This innovative approach harnesses the potential of game mechanics to encourage users to expand their knowledge, facilitate the process of learning, enhance the joy of reading, form vibrant study communities, promote the pursuit of general knowledge, and elevate the status of well-read individuals within the community.

Through gamification, libraries can stimulate a genuine excitement for reading, creating enthusiasm that has potential to be spread throughout the community. Gamification empowers readers to take control of their own intellectual journey by providing them with a range of tools and incentives. Personalized reading recommendations, progress tracking, and achievement milestones enable individuals to set ambitious goals and monitor their growth over time. The integration of rewards, such as badges, points, and leaderboards, serves as a compelling motivator, encouraging readers to push beyond their comfort zones and strive for excellence.

Public libraries have a unique opportunity to redefine the reading landscape by implementing these game-like activities and crafting immersive, engaging reading environments that stand out from other comparable spaces. By thoughtfully

integrating game elements that encourage sustained reading and promote longer reading sessions, these libraries can create a captivating atmosphere that draws in reading enthusiasts and inspires them to explore new realms of knowledge.

3. Enhancing the interactive spaces in public libraries: gamification holds immense potential for engaging users on an emotional level and offering a wide array of immersive experiences within the library setting. By strategically employing gamification techniques, libraries can tap into the power of intrinsic and extrinsic motivation, driving user participation and fostering a sense of achievement and social recognition. One of the key applications of gamification in this context is the use of incentives, such as badges, which serve as powerful motivators for user engagement. These rewards operate on two distinct levels, stimulating both intrinsic and extrinsic motivation. Intrinsically, badges ignite a deep sense of personal satisfaction and accomplishment within users. As individuals earn these rewards and reach milestones, they experience a profound sense of joy and fulfillment, which fuels their internal drive to continue exploring and learning within the interactive library environment. This intrinsic motivation becomes a self-sustaining force, propelling users to seek out new challenges and expand their knowledge for the sheer pleasure of personal growth and self-improvement.

Gamification holds immense potential for engaging users on an emotional level and offering a wide array of immersive experiences within the library setting. By strategically employing gamification techniques, libraries can tap into the power of intrinsic and extrinsic motivation, driving user participation and fostering a sense of achievement and social recognition. One of the key applications of gamification in this context is the use of incentives, such as badges, which serve as powerful motivators for user engagement. These rewards operate on two distinct levels, stimulating both intrinsic and extrinsic motivation. Intrinsically, badges ignite a deep sense of personal satisfaction and accomplishment within users; as individuals earn these rewards and reach milestones, they experience a profound sense of joy and fulfillment, which fuels their internal drive to continue exploring and learning within the interactive library environment. This intrinsic motivation becomes a self-sustaining force, propelling users to seek out new challenges and expand their knowledge for the sheer pleasure of personal growth and self-improvement.

4. Improving book lending rates in public libraries: one of the unique advantages of public libraries is their abundant informational resources that are freely accessible to users. Implementing gamification strategies, public libraries can enhance the attractiveness of book lending, motivate users to borrow books, and encourage greater utilization of

library resources. Gamification can play a crucial role in making the book borrowing process more attractive, inspiring users to borrow more books, increasing the use of library resources, offering diverse study packages tailored to targeted audiences, highlighting the achievements of individuals with the most book loans, and fostering a desire among users to make greater use of the library's resources.

5. Enhancing the appeal of visiting public libraries: by implementing gamification technologies, public libraries can enhance the attractiveness of their spaces, thus providing more opportunities for individuals to visit and engage with the libraries. Gamifying activities and processes, increasing the appeal of library tours for different age groups, elevating the value of library presence, emphasizing the benefits and value of library achievements, creating game-like experiential environments as cultural information hubs in the modern world, and creating unique library experiences are among the gamification functions for libraries in this regard.

By employing the potential of gamification, public libraries can distinguish themselves as unique and compelling spaces for nurturing hidden talents and skills. The appealing and immersive qualities of a gamified scientific and cultural environment serve to attract and retain users, fostering a culture of lifelong learning and personal growth.

6. Increasing awareness of activities and programs in public libraries: increasing awareness of library activities is a vital aspect of attracting audiences to public libraries. Gamification offers a powerful tool to achieve this objective effectively. Libraries can encourage their patrons to become more involved with the content of the libraries' websites and library applications by introducing a range of interactive and engaging features. These may include the ability to express opinions using emoticons alongside news articles, offering small and attainable rewards for the most insightful or popular comments, utilizing points and rankings to motivate participation in libraries social media, developing simple educational games to showcase products or services, and employing gamified quizzes and surveys to gather valuable feedback from the audience. By implementing these and other creative strategies, libraries can make the community aware of their products, programs, news and other resources, which in turn will attract more users to libraries.

7. Improving user experience in public libraries: improving user experience is one of the key factors in attracting and retaining audiences in any organization, leading to a desire and willingness to connect and return to libraries. By utilizing gamification elements, it is possible to facilitate services and activities, gamify the process, make content and resources more attractive, and enhance user enjoyment in connecting with public libraries, ultimately

improving the user experience. To enhance user experience, gamification techniques such as incorporating game elements into the design of membership card issuance, required documentation, introducing library sections and services, enabling personalization of certain processes and activities, such as reserving favorite seats, providing a roadmap of the process, defining a progress bar for each stage, offering personalized dashboards for each user, and providing necessary tools and resources for information and research needs can be used to facilitate and enhance the appeal.

8. Elevating the quantity and quality of educational activities in public libraries: elevating the quantity and quality of educational activities in public libraries: one of the motivational factors for users to visit public libraries in Tehran is library educational courses and workshops. Gamification provides opportunities to harness the motivational power of games in various areas, including education. By adding game elements to the learning environment, it significantly reduces fatigue that individuals may experience due to online and offline learning environments. Team-building among participants, creating competition among teams, motivating higher scores for each team, and unlocking certain treasures and rewards through answering questions posed during the courses are practical methods of using gamification to elevate the quantity and quality of educational activities in public libraries.

The integration of game-like elements in educational experiences has the potential to transform the learning process, making it more flexible, engaging, and enjoyable for users. By incorporating gamification, libraries can create an environment that not only supports the acquisition of knowledge but also cultivates a true sense of happiness and fulfillment among learners. By harnessing the power of gamification, libraries have the opportunity to reshape the educational landscape, fostering an environment that prioritizes both the acquisition of knowledge and the overall well-being of learners. This innovative approach to learning promises to enhance flexibility, engagement, and enjoyment, ultimately leading to a more successful and fulfilling educational experience for all.

9. Enhancing brand loyalty to public libraries: gamification plays a significant role in strengthening the emotional connection and perception of the audience towards the library brand. Public libraries can leverage gamification features to achieve this goal effectively. By incorporating gamified elements, libraries can create motivation for ongoing engagement in activities, fostering a sense of enthusiasm and excitement among the audience. This, in turn, increases the rate of returning visitors, as individuals are encouraged to continue their involvement with the library. Furthermore, gamification can cultivate a sense of

belonging and attachment to the library brand, promoting a positive and constructive perception of public libraries in the minds of the public. By utilizing gamification strategically, public libraries can foster a strong emotional connection with their audience, enhance brand loyalty, and establish a favorable reputation within the community. Gamified libraries have the power to capture people's attention and make them more engaged with library services. By incorporating game-like elements, these libraries become more memorable and influential, encouraging users to form stronger and more enduring relationships with them. For instance, by using simple feedback mechanisms such as happy or sad face icons, libraries can gather valuable insights into user satisfaction while making the process more engaging and enjoyable. This approach encourages active participation and fosters a sense of investment in the library's success.

Additionally, introducing elements like fortune wheels or offering special prizes and discounts to active users can add excitement and anticipation to the libraries. These incentives not only encourage exploration of new resources and services but also cultivate a sense of achievement and pride among users.

10. Increasing the level of participatory and volunteer activities in public libraries: implementing gamification in volunteer activities allows public libraries in Tehran to boost volunteering rate, nurture a sense of community and belonging in participatory initiatives, and facilitate active engagement. As a result, this approach can effectively capture the interest of intellectually inclined individuals and attract them to public libraries.

One effective gamification strategy in this regard is the use of progress bars to track the completion of specific volunteer activities. For instance, when organizing a book donation drive, the library can set a target number of books to be collected and display a progress bar to visualize the community's collective efforts. This element introduces a sense of purpose and motivation, as individuals can clearly see the impact of their contributions and feel inspired to help reach the goal more quickly.

11. Cultivating the talents and skills of audiences in public libraries: public libraries hold a longstanding reputation as trusted and dependable institutions, especially for families. By incorporating gamification features, these libraries can further motivate individuals, facilitate skill enhancement, encourage dedicated efforts, make the process of skill improvement more appealing, and ignite a desire for progress among their audience and users. The utilization of gamification features contributes to the exceptional performance of Tehran's public libraries in nurturing potentials and abilities, while simultaneously enhancing the attractiveness of library membership.

Implementing a system of badges or awards that recognize users' achievements and proficiency levels is an effective strategy for promoting skill development and engagement within the gamified library environment. For instance, awarding a "Level One Mastery" badge to users who have demonstrated expertise in courses such as speed reading, storytelling, creative writing, or art not only acknowledges their accomplishments but also grants them access to exclusive benefits, like the opportunity to mentor beginners and having discounts for different educational and entertainment programs. By empowering skilled users to share their knowledge, libraries foster a sense of community and encourage peer-to-peer learning.

Furthermore, introducing missions and goals within the gamified library system provides users with a clear sense of purpose and direction. By setting achievable objectives and milestones, libraries can guide users along a path of personal growth and skill development. Whether it's reading a certain number of books, participating in writing challenges, or exploring new artistic techniques, these missions create a framework for users to challenge themselves and strive for improvement.

12. Guiding individuals towards the goals of public libraries: in pursuit of libraries' mission to promote books and reading, Tehran's public libraries consistently plan and implement various short-term and long-term objectives. By defining a path to guide visitors, facilitating the journey towards the goal, aligning activities to the needs of the audience, and combining these efforts with gamification principles, libraries can enhance the effectiveness of their guidance and encourage audiences to achieve their desired objectives.

Public libraries in Tehran province, similar to other organizations and other libraries around the world, set both short-term and long-term goals, such as reducing operational costs, conserving energy, maintaining a clean library environment, and other objectives. Achieving these goals relies on the cooperation and engagement of the library's audience. Gamification, by incorporating game elements like rewards, can help create an attractive path and provide the necessary motivation for users to contribute towards these goals.

13. Library catalog search in public libraries: in public libraries, the act of searching for books holds great significance. Throughout history, books have remained a crucial and prominent means of meeting people's informational needs, however, the advent of new technologies has given rise to virtual alternatives that now compete with this reliable and enduring source. To counter this, Tehran's public libraries can seize the opportunity to create platforms that not only attract a larger audience of book enthusiasts and

readers but also engage them effectively. This can be accomplished through various strategies, including gamifying the book search process, promoting library-focused information search methods, encouraging individuals to explore library resources to gain reliable information, and fostering a perception of the library as a valuable information consultant and guide. By implementing these approaches, Tehran's public libraries can adapt to the changing landscape and enhance their role in providing information to the community.

Incorporating game elements and gamified challenges into library shelves is a highly effective strategy for engaging customers and sparking their curiosity. By encoding bookshelves and concealing the answers to the codes within the books, libraries can encourage users to actively explore and utilize the resources available on the shelves.

14. Timely return of borrowed items in public libraries: an essential element in fostering trust and encouraging ongoing usage of a service lies in its consistent and organized operation. In the case of Tehran's public libraries, it becomes crucial to establish an efficient cycle for the return and re-lending of borrowed items, as it forms a fundamental aspect of the library's function. To enhance the book lending process, libraries can introduce gamification elements and implement a system of incentives and penalties. By doing so, users can be motivated to return items on time, promoting responsible behavior and timely availability of resources. Ultimately, this approach not only helps build trust among users but also acts as a catalyst in attracting a larger audience to public libraries.

Assigning different ranks to individuals based on their adherence to the standard time for returning borrowed books and how well they maintain them is one way to motivate library users. Each rank would have a different level of access to various resources and the number of books that can be borrowed, which is an example of using game elements to encourage responsible behavior.

Incorporating a ranking system can be a powerful tool for motivating and engaging library users. By assigning ranks based on user behavior and adherence to rules, such as promptly returning books in good condition, libraries can promote responsibility of resources among users.

15. Marketing activities in public libraries: to expand their audience and attract a maximum number of individuals, public libraries need to strengthen their marketing activities. By combining gamification elements in marketing activities, libraries can enhance the effectiveness of these efforts. One of the valuable capacities of public libraries in the field of marketing is having a large community of library members. By using gamification elements, libraries can facilitate networking and motivation among members, implement

network marketing strategies to attract audiences, and optimize the utilization of this potential.

To bring this initiative to life, it is essential to develop a central system which could take the form of either a dedicated application or website. This platform will serve as a hub for interactions and communications among the library's audience and users, providing a digital space where users and potential users can connect, share experiences, and actively engage with one another. By fostering a sense of community and collaboration, this central system will play a crucial role in enhancing the overall library experience.

For example, one of the key features of this platform will be the ability for users to send invitation links to their peers and friends, encouraging them to join and participate in the library's activities and initiatives in which users are actively marketing the library services. By harnessing the power of social connections and "word-of-mouth marketing," libraries can expand their reach and attract new users who may not have been aware of the library's offerings otherwise. This viral growth strategy will be instrumental in building a thriving and engaged community around the library's services.

16. Production and development of scientific and economic activities in public libraries: public libraries have significant potential to contribute to the production and development of scientific and economic achievements by organizing workshops and courses in various fields and connecting with educated individuals. By purposefully applying gamification elements, these libraries can enhance the attractiveness and engagement of their offerings, harnessing the audience's potential for knowledge production, content creation, and innovation to generate economic income. Tehran's public libraries have significant potential to contribute to the production and development of scientific and economic achievements by organizing workshops and courses in various fields and connecting with educated individuals. By purposefully applying gamification elements, these libraries can enhance the attractiveness and engagement of their offerings, harnessing the audience's potential for knowledge production, content creation, and innovation to generate economic income.

Users of public libraries possess diverse talents and capabilities across different fields all around the world. Gamification, through defining missions, setting goals, creating leagues, offering prizes, granting positions, and providing incentives and rewards, can create a motivating environment that enables the actualization of these talents and capabilities, driving knowledge production and economic development for the libraries. For instance, attractive competitions and missions with game elements can be designed to encourage the production of scientific articles

related to the libraries' desired topics, stimulating the audience to generate knowledge in these areas.

Furthermore, in the economic sphere, by monetizing gamified educational courses and establishing ownership rights for the knowledge and innovations created within the libraries' interactive system, steps can be taken to generate economic value and income for the public libraries.

In sum, to achieve these goals and benefits of gamification in libraries, the necessary infrastructure for implementing gamification in public libraries requires the design of a platform and the creation of a central system. This can be achieved by utilizing content analysis methods to gather expert opinions on the required framework for implementing gamification applications in public libraries. Designing a platform and developing a dedicated system such as a customized application or software are essential for this purpose.

The researchers' knowledge and experience in the field of public libraries, gained through their childhood membership and nine years of professional and formal involvement in public libraries, enabled them to fully understand the gaps, needs, and necessary requirements for attracting patrons, successful communication, interactions, engagement, and the enhancement of library services and functions.

This research emphasized the importance of implementing gamification and providing a technologically advanced and engaging environment equipped with powerful motivational tools. This transformation aims to turn public libraries into interactive and dynamic gaming-like spaces, serving as active hubs for scientific, cultural, and social activities in the modern world. These libraries can cater to the diverse intellectual, cultural, interactive, and entertainment needs of the new generation and new world.

6 Future Research Recommendations

While some studies such as the current one have explored benefits of gamification in public libraries, further research is still needed to fully understand its applications and effectiveness after implementation. Future research should aim to implement gamification strategies for different library user groups through comparative studies in a controlled lab setting. Researchers should develop a range of gamified library prototypes targeting diverse age segments so the engagement, knowledge retention, and user satisfaction generated by these prototypes can then be compared to non-gamified library systems. Additionally, studies could examine how different game

mechanics, point systems, narratives, and reward structures influence outcomes in libraries.

7 Trustworthiness

According to Lincoln and Guba (1985), trustworthiness includes four subcategories: credibility, transferability, dependability, and confirmability.

Credibility: To ensure credibility, efforts were made to select experts with the maximum and diverse experiences (see Appendix 1). Interviews continued until data saturation was reached, and the best conceptualizations of the subject were chosen. Content validity was achieved by the researchers analyzing the data individually and comparing their codes and themes. The process was repeated until the consensus was reached by the researchers.

Dependability, according to Lincoln and Guba (1985), refers to the reliability of data under similar conditions and over time. To ensure dependability, data collection and interviews were conducted over a reasonable period, and all interviewees were asked similar questions regarding the topic. This helped maintain consistency and reliability in the research process.

To achieve confirmability, the research stages, such as data collection, analysis, and formation of themes, were thoroughly described. This was done to provide readers with the possibility of repeating the research in different or similar settings. Additionally, the process of conducting the research was shared with experts to verify the accuracy of the research methodology.

By considering these aspects, the research aimed to ensure the validity of the results and enhance the trustworthiness of the research findings.

To enhance transferability, various perspectives and experiences of different participants were considered. The research sought the involvement of experts from different companies, particularly those recognized as top and successful companies in the field of gaming and game development over the past decade to present rich and detailed data. Some of these experts had not only domestic experiences but also international experiences in countries such as Sweden, Turkey, Hungary, and other European countries, with European awards to their credit.

By incorporating the insights and experiences of these diverse participants, the research aimed to ensure the transferability of findings and recommendations to other contexts and settings. This approach increased the potential for generalizability and the applicability of the research outcomes beyond the specific studied cases or organizations.

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Ethical Considerations: Prior to commencing the study, participants were informed about the research objectives, methods to be used, potential outcomes, and other relevant information. Respect for the dignity of participants was prioritized throughout the research. Protection of participants' privacy was ensured, and confidentiality measures were implemented. Participants were not financially burdened or required to contribute financially to the research. Their involvement was voluntary and did not involve any compensation as well.

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Appendix

To ensure ethical considerations were met, the researchers used pseudonyms to protect the participants' identities throughout the study. However, to maintain the credibility and trustworthiness of the findings, the researchers included information about the participants' expertise alongside their pseudonyms. This additional context helps to establish the respondents' qualifications and relevance to the study, demonstrating that the sample consists of knowledgeable and experienced individuals in the different fields of the gamification.

Reza	The founder of gaming company in Iran and Hungary
Michael	CEO of game company
Amir	International expert and consultant in game development and gamification
John	Director and founder of game company
Jacob	CEO, one of the most successful game companies in Iran
Sara	Specialist in marketing, branding, and market research in the field of gaming
	Author of 11 books and 35 scientific articles
Sam	CEO of gaming company
Daniel	Director of Company and expert in the field of gaming
Leyla	Head of applied research of games
Behrooz	Product manager in game companies and marketing specialist
Hamed	Expert in the field of gamification and digital business consultant
Majid	Expert in the field of gaming, PhD student in cultural policy
Shahab	PhD in media management and a specialist in gaming

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