

Chih-Hsiung Tu

Northern Arizona University, USA

Chih.Tu@Nau.Edu

Cherng-Jyh Yen

Old Dominion University, USA

cyen@odu.edu

Laura Sujo-Montes

Northern Arizona University, USA

Laura.Sujo-Montes@nau.edu

Gayle A. Roberts

Anderson Cancer Center, USA

groberts@rtu.phxcoxmail.com

AN EXAMINATION OF GAMING PERSONALITY AND GAMING DYNAMICS

Abstract

Educators agree gaming encourages learners to gain a new perspective through active engagement in collaborative decision making to solve problems. This study investigated the research question: How will each of the four types of gaming personality in online learning (i.e., Explorer, Socializer, Killer, & Achiever) respectively predict the level of gaming dynamics in online discussion environments? This study concludes that three types of gaming personalities can serve as the predictors for gaming dynamics in a gamified online discussion environment. In other words, online learners whose gaming preferences and motivations are in Socializer, Achiever, and Explorer, are more likely to be motivated, more satisfied, and actively engage in online discussion environments.

Purposes

This study investigated the research question: How will each of the four types of gaming personality in online learning (i.e., Explorer, Socializer, Killer, & Achiever) respectively predict the level of gaming dynamics in online discussion environments?

Theoretical Framework

Educators agree gaming encourages learners to gain a new perspective through active engagement in collaborative decision making to solve problems (Gee, 2003; Huang et al., 2010; Reese et al., 2011). Gamification is the use of game mechanics to drive game-like engagements and actions. It applies game mechanics, dynamics, and frameworks to promote desired learning behaviors (Lee & Hammer, 2011). Game mechanics are principles, rules, and/or mechanisms that direct a desired behavior through a system of

incentives, feedback, and rewards with reasonably predictable outcomes (Wu, 2011). To operate game mechanics, effective gaming dynamics are applied which are temporal in evolution and patterns of both the game and the learners that make the game (or any gamified activity) more engaging.

Researchers argue that gamification could motivate and engage learners to reach desired learning behaviors since motivation and engagement are major challenges for current learning systems (Bridgeland, Dilulio, & Morison, 2006). Based on self-determination theory (Reci & Ryan, 2000), learners are motivated from within, by interests, curiosity, care or abiding values. These intrinsic motivations are not necessarily externally rewarded or supported, but nonetheless they can sustain passions, creativity, and sustained efforts. The interplay between the extrinsic forces acting on persons and the intrinsic motives and needs inherent in human nature. Leblanc (2006) affirmed that gamification provokes students to engage more deeply and potentially inspires them to change their self-concept as learners. Effective gamification employs the energy, motivation and sheer potential of learners' game-play and directs it toward real-life learning. Corbett (2010) powerfully declared that gamification should go beyond classroom instructions to be integrated in curricula universally in education resulting in providing multiple routes to learning success and allowing learners to evaluate and set their own sub-goals within the larger task.

Gamification invokes socialization, and charged emotions (Lee & Hammer, 2011); therefore, a gaming personality could predict how interactive and engaging gamification could be. The Bartle Test of Gamer Psychology (Bartle, 1996) is frequently applied by researchers to understand and categorize online game players into four gaming personalities based on their gaming preference: Socializer, Achiever, Explorer, and Killer. Socializer participates in games for social purposes; Achiever appreciates positive reinforcements in gaining, points, levels, or badges; Explorer prefers discover different activities and actions; and Killer focuses on aggressive competition with others and prefers fighting them to gain success. These four gaming personalities have the potential to predict how to engage gamified instructions to help educators design effective gamification for online learning.

Psychologically, game dynamics are framed from „the Fogg Behavior Model (FBM) (Fogg, 2011)” to understand how learners behave. FBM is a multi-factor model and facilitates analysis, construction and deconstruction of game dynamics. It asserts that there are three required factors that underlie any human behavior: Motivation, Ability, and Trigger.

Asynchronous online discussion forums are one of most interactive instructional activities with which to engage learners in active learning. Research indicates that learners demonstrate from minimal, moderate, to high levels of critical thinking in threaded discussion forums (de Leng, 2009). Educators integrate various instructional strategies to enhance asynchronous online discussion. Integrating digital gaming dynamics to enhance online discussions may result in online discussions that are more motivational and engaging.

The participants were engaged in the gamified online discussions for 14 weeks. They were instructed that they would participate in bi-weekly online discussions to earn different badges (e.g. Starter, Ally, Warrior, Hero, Community Enthusiast etc.) to succeed as competent global digital citizens (see <http://tinyurl.com/74jny65>). The

participants would receive various badges when they perform certain online discussion tasks. The participants were informed that the discussion badges do not determine discussion grades.

Method

Participants

One-hundred seven Educational Technology master program students in online courses in a southwestern U.S. four-year public university participated by responding voluntarily to two online surveys. The majority of them were female ($n = 72$, 62.29%), Caucasian ($n = 78$, 72.90%), and 26 – 45 years old ($n = 86$, 80.37%).

Measurement of Research Variables

The Bartle Test of Gamer Psychology (BTGP) (Bartle, 1996) and Gaming Dynamics Survey (GDS) were administrated at the end of online discussions.

Criterion variables. The criterion variable was a participant's level of gaming dynamics. Each of them was measured by one item on a 5-point Likert scale ranged from 1 as strongly disagree to 5 as strongly agree from the online survey of gamification experiences in online discussions. Accordingly, 1 would indicate the lowest level and 5 the highest level in level of gaming dynamics.

Predictor variables. The predictor variables represented four gaming personalities of the Bartle Test of Gamer Psychology: (a) Killer, (b) Socializer, (c) Achiever, and (d) Explorer. They were measured by various numbers of items on participants' gaming preferences and motivation. The responses to the items for each gaming personality of BTGP were summed up to indicate a participant's level of BTGP on that particular gaming personality.

Data Analysis

All data analyses were conducted with the IBM SPSS Statistics 19. Furthermore, the alpha level was set at .05 for all significance tests.

Ordinal logistic regression. Ordinal logistic regression analysis (Norusis, 2012; O'Connell, 2006) was implemented to answer the research questions with the ordinal criterion variables. More specifically, cumulative odds models were specified for various research questions. The use of ordinal logistic regression could take advantage of the information on rank ordering of the outcomes (Hosmer & Lemeshow, 2000) and help to avoid the statistical consequences from the violation of assumptions in linear regression, such as normality of errors and linearity in the parameters (King, 2008). The log transformation in logistic regression also ensured that the predicted probabilities for the event of interest would range from 0 to 1 (Cohen, Cohen, West, & Aiken, 2003).

Significance test. The overall predictive utility of each of the four predictors (i.e., Socializers, Achievers, Explorers, Killers) for the criterion variable was assessed with the χ^2 likelihood ratio test of the differences between the deviances in the null model

with no predictor and the model with the predictor under study (O'Connell, 2006). Relative to the Wald test also available in SPSS, the χ^2 likelihood ratio test is more powerful and less likely to be biased with sparse data (Cohen et al., 2003) The parallel lines assumption was checked with the χ^2 likelihood ratio test (Norusis, 2012) to assess whether the relationship between the predictor variable and the criterion variable remained the same across various cutpoints in the criterion variable at which the cumulative odds and probabilities were estimated.

Effect size index. Two different pseudo R^2 , Cox and Snell R^2 and Nagelkerke R^2 , were computed to assess the overall model fit (Norusis, 2012). The larger the pseudo R^2 was, the better the model fit.

Results

Descriptive Statistics of the Research Variables

Overall, participants seemed to have stronger gaming personalities in Killers, and Socializers with average results per item greater 4 but weaker gaming personalities in Achievers and Explorers with the average results per item less than 4. Around sixty percent of the participants perceived themselves as having the gaming dynamics at least up to 3.

Gaming Dynamics as the Criterion Variable

In the ordinal logistic regression model with gaming dynamics as the criterion variable, the results of the χ^2 likelihood ratio test supported the predictive utility of Socializers ($\chi^2 (1, N = 107) = 6.88, p < .05$), Achievers ($\chi^2 (1, N = 107) = 6.67, p < .05$), and Explorers ($\chi^2 (1, N = 107) = 9.47, p < .05$) for gaming dynamics. Accordingly, the probabilities of obtaining various results in level of gaming dynamics would change with Socializers, Achievers, and Explorers. In addition, the results did not indicate the violation of the parallel lines assumption in the ordinal regression models with Socializers ($\chi^2 (3, N = 107) = 2.15, p > .05$), Achievers ($\chi^2 (3, N = 107) = 3.17, p > .05$), and Explorers ($\chi^2 (3, N = 107) = 2.05, p > .05$) as the predictor respectively. Therefore, the relationship between each of those three predictors and gaming dynamics remained constant across four cutpoints in gaming dynamics and could be estimated by the single regression coefficient (Norusis, 2012).

The Cox and Snell R^2 and the Nagelkerke R^2 ranged from .03 to .09 in various ordinal regression models and indicated a weak to modest predictive relationship between each of those three predictor variables and the criterion variable.

Discussions

This study concludes that three types of gaming personalities can serve as the predictors for gaming dynamics in a gamified online discussion environment. In other words, online learners whose gaming preferences and motivations are in Socializer, Achiever, and Explorer, are more likely to be motivated, more satisfied, and actively engage in online discussion environments.

Socializer

Socializers engage in the games for the socialization and values interacting with others; therefore, they are likely to have higher gaming dynamics in online discussion environments. This could be explained from the aspects of social relationship, social presence, and team discussion moderators. In the beginning of the online discussions, the participants were engaged in self-introductions in social relationship building and there was a „Cyber Café” available for the participants for non-content related communications for social interaction and relationship building and to support one another, socially. Additionally, team discussion moderation was integrated to facilitate the discussions and to earn collaborative moderator badges, which required a team effort to earn. Other collaborative and social badges were Swarm, Comrade in Arms, and Paul Revere Badges etc. requiring more than two participants to achieve certain tasks to earn these collaborative badges.

Achievers

Achievers prefer to gain concrete reinforcements, such as points, levels, and badges etc. for the prestige of earning them. Achievers are more likely to have higher gaming dynamics. In the beginning of the discussions, the participants were instructed that their goals were to become competent Global Digital Citizens by earning different badges based on their discussion performances. Apparently, this appeals to Achievers and increases their interests. More than 30 different badges were designed in the gamification instructions. To become a competent Global Digital Citizen, the participants had to earn different and specific badges by the end of the fourteen-week discussions. Each participant created a Global Digital Citizen Passport on a personal blog to collect and to display the earned badges, which presumably appeals to Achievers. There were a few elite and „TOP Three” badges (Leaders Boards) designed but were not required to become competent global digital citizens. This also would appeal to Achievers as well since they prefer to show off their skills and display their elite status to others.

Explorers

Explorers prefer discovering different tasks, which is an effective strategy to participate in online discussions. The badges designed in this study include overt ones and hidden ones. Explorers would enjoy exploring both types of badges. Some badges, such as Early Bird and Super Early Badges, required the participants to arrive at certain discussion thread to perform certain tasks at/by certain time. In fact, Explorers appreciate restrictive games as well as permissive ones. By accomplishing these tasks, Explorers retain rich memories about the adventures they experienced in online discussions which make their online discussions more engaging.

Killers

Killers prefer to compete in game playing. It is only one of four gaming personalities that cannot predict gaming dynamics in the gamified online discussion environments. This can be explained by the nature of online discussion environments being more on interactive, social, collegial, and collaborative rather than competitive. Additionally, there were some collaborative badges while no competitive badge designed for this study. It would be a vital mistake to conclude Killers are not valued in effective discussion environments. Effective competitions may offer great values to online discussions that would benefit Killers since they simply learn and thrive on competition. Effectively supporting Killers, the competition may not be between learners. The „benign” competitions could be strategically designed within individuals and the whole groups past, current, and future performances.

Conclusions

This study concludes Socializer, Achiever, and Explorer gaming personalities can predict gaming dynamics in gamified online discussion environments. Understanding learners’ gaming personalities would assist online instructors to design more effective gamified online discussion instructions and provide relevant support to different types of gaming personalities. Simply understanding gaming personalities is not enough to enhance gamified online discussions. Instructors should assist and support different types of gaming personalities by designing different gaming dynamics to engage them in online discussions to succeed in effective learning.

Although Killer gaming personality can’t predict gaming dynamics in this study, online instructors should identify effective strategies to support them in engaging in effective online discussions. It should not be taken mistakenly that Killers are inappropriate for online discussions. What gaming personalities can predict gaming dynamics should depend on the learning goals determined by the instructor for different online learning activities. If more competitive online discussion instructions applied, such as online debate etc., Killer type of gaming personality could be more suitable.

It is important to notice that gaming personalities may not be single dimension to each learner. Online learners may appeal with a specific gaming personality; however, they may be associated with the other three personalities in certain degrees. The future studies should focus on the multi-dimensional gaming personalities to obtain deeper understanding of gaming dynamics in online learning environments; and how may different gaming personalities interaction enhance and/or inhibit one another in the same online learning environments.

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