Designing the Integration of Hexad User Type Gamification Elements to XIPHIAS

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Abstract: This study builds on top of the initial version of XIPHIAS (2012) where it makes use of BLAP Gamification to gamify Ateneo de Naga Department of Computer Science students' C++ submission in their introductory programming classes. This research extends the previous XIPHIAS by integrating Hexad User Type Gamification Elements to XIPHIAS as alternative to BLAP Elements. This research aims to determine whether the XIPHIAS system with Hexad User Type Gamification Elements would be usable.

Keywords: Meaningful Gamification, System Usability Scale, Usability Test, XIPHIAS

1. Introduction

Gamification is using game-based mechanics, aesthetics and game-thinking [methods] to engage people, motivate action and solve problems (Kapp, 2012). It is typically used as an intervention to affect user behavior by using elements such as badges, points, leveling up systems, leaderboards and awards (Dichev & Dicheva, 2017; Nicholson, 2015). Implementation of these elements are sometimes called "Reward-Based Gamification" or BLAP Gamification (Nicholson, 2012).

BLAP gamification elements taps users' extrinsic motivation (Nicholson, 2015). While the model has its benefits (Turan et al, 2016), some studies show users disengaging when exposed to BLAP (Nicholson, 2013). The gaps of BLAP inspired researchers to create a model that taps users' intrinsic motivation instead. The use of elements that taps intrinsic motivation is called meaningful gamification (Nicholson, 2015). This study will create and test the usability of the gamified system based on a meaningful gamification strategy called "Hexad User Type Gamification" to college students.

2. Related Works

Gamification strategies are being used in several fields to affect the users' motivation.

2.1 BLAP Gamification and XIPHIAS Version 1

BLAP model is effective in affecting users' behavior on a short span of time through a sustainable reward system (Nicholson, 2015). A gamified system based on BLAP has been developed to evaluate students' C++ submissions in Ateneo de Naga University. (Agapito et al, 2012). One feature allows the experience in the system to be converted to a resume (Milla et al, 2015). While BLAP has its benefits, it also has its pitfalls. The leaderboard element of BLAP may either encourage or discourage users (Furdu et al, 2017; Kapp, 2012). It falls short in building a long term drive in its users (Nicholson, 2015).

2.2   *Meaningful Gamification and Hexad User Types*

Meaningful gamification is defined as using game elements to activate intrinsic motivation (Nicholson, 2015). A study applied meaningful gamification to a blended learning class and found out that (1) game mechanics doesn't affect learning factual information but (2) it helped improve the quality of student outputs. Students become motivated to engage in more problems and pursue respective courses. Marczewski (2014) created a personality type framework called "Hexad User Type" that classifies users into 6 different types with different motivation and appealing game elements. A validation has been developed and a test has been created to determine the users' type and suggested game elements that suit the particular user (Tondello et al, 2016).

3.   Methodology

The current XIPHIAS system will be crafted based on the Hexad User Type Gamification. The system will be subjected to System Usability Test (Brooke, 1986). The 12 usability evaluators come from senior high school and college students of Ateneo de Naga University. These groups have been selected to get a prior assessment from both the future users (Senior High School) and current target users (College).

3.1   *Elements Used*

The hexad user type framework hypothesizes 6 player user types having different appealing gamification elements (Marczewski, 2014). Each user will be tasked to accomplish a hexad test to determine their user type (Tondello et al, 2016). The current XIPHIAS will choose specific game elements based on the Hexad User Type framework (See Table 1).

Table 1
Hexad User Type and Elements used in XIPHIAS

	User Profile Alias	Badge (Extrinsic)	Game Element
Philanthropist	Helpers (Auxilium)	Tutor, Service	Comment System
Socializers	Social Being (Socialis)	Event, Leader	Houses
Free Spirits	Explorers (Indagator)	Explorer	Easter Egg, Customization
Achiever	Experts (Peritum)	Test, Skill Mastery	Badge Levels
Players	Hunter (Venandi)	All Badges	Xiphias points, Badges
Disruptors	Revolutionists (Rerum)	Exterminator	System Bugs, House Competition

All badges used are targeted towards the expected behavior per user type. The elements used are inspired from the hexad user type framework. Each badge is earned by accomplishing its required tasks and each task merits XIPHIAS points (XP). Each badge consists of 5 levels with increasing difficulty. Each user is assigned to any of the 4 houses. These 4 houses compete in the form of accumulated member XPs. Users can also try searching for Easter eggs, change their user avatar (customization) or commend other users. System exploits can also be reported.

3.2   *System Usability Test*

The tool used to evaluate the system's usability is the System Usability Scale (Brooke, 1986). It gives quick and reliable analysis of a system's usability. It provides subjective examination based on the tester's experience. It focuses on 3 major components: (1) effectivity, (2) efficiency, and (3) satisfaction. The testers have been asked to accomplish system tasks before they evaluate the system's usability. These tasks will give them an experience which they could use to assess the usability of the system.

4.   First System Usability Scale Test

Based on the initial observation of tasks accomplished, users are able to access the system and complete their profile. However, some had difficulties in determining the house they belong, count how many commended them, identify different badge levels and submit requirements to tasks.

After the testers completed the tasks which gave them initial experience needed to evaluate the system, they were asked to evaluate the system using SUS Test. XIPHIAS passed the usability test with a mark of 74.375 (Good SUS Score Category). Based on the task accomplishment and observation, XIPHIAS has been redesigned. The display for badges was increased from 3 per row to 4. Tasks Panel changed from grid to list type. The leaderboard of the houses initially placed below the badges, were now moved to another page. NavBar similar items have been grouped. Avatar Change mechanics is revised. Easter Egg module has been redesigned.
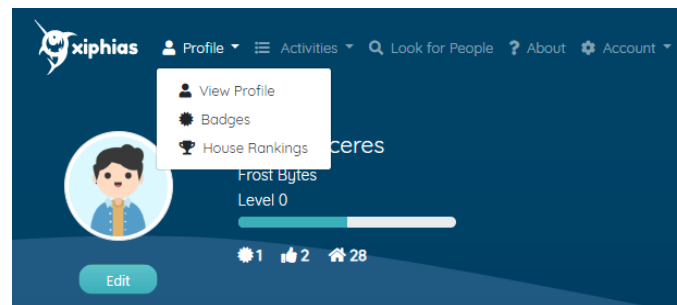

Figure 1. NavBar Group Items [One of the updates after SUS]

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