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Learner Perceptions on Gamifying Active Video Watching Platforms

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Abstract: Video-based learning (VBL) provides self-paced and flexible learning. However, VBL is often a passive learning method. Active video watching (AVW) has been proposed as an approach to increase learner engagement. We investigate the motivation and perception of learners towards gamification to further increase engagement in AVW. Results from a survey in New Zealand and the Philippines show a positive perception towards integrating gamification into AVW, with learners preferring a combination of game elements rather than individual elements. Our findings provide foundations for a gamification intervention in AVW.

Keywords: Video-based learning, active video watching, gamification

1. Introduction

Video-based learning (VBL) has become a popular learning method (Giannakos et al., 2016). Although VBL offers self-paced and flexible learning (Pal et al., 2019), it can be a passive activity leading to shallow learning (Seo et al., 2020). Since students learn more when they engage in more activities (Koedinger et al., 2015), there have been attempts to increase engagement in VBL by actively supporting engagement via active video watching (AVW) (Mitrovic et al., 2019). Various platforms support AVW, e.g., AVW-Space, which includes activities like writing comments on the content of watched videos or rating comments made on the videos by other learners (Lau et al., 2016; Mitrovic et al., 2016).

Gamification is the use of game design elements in non-game contexts (Deterding et al., 2011). Gamification increases learner engagement by satisfying the learner's psychological needs, such as autonomy, competence, and relatedness (Suh et al., 2018). Education is among the top sectors where gamification interventions have been researched (Hamari et al., 2014). Badges, leader boards, levels, challenges, customization, and points are the most used game elements in the educational context (Klock et al., 2020).

This paper presents a preliminary study to understand learners' perception of gamification in the context of AVW. The following research questions are addressed in this paper:

1. What is the perception of learners on how gamification impacts motivation?
2. What is the perception of integrating gamification into active video watching?
3. What gaming elements do potential learners consider most desirable in active video watching?

2. Methodology

We designed a survey with 17 questions on demographics, motivation, experience with gamification, perception of gamifying active video watching, and game elements (the full questionnaire as well as the responses are available online:

https://doi.org/10.5281/zenodo.8176246). Table 1 shows the game elements we included in the survey (based on the most common game elements identified in the literature (Majuri et al., 2018)).

Table 1. *Game elements*

Game element	Description
Point	Positive feedback or a reward (score)
Challenge	A task that requires effort to complete
Badge	Virtual representation of an accomplishment
Leaderboard	An element that orders users according to a criterion

Following the human research ethics approval (HREC 2023/16/LR-PS), participants were recruited via advertisements on university channels. Participants' demographics are in Table 2 and Table 3.

Table 2. *Gender and Institute*

Institute	Gender	Count
University of Canterbury, New Zealand	Male	26
	Female	21
	Non-binary	2
University of Ateneo de Davao, Philippines	Male	38
	Female	15
	Non-binary	1
	Total	103

Table 3. *Age distribution*

Age range	Count
18-23	87
24-29	5
30-35	9
36-41	2

The survey was integrated into AVW-Space, a platform for active video watching (Lau et al., 2016). Participants were given 30 minutes to go through the platform to get an idea of AVW before completing the survey. A short introductory video on gamification was also provided at the beginning of the survey. The data analysis was conducted as a descriptive statistical analysis.

2.1 Results

Eighty-three percent of respondents (n=85) would feel motivated if they saw their progress (regardless of the actual game element), while 54% (n=56) would feel motivated if they saw their peers' progress as well. Eighty-eight percent (n=91) mentioned they would feel motivated if they received rewards for completed activities (again, regardless of the actual game element).

Sixty-nine percent (n=71) would like game elements integrated into AVW platforms. Fifty-six percent (n=58) stated that gamification would improve their learning on AVW platforms.

Regarding actual game elements, 29% (n=30) selected the combination of Points, Challenges, Badges, and leaderboards as gaming elements that would most effectively motivate them to undertake activities (see Figure 1).

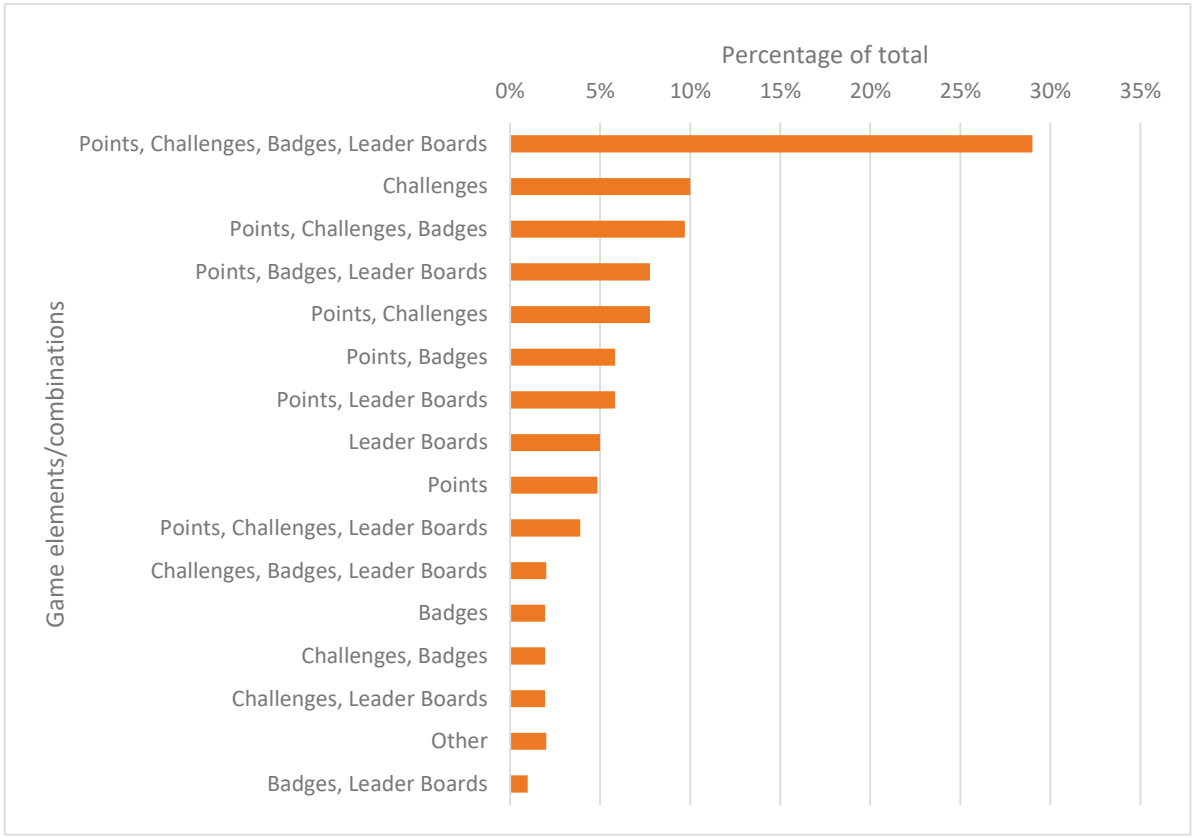

Figure 1. Game elements/combinations that would motivate the learners

When considering individual game elements, Points were the most popular element (n=77), followed by Challenges (n=68), Badges (n= 61), and Leader boards (n=58). However, in terms of motivation to undertake specific learning activities, participants stated Points (15%) or a combined integration of Points and Challenges (15%) as the most liked element(s) when watching videos, and Points for both activities of commenting on videos (32%) and rating comments of videos (23%) (Table 4).

Table 4. *Most preferred game elements for each learning activity*

Activity	**Most preferred game element(s)**
Watching Videos	Points - 15%
	Points & Challenges - 15%
Commenting on Videos	Points - 31%
Rating Videos	Points - 23%

To further explore whether perceptions or preferences depend on respondents' background, chi-square tests were conducted. We found that participants with previous gamification knowledge responded positively when asked about being motivated to interact with the platform if they saw their peers' progress on the platform, while participants without previous knowledge of gamification responded neutral (p = .028). This may be self-explanatory since participants who already know about gamification might have had positive experiences.

3. Conclusions

Research shows that gamification effectively increases engagement (Stanculescu et al., 2016). We analyzed learners' perceptions of integrating gamification with AVW as the first step before implementing gamification in AVW. This study provides evidence for the positive user perception towards gamification that will help us design a gamification intervention for AVW-Space.

Overall, there was a positive perception of gamification impacting the learners' motivation regardless of the experience with AVW or gamification. Also, the perception towards gamification improving learning from the platform was positive, with integrating gaming elements in AVW being the same. Participants preferred having multiple game elements instead of integrating individual elements.

A threat to validity of this research is the dependence of the responses on the overall time the learners spent on AVW-Space to get an idea of what AVW is. New learners answered the survey based on their limited experience with AVW-Space. Other threats to validity are the small number and types (e.g., students with little practical experience) of respondents from two universities.

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