

TEACHING SELF-DEVELOPMENT SKILLS USING GAMIFICATION VIA BLACKBOARD E-LEARNING

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Abstract

Self-development skills are an important life skill lesson that can benefit students in tertiary education. However, all physical lessons have been impacted during the Covid-19 pandemic and begun transitioned into online learning. This has required the educators to quickly pick up and master new teaching approaches to keep the lesson interesting and engage the learning to ensure effective delivery of lesson. This study discusses the stages of introducing gamification into Blackboard Learning Management System, as well as various gamification design elements and the impact of implementation based on student's evaluation. The respondents who involved in this study are foundation students in a private educational institution in Malaysia who are taking self-development skills. The content was created with the Disney theme Alice in Wonderland Adventure: Through the Looking Glass in mind. Throughout the seven weeks, students travelled through various missions, collecting points for solving each mission, completing all missions to unlock the next level, as well as meeting new friends and seeking their assistance to complete the journey. Students will be awarded Badges of Achievement for completing each mission. The entire journey of learning through gamification has improved the students' learning experiences. A student's evaluation of teaching which involved 64 students who took the courses was conducted at the end of the 7 weeks semester. The findings revealed that the overall teaching and course material received a moderate score of 76.7 percent in the student evaluation of teaching. Despite the fact that this is the first time gamification has been used on this self-development course, it has demonstrated that the features have a positive impact on the entire teaching and learning process.

Keywords: , E-learning, Game elements, Gamification, Online teaching, Quality education.

1. Introduction

Learning self-development skills at the early years of university is crucial to lay down a proper foundation and set a clear direction for the students before they step into the working career. In this fast moving pace of the world, the workplace requires employees to have broad cognitive and affective skills by Koenig [1]. These skills are known as the 21st century skills which include problem-solving, critical thinking, communication, collaborative, adaptive and flexibility.

As the Covid-19 hit the education sector, teaching and learning began to shift from physical to virtual platforms. This stroke an urgent concern, how could we transform learning self-development skills into virtual learning? How could we motivate and increase the engagement of the students during the learning process to ensure we achieve optimum learning outcomes? Learning self-development skills does not only touch on theory, but it involves a lot of hands-on experience and interaction among the students. By integrating gamification elements into online learning content, it will ensure quality education to be delivered which aligned to Sustainable Development Goals.

Educational gamification, or the use of game mechanics and elements in an educational context, often with the assistance of a virtual learning environment (VLE), may be a way to provide a user-centered, autonomous, and flexible learning environment that encourages users to pursue their own goals by Landers and Callan, [2] and engage in more sustained deeper-level activities by Anderson et al. [3]. Hence, through gamification, the focal question in this study, to what extent does a Blackboard-based gamified system within a course enhance student learning?

The use of gamification has been on the rise in the field of e-learning with the abundance of digital gadgets, software, and mobile applications [4]. However, most of the research has been focusing more on explanation and theoretical information [5]. Hence this research addresses the gaps in terms of applying the concept of gamification in designing the content as well as empirical evidence of impact of game design content on the teaching and learning.

2. Gamification of Content through Blackboard

There is mounting evidence that gamification is becoming more widely accepted as an effective learning strategy for creating highly engaging learning experiences. The success of digital games in education has sought to validate the effects of gamification in support of its potential to improve motivation, engagement, and socialization while allowing students to engage in experiential learning by Groening and Binnewies [6]; Lopez and Tucker [7]. In recent years, gamification has sparked widespread interest among academics and researchers, prompting them to collaborate and explore the range of gamified elements used in the instructional design process to deliver engaging experiences and improve programmes by Kyewski and Kramer [8]; Tsay et al. [9].

Gamification is the process of incorporating game elements into non-game situations. This is known as structural gamification, and it involves the use of game elements to encourage students to learn the material without modifying the material itself by Nabilah et al. [10]. In order to ensure a successful integration of gamification for online learning, these four important concepts which are goal focused activities, reward mechanisms and progress tracking must be presented

[11]. The researcher has followed the proposed models which is related to software design in implementing gamification in e-learning. This includes analysis, design, development, implementation and evaluation [12; 13]. The phases of e-learning system development is illustrated in Fig. 1.

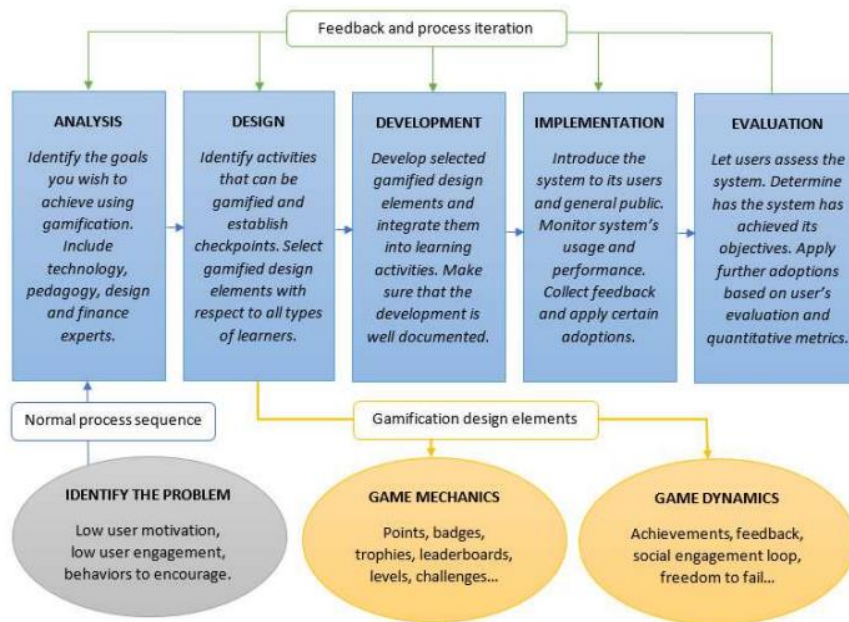


Fig. 1. Phases of introducing gamification into e-learning systems.

Before embarking on the design of the learning gamification, the goals were identified, which are to improve the overall learning experience through online learning, particularly during the pandemic period, when transitioning from face-to-face learning to online learning was given a short period of time.

Next, the researchers moved into the design and development phase. Learning outcomes were identified which include personal reflection, personal discovery, problem solving, time management, communication, and personal success.

In practise, there are two types of gamification: structural gamification and content gamification by Kapp et al. [14]. These two types can be used separately or together at the development phase, which is known as mixed gamification.

Students are rewarded for completing specific tasks successfully by Kim et al. [15]; Al-Azawi et al. [16]; Ceker and Ozdamli [17]. To engage players, gamification strategies use rewards for completing desired tasks or competition. Points, achievement badges or levels, filling a progress bar, or providing the user with virtual currency are all examples of rewards. Task completion rewards encourage players to compete. Scientifically, rewarding individuals causes the release of dopamine in the brain, resulting in a satisfying emotional bond on the individual as stated by Zainuddin et al. [18]. According to a systematic literature review on gamification elements for e-learning conducted by Saleem et al. [19], the most common gamification elements used and having a powerful influence on students are points, leaderboard, badge, and level.

Content gamification, on the other hand, is the process of transforming content into a game by incorporating game elements and game thinking. Hassan et al. [20] demonstrated that feedback and goals were also important for completing the course, providing motivation and allowing students to interact. Aldemir et al. [21] also demonstrated the significance of narrative, challenge, reward, leaderboard, constraints, teams, points, win-state, and badge for e-learning engagement, motivation, socialization, and interaction.

The following section will present how different gamification elements were incorporated into the e-learning platform which is Blackboard for the course of Self Development Skills.

3. Incorporation of Gamification E-learning Platform

3.1. Narrative - Alice in the Wonderland

A cohesive experience was created by applying a narrative inspired by a popular Disney film, *Alice in Wonderland Adventure: Through the Looking Glass*, that represents a child's struggle to survive in the perplexing world of adults has been developed. In order to understand the adult world, Alice must overcome her childlike open-mindedness and recognise that adults require rules to live by. This narrative was chosen because the students enrolled in this course were foundation students who had just completed their secondary school education and were on the verge of pursuing tertiary education. They are basically under pressure because it will be a watershed moment in their lives when they must decide which varsity courses to pursue, which will determine their future careers by Winson and Yazdanifard [22].

It took seven weeks to complete the entire course. Students explored the adventure journey by navigating the map each week. Snippets of the narrative elements are shown in Figs. 2 and 3.

The students explored seven themes related to Self-Development Skills for each adventure (Table 1):

Adventure: Through the Looking Glass

Before you start, let's have a quick glance on what you about to embark:



You come across a magical looking glass, travel through time (with the Chronosphere), and meet strangers and friends (players) at different point of your life in the Wonderland.

Embark on this adventure before time runs out.

You've got seven weeks to explore the little world of yours, with bigger dreams and hidden potentials!

Fig. 2. Screenshot of narrative elements.

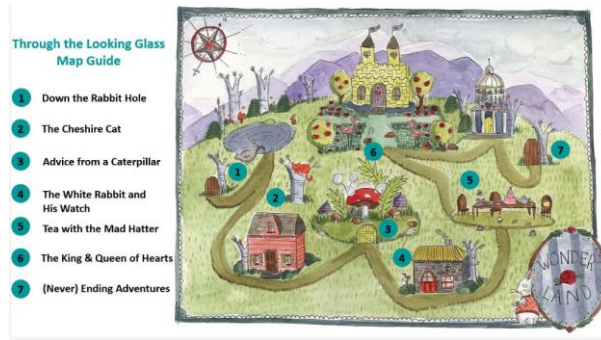


Fig. 3. Screenshot of map guide.

Table 1. Adventure and themes.

Down the Rabbit Hole	Personal Reflection
The Cheshire Cat	Personal Discovery
Advice from a Caterpillar	Problem Solving
The White Rabbit and His Watch	Time Management
Tea with the Mad Hatter	Communication
The King and Queen of Hearts	Personal Success
(Never) Ending Adventures	Debrief and Wrap Up

Each adventure has a unique mission, which includes either an assignment or a quiz that students must complete. Mission completion will earn the student points. Every adventure completed allows the student to advance to the next level (next adventure). Along the journey, students made new friends and worked together to solve the missions.

3.2. Using adaptive release

One of the features of the Blackboard learning management system is the Adaptive Release tool. The tool uses the IF-THEN logic within the Blackboard Learn course to create an immersive feedback environment. A few conditions, such as a course grade, marking content as reviewed, or submitting an assignment before it is graded, trigger the release of adaptive release. The first week of class, students were briefed to introduce them to this game-like scenario. Students must navigate through the Blackboard Learn course content and click on the 'mark reviewed' buttons. When the review button is clicked, the next piece of content is released and ready for students to complete. A snippet of the adaptive release incorporated in the game design is shown in Fig. 4.

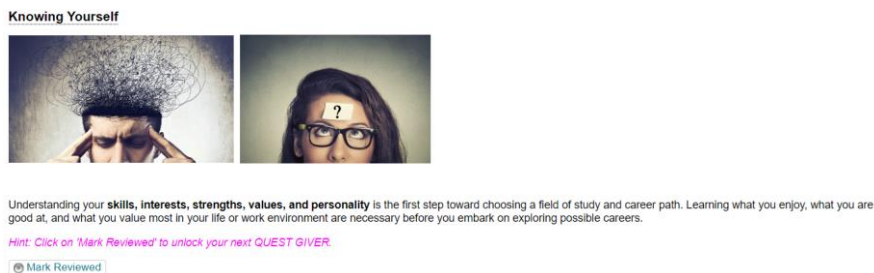


Fig. 4. Screenshot of adaptive release.

3.3. Challenges and points

To create hard fun, various types of challenges and quests were integrated into each adventure, while badges were created and applied to create a win-state feeling, and curiosity-arousing materials to fulfil easy fun. Students will earn points through weekly quizzes, individual assignments, and group projects. In order to complete the entire adventure, students had to earn points from five quizzes (15 points), one individual assignment (25 points), and a group assignment (60 points) that included a portfolio and a presentation.

Students were reminded near the end of the adventure to complete the challenges that earn them points. Evaluation of the students was done on the basis of the points they collected. A snapshot of checking out reminder is shown in Fig. 5.

#1 Checking Out

Availability: Item is available, but some students or groups may not have access.

Enabled: Adaptive Release



Level 1 completed! REMEMBER to complete Your Power Card assignment to earn points.

To  next level, go to 'CONTENT' & 'Mark Reviewed' for Level 1.

Fig. 5. Checking out reminder.

3.4. Achievement badge

Badges are a more attractive way of documenting skills compared to traditional degrees of certification. Blackboard Learn implemented badges via a feature called Blackboard Achievements. Instructors can design graphical badges and associated rules that users can use to earn credentials. Individual and house badges were given to participants who completed all of the weekly adventures, which included submitting individual and group assignments. Throughout the seven weeks, most of the students successfully completed all of the challenges and earned the achievement badge. Because the students enrolled in this course are in their vulnerable adolescence, they tend to seek self-identity and associate more with their peers through technological platforms by Makaria et al. [23]. Introducing achievement badges will motivate students to learn more effectively using technology. This also implies that the achievement badge encourages students to complete tasks, improves student engagement, and promotes competition as mentioned by Nabilah et al. [10]; Hanus and Fox [24]. A snapshot of checking out reminder is shown in Fig. 6.

3.5. Empirical evidence of student evaluation of teaching (SET)

After implementation of the learning gamification for 7 weeks, it is important to carry out an evaluation on the system through the users. As this paper focused heavily on the process of developing the gamified content, a small sample size from the students who took the course, Self-Development Skills tested the gamification outcome and gave their evaluation. Towards the end of the semester, students were asked to evaluate the teaching and learning experience. In the educational sector, evaluation is

a critical process. Obtaining feedback on our own teaching is the least expensive and most valuable way to improve teaching quality by Debroy et al. [25]; Husain and Khan [26]. While there are numerous possible sources of feedback and evaluation data on teaching, approaching students for feedback is the most frequently used method to obtain input for teaching evaluation as stated by Debroy et al. [25].

There was a total of 64 students who took this course and attempted the SET. The overall teaching and course material received a moderate score of 76.7 percent in the evaluation. This findings is limited to only one course, which is Self-Development skills and couldn't be generalized for other non-skilled courses.

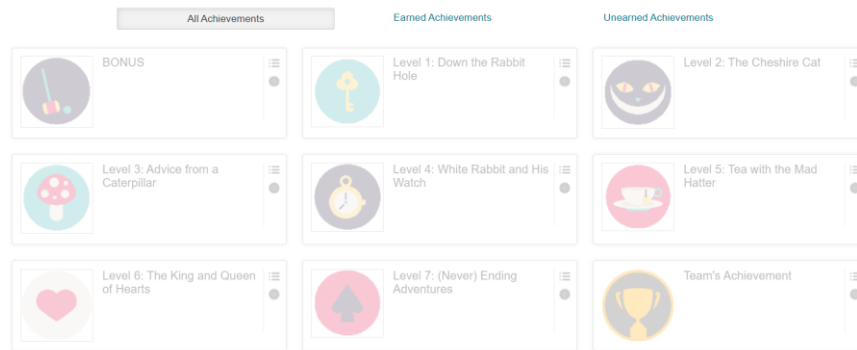


Fig. 6. Screenshot of achievement badges.

4. Conclusion

The aim of this paper is to explore the different gamification elements to achieve learning goals. The shifting of teaching and learning to virtual platforms had successfully gauged student's motivation and engagement through gamification. Gamification elements incorporated include narrative, adaptive release, challenges and points as well as achievement badge yield positive feedback from the students. Additional research can be conducted to address the incorporation of other game elements such as progress bar and avatar.

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