

Perception towards Rewards in Digital Traditional Games: Experience from Pilot Study

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Abstract

Rewards, in games context is something that is given in recognition of player's achievement. Despite the importance of rewards in games engagement, the existing digital traditional games are still lacking of rewards. Hence, this study aims to introduce and incorporate rewards in *Congkak*, one of the Malaysian digital traditional games. In order to meet this objective, an existing *Congkak* was enhanced by adding rewards in a form of credits that can be redeemed. A total of 40 respondents were involved in the experiment to measure players' perception towards rewards. The enhanced version of *Congkak* was demonstrated to the respondents before they were allowed to gain game experience by experimenting with the apps. Their perception towards rewards were captured through a systematic interview conducted during the experiment by using a self-constructed questionnaire. The questionnaire consists of 6 constructs that measure players' perception in terms of the importance of rewards, motivation, survival, engagement and time rewards are needed. The findings reveal a positive perception towards rewards with regard to when they are needed, their importance, and their role in motivating the players and helping them to survive and keep playing the game. Hence, future development of traditional games should include rewards as a means to engage users to the games.

Keywords: Digital *Congkak*, digital traditional games, rewards in games, games engagement.

1. Introduction

Rewards can be seen as something given in recognition of one's effort or achievement. In games context, rewards are given when players achieved certain level of difficulty of games. It serves as an incentive to player to keep them playing and giving them assistance to solve tougher levels. Reward is influenced by the Operant Conditioning Chamber or better known as Skinner Box concept [1]. This concept is applied by putting a rat in a box and let it pull the lever. Sometimes the rat is given a food pallet for pulling the lever. Researchers study the conditions that cause the rat to pull the lever more or less often.

Many scholars have listed and defined reward systems in various ways. Philips, Johnson and Wyeth [2] listed four categories in rewards duration system; timed rewards, transient rewards, permanent rewards and consumable rewards. Those durational characteristics rewards system are relevant to all types of reward. Study conducted by [3] listed rewards into three classes; enabling rewards, exchangeable rewards and subjective rewards. First class of rewards enables player to have privileges and added new skills in their games in order to making progress in the game. While the second class is to exchange goods from other player and get

advantages from it. In games, rewards can be scheduled in four different types: (1) fixed ratio schedule; (2) variable ratio schedule; (3) fixed interval schedule and (4) variable interval schedule [4]. The fixed ratio schedule reward gives reward to players after a fixed number of actions. On the other hand, the variable ratio schedule reward gives reward to players after a random number of actions. The latter two types of reward system differ in a sense that players are given rewards in fixed or variable interval of time.

Giving rewards in games is desirable. Seidman [5] emphasized that designers give players rewards for numerous reasons, including reinforcing player behavior, increasing players' feelings of mastery, scaling difficulty over the course of gameplay, and scaffolding mechanics and player abilities. However, rewards can do as much harm as good and therefore it is important to know when to give rewards and when not to.

Rewards principle have been incorporated in heaps of games. The slot machines, for example, are actually the Skinner Box for humans. Other games such as Farmville and World of Warcraft [3] are notorious for using variable ratio reward schedules. In Candy Crush, rewards are given to players when they reached certain levels, in a form of weapon to assist players in facing challenges at tougher levels, such as shown in Figure 1.

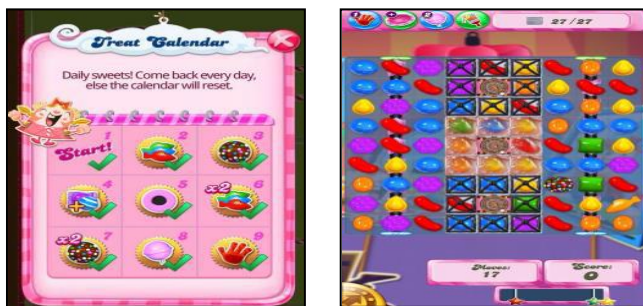


Figure 1: Rewards in candy crush

The examples discussed above are examples of digital contemporary games. In contrast to digital contemporary games, digital traditional games are still lacking of rewards. Despite the importance of rewards in game engagement, it is yet to be incorporated in Malaysian digital traditional games. Hence, this study focuses on incorporating rewards in one of these games, i.e. *Congkak*, and analyzing player’s perception towards it.

Congkak is one of the Malaysian traditional games which is inspired by Mancala. *Congkak* is normally played by the Malay ethnic people. The game is categorized as a board game which is usually made from wood and has two rows of seven holes (sometimes less or more than seven) and two bigger holes called Home (see Figure 2). It is often played as an indoor activity or as a contest between two persons. Each of the holes is then filled with seven seeds or marbles and the Home will be left empty.

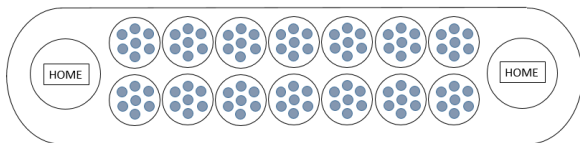


Figure 2: Congkak game

The game begins with both players fill every hole with marbles. Both players take turn to play. If the marble stops at an occupied hole, the player needs to pick up every each of the marbles in that particular hole and continues distributing the marbles until the player meets an empty hole or Home. The ultimate goal of this game is to collect as much marbles in the Home to win it.

2. Rewards and Engagement in Games

Games and engagement issues are not new. Engagement has been identified as a crucial component of learning in games research [6]. There are multiple theories and major models that have deliberated games, engagement factors and how gamers engaged to digital games. However, the direct use of psychological theories for building and designing support systems is insufficient. Computerized programs require encoding which is not supported by psychological models and theories. Reasoning methods about them are unstructured, therefore, a formal method is required for reasoning such unstructured situations.

Although there is no single agreed definition of games engagement, the factors, and how it is measured, the area of the games engagement concepts is much studied [7]. Many researchers identified and described elements that contribute to engagement in virtual environments to adapt to the actions of the user, a compelling narrative, a sense of immersion and creating an experience of flow [8].

To get players engaged to fulfil its measures, games must be designed and developed with certain characteristics. Prensky [9] listed twelve

characteristics that can make computer games engaging. However, emphasis is not given on how rewards can support the mentioned games characteristics towards engagement. Scholars came out with various strategies in designing games rewards. Davis [10] has listed five ways to design effective rewards for game-based learning, while [11] listed nine sort of rewards the player can experience to make player enjoys, and how to keep them playing.

3. Methodology

This article discusses result from the pilot study which was conducted in May 2017. As shown in Figure 3, prior to the pilot study, a digital *Congkak* was redeveloped to serve as a tool to measure perception towards rewards in digital traditional games.

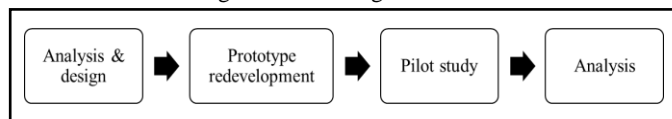


Figure 3: Methodology

3.1 Analysis and Design

This phase involved a construction of a conceptual research framework. An extensive literature review was conducted, and the outcome of this phase are the underlying theories and major models of games engagement like rewards. The review gave insights that model for game engagement can be carried out by implementing it into digital traditional games. There are some of characteristics in rewards feature such as score system, item grating in rewards system and unlocking mechanisms can attract and engage gamers.

Several digital traditional games were studied, aiming to select the most appropriate game to be used in evaluating the influence of rewards on digital traditional game engagement. There are several versions of digital games available to be downloaded from Google Play Store. The most widely downloaded is *Congkak* that was developed by Mr. Syamsul Bahrin Abdul Mutalib [12]. This version has been selected to be redeveloped in this study due to its highest download rate and good feedback. The requirements for redevelopment of *Congkak* with rewards were gathered through content study and interview with gamers.

3.2 Redevelopment of Digital Congkak

Focus of redevelopment was to improve the original *Congkak* by three improvements: (1) adding rewards; (2) changing the gameplay from anti-clockwise to clockwise and (3) adding more flexibility to the board size in which players can select to play either 6, 7 or 8 holes rather than only 7 holes (see Figure 4).



Figure 4: Flexible Board Size of an Enhanced *Congkak*

Figure 5 shows the interface of the enhanced *Congkak*. Player and computer take turn to play.



Figure 5: Interface of the Enhanced Congkak

The rewards incorporated in the enhanced Congkak are divided into 2 types: (1) reward that is given to user by free or redeem a burnt holes of the player; (2) reward that is given the hint to user to moved the step in the games. At start, each player is given 10 credits of reward. Besides, players are also given 3 credit rewards for every round he or she wins; these rewards are credited automatically into the player's account.

While playing, player who does not have enough marbles will see their holes burnt (see Figure 6).



Figure 6: The burnt holes

The burnt holes can be redeemed using the credits in the player's account; 3 credits will be deducted from player's account for each redeem they make (see Figure 7).



Figure7: Redemption of rewards in digital congkak

3.3 Pilot Study

The pilot study was conducted in three steps: (1) game demo; (2) game experience and (3) systematic interview.

Game demo. Prior to the game demo, the digital Congkak was installed on a tablet. Researchers briefly explained all the functions and demonstrated how to play the game.

Game experience. Respondents play the game by taking turn with the computer; this allowed them to gain experience with the game.

Systematic interview. The systematic interview used a self-construct questionnaire that consists of six questions to gather perception towards reward in digital traditional games. The Likert scale ranges from 1 to 5 where 1 indicates Strongly Disagree and 5 indicates Strongly Agree. The six constructs (labeled as C1 to C6)

used to measure the perceptions are as listed in Table 1 below.

Table 1 Constructs to measure perception

Construct	Description
C1	Rewards are important in playing games
C2	Rewards are needed at each level of the games
C3	Rewards only needed at difficult level
C4	Rewards motivate me to play
C5	Rewards help me to survive the game
C6	Rewards help me to keep playing

The second part of the questionnaire is used to gather suggestions from the respondents on what kind of reward they think could enhance the games. The results of this are discussed in the following section.

Once the respondents gained the required experience, they were asked about their perceptions towards all the six constructs.

3.4 Analysis

The data collected during the pilot study were analyzed using frequency analysis. The respondents' feedback which were recorded in the questionnaire were transformed into Excel. Data were coded according to the scale 1 to 5 that they chose. Data were organized into three categories, i.e. demographic profile, perceptions and suggestions. Data were processed according to their categories. The pivot table was created from which the data been sorted and filtered and calculated into mean. Table and graph were created to illustrate the results based on the result of pivot table. Results been analyzed based on total respondent responded for each question in questionnaire. More details of the analysis is discussed in the following section.

4. Findings

Data for the pilot study were collected from 40 respondents aged between 14-32 years old, representing the millennials who are the focus group of this study. Respondents among millennials were chosen because they are more attached and engaged to digital games, especially contemporary digital games [13].

4.1 Demographic Profile

The demographic profiles of the respondents are as shown in Table 2 below. The respondents' details are divided by age, gender and frequency of playing game. The age of majority of the respondents (82.5%) is in the range of 21-29 years old, and most of them are male (77.5%). In terms of frequency of playing games, most (75%) of them play games between 1 to 4 hours a day. Seven point five percent of them only play games less than 1 hour a day while 17.5 percent play games more than 4 hours. This figure indicates that majority of the respondents have experience in playing computer games, whether it is a traditional or contemporary game. As most commercial games have some form of rewards incorporated into the applications, the respondents involved in this study might have knowledge on reward systems and that made easier for them to give opinions on the rewards system being used in digital Congkak.

Table 2 Demographic Profile of The Respondents

	Frequency	Percentage (%)
Age		
14 – 20 year old	5	12.5
21 – 29 year old	33	82.5
Above 30 year old	2	5
Gender		
Female	31	22.5
Male	9	77.5
Frequency playing game		
Below 1 hour	3	7.5
1 – 4 hour	30	75
Above 4 hour	7	17.5

4.2 Analysis of perception

The mean score for each of the items used to measure perception towards rewards is as shown in Figure 8.

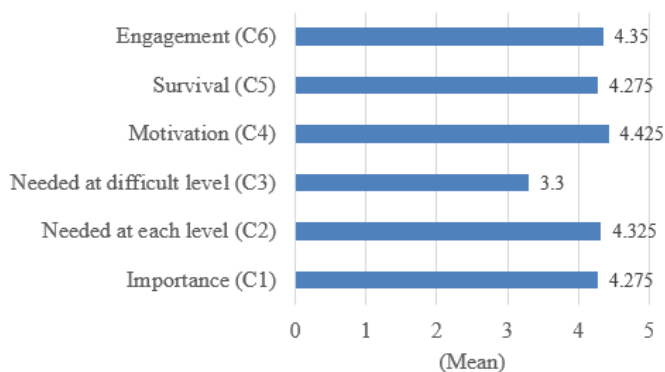


Figure 8: Mean scores

Figure 8 shows that for each of the items being measured, the mean score is above 4 except the mean score for item C3 which is 3.3. This means the majority of the respondents have positive perceptions towards rewards in terms of its importance, level it is needed, motivation, survival as well as engagement.

The mean score for items C2 and C3 are 4.325 and 3.3 respectively. Majority of the respondents agree rewards are more needed at all levels of the games, rather than at difficult levels only. In *Congkak*, the difficulties of the game is determined by the board size (i.e. either 6, 7 or 8 holes). However, the same rewards (i.e. 10 credits at start and 3 credits for every win) are given regardless of these difficulties. The high mean score for C2 indicates that even though at the least difficult level, i.e. 6 holes, rewards are needed.

Rewards are perceived as important in game playing is evidenced from the mean score of C1, i.e. 4.275. Besides, rewards are also perceived as factors that motivate players to play (4.425), help them to survive (4.275) as well as keep them playing (4.35). The fact that rewards motivate players in *Congkak* is consistent with previous findings in [e.g. 10,11,14]. The respondents also respond positively to the rewards that are given in a form of credits that can be redeemed as this has saved them from losing the game early or gave them a chance to win. This could also be the reason for them to keep playing the game.

4.3 Suggestions

The questionnaire used in this study also gather qualitative data in which the respondents are required to give suggestions on what kind of reward they think can be incorporated in the digital *Congkak*.

The respondents stated various forms of rewards including money, live that is free or redeemable, points, free gold, clues or credits that help them in the next level, rewards that make them feel good inside, gems, booster, trophy, drop rate rewards, more stones or marbles, sole, reward that is rare or have special effect that can be seen by other player and can be sold (in other words, reward that can give profits to them), and reward that help them to progress from one level to another.

Figure 9 shows the frequency of responses stated by the respondents with regard to the above mentioned forms of rewards. Money turned out to be the most wanted reward compared to the other forms of rewards.

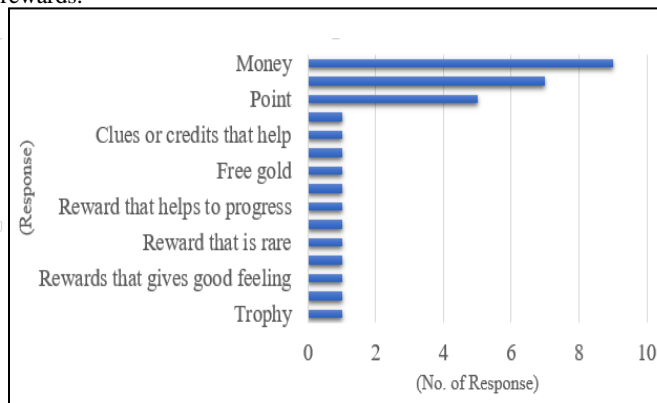


Figure 9: List of suggested forms of rewards

5. Conclusion

Rewards have been successfully incorporated in the enhanced version of *Congkak*. The findings revealed positive perception from players. Hence, it is suggested that future development of digital traditional games should include rewards. UNESCO has recognized the importance of traditional games to cultural heritage and the need to preserve them [15]. Rewards should be considered as one of the factors to attract young generations to play digital traditional games which can therefore help to preserve the cultural heritage of Malaysia.

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