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Gamification In E-Library Services

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1. Introduction

Gamification is crucial in this digital era since the world is becoming a global village. As a result, libraries need to adjust to this shift and evolve to survive and continue to thrive. Gamification refers to "the use of a pedagogical system developed within the game design but implemented within a non-game context" (Johnson, Adams, Cummins, & Estrada, 2014). Gamification, as a concept, is defined as the techniques used in non-game settings (Detreding, Dixon, Khaled, & Nacke, 2011). Gamification has gained popularity during the last decade. It has cut across every aspect of human endeavor. Gamification applied to all fields, such as; health, education, commerce, government, industry, and a few. Gamification is highly applicable in the library that houses all the resources used in all fields of human endeavors. E-library is a type of library that can access anytime and anywhere globally; it has no opening or closing time; instead, it works round the clock. It can also be used by multiple users simultaneously around the world. Despite the benefits of e-library, there are still challenges facing the e-library that are causing the users not to access the e-library, such as maintenance problems, lack of awareness of e-library services of the user, copyright issues, e.t.c. Based on the above challenges, there is a need for the adoption of gamification in e-library services.

The purpose of this study is in two phases. The first is to examine the gamified e-library services, and the second is to highlight the benefits of gamifying e-library services.

This study is structured as follows. Section two discusses the related works in detail, and; section three also discusses the adoption of gamification in e-library services. Section 4 describes gamified e-library services, and section 5 highlights the benefits of gamification in e-library services. We conclude and make suggestions for further studies.

2. Related Work

This section gives an overview of libraries and e-library. The remaining section discusses e-library services, the advantages of e-library, and the challenges facing while using the e-library.

A library is an organization that selects, acquires, processes, organizes, stores, and preserves information resources to meet the users' varying needs. The library categorizes as an infrastructure of schools, tertiary institutions, and other non-academic institutions. Libraries and information centers are to meet the various needs of the users, be it in information, education,

recreation, and research. Besides, the library is also known for its unique services rendered to the users, such as current awareness service, indexing and abstracting, translation, literature search, library orientation, library tour, library instruction/ guide, selective dissemination of information services, and the like of it.

Studies have shown over the years that the advent of ICT has brought tremendous change to every facet of life. Libraries have benefitted immensely from technological advancement that has turned the entire world into a global village over time; libraries began to develop and adjust to the rapid development of technology. Digital Library is the result of the influence of technological development in the educational field. Digital library applied to various types of libraries (Perdana & Prasajo, 2019)) Digital library is synonymous with e-library or virtual library. Digital Library stores information in digital form or fulfills information needs from external information sources to distribute to users registered as specific customers and the community in general. An E-library collects information materials accessible via computers and technology devices (Hassanin, 2016). Examples of e-resources are world Wide Web; WIFI; search engines; online indexes; video CDs VSAT based Internet connectivity; online Library catalog; online databases; portals; e-journals, and e-book (Ekere & Nwoha, 2016)

2.1 Various services offered in the e-library

E-library services are services offered and made accessible to the users via computers and other technology devices. E-library services are essential services that involve using an Information System (I.S.) as a performer or interface between the service provider and users (Kudu, Dirar, Idris, & Yusuf, 2020). Studies have shown various services offered in the library, such as online library services, e-reference services, e-SDI, and bibliographic services. (Unegbu & Otuza, 2015). E-library services include online internet search services; e-mail services; online reference services; online cataloging and classification service; customer care services; management of online databases; Subscription services; awareness and workshop services; Audio and video communication services; newsgroups/dialogue databases; electronic document delivery Services; Interoperability services; Technical training in ICT for staff and users; online inter-library services; digitized finding aids such as online indexes and bibliographies and online cataloging and classification service (Ekere & Nwoha, 2016).

Besides, the following are essential services offered in the e-library.

E-Bibliographic compilation: this is a service rendered mainly by both the academic and special libraries. It covers a wide range of topics in meeting the user's research needs, which involves compiling a—bibliographic reading list. The reading lists can be accessed via CD-ROM or online to retrieve information more conveniently and effectively. It could be through multiple searches. entries like author, title, Subject, ISBN, accession number, year of publication. e.t.c (Dahiru & Adamu, 2021).

E-Reference service: is the service that answers user queries ranging from directional questions to fact findings queries. In the traditional library, the user has face-to-face or one-on-one interaction with the reference librarian. But, with the advent of technology, the reference librarian will make the link available to the user, and the users' information needs are met online.

E-Selective dissemination of information (SDI): this service involves getting information to the users and making such information available. It may provide lists of current publications, abstract of research, and current content and e-mail such information to the appropriate quarters. It is a highly personalized service. Selective Dissemination of Information refers to channeling new information materials to a group of users closely connected with them (Ozohue & Yaya, 2016). This service in the e-library equally incorporates the Internet.

E-Current Awareness Service: This is updating the users about the new arrivals in the library. It could be through sending of e-mail messages, telephone conversation and the like of it. It is also a process of disseminating current information published in primary sources such as journals, newspapers, reports. (serials) The essence of this service is to inform the users about the newly acquired resources in the library. For this service to offer effectively, e-library incorporates Internet and web 2.0. Technologies (Dahiru & Adamu, 2021).

Online document Delivery Service: is the process of delivering information resources to the doorstep of the users. In the conventional libraries, it may be the users' workplace or home. But it is a personalized service strictly on request. With a digital library, the information resources are sent directly to the private e-mails of the user. Thereby saves the time of the librarian.

E-Library instruction/E-User Education: This is a course in most institutions of higher learning that the students will be assessed or graded over time. Introducing this as a course imparts the knowledge required to locate a book in the library to the users and lets the student understand the nitty-gritty of research. It is an example of e-learning that incorporates in the e-

library, and this kind of service develops and improves user searching skills on e-databases, OPAC, e.t.c

Web-Based Library Service Web is an essential component of the Internet. The web pages are linked together and reside on a separate computer known as a web server. According to (Kesavan, 2019) a web-based library is a portal to the metadata of a library database, a web OPAC, and detailed information about the library. The library website intends to serve as a portal to the library's services. The website lists all of the library's services provides links to the online library catalog (OPAC), subscribed resources, advanced features such as interactive help, and services such as subject gateways, e-books, e-journal service, and information about the library such as the library's rules and regulations (Dahiru & Adamu, 2021).

2.2 Advantages of e-library

E-library has numerous advantages overprints resources. E-library helps develop plagiarism software into e-learning/course management systems to inculcate good practice among the researchers and the students (Ramakumar & Vinayagamoorthy, 2020). One significant advantage of electronic resources over print resources is that users can access them simultaneously at the same time and different locations any time of the day (Mshelia, Harazeem, & Rakiya, 2019)

Advantages of e-resources over print media identified by Ashikunjjaman (2018) are as follows:

- *Multiple access* - A networked product can provide multiple points of entry round the clock and to numerous simultaneous users,
- *Speed* - An electronic resource is quicker to browse or search to extract information and to cross-search or reference among different publications,
- *Functionality* - E-resources platform permits the user to approach publication content quickly by clicking the mouse and entering into search mode.
- *Content* - E-resources can contain a vast amount of information. Still, more importantly, content can consist of mixed media comprising images, video, audio animation, which could not replicate in print. Despite these advantages, there are problems associated with e-library

2.3. Challenges facing e-library

The essence of having libraries in any organization is to meet the needs of the target users and support the organization's mission and vision statement. Most users do not benefit from the e-library as expected because they are not aware of the available resources; some don't have the confidence to use the e-library because of the lack of technological know-how. According to pontes (2018), most institutional digital repositories are not enough to disseminate knowledge generated within the university. Some scholars also believed that librarians did not know how to increase users' engagement in library websites and their operations (Bigdel, Gholamreza, Alireza, & Reza, 2016). Some of the faculty members in ABUAD are not aware of e-resources that were adequately available and highly beneficial for their research (Olajide & Adedokun, 2018). Some scholars believe that the task of converting print materials to digital format is enormous (Mshelia, Harazeem, & Rakiya, 2019). Apart from the challenges mentioned above, the following problems were also identified.

1. Lack of expertise that will handle the e-resources: Some institutions don't have enough personnel to hold the technical areas of the e-library, and if there are no competent personnel, it can be damaged.
2. Maintenance problem: These e-resources are challenging to maintain after spending much on the facilities that make up the e-library. Some libraries that are not buoyant may not be able to keep the e-resources.
3. Lack of awareness and proper orientation for the users on how to use the resources: Some users are not aware of the availability of the resources. Even those aware of the resources might not have the courage and confidence to use them, which does not have any value.
4. Boredom may set in: Boredom may set in if a singular user uses an e-library, making the users feel discouraged since there is no intrinsic or extrinsic motivation.
5. Lack of relevant databases: Some libraries subscribed to cheap databases that may not be relevant to the users' information needs.

3. Adoption of Gamification in e-library services

Adopting gamification in e-library services is vital due to some challenges facing the e-library services, which has caused users not to use the e-resources. The adoption of gamification techniques in e-library has brought so many advantages to e-library services. Gamification elements, such as points, prizes, leaderboards, badges, rewards, competition, social interaction,

storytelling, and the like, engage and motivate students to bring out the best in them and prepare them for more significant tasks ahead. Gamification is applied to solve engagement problems, focusing on the fun element and sharpening language skills. Studies have shown that game-based learning enhances students' critical thinking and problem-solving skills (Cozine, 2015; Hwang & Chen, 2017; McDonald, 2017). Boyle et al. (2016) explored empirical evidence of computer games' impacts and effects of challenging games in educational settings. They found that games are for knowledge acquisition, skill acquisition, affective and perceptual goals, behavior change, and cognitive and physiological outcomes

Gamification helps achieve mastery goals and performance, which is crucial to enhancing self-efficacy and gaining mastery experience in creativity (Quy, 2019; Yeh & Lin, 2018).

Gamification introduces a new pedagogical technique that motivates students to accomplish curriculum objectives. When gamification adopts in e-library services, the library users will flow with the mode of operations in the library. Since it is a user-centered method, it helps users actualize learning and improves their academic performance. Libraries provide an exciting platform for gamification. Gamification in libraries plays two roles, an educational and a semi-business part. The educational function lies in its instructional and teaching-support activities. But libraries also have semi-business-like functions such as marketing library services, promoting library programs to boost attendance, and raising awareness of various learning resources that libraries offer (Kim, 2015)

4.0. Gamification in e-library services

Gamification adapts to so many programs/services offered in the e-library, and it has served as a potent weapon to improve students' academic performance. The following are examples of e-library services that are gamified.

- ❖ **Library orientation:** This is a service that renders to the library users to familiarize them with e-resources in the library. Through the orientation, service users get to know the dos and don'ts of the library. Studies revealed that orientation services are gamified through various elements like teamwork, digital badges, prizes, rewards, storylines, narratives (Veach, 2019; Januszak & Koorie, 2018; Honeyman & D. Walker, 2015; Clarke, Collins, Flynn, & Arnab, 2018; Prince, 2013).

- ❖ . Library website: This service is gamified in the library to attract more users to access e-resources. Game elements like points, rewards, feedback, achievement, badges are used in gamifying this e-library service (Laubersheimer, Ryan, & Champaign, 2016.; Colasanti, Fiori, & Frondiz, 2020; Bigdel, Gholamreza, Alireza., & Reza, 2016).
- ❖ Library databases: library database helps users explore various sources of getting information for their research. This e-library service is also gamified with the different game elements. Which encourage and motivate students in their research
- ❖ Library instruction is another gamified e-library service. Some scholars revealed that when gamifying library database with game elements like feedback, reward, roleplaying, badges, leaderboard, points, story character e.t.c. that the users will feel a sense of accomplishment when achieving a task (Kaneko, Nohara, Yamada, Saito, & & Kudo, 2015; Brigham, 2015).

5.0.Benefits of gamifying e-library services

The inclusion of gamification in e-library services has many benefits for both the users and the system itself. These benefits are as follows:

- It improves users' searching skills: all the game elements used in gamifying e-library services keep the students engaged and motivated. When students are fully involved in any activity, they find doing they learn better and faster.
- It increases users' awareness of e-library: gamifying of e-library services. Such as library instruction and library orientation, create awareness of the library's e-resources in stock.
- It increases library patronage; learning becomes fun based on the leaderboard, rewards, prizes badges, competition, etc. When students borrow some books, they know that scores are for every book borrowed, posted online for others to see. This information gets other users' attention, which will drive them to register with the library.
- It helps develop a good relationship among their classmates: teamwork is one of the game elements used in e-library services that helps in problem-solving. and also increases the level of interaction among them.

- It increases users' participation during the task, therefore reduces boredom. Gamification is a user-centered approach that allows the participant to participate well and actively in the class.
- It makes the library be center of attraction for all and sundry: Through gamifying of e-library services with various elements, the e-library becomes effective and efficient to meet the needs of its users
- It promotes reading culture: gamifying of information literacy and library instruction gets the users engaged, motivated in searching for e-resources through e-databases, search engines, etc.
- It increases students' seriousness: gamification gives immediate feedback, making the students pay attention to a particular task from the beginning to the end.

Conclusion and suggestions for further study

The inclusion of gamification in e-library services has brought tremendous growth and improvement to the delivery of e-service. Since gamification is a user-centered approach, it increases users' engagement and motivates them throughout the learning process in the library. We would like to suggested that future researchers should look into the challenges of gamifying e-library services and proffer possible solutions

References

- Ashikunjaman, M. (2018). Impact of E-Resources and Services in Higher Education and Research Library. *Information Science Network*, www.lisbdnet.com.
- Bigdel, Z., Gholamreza, H., Alireza,, H., & Reza, B. (2016). Gamification in library websites based on motivational theories. *Webology*, 13(1).
- Boyle, H., Connolly, T., Gray, J., Earp, J., Ott, M., & Pereira, E. (2016)). An update to the systematic literature review of empirical evidence of the impacts and outcomes of computer games and serious games. *Computer & Education*, 94, 178-192.
- Brigham, T. J. (2015). An Introduction to Gamification: Adding GameElements for Engagement. *Medical Reference Services Quarterly*, 34(4), 471-480.
- Clarke, S., Collins, B., Flynn, D., & Arnab, S. (2018). Gamifying the University Library: Using RPG Maker to Re-Design Library Induction & Online Services. *Disruptive Learning Media Lab*.

- Colasanti, N., Fiori, V., & Frondiz, R. (2020). Promoting knowledge circulation in public libraries: the role of gamification. *Library Management*, 41(8/9), 669-676.
- Cozine, K. (2015). Thinking interestingly: gameplay to enhance learning and facilitate critical thinking within a homeland security curriculum. *British Journal of Studies*, 63(3), 367-385.
- Dahiru, S., & Adamu, R. (2021). *Integration of e-Library Services and e-Learning Platforms: A New Approach to University Education in Digital Era*. Zaria: Ahmadu Bello University Press.
- Deterding, s., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness. "gamification." *International Academic Mindtrek Conference* (pp. 9-15). ACM.
- Ekere, & O., & Nwoha. (2016). Users' Perception of the Facilities, Resources, and Services of the MTN Digital Library at the University of Nigeria, Nsukka. *Library Philosophy and Practice (e-journal)*.
- Hassanin, R. (2016). Impact of e-library on e-learning: Empirical study. *Cyberians Journal*, 42(1), 1-25.
- Honeyman, & D. Walker, D. (2015). Evolving customer engagement: Using mobile technology and gamification to improve awareness of and access to library services. *Gold Coast Convention and Exhibition Centre, Gold Coast, Broadbeach*.
- Hwang, K., & Chen, M. (2017). *Big-Data Analytics for Cloud, IoT, and Cognitive Computing*. West Sussex: Wiley.
- Januszak, A., & Koorie, C. (2018). Designing and Deploying a Virtual I.T. Services Orientation For First-Year Undergraduate Students in Moodle. *ACM SIGUCCS Annual Conference* (pp. 87-89). New York: ACM Digital Library.
- Johnson, L., Adams, B., Cummins, M., & Estrada, V. (2014). *Technology Outlook for International Schools in Asia*. Texas: The New Media Consortium.
- Kaneko, K., Nohara,, , Y., Yamada, M., Saito, Y., & Kudo, , E. A. (2015). Game-Based Learning Environment Using the ARCS Model at the University Library. *4th International Conference on Advanced Applied Informatics*, (p. 285) Japan: Okayama.
- Kesavan, V. R. (2019). Digital library services: a practical approach for collection development, organization Management. *Journal of Library and Information Communication Technology*, 1-20.
- Kim, B. (2015). Gamification in Education and Libraries. *America Library Association Technology*, 51(2).
- Kudu, A. D., Dirar, A. M., Idris, M., & Yusuf , H. S. (2020). ADOPTION AND ACCESS OF E-LIBRARY SERVICES IN UNIVERSITY LIBRARIES OF NORTH WEST ZONE OF NIGERIA. *European Journal of Open Education and E-learning Studies*, 5(1), 165-168.
- Laubersheimer, J., Ryan, D., & Champaign, J. (2016.). InfoSkills2Go: Using Badges and Gamification to teach Information Literacy Skills and Concepts college-Bound High School, Students. *Journal of Library Administration*, 56(8), 924-938.
- Mcdonald, S. ((2017)). Enhanced critical thinking skills through problem-solving games in secondary Schools. *Interdisciplinary Journal of E-skills and lifelong learning*, 13, 79-96.
- Mshelia, P., Harazeem, A., & Rakiya, A. B. (2019). Bookless Library in Nigeria: Current Trends and Issues. *International Journal of Library and Information Studies*, 9(2), 121-130.
- Olajide, O., & Adedokun, F. O. (2018). Awareness and use of electronic information resources by the faculty members Of Afe Babalola University, Ado- Ekiti (ABUAD): A Survey. *Library Philosophy and Practice (e-journal 2064)*. Retrieved from <http://digitalcommonsunl.edu/libphilprac/2064>

- Ozohue, C. E., & Yaya, J. A. (2016). Provision of Current Awareness services and selective dissemination of information by medical libraries in technical. *American Journal of Information Science and Computer Engineering*.
- Perdana, A., & Prasojo, L. ((2019)). Digital Library Practice in University: Advantage, Challenges and its positions. *Advances in Social, Sciences, Education, Research and Humanities.*, 401, 44-48.
- Prince, D. J. (2013). Gamification. *Journal of Electronic Resources in Medical Libraries*, 10(3), 162-169. doi:10.1080/15424065.2013.820539
- Quy, P. (2019). Cooperative Game- Playing in the EFL Classroom. *English Teaching Forum*, 57(3), 14-23.
- Ramakumar, P., & Vinayagamoorthy, P. (2020). Role of academic libraries in e-learning. *Science and Tehnology Development*, 9.
- Unegbu, V. E., & Otuza, C. E. (2015). *Use of Library and Information Resources*. Lagos:: Emaphine Reprographic.
- Veach, C. C. (2019). Breaking out to break through:re-imagining first-year. . *Reference Services Review*, 47(4), 556-569.
- Yeh, Y., & Lin, C. (2018). Achievement goals influence mastery experience via two paths in digital creativity games among elementary school students. *Journal of Computer Assisted Learning*, 223-232.