Evaluating Phillips' Game Rewards Taxonomy: Implications for the Gamification Design

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Abstract. This study evaluates the relevance of Phillips' reward taxonomy in the context of contemporary video game design, with implications for modern gamification strategies. Phillips' taxonomy categorizes game rewards into six types based on their functions within game systems. Given the rapid evolution of video games, this research investigates whether this taxonomy remains applicable to current gaming landscapes. The study consisted of two main steps: firstly, a detailed analysis of rewards in seven video games from various genres was performed and secondly, a card sorting activity with expert players was conducted. Results shown that while Phillips' taxonomy resulted to be still applicable, the need for two additional categories, rewards of currency and rewards of self-expression, emerged, reflecting the evolving dynamics in game design and player preferences. Future research will explore the relationship between these reward categories and the fulfilment of basic psychological needs as outlined by Self-Determination Theory, to enhance the motivational impact of gamification.

Keywords: gamification · reward taxonomy · video games · motivation · Game design · Self-Determination Theory

1 Introduction

The maturation of gamification has led to its widespread adoption across diverse domains [1–6] fostering the need for a deeper comprehension of its mechanisms and its effect on users' motivation. As conventionally understood, gamification entails the integration of game elements into non-game contexts [7], thereby imbuing such activities with game-like qualities, with the final aim of fostering user engagement and motivation [8]. Central to this approach are rewards, namely game elements such as points, badges and leader

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boards, employed to promote user engagement, mirroring the challenges and progression inherent in gaming experiences. Consequently, an in-depth exploration of rewards, their bestowal mechanisms, and their intricate interplay with motivational dynamics emerges as pivotal for refining the efficacy of gamification design and counteract the potential negative effect of gamification on intrinsic motivation (e.g. overjustification effect) [9–11]. Indeed, in terms of rewards variety and complexity, video games represent an excellence, and systematically studying them can deeply contribute to the improvement of gamification design.

A number of studies have highlighted the pivotal role of rewards in gamified systems [12, 13], with a specific emphasis on the influence of reward scheduling and contingency factors on the efficacy of gamification. Over time, several studies, regarding video game reward systems, have also proposed game rewards taxonomies focusing on reward typologies rather than conferral modalities [14–18]. Among those studies, the ones carried out by [14, 15] resulted to be particularly interesting for their innovative approach to categorising rewards according to their role within the game system. However, given that Phillips' taxonomy was published a decade ago and that game design is evolving rapidly, the objective of this research is to ascertain whether it remains an appropriate means of evaluating the reward systems of contemporary video games.

2 Motivation and Rewards

As previously mentioned, one of the objectives of gamification would be to motivate users [19], preferably not only in the short period of time. In fact, game-elements are adopted in gamified system to satisfy users basic psychological needs, enhance their overall experiences, and then motivate them to consistently engage with the specific content and activities proposed by the system [7, 20–22]. Although the core concept of gamification is rooted in accomplishing activities through selectively applied incentives (rewards), adhering to a fundamental behaviouristic idea [23], the contemporary approach to gamification design strives to evoke intrinsic motivation processes that extend beyond the transient behavioural changes resulting from a reward system [24]. This shift has broadened the meaning of the term gamification which, as already suggested by Deterding et al. (2011), should be considered as "an informal umbrella term for incorporating video game elements into non-gaming systems to enhance user experience (UX) and user engagement". In fact, building on the foundation laid by Self-determination Theory (SDT), which explored how motivation is developed in video games [25] we can conclude that gameplay itself can be part of an inherently rewarding experience. It would be safe, then, to suppose that the basic psychological demands that are required to create intrinsically engaging video game experiences could be also required to create intrinsically motivating gamified experiences. However, in contrast with this assumption, it must be noticed that gamification usually intends to reach its objective by leveraging game elements like badges, points or leader boards used as extrinsic reinforcement for users' actions in the gamified system, more from the point of view of behaviourists [23, 26] than from the SDT's one [25, 27].

To improve the approach to the use of rewards in gamification, one necessary step would then be to better understand the rewards' nature. In general, the majority of the

studies investigating rewards motivational power is focused mostly on their ability to foster motivation according to the circumstances under which they are awarded [28–31].

To contribute to improving the gamification design would be interesting to adopt a different approach and investigate the impact of rewards on motivation according to their function in the system (i.e., how the reward affects the player's experience and the players' abilities within the system), instead of the circumstances under which they are awarded. To achieve this final objective, this study first intends to verify whether any of the existing taxonomies categorising game rewards based on their function in the game system [14–18] would be suitable for contemporary games' rewards.

3 Why Phillips' Taxonomy

A preliminary search in the main scientific databases, namely Scopus, IEEE-Xplore, ACM Libraries and Science Direct, was performed to identify the main existing rewards taxonomies. A total of 54 papers were found, but only 6 were considered being consistent with the aim of this study, as they provided a systematic analysis of the types of rewards included in video games.

Among all the examined taxonomies, the one from [14, 15], seemed to be the most suitable for describing a video game reward system: in fact, in comparison to alternative taxonomies [16–18, 32], the one advanced by [14, 15] exhibits a more inclusive and abstract nature, emphasising the function of rewards within the system rather than their discrete attributes. Moreover, it draws from a broader spectrum of videogame analyses in contrast to [16, 17].

Finally, among the array of taxonomies analysed, the one posited by [14, 15], emerges as particularly aligned with the primary objective of this investigation. This taxonomy prompts contemplation regarding the potentiality that rewards themselves may not inherently serve as motivators. Rather, it is the function they assume within the system that elicits motivational responses. According to [14, 15] rewards can be categorised as follows:

Rewards of access: locations or resources that, at some point in the game, become accessible (e.g. A new level, a new area on a map, etc.);

Rewards of facility: give players the ability to do things they were not capable of or improve abilities that they already have (e.g. power ups);

Rewards of sustenance: help players to stay longer in the game (e.g. extra lives or medi kits);

Rewards of glory: they have no direct impact on the gameplay itself, but they are an integral part of the gaming experience (e.g. points, achievements, etc.);

Rewards of praise: like rewards of glory they don't have a direct impact on the gameplay but work as encouragement to the players, and highlight their success (e.g. phrases of congratulations).

Rewards of sensory feedback: are audio/video/aptic feedback given to the player when things happen in the game (e.g. vibration of the controller, special sounds, animations, etc.).

Furthermore, [14] identified what they defined as "emerging categories", which described the duration rewards had in the games they examined.

4 Research Questions

To derive the aforementioned categories, Phillips et al. examined popular games from different genres in 2013. Given the evolving nature of the video game market, it is reasonable to assume that in this last decade gameplays have evolved, and, consequently, the types of rewards they include as well. To identify a reward taxonomy able to classify rewards according to their role could be the starting point of a broader research aiming at further understanding the link between rewards and motivation. Given that, the research questions this paper aim at answering to are:

RQ1: Can the Phillips et al. taxonomy still be considered as representative of contemporary video games reward systems?

RQ2: Are there new emerging reward categories in the current game video industry?

5 Method

Initially, to address the research questions, 21 games were selected from among the most prominent titles within the gaming milieu, 3 for each of the genres listed in Table 1. The subsequent step was to identify the experts that would have to examine the game rewards in the light of the selected taxonomy. For convenience reasons, the selection of expert players was predicated on their voluntary participation among students enrolled in the Applied Games course, part of the bachelor's degree in Innovative Technologies for Digital Communication at Link Campus University, thus ensuring their familiarity with Phillips' taxonomy and the overarching aims of this investigation. Students were asked to fill in a questionnaire to self-assess their expertise in the 21 games previously identified. Specifically, they were asked for an estimation of how many hours per week they spent playing each game and their level of appreciation of them. According to questionnaire results, a short list of 7 games was drafted, as synthetised in Table 1.

Also, a pool of seven evaluators was selected for the first step of the analysis: they were initially requested to compile an inventory of the principal rewards embedded within the game they played the most, based on their memory of the entire game. Subsequently, through a closed card sorting session [33], the evaluators categorised the identified rewards according to the taxonomy established by [14, 15]. In case of rewards not fitting any of the Phillips categories, a session of discussion through an open card sorting session was organized [33]. Finally, to assess the consistency of the categorisation performed by the evaluators the Inter-rater Agreement [34] was conducted: fourteen more raters were chosen among the respondents to the questionnaire, to individually rate their agreement (1) or disagreement (0) with the categorisations of the evaluators. Two raters were assigned to each game: they received the list of the rewards with a brief description and the categories of the taxonomy they were in. Given the small number of items to be rated, to calculate such agreement, the Percent Agreement Method was adopted [35–37].

Table 1 Games selected for the study

Title	Genre	Single player/Multiplayer	Monetisation model
Clash royale	Pay-to-win real-time strategy	Multiplayer	Freemium/in-app purchase
Cyberpunk2077	Action role-playing in an open world	Single player	Premium + DLC
Dark Souls	Action role-playing game	Both	Premium + DLC
Dead by daylight	Survival horror asymmetric multiplayer online game	Multiplayer	Premium/in-app purchase
HayDay	Mobile simulation game	Multiplayer	Freemium/in-app purchase
League of legends	Multiplayer online battle arena (MOBA)	Multiplayer	Freemium/in-app purchase
Valorant	Tactical first-person hero shooter	Multiplayer	Freemium/in-app purchase

6 Results

A total of N = 190 rewards were identified over the seven selected games. After the closed card sorting session the distribution under the Phillips categories resulted to be uneven, fact that can be mostly ascribed to the games' different genres. Furthermore, the 20% of the total of the rewards (n = 38) resulted as not classifiable under any of the available categories. In this phase, an open card sorting activity was carried out, resulting in two more categories added to the Phillips' taxonomy:

Rewards of currency: including all the rewards that could be used in the game to buy (or in exchange for) other rewards (e.g. coins, gold, special currency, etc.);

Rewards of self-expression: become popular in recent years, have the only purpose of allowing players to customize their gaming equipment, with no impact on the gameplay or on the game performances (e.g. avatar skins, weapons skins, etc.).

The last step was to calculate the level of agreement among raters regarding the belonging of a reward to a specific category. In Table 2 all the percentage agreements are summarised.

Percentage agreement is acceptable in a range between 70 and 90% (Hartmann, 1977; Stemler, 2019). Considering all the agreements being higher than 80% it was reasonable to consider the single rewards of each game as representative of the category they were associated with.

Table 2 Each game percentage agreement between raters

Title	Percentage agreement	Title	Percentage agreement
Clash royale	100%	HayDay	93.75%
Cyberpunk2077	96%	League of legends	82.93%
Dark Souls	84.62%	Valorant	81.48%
Dead by daylight	80%		

7 Discussion and Conclusion

The objective of this paper was to verify if the reward taxonomy, theorized by [14] was still valid if applied to contemporary video games and to determine if any new reward category emerged after the analysis of contemporary videogames.

Results shown that the taxonomy is still applicable, and that two more categories can be added to the existing ones: rewards of currency and rewards of self-expression. It can be noticed that concept of currency already existed in Phillips taxonomy, but it was presented under one of the "emerging categories" referred to the duration of the rewards, "Consumable Rewards". This shift into a proper category could be ascribed to the prominent role that currency, in its broader sense, has in contemporary games, both as items that can be spent in the game and as in-game currency to be bought through real money. As for the rewards of self-expression, this is a completely new category, representing the rewards that don't affect the gameplay in any way, but that have the sole role of allowing players to express themselves within the game environment, which has been identified as a growing need in new generations of players [40]. Lastly, it can be highlighted that these two new rewards categories have one element in common, namely micro-transactions, that is payments made for buying mobile applications or purchasing extra content within video games [41]. In recent years, this business model (freemium and/or with in-app purchase, as shown in Table 1) has become predominant in the games industry [42], and it has largely been studied in relation to its implication in gambling and ludopathic behaviour [43, 44] but, in the light of the results of this study, it can be hypothesised that such business model has also had an impact on game design itself.

This research also highlights how the variety of rewards included in video games is wide, and how they are used to generate different experiences within the game system. This is also the case in Serious Games, which retain the structure and constituent elements of the video games developed just for entertainment pourposes. In this sense, the design of Gamification can take its cue, trying to diversify the rewards bestowed, having as a framework of reference precisely the role that these rewards play within the system, and moving forward from the superficial kind of gamification approaches relying mainly on points, badges and leaderboards (PBL), which have been largely criticised for being of limited efficacy [45].

8 Limitations and Future Work

As a first attempt of analysing video games rewards in the light of their role in the game system, this study suffers from some limitations. The plethora of games chosen for the study, even though representative of the main game genres, is limited and could be extended both, to specific genre niches and in terms of numerosity. It must be also noticed that in this specific study the gamer point of view was adopted, while it could be explored if, changing the perspective, for instance involving other professionals, the results of the study would be different.

This research represents the first step of a broader study about the role of rewards in gamified application as elements supporting motivation. The next step of this study would be to verify if, and to what extent, categories of rewards, as defined in this paper, are correlated to the satisfaction of the three Basic Psychologic Needs theorized by the Self-determination Theory [27].

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