

Jasperactive as a Gamification Tool for Motivation and Engagement in Adult Learners

Magdeline M. Mokonyane

<https://orcid.org/0000-0002-4893-9696>
University of Pretoria, South Africa
Matsiemokonyane@gmail.com

K. Moodley

<https://orcid.org/0000-0002-5832-6009>
University of Pretoria, South Africa
kimera.moodley@up.ac.za

L. van Ryneveld

<https://orcid.org/0000-0002-9909-9949>
University of Pretoria, South Africa
linda.vanryneveld@up.ac.za

Abstract:

Gamification is the use of game elements in non-gaming contexts. This paper explored how gamification can be a motivation and engagement tool for adult learners in an End-user Computing (EUC) course. Due to their high workloads and limited practice opportunities, staff members at the University of Technology (UoT) struggled to find time to enhance their EUC skills. The researchers used the Jasperactive platform to teach EUC skills to adult learners. A conceptual framework using motivation and engagement theories and elements was used as a conceptual lens for this study. The study followed an interpretive case study design with a qualitative approach. The sample comprised thirty participants who were purposefully selected and regarded as adult learners. Data was collected through the researcher's observations and one-on-one interviews with six participants. Thematic data analysis was conducted using the elements included in the conceptual framework. The findings revealed how certain gamification elements influenced the motivation and engagement of adult learners. The study findings, furthermore, indicated that gamification may be used to solve motivation and engagement issues in training and working environments if it is well-designed and founded on well-established execution principles. Moreover, when adult learners are motivated and involved in the learning process, current motivation and engagement theories might be useful to explain the phenomenon. Adult learners seemed to be motivated and

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engaged in the effort to enhance their EUC abilities when using a gamified platform like Jasperactive. The study suggested that the participants were further motivated to complete the course to obtain their Microsoft Office Specialist certificate.

Keywords: Gamification; adult learners; motivation; engagement; End-user Computing

Introduction

This paper explores how gamification can be a motivation and engagement tool for adult learners in an End-user Computing (EUC) course. As suggested by Seaborn and Fels. (2015), scholars, professionals, and industry experts have been driven by gamification in fields as diverse as teaching, information studies, interpersonal behaviour, and healthcare. Gamification is a phenomenon in the advertising and business sectors in the world, and it has lately received the attention of scholars, instructors, and professionals from a range of areas (Galbis-Córdoba, Martí-Parreño, and Currás-Pérez, 2017). Gamification is not a new notion, with origins in marketing initiatives such as point cards and rewards programs, and educational frameworks such as academic levels, scores, credentials, and workplace efficiency. The game elements added to the learning platform are meant to change the students' behaviour as it enhances student engagement and the motivation of student learning (Shatz, 2015). The following research question informed this paper: How does gamification in Jasperactive influence the motivation and engagement of adult learners?

Literature Review

In the education sector, the concept of gamification refers to the “use of game design elements within the non-game context” (Deterding, Dixon, Khaled, and Nacke, 2011, p. 1). Studies show that gamification seems to have a positive effect on the motivation and engagement of learners, and researchers are constantly looking into techniques or strategies to motivate and engage learners (Hamari, 2014; Rob van Roy and Zaman., 2018; Sailer, 2017; Seaborn and Fels, 2015). Games have become popular among all age groups and genders globally, and when applied to real-life situations, they tend to inspire motivated and engaged behaviour (Rigby and Ryan, 2011).

Formally asserting, the usage of gaming elements (particularly points or badges) in the learning environments is referred to as gamification (Deterding et al., 2011; Subhash, 2018). The term gamification was only coined in 2003 by Nick Pelling, although it was not generally used in the domain of education and training until 2010 (Sera and Wheeler, 2017). The applications of gamification in the organisational sector include game elements such as points, timers, leaderboards and badges used in online training

programs that can potentially change learners' behaviour (Brousell, 2013; Sujit Subhash and Cudney, 2018).

Points are basic elements of gamification used to reward users when a specific activity has been completed and achieved successfully (Zichermann and Cunningham, 2011). Points are also used to provide feedback in real-time (Sailer et al., 2017). Badges are noticeable depictions of game elements in a gamification environment as they validate the user's achievements and abilities virtually (Werbach and Hunter, 2012). After completing a particular task correctly, users are afforded points that earn them badges (Antin and Churchill, 2011). Timers (which add up total time) and countdown alarms, a typical board game cliché, convey a sense of urgency. Even employing a calendar of events, such as, "Before I finish B and C, I must accomplish A," helps learners focus on the work at hand. The perception of advancement inspires continuous effort. Leader boards, as well as points and badges, give a social status component (Jackson, 2016).

When game elements are included in the learning setting, it may contribute to the development of learners' performance (Birch, 2013; Lee and Hammer, 2011). Gamification needs to be done synergistically to enhance the user experience by providing enjoyment and facilitating the increased involvement of learners (Deterding et al., 2011; Karatas, 2014). Gamification is currently proven to be used in businesses as well as education domains as a motivation and engagement tool (Lawanda, Mohile, and Sagarika Datta, 2018) and is estimated to grow over time (Markets., 2016).

The gamification taxonomy, in the field of education, refers to gamification strategies that use game elements differently in learning contexts (Dicheva et al., 2015). Toda et al., 2019 classified gamification into five different dimensions, namely, performance measurements, ecological, social, personal, and fictional dimensions.

Performance measurement is one of the dimensions of gamification taxonomy. The performance measurements dimension must be available in the gamification platform as it provides learners with feedback on the activities completed. Elements that make up this dimension are acknowledgement, level, progression, points, and statistics. When a gamified platform does not have these dimensions, it may lead learners to feel disorientated as they will get limited feedback on their learning activities (Toda et al., 2018).

Elements of the ecological dimension are chance, choice, economy, rarity, and time pressure. When a gamified platform does not have these ecological elements, the platform may bore learners as there will be limited interaction between the environment and the learners (Palomino et al., 2019) and no real sense of urgency. According to Toda et al. (2018), these elements must be designed with care as they may drastically affect the learner's interaction with the gamified platform.

The social dimension is regarded as the interaction between the learners themselves, instead of the only interaction being between a learner and the learning platform. The social connection between learners might influence the behaviour of learners towards tasks. Toda et al. (2019) mentioned that learners might feel isolated when there is no social dimension in a gamified platform as they will not have the opportunity to interact with other learners. The elements that are found in the social dimension are competition, cooperation, reputation, and social pressure.

The personal dimension has elements such as novelty, objectivity, puzzle, renovation, and sensation. These elements are related to the learner using the gamification platform. The personal dimension is an intrinsic motivation for the learners (Özdener, 2018).

The fictional dimension is a mixed dimension consisting of the narrative and storytelling elements within a gamification platform that is used to tie up the learners' experience with the context. Palomino et al. (2019) mentioned that it is important to differentiate the two elements when designing a gamification platform to maintain the meaning of the context.

End-user Computing (EUC) can be defined as the use of computer software by personnel from all departments at all levels in an organisation (Doll and Torkzadeh, 1989). Jasperactive is a computer-based program used to teach all-suite applications of Microsoft and is regarded as an EUC platform that incorporates gamification. The Jasperactive program can be accessed by connecting to the internet. The program offers a standardised assessment to test the learners' knowledge before learning occurs in a particular application. The Jasperactive system then creates a unique learning path for each student to enhance their skills, based on the tasks in which a student did not achieve satisfactory scores.

Jasperactive has a five-step learning pathway and builds experience and knowledge through hands-on activities and exploration. The first step is the *Benchmark test* that determines skill levels, the outcome of which is then used to build a prescribed course plan using only specific personalised lessons. In the second step, which is the *learning stage*, learners receive quick quizzes and hands-on exercises. The third step is the *practice stage*, allowing learners to repeat exercises to perfect their Microsoft office skills. The fourth step is the *create stage*, whereby learners can create a project-based exercise to combine skills and creativity. The last step is the *validate stage* called GMetrix, which exposes learners to the practice testing stage, where learners can assess their competence in the Microsoft Office applications.

Adult learners can also learn through the process of gamification. Adult learners are individuals over the age of 18 who are no longer attending traditional schools but are nonetheless involved in educational development programmes. Their objective is usually to obtain some form of qualification appropriate for those who are above the age of normal schooling (Smith, 2017; Curran et al, 2019; Carlson et al, 2018). When

adult learners are assisted in their learning, by means of enhanced competition, communication, motivation, a sense of control, increased productivity and more (Salleh et al., 2015), it is likely to improve their skills. Adult learners are normally willing to learn something if it improves their lifestyles, and develop themselves professionally (Martí-Parreño et al., 2016).

Gamification normally allows an adult learner to access a game via several devices (e.g., computers, tablets, or smartphones). Gamification is based on the notion that adult learners are innately driven to study when given the freedom and accessibility to do so at their own speed. Furthermore, adult learners can learn in a safe environment without any risk of failure and also have the flexibility of learning by imposing the trial-and-error method. This type of learning assists in developing critical learning skills among adult learners (Brull and Finlayson, 2016). Thus, gamification aids in improving the engagement and motivation of adult learners and consequently several theories exist that link the concepts of motivation and engagement to gamification.

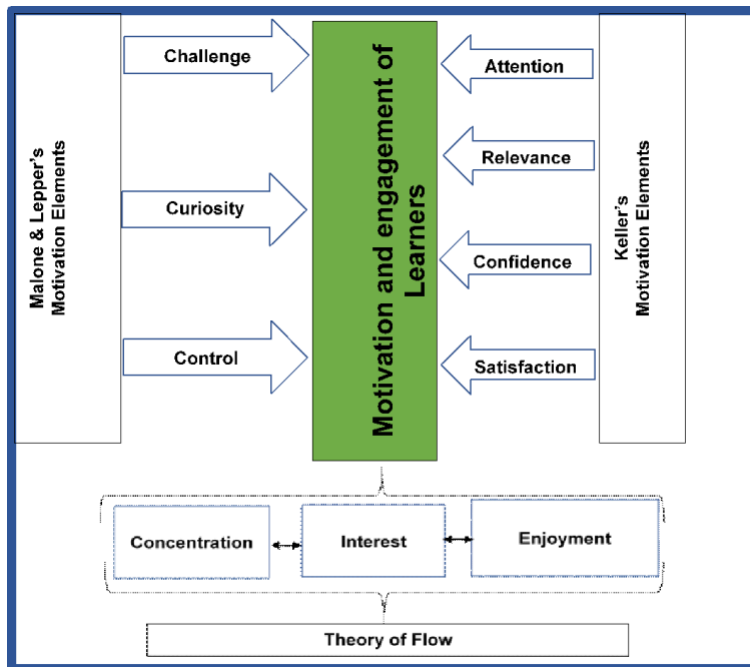
Motivation is seen as that inner process that gives behaviour its energy and direction (Deci and Ryan, 2008). Engagement is described as learner involvement throughout the learning process (Alsawaier, 2018). Two types of motivation influence an individual, namely, intrinsic and extrinsic motivation. Motivation can exist within an individual, regarded as intrinsic motivation, for example, enjoyment, purpose, curiosity, passion, and fun that an individual gets from performing a particular task or activity (Malone and Lepper, 1987). Motivation may also come from outside an individual, is regarded as extrinsic motivation, and includes actions such as promotions, pay increases, bonuses, benefits, and prizes to obtain an outcome or rewards that are not part of the task (Gneezy and Rustichini, 2000). Some of the theories that link to motivation and engagement are Malone and Lepper's taxonomy (1987), Keller's (2008) ARCS model and the theory of flow (Csikszentmihalyi, 1997). The elements of motivation and engagement in these theories and models were used to develop a conceptual framework to guide this paper.

Conceptual Framework

A conceptual framework that looked into different motivation and engagement elements was developed in an attempt to address the research question. Gamification has been used in a variety of learning platforms over time. However, it was still not clear whether it could be used as a motivation and engagement tool for adult learners in an EUC environment, especially one that uses Jasperactive as a gamified platform. It was, therefore, important to consider how adult learners would respond to a gamification platform such as Jasperactive.

The conceptual framework was developed by considering the motivation and engagement theories elements of Malone and Lepper (1987), namely, challenge, curiosity, and control were incorporated. Fantasy was excluded because the gamification software used in the study did not have the fantasy element. Keller’s (2010) elements, namely, attention, relevance, confidence, and satisfaction were also included. Flow state elements, namely, concentration, interest and enjoyment were also considered (Csikszentmihalyi, 1996). Collectively these elements were considered to address the research question of this paper. Figure 1 depicts the conceptual framework as adopted from Keller (2010), Malone and Lepper, (1987) and Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2014).

Figure 1: Conceptual Framework adopted by Keller (2010), Malone and Lepper, (1987) and Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2014)



Research Methodology

This current interpretive research study was designed using established theories and models concerning motivation and engagement. It was conducted as a single case study supported by recorded observations and one-on-one interviews. Purposeful sampling was used to conduct this research, the respondents were chosen in such a way that they were appropriate for accomplishing the study goals and addressing the purpose of the current research study (McMillan and Schumacher, 2006). The population consisted of the staff members of a UoT, who all sought to advance their EUC skills to assist their

careers. The objective of using the gamified platform was to motivate and engage these staff members to practise their EUC skills; therefore, relevancy to the material was established within this population. When collecting data for this paper, the participants chose to participate without external force, which is regarded as a voluntary response sample (Murairwa, 2015). These participants volunteered to take part in interviews to share their views on a topic that interested them. The study followed a qualitative method to analyse the data collected. Table 1 illustrates the total research population that was used in this study.

Table 1: Total sample population

Item description	Number
Total population	30
Females	21
Males	9
Academic group	8
Support group	22

Data collection and analysis

The data was collected for the current study purpose using the researcher's observations and one-to-one interviews with six participants. The participants were from various academic and support units of UoT.

The analysis and interpretation of people's behaviour during a research project are regarded as observations and can be done by either viewing, recording or describing the participants' actions (Fereday and Muir-Cochrane, 2006). The researchers were guided by the research question to observe the participants' relevant actions and the activities were recorded in a research journal.

The purposeful discussions between researchers and participants whereby the researchers ask concise and unambiguous questions and record such responses to gather valid and reliable data on a particular topic, is referred to as a research interview (Saunders et al., 2009). In this study, one-on-one interviews were used, as the researchers had a list of key questions to be answered by the interviewees. The questions were open-ended to allow further discussions on a particular question. Each of the six interviews was scheduled for about 45 minutes, and an audio recorder was used to record the interviews.

Furthermore, notes of the participant's responses were taken, and the interviews were then transcribed for all the participants.

Data analysis is a process of demonstrating data logically so it can make sense to address the research questions (Fereday and Muir-Cochrane, 2006). A qualitative data analysis technique is used by researchers when they need to make sense of either the verbal or written responses from the participants about a specific topic being studied. A thematic analysis approach was used to analyse the qualitative data of this paper. The researchers' observation was coded as (RO) and the participants were labelled as Participant 1 to Participant 6, respectively. Braun and Clarke (2006, p. 78) define thematic analysis as a "foundational method for qualitative analysis". The motivation elements from Malone and Lepper (1987), Keller's (2010) ARCS, and the Theory of Flow (Csikszentmihalyi, 1997) were used as codes in this study to label the data that was collected qualitatively. Table 4 depicts the data analysis themes.

Table 4: Data analysis themes

Theories	Motivation Themes			
Malone and Lepper	Challenge	Curiosity	Fantasy	Control
ARCS model	Attention	Relevance	Confidence	Satisfaction
Flow Theory	Concentration	Interest	Enjoyment	

(Malone and Lepper, 1987; Keller, 2010; Csikszentmihalyi, 1997)

Findings

The study focussed on the motivation theories of Malone and Lepper (1987), Keller's model (2010) and the Theory of Flow (Csikszentmihalyi, 1997). From the conceptual framework, it is clear that the motivation and the engagement of the learners are impacted by the motivation elements of Keller (2010) and Malone and Lepper (1987). These elements include challenge, curiosity, control, attention, relevance, confidence and satisfaction. The Theory of Flow indicated that the motivation and the engagement of the learners depend on their concentration, interest and enjoyment.

Challenge

Theories of motivation and engagement emphasise that for individuals to be intrinsically motivated, they need to enjoy activities that provide some kind of challenge (Keller, 2010; Malone and Lepper, 1987).

From the researcher's observations (RO), it was clear that when the participants were introduced to the Jasperactive platform, some were eager to know what it was all about, whilst others were anxious. Some wondered if they would ever be able to learn by utilising this platform. When participants did not understand what was expected from them whilst using Jasperactive, it became a challenge for them to continue their learning (RO). One participant emphasised this point by stating:

“The orientation around the interface is important and needs to be added to the platform” (Participant 3).

“Jasperactive is not easy to follow at the beginning, but with practice, things become better. With help options, there are steps to follow but when you practise again, it becomes easy” (Participant 1).

The feedback from participant 3 assisted with streamlining the training in future iterations so that learners in the course did not have to struggle with the interface and could focus on learning the skills without further interference. The principle is that one should always avoid a cognitive overload (Kirsh, 2000) concerning the gamification platform that is being used to learn.

Some of the participants mentioned that their Benchmark results were an accurate reflection of their prior knowledge, whilst at the same time giving them an indication of the level of challenge that lay ahead.

“Yes, I have learned things that I didn't know, especially the programmes that I am using at the workplace. I am now working better and faster” (Participant 1).

The Benchmark test challenge made participants realise that they still needed to learn much more about a particular application. Theories have suggested (Malone and Lepper, 1987) that for an individual to realise that the activity is challenging, the learner needs to be provided with performance feedback that will either motivate or demotivate them. The Benchmark test gave participants feedback regarding their prior knowledge. Therefore, this feedback tailored a curriculum for a learning path for the participant, consisting of content about questions that the participants did not answer correctly in the chosen application. Figure 2 illustrates the Benchmark sample to show a participant which of the questions were answered correctly and which were incorrectly answered. When learners receive feedback about the activities, it shows them the challenge that lies ahead and this motivates them to focus on their learning path (RO). Figure 2 highlights the sample of the Benchmark results.

Figure 2: Sample of Benchmark results (Jasperactive, (n.d.)

The data was successfully saved. ✔ Correct marks: 17 ✘ Incorrect marks: 44 Percentage correct: 27.87%

Status	Question Number	Question	eBook
✔	1	Open a workbook	📖
✔	2	Insert a worksheet	📖
✔	3	Copy data from one worksheet to another	📖
✔	4	Insert a column	📖
✔	5	Enter text	📖
✘	6	Apply a Theme in Workbook	📖
✔	7	Enter cell values	📖

Other participants mentioned that the time allocated for the Benchmark test was not sufficient, as they were still struggling to become accustomed to the new platform. Jasperactive’s Benchmark test focused on determining the learner’s prior knowledge. Therefore, participants may have felt that the activities were challenging due to them not knowing how to answer the questions (Barbuto et al., 2000).

“I thought it would be boring, but as I started working on the system, I realised there is so much to learn” (Participant 6).

The time allocated to the Benchmark test left some of the participants feeling challenged and anxious to complete the specific test activities. It is very important to allocate a reasonable time for a particular activity to keep the learners motivated during the learning process as emphasised in the cognitive theory of challenge (Newell et al., 1991). The time allocated would have been sufficient for someone who was already proficient in the programme. As such, a person with extensive prior knowledge would, in all probability, have been able to complete the test in the required time frame.

Curiosity

Theories of motivation and engagement suggest that curiosity is the most direct intrinsic motivation and engagement for learning and that it is stimulated by an optimal level of informational complexity (Berlyne, 1968; Piaget, 1952). All six participants in the one-on-one interviews mentioned that they chose to learn using Jasperactive as it is accessible online and it allowed them to focus on their learning at a time and place that are suitable to them (RO). The Jasperactive Benchmark test aroused the learner’s cognitive curiosity by showing them what they know and what they didn’t know about a particular application. As a result of that, a sense of curiosity from participants was

created by Jasperactive. The help button found in the lessons' teaching stages of Jasperactive provided learners with alternative methods of performing a particular task. The cognitive curiosity of learners was increased in that once they were able to do the task, they received the badges promised by Jasperactive, which is one of the elements used in gamification. When learners received badges, they were curious to receive more badges, and this motivated them to want to continue with their learning path (RO).

The cognitive curiosity of participants increased as they learned new skills using Jasperactive. The participants mentioned that this made them want to learn other programmes such as Microsoft Word, Excel, PowerPoint, Access and Outlook, and they were curious to pursue the different programmes using Jasperactive. Inayat and Ali (2020) emphasised that informative feedback is one way to make learners motivated and keep learning interestingly complex by surprisingly applying feedback. So, when participants received badges when they were able to answer questions, it motivated them to continue with their learning.

Control

The other aspect of control during learning is that activities should provide and highlight some level of choice over various aspects of the learning environment. The Jasperactive platform has five stages that allow learners to interact and improve their learning path. The different methods of teaching are included, which offers learners some kind of variety, and participants in the focus group discussion elaborated further on this matter. Participant 1 emphasised this in the one-on-one interview that was conducted.

“I like the structure of the platform. The way it is presented with life real situations, you can relate to it as a professional and it keeps you interested. The help function really is a good feature that assists in the learning. You really have to grow up and learn to practise and do the training yourself. Online training is not for everyone due to workload, and you must be motivated and disciplined” (Participant 1).

Both academic and support participants could not change the lessons, as Jasperactive is a structured program and is presented according to their Benchmark test results. None of the participants was able to change the way the lessons were prepared for them. The fact that learners could not change the structure of the Jasperactive platform can be a controlling factor that assists learners in finding features in the application and motivate them to learn more.

Attention

When a learner's interest in learning is captured, it stimulates the curiosity of the learner, and the learner starts to pay attention to the instructions at hand (Keller, 2000). One of the participants was extrinsically motivated, as Jasperactive caught her attention because of the badges that she received. That satisfied her that she could post the badges on social media platforms (RO). The application of game elements to learning motivated learners to be attentive when learning.

The academic participants felt motivated because Jasperactive has an embedded GMetrix Tab which is loaded with a practice exam, which assists them with their preparation for the exam. The GMetrix tab also has a testing mode that is timed. Timing learners when doing activities is another aspect of gamification in a learning environment. This assists learners to be attentive and to be focused when learning. Figure 3 shows the GMetrix tab, which was embedded in the Jasperactive platform.

Figure 3: GMetrix Tab (Jasperactive, (n.d.)



Relevance

Relevance results from linking the content of activities to important goals of the learners, their previous interests, and how they are used to learning. Activities need to relate to learners' imminent career requirements (Keller, 2010). As participants are staff members at the University of Technology, developing their technological skills becomes relevant for them as they use the specific software in their workplace. The content of the lesson caught all participants' attention, they learned new skills, and it matched what they expected. Some of them would not mind continuing to upskill themselves in technology use in the future.

“It was relevant because of the content, for example, the research questions that I received related to the question to a scenario” (Participant 2).

The electronic book that is embedded within Jasperactive was relevant to the participants as it assisted those learners who still needed a book to explain activities in detail. The participants indicated that what they have learnt is relevant to them as they are applying the skills to their workplaces, and they are even assisting others with what they know (RO).

Confidence

When learners are positive about success in their own learning experiences, they tend to be confident, and this is achieved by making objectives understandable to learners and making examples for them to build learner confidence (Keller, 2000). All six participants mentioned that Jasperactive influenced them to gain confidence because it presented them with different techniques, they learnt new skills they didn't know, and now they can assist their colleagues and friends if they need assistance (RO).

Satisfaction

That positive feeling one gets after achieving good results always makes one satisfied (Keller, 1987). Both academic and support participants learned new and alternative skills and felt that they could master EUC concepts by using Jasperactive. All participants mentioned that they would recommend Jasperactive to others because it will broaden their skills as it did for them.

“It enabled me to perform my day-to-day lecturing and assisted me to be able to share with my learners” (Participant 6).

Concentration

Absolute absorption in activity is regarded as concentration. Learners need to be completely focused on the task, have clear goals and awareness of rewards, have immediate feedback and have sufficient time to concentrate on the learning.

Participants in this research paper mentioned that the Benchmark assessment of Jasperactive encouraged them to concentrate on their learning. They had to complete tasks that were clearly stated in a specific time allocated to them. After completing the tasks, they received immediate feedback shown in marks received for the tasks answered correctly (RO).

Time also has an impact on the concentration of a learner in a particular task. During the learning path in Jasperactive, learners are given time to complete the task and that assists learners to concentrate on the tasks provided to them.

Interest

Interest relates to emotional engagement (Nayir, 2017). The help option embedded in Jasperactive also allows learners to perform tasks that are challenging easily during the learning stage, and this is another aspect that needs to be considered in keeping the learners engaged in the activities.

“The platform is very interesting as I can test myself and you can retry again. You can do it again and again.” (Participant 1).

Enjoyment

Enjoyment is a state of feeling pleasure and joy in whatever an individual is doing at that time, a feeling when things go well without putting in too much effort (Csikszentmihalyi, 1996). The participants enjoyed using Jasperactive, which used elements of gamification.

Discussion

The conceptual framework was used as a lens to address the research questions. The orientation that was arranged for the learners to understand how the Jasperactive platform works made it easier for learners to follow their learning path and engage with the platform. The learners were introduced to the support page, which assisted with challenges that learners had when working in Jasperactive. This assistance motivates students and is likely to improve their skills (Salleh et al., 2015). The Benchmark assessment that was administered to learners to test their prior knowledge about the Microsoft programs made learners aware of their understanding and what further knowledge and skills they needed to gain. The time that was allocated to the different tasks of Jasperactive was a challenge, as learners had to complete tasks within the allocated time. Kirsh (2000) highlights the importance of not creating a cognitive overload. It seems the time management to complete the activities together with everyday work pressure was the greater challenge. The challenges that learners are exposed to may motivate or demotivate them. In this paper, the Benchmark that adult learners had to complete at the beginning of the course motivated them as the questions varied in levels.

The curiosity of the adult learners was increased as both academic and support staff members realised that they still needed to learn more. This is supported by Berlyne (1968) and Piaget (1952) who emphasise that learning is stimulated by an optimal level of informational complexity. The feedback received after performing a task and the badges that were received by learners kept the adult learners curious in their learning path as they received feedback after completing each task. Feedback plays a vital role in motivating learners as it encourages them to apply the feedback (Inayat and Ali., 2020) whereas limited feedback tends to make them feel disorientated (Toda et al., 2018). The Jasperactive platform stimulated the curiosity of adult learners in this paper.

The task-performing space that was provided to learners to do their tasks while learning provided control to adult learners and this motivated the learners to continue with their learning.

Adult learners also had the opportunity to choose which program they want to do and the different learning stages of the Jasperactive platform motivated and engaged learners to continue. The structured nature of Jasperactive limited the adult learners' control to change their learning path. This motivated them to learn more about the task they didn't know. In this paper, adult learners were orientated before using the platform, therefore, this assisted adult learners in performing the tasks and kept them motivated and engaged. This freedom and flexibility assisted in developing their critical learning skills (Brull and Finlayson, 2016).

The time feature embedded in the Jasperactive platform assisted learners to be attentive in their learning path. The feature of being able to see the progress in a Microsoft program assisted learners to be attentive and focused on their learning and this

motivated them to continue with their learning. The fact that the participants were staff members in a University of Technology who requested the EUC as one of their development areas made this course relevant to them. The academic participants had to have this qualification so that they can teach the EUC course in their work environment. The support staff members chose this program in the individual development plans and they were given this opportunity by their line managers. The different lessons that adult learners had to do in the Jasperactive platform made them confident, and this motivated them to want to continue with their learning process. The feedback that was provided to the adult learners made them satisfied and this motivated them to want to continue with the learning process. The features of gamification included in the Jasperactive platform motivated and engaged adult learners to continue with their learning on Jasperactive.

Conclusion

Gamification can be a solution to address motivation and engagement problems within learning or working contexts, as long as they are well designed and built upon well-established implementation models. The existing motivation and engagement theories can be of importance when adult learners need to be motivated and engaged in the learning process. The gamified platform such as Jasperactive can indeed motivate and engage adult learners to improve their EUC skills. For future research, the Jasperactive tool may be used on other soft skills courses for adult learners in a higher education institution. The feedback received after performing a task and the badges that were received by learners kept the adult learners curious in their learning path as they received feedback after completing each task. The Jasperactive platform stimulated the curiosity of adult learners. The structured nature of Jasperactive limited the adult learners' control to change their learning path. This motivated them to learn more about the task they didn't know. Adult learners were orientated before using the platform, therefore, this assisted adult learners in performing the tasks and kept them motivated and engaged. The different lessons that adult learners had to do in the Jasperactive platform made them confident, and this motivated them to want to continue with their learning process. The feedback that was provided to the adult learners made them satisfied and this motivated them to want to continue with the learning process. The features of gamification included in the Jasperactive platform motivated and engaged adult learners to continue with their learning on Jasperactive.

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