Immersion in video games, creative self-efficacy, and political participation

By Dalisay, F[1], Kushin, M[2], Somera, L[3], Forbes, A[4] and Kim, J[5]

Abstract

Data from a cross-national survey ($N = 801$) of young adults in Australia, the Philippines, South Korea, and the U.S. (Guam, Hawaii, Continental U.S.) were analyzed to explore the relationships between the three subcomponents of the immersion motivation of video game play—discovery, role-play, and customization (Yee, 2006)—creative self-efficacy, and political participation. Findings reveal role-play and creative self-efficacy are positively associated with political participation; discovery and role-play are positively associated with creative self-efficacy. Furthermore, discovery, role-play, and customization had small indirect effects on political participation via creative self-efficacy.

Keywords: *Video games, creative self-efficacy, political participation*

[1]**University of Guam**
[2]**Shepherd University, WV, USA**
[3]**University of Guam**
[4]**James Cook University, Australia**
[5]**Pohang University of Science and Technology, South Korea**

Exploring the Links Between the Immersion Motivation of Video Game Play,

Creative Self-Efficacy, and Political Participation

During a TED (2010) talk on video games, game designer and scholar Jane McGonigal stated, "[i]f we want to solve problems like hunger, poverty, climate change, global conflict, obesity, I believe we must aspire to play games…for at least 21 billion hours a week by the end of the next decade." McGonigal's call can be aligned with the growing body of studies indicating that video games can promote political engagement (Dalisay, Kushin, Yamamoto, Liu, & Skaliski, in press; Kahne, Middaugh, & Evans, 2009; Steinkuehler & Williams, 2006). Indeed, the Pew Gaming and Civic Engagement Survey (Lenhart, Kahne, Middaugh, Macgill, et al., 2008) conducted among teens in the U.S. indicates that game play fosters engagement in political activities. Yet while there is mounting empirical evidence supporting the pro-civic potential of video games, current understanding is lacking regarding the underlying psychological mechanisms that might explain the link between game use and political behaviors.

A recent study conducted by Dalisay et al. (in press) attempted to fill the above-noted void by exploring the relationship between motivations for video game play (Yee, 2006) and political participation. The study revealed that a factor consisting of items intended to measure three subcomponents of the immersion game play motivation—specifically, the discovery, role-play, and customization subcomponents—was the only significant predictor of participation in political and civic activities. The study suggested that creative self-efficacy, a more specific form of efficacy referring to one's belief in the ability to produce creative outcomes (Tierney & Farmer, 2002), could explain why being motivated to play games to discover, role play, and customize characters is linked with political participation. This assumption was grounded upon

two programs of research. On the one hand, extant studies show a positive link between political efficacy and political participation (e.g., Pinkleton, Austin, Zhou, Willoughby, & Reiser, 2012). On the other hand, recent research conducted by Jackson, Witt, Games, Fitzgerald, et al. (2012) suggests video game playing is positively linked with creativity. To date, however, few studies have integrated these two programs, and very little is known about the relationships between immersion in video games, creative self-efficacy, and political participation.

Using data from a cross-national survey of participants living in Australia, Guam, South Korea, the Philippines, and the U.S. (which includes sample from the continental U.S. and Hawaii), the purpose of the present study is two-fold. First, it explores whether being motivated to play video games in order to discover, role-play, and customize characters facilitates political participation and creative self-efficacy. Second, this study explores whether creative self-efficacy fosters higher political participation.

Before proceeding, it should be noted that this study's focus on motivations for video game play is a departure from previous research that has solely concentrated on the effects that playing specific types of games (e.g., MMPORG) or frequency of game play (e.g., hours) have on political participation (e.g., Skoric & Kwan, 2011; Williams, 2006). In this case, it should thus be acknowledged that the present study does not seek to examine the effects of intensity of playing a specific type of game or the frequency of game play. Rather the present study offers an alternative approach that contributes to the literature by focusing on the psychological mechanism of motivation to play video games as an explanation for why games may foster political engagement. This research is timely because video game use extends far beyond a general phenomenon, with statistics indicating that the average player spends eight hours per week playing video games, and video and computer game sales in 2009 totaled $10.5 billion in

revenue (Entertainment Software Rating Board, 2013). With the potential that video games could promote political engagement (Kahne et al., 2009), this makes it important to analyze how popular forms of digital media can engage citizens.

Discovery, Role-Play, and Customization Motivations for Video Game Play

According to Atkinson (1957), a motivation is "a disposition to strive for a certain kind of satisfaction" (p. 359). Psychologists have long held that motivations influence human behaviors (*cf.* Ryan & Deci, 2000). In this vein, Bartle (1996) posited that four types of motivations could drive an individual's use of video games: achievement (i.e., wanting to pursue game-related goals), exploration (i.e., exploring the virtual world as much as one can), socializing (i.e., using video games as a context to meet or interact with others), and imposition (i.e., using video games to help others or impose distress on others). These motivations are similar to uses and gratifications (see Sherry et al., 2006). However, motivations are more like traits, rather than user states. Building upon Bartle's conceptualization of these four player types, Yee (2006, 2007) used a factor analytical approach and revealed that motivations for use of video games consisted of three main components: social, achievement, and immersion.

The immersion motivation, the focus of the present study, includes three subcomponents: discovery, role-play, customization, and escapism. The present study focuses specifically on discovery, role-play, and customization because prior research by Dalisay et al. (in press) showed that a factor consisting of items measuring these three subcomponents was the only significant and positive predictor of political participation. In the same study, escapism was not related to political participation, and it is for this reason that it is not examined in the present research.

Discovery is the subcomponent of immersion that refers to individuals who enjoy playing video games because games allow them to enjoy exploring different worlds and locations that they believe others may not know (Yee, 2006). According to Yee (2007), the discovery subcomponent also includes players who enjoy gathering information on rare artifacts.

Role-play is the subcomponent of immersion used to describe individuals who are motivated to play games because games allow them to live through the eyes of characters they design. Yee (2007) also explained that these individuals enjoy spending considerable amount of time studying and trying to understand the "back-story" of the game's world and create stories and histories for their characters.

Customization is the subcomponent that refers to individuals who are motivated to play games because they allow them to modify the appearance of the characters they create and design. It is crucial to these players that their character's appearance and style are unique. According to Yee, individuals scoring high in the customization subcomponent also enjoy games because they offer the opportunity to ensure the characters they create have coherent color schemes and styles.

Political Participation

Political participation can be defined as activities that have "the intent or effect of influencing government action – either directly by affecting the making or implementation of public policy or indirectly by influencing the selection of people who make those policies" (Verba, Schlozman, & Brady, 1995, p. 38). Thus, political participation includes voting and other acts such as contacting elected officials and making political donations (Verba et al., 1995).

Extant research has shown that the use of certain types of interactive digital media increases public engagement (e.g., Delli Carpini, 2000; Gil de Zúñiga, Jung, & Valenzuela,

2012). With respect to video games, in particular, a study conducted by Williams (2006) found that all players of an immersive game reported increases in the frequency of attending club meetings. The study implied that being immersed in video games might also foster forms of political engagement.

A number of explanations exist for why greater immersion in video games could enhance political participation. For instance, past studies suggest that video games could increase a sense of trust (Ratan, Chung, Shen, & Williams, 2010) and willingness to help others (Grietemeyer & Osswald, 2010), provide for the development of interpersonal relationships beyond one's home and workplace through facilitating "third places" (Steinkuehler & Williams, 2006), and promote social interactions (Griffiths et al., 2004; Limperos et al., 2013; Steinkuehler and Williams, 2006)—arguably, all factors that could increase public engagement (Putnam, 2000).

Dalisay et al.'s (in press) study discussed above explored the relationships between Yee's (2006) motivations (social, achievement, and immersion) for game play and political participation. Although the study hypothesized that being motivated to play video games for social purposes—the social motivation—would stimulate political engagement, the study found that the social motivation was not related to political participation. Instead, the study indicated that those who play games in order to discover, role-play, and customize characters are also more likely to participate in politics and civics. The present study builds on the previous research by Dalisay et al. through testing whether discovery, role-play, and customization will be associated with increases in political participation. Notably, the present study extends the literature in two ways. First, we parse out each of the three components (discovery, role-play, and customization) and examine their independent effects on political participation. Second, we examine the applicability of these findings to countries with differing political systems. The following

hypothesis is proposed:

H1: *Discovery, role-play, and customization will be positively associated with political participation.*

Creative Self-Efficacy

Scholars including Bandura (1997) and Ford (1996) have suggested that self-efficacy is a necessary condition for creative action. Drawing upon this line of research, Tierney and Farmer (2002) conceptually defined creative self-efficacy as "the belief [that] one has the ability to produce creative outcomes" (p. 1138). Creative self-efficacy is essential to the creative process.

Creative self-efficacy, however, should be differentiated from general self-efficacy, which refers to the overall belief that individuals have toward their own capability across domains (Tierney & Farmer, 2002). In contrast, creative efficacy is a concept referring to individuals' beliefs that they are capable of generating new ideas for new products or processes.

Moreover, creative self-efficacy should also be distinguished from creativity which is broadly defined as "a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts" (Jackson et al., 2012, p. 370). Creative self-efficacy reflects an intrinsic motivation to engage in creative activities (Gong et al., 2009).

The present study's focus on the potential for video games to enhance creative self-efficacy is rooted in the findings of Jackson et al. (2012). Jackson et al. analyzed data from their Children and Technology Project, a survey of 12-year-olds, and provided evidence suggesting that video games fosters creativity. The study revealed a positive link between video game playing and several measures creativity. Interestingly, computer use, Internet use, and cell phone use were not linked with creativity. The study also found that the use of games representing violent, action/adventure, sports, and interpersonal genres (i.e., games involving interpersonal

relationships and caring for others, such as *Sims* and *Animal Crossing*), were associated with measures of creativity. There was no relationship, however, between the use of race/driving games and creativity. Based on their findings, Jackson et al. concluded that "[c]hildren who played video games were more creative, by every measure, than children who played them less, regardless of gender and race" (p. 5).

Our present study attempts to extend Jackson et al.'s findings by examining creative self-efficacy, rather than creativity, as an outcome of immersion in video games. In particular, our study proposes that the discovery, role-play, and customization motivations of game play will be positively associated with creative self-efficacy. Manifestations of creative self-efficacy include the ability and confidence to generate novel ideas and solve problems creatively (Tierney & Farmer, 2002). By facilitating opportunities for individuals to discover and explore novel things, to role-play or live through the experiences of characters they create, and to customize these characters, it is plausible that the discovery, role-play, and customization motivations of game play could also increase one's perceived ability and confidence to creatively generate new ideas and solve problems. In other words, it is plausible that the three motivations examined in this study would increase creative self-efficacy. We propose the following hypothesis:

H2: *Discovery, role-play, and customization will be positively associated with creative self-efficacy.*

We also explore the relationship between creative self-efficacy and political participation. Extant studies have shown that political efficacy is positively associated with various forms of civic and political engagement (e.g., Pinkleton, Austin, & Fortman, 1998; Pinkleton et al., 2013). However, political efficacy is distinct from creative self-efficacy. Political efficacy refers to one's beliefs regarding their ability to affect the political process (Niemi, Craig, & Mattei, 1991).

Creative self-efficacy, as noted above, is one's belief in the ability to produce creative outcomes (Tierney & Farmer, 2002) or one's confidence to engage in creative activities (Gong et al., 2009).

Although few studies have examined the relationship between creative-self efficacy and political participation, there is reason to expect a positive relationship between the two variables. Involvement in politics necessitates the ability to make informed decisions through the exchange of differing opinions (Cappella & Jamieson, 1997). Politics involves the struggle to creatively solve problems in often-contentious social environments. As such, possessing the skills and confidence to solve problems creatively—or creative self-efficacy—may make one more confident to participate in politics. Indeed, a study of more than 1,300 high school students, Beghetto (2006) found that creative self-efficacy is positively related with engagement in after-school activities. Due to the scant research in this area, the present study investigates the following research question:

RQ1: *What is the relationship between creative self-efficacy and political participation?*

Method

Procedure

A survey of college students was conducted between the months of September 2013 and the March 2014. The survey included students enrolled in the universities of the coauthors of this study. The research sites included a public university in northeastern Australia ($n = 86$; females = 21, males = 65), a public university in central Guam ($n = 210$; females = 141, males = 69), a public university in the Eastern U.S. mainland ($n = 77$; females = 47, males = 30), a public university in Hawaii ($n = 132$; females = 71, males = 61), a public and a private university in Metro Manila, Philippines ($n = 87$; females = 59, males = 28), and various private and public

universities in Seoul ($n = 67$) and other areas ($n = 148$) in South Korea ($n = 215$; females = 104, males = 111). The surveys were conducted online using Qualtrics. However, pen-and-paper surveys were also conducted in the Philippines due to Web access issues in that country. Surveys were in English in all locations except for South Korea, where it was administered in Korean.[1] Participants who had played a video game within the past year were recruited in communication classes and offered course credit for their participation.[2] This sampling approach was appropriate to our goal because, as we discussed above, our study did not seek out to examine the effects of intensity of playing a specific type of game or the frequency of playing games. Our study was mainly concerned with examining motivations of playing video games as a psychological mechanism that could explain why games can foster political engagement. It is a reasonable assumption that these motivations would be present among individuals who had played games within the past year. The final sample size was 801, and the total number of females ($n = 443$) outnumbered males ($n = 358$).

Independent Variables

Measures of discovery, role-play, and customization subcomponents of the immersion motivation for video game play were adapted from the work of Yee (2006). A five-point Likert-type scale with "extremely important (5)" and "not important at all (1)" as anchors was used to assess the three motivations.

Discovery. Discovery was measured with three items that were combined and averaged to form a single construct: when playing games, how important is exploring the game's world just for the sake of exploring it; how important is it to enjoy finding new things in a game that most people do not know about; how important is it to enjoy collecting distinctive objects or clothing that have no functional value in the game ($M = 2.86$, $SD = .92$, $\alpha = .67$).

Role-play. Role-play was measured with three items combined and averaged to form a single construct: how important is it to enjoy being immersed in a fantasy world; how important is it to enjoy trying out new roles and personalities with your video game characters; how important is it to role-play your character ($M = 2.67$, $SD = .97$, $\alpha = .70$).

Customization. Customization was measured with three items that were combined and averaged to form a single construct: how important is it to customize your video game character during character creation; how important is it that your game character's outfit matches in color and style; how important is it that your game character looks different from other characters ($M = 3.09$, $SD = 1.08$, $\alpha = .80$).

Dependent Variables

Political participation. Political participation was measured with eight items asking respondents how often they did the following (1 = *never*, 5 = *often*): express your opinions or views regarding a political issue or political candidate when you are around your family and friends; express your opinions or views regarding a political issue or political candidate during class or when you are at school; wear a pin, t-shirt, or display a sticker of a political candidate or political group (e.g., political party) that you support; attend meetings related to politics; sign a petition for a candidate or issue, or circulate a petition around your neighborhood, community, or school; vote in a local or national election; attempt to persuade others around your neighborhood, community, or school to vote for a political candidate or support a political issue; participate in a protest or boycotting activity ($M = 2.25$, $SD = .75$, $\alpha = .82$). These items were adopted from commonly used measures of political participation (e.g., Gil De Zuniga, Puig-I-Abril, & Rojas, 2009; Scheufele, 2002).

Creative self-efficacy.   Creative self-efficacy was measured with three items adopted

from Tierney and Farmer (2002): I am good at generating novel ideas, I have confidence in my

ability to solve problems creatively, and I am good at finding creative ways to solve problems (1

= *strongly disagree*, 5 = *strongly agree*) (M = 3.59, SD = .74, α = .76).

Demographics and Other Measures

Demographic variables including age, sex, and location were included as controls to

evaluate independent effects of the theoretical variables. Age was measured in an open-ended

format (M = 22.00, SD = 4.53, range = 17-54). Sex was dummy coded and measured with

females as the high value (54%) and males as the low value (46%). Location was also measured,

and given the differences in political systems between U.S. and non-U.S. sites, U.S. sites (U.S.

mainland, Hawaii, Guam) were coded as 1 and the non-U.S. sites (Australia, Philippines, South

Korea) coded as 0. In addition, political interest (1 = *not interested*, 5 = *very interested*; M =

3.14, SD = 1.37) and political ideology (1 = *very conservative*, 5 = *very liberal*; M = 2.77, SD =

.97) were measured.

Analyses

SPSS version 22 was used to analyze the data, test the proposed hypotheses and

investigate the research questions. A series of OLS regression models were created. Age, sex,

political system (i.e., country), political interest, and political ideology were added as controls in

all models. For political system, three dummy variables were used, which included Australia,

Philippines, and South Korea; the U.S. settings (i.e., Guam, Hawaii, U.S. mainland) served as the

reference group and thus were not included as controls in the models. The first model (Table 1)

tested the proposed relationships between the discovery, role-play, and customization

motivations of video game play and political participation (H1), and the relationship between

creative self-efficacy and political participation (RQ1). The second model (Table 2) tested the relationships between the discovery, role-play, and customization motivations and creative self-efficacy (H2).

Results

H1 proposed that discovery, role-play, and customization will be positively associated with political participation. The results demonstrate partial support for H1. Table 1 shows that after controlling for relevant variables in the regression models, role-play is the only significant predictor of political participation ($B = .10$, $p < .001$). Discovery and customization were not significant predictors of political participation.

H2 proposed that discovery, role-play, and customization will be positively associated with creative self-efficacy. Results on Table 2 show some support for H2. After controlling for other relevant variables, discovery ($B = .10$, $p < .01$) and role-play ($B = .06$, $p < .05$) were significant positive predictors of creative self-efficacy. The relationship between customization and creative self-efficacy was not significant.

RQ1 investigated the relationship between creative self-efficacy and political participation. Results of the three regression models on Table 2 show that creative self-efficacy was positively and significantly associated with political participation.

Exploring Indirect Effects

For further exploratory purposes, we analyzed whether each of the three independent variables (discovery, role-play, and customization) would have indirect associations with political participation through their prior relationships with creative self-efficacy. Using Hayes' PROCESS macro (2013), we conducted separate analyses that estimated the respective indirect effects of each independent variable through creative self-efficacy on political participation. We

employed bootstrap methods with 5,000 bootstrap samples and 95% bias-corrected confidence intervals to infer indirect effects. Results show that discovery (point estimate = .008, 95% CI [.002 - .018]), role-play (point estimate = .004, 95% CI [000 -.011]), and customization (point estimate = .003, 95% CI [.000- .011]) had small but statistically significant indirect effects on political participation through creative self-efficacy.

Discussion

Research has established the capacity of video games to promote civic vibrancy (Kahne et al., 2009; Ratan et al., 2010; Steinkuehler and Williams, 2006). Our study extended this literature by focusing on player motivation types (Yee, 2006)—namely, discovery, role-play, and customization, subcomponents of the immersion motivation—and examining their relationships with political participation and creative self-efficacy. Our study's focus on motivations for video game play provides an alternative to the extant research that has concentrated primarily on the effects that playing specific types of games or hours of video game play have on key indicators of political engagement. Our findings, therefore, offer a novel understanding of the pro-social potential of video games, and contribute to the current literature in a number of ways.

First, a previous study (Dalisay et al., in press) found that a factor comprising of items measuring the discovery, role-play, and customization subcomponents was a significant predictor of political participation. Yet because that study did not parse out the items measuring these three subcomponents, their independent effects on political participation could not be examined. The results of our study augment the previous findings by revealing that role-play was the only motivation among the three examined in this study that had a direct and positive influence on political participation. We offer an explanation for this finding. Yee (2007) stated that players scoring high in the role-play subcomponent also enjoy spending considerable amount of time

studying the "back-story" of the game's world and creating stories and histories for their characters. Their high involvement in the stories of games suggests that individuals motivated to play video games to role-play may also have a greater need to evaluate information. Because past research suggests that the need to evaluate enhances political engagement (e.g., Bizner, Krosnick, Holbrook, Wheeler, et al., 2004), this might explain the direct link between role-play and political participation. Yet due to limited research in this area, future studies are necessary to explore this potential, and the specific relationship that need to evaluate may have with the role-play motivation of game play.

On the other hand, our study suggests that the discovery and customization motivations for game play were not significant predictors of political participation. Our subsequent exploratory analyses for indirect effects, however, indicated discovery and role-play's prior positive, albeit small effect on creative self-efficacy might explain how they may impact political participation. Specifically, the subsequent analyses provided evidence for the indirect impact of discovery, role-play, on political participation via creative self-efficacy. The same indirect impact was also found for customization. On balance, this could imply that playing games to discover, role-play, and customize may be increasing political participation by first fostering creative-self efficacy. Yet due to the relatively small effect sizes of these indirect effects, we are cautious about drawing definitive conclusions. In this case, future studies could further explore the mediating potential of creative self-efficacy.

Second, this study found that discovery and role-play were linked to increases in creative self-efficacy. Video games may allow individuals to discover and explore new things, and to role-play or live through the experiences of a game character they created. However, the relationship between customization and creative self-efficacy was not significant. A possible

explanation for these differing findings is that customization is conceptually distinct from discovery and role-play. Yee (2006, 2007) explained that players scoring high in customization find it important that the characters they create have unique appearances and styles. In this case, the customization motivation may also be tied to an underlying drive to use games in order to express one's individual uniqueness externally. Discovery, which is the motivation to explore different worlds and locations in games, and role-play, which refers to the motivation to live through the eyes of game characters, do not necessarily involve the external expression of one's individuality, but rather may be better aligned with being open to new experiences and the need to satisfy one's curiosity to learn and experience new things. Similarly, being open to new experiences and possessing a curious, imaginative outlook are necessary requirements for having creative self-efficacy, or having the confidence to generate novel ideas and find creative ways to solve problems (Tierney & Farmer, 2002). At any rate, given the mixed findings of our study regarding the links between the immersion motivation of game play and creative self-efficacy, more research is warranted to clarify these links. Given the cross-sectional approach of our study, we recommend that experiments be conducted to clarify and test these causal links.

Third, this study revealed that creative self-efficacy positively predicted political participation. While previous research has shown that measures of political efficacy are positively associated with various forms of civic and political engagement (e.g., Pinkleton et al., 2013), our study contributes to the current literature on self-efficacy through revealing that the ability and confidence to generate novel ideas and solve problems (Tierney & Farmer, 2002) could also enhance one's willingness to engage in political activities. Because the field of politics often involves the struggle to solve problems, or reach informed decisions by exchanging different opinions (Cappella & Jamieson, 1997), possessing the skills and confidence to solve

problems creatively may enhance one's participation in politics. Given the limited research in this area, we recommend future studies to continue investigating this relationship.

Limitations

Yet some limitations should be acknowledged, along with directions on how researchers may build upon these limitations to move this rather new area of study forward. First, because our study was not intended to examine the effects of specific types of games used or hours played, we did not measure these variables. Therefore, it could not be determined whether they may be impacting political participation and creative self-efficacy. Certain types of games, for instance, may have a greater impact on creative self-efficacy and political participation than other types of games. Also, the frequency of playing video games may play a role in moderating the proposed links that the immersion motivation of game play might have with political participation and creative self-efficacy. In this case, the relationships we observed between the three subcomponents of the immersion motivation in video games, creative self-efficacy, and political participation could have been diluted in our dataset since our participants may have played many different kinds of games (e.g., not all role-playing games). Therefore, we recommend that future studies focus on players of specific types of games or players who report playing games frequently to examine the links between motivations of game play, creative self-efficacy, and political participation.

Second, although multiple sites and countries were used, the data were still drawn from samples of college students, limiting the generalizability of the present findings. Future studies should go beyond the college campus to include a wider diversity of participants. For instance, differing generational groups (teens, young adults, the elderly) may have differing motivations to

play video games. As such, the extent to which certain motivations impact political participation and self-efficacy may differ based on one's age.

Third, our study did not examine all of the subcomponents for each of the four components of motivations for game play: discovery, role-play, customization, and escapism. In this case, future research may particularly assess how creative self-efficacy might mediate potential relationships between the other subcomponents of game play not examined in this study and political participation.

Finally, because the data are from a cross-sectional survey, evidence for the causal direction of our findings remains unclear. In particular, it is equally plausible that those with high levels of creative efficacy are attracted to the role-playing aspects of games. It is also plausible that engagement in political activities leads to increases in creative self-efficacy and immersion in video games. Thus, we recommend that future research employ experimental designs to test the theoretical propositions laid out in this study.

Conclusion

In the opening passages of this paper, we began by quoting game designer and scholar Jane McGonigal (TED.com, 2010) who urged the public to aspire by the end of the next decade to play games online for more than 20 billion hours per week. The present study provides some evidence reaffirming McGonigal's call, and the civic potential of video games by showing how immersion in video games and creative self-efficacy may be promoting political engagement. Among other things, this study provides evidence that political engagement may be increased through role-playing, and that creative self-efficacy may be a mechanism that could explain the link between game playing and political engagement.

In light of the findings of our study, and video games' increasingly important part of our media culture, we call for more continued scholarly understanding of the impact this relatively new form of interactive media plays in potentially shaping civics and politics. If anything, we hope this study stimulates researchers to investigate other psychological mechanisms that could explain why and how video games impact the political process. On a broader level, more and more, individuals are engaging one another in the new communities they develop through mediated environments. That may mean new opportunities for building political engagement.

References

Atkinson J.W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review 64*, 359-372.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bartle, R. (1996). Hearts, diamonds, clubs, spades: Players who suit MUDS. Online source retrieved March 11, 2014, from http://www.mud.co.uk/richard/hcds.htm.

Beghetto (2006)

Bizner, G.Y., Krosnick, J.A., Holbrook, A.L., Wheeler, S.C., Rucker, D.D., & Petty, R.E. (2004). The impact of personality on cognitive, behavioral, and affective political processes: The effects of need to evaluate. *Journal of Personality, 72*, 995-1028.

Dalisay, Kushin, Yamamoto, Liu, & Skaliski. (2014)

Delli Carpini, M. (2000). Gen.com: Youth, civic engagement, and the new information environment. *Political Communication, 17*, 341-349.

Entertainment Software Rating Board. (2013). How much do you know about video games? Online source retrieved March 11, 2014, from http://www.esrb.org/about/video-game-industry-statistics.jsp.

Ford, C. (1996). A theory of individual creative action in multiple social domains. *Academy of Management Review, 21*, 1112-1142.

Gil de Zúñiga, H., Jung, N., & Valenzuela, S. (2012). Social media use for news and Individuals' social capital, civic engagement and political participation. *Journal of Computer-Mediated Communication, 17*, 319–336.

Gil De Zuniga, H., Puig-I-Abril, E., & Rojas, H. (2009). Weblogs, traditional sources online and political participation: An assessment of how the Internet is changing the political environment. *New Media & Society*, *11*, 553–574. doi:10.1177/1461444809102960

Gong, Y., Huang, J.-C., Farh, J.-L. (2009). Employee learning orientation, transformational leadership, and employee creativity: The mediating role of employee creative self-efficacy. *Academy of Management Journal, 52*, 765-778.

Grietemeyer, T., & Osswald, S. (2010) Effects of prosocial video games on prosocial behavior. *Journal of Personality and Social Psychology ,98*, 211-221.

Griffiths, M., Davies, M., & Chappell, D. (2004). Demographic factors and playing variables in online computer gaming. *CyberPsychology & Behavior 7*, 487-495.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Jackson, L.A., Witt, E.A., Games, A.I., Fitzgerald, H.E., Eye, A.V., Zhao, Y. (2012). Information technology use and creativity: Findings from the Children and Technology Project. *CyberPsychology & Behavior, 28*, 370-376.

Kahne J., Middaugh E., & Evans C. (2009). *The civic potential of video games*. Boston: MIT.

Lenhart, A., Kahne, J., Middaugh, E., Macgill, A., Evans, C., & Vitak, J. (2008). *Teens, video games and civics*. Available at: http://www.pewinternet.org/Reports/2008/Teens-Video-Games-and-Civics/01-Summary-of-Findings/Summary-of-Findings.aspx

Limperos, A.M., Downs, E., Ivory, J.D., & Bowman, N.D. (2013). Leveling up: A review of emerging trends and suggestions for the next generation of communication research investigating video games' effects. *Communication Yearbook, 37*, 349-377.

Niemi, R. G., Craig, S. C., & Mattei, F. (1991). Measuring internal political efficacy in the 1988

National Election Study. *The American Political Science Review, 85*, 1407-1413.

Pinkleton, P.E., Austin, E.W., & Fortman, K.K.J. (1998). Relationships of media use and political disaffection to political efficacy and voting behavior. *Journal of Broadcasting & Electronic Media, 32*, 34–49.

Pinkleton B.E., Austin, E.W., Zhou, Y., Willoughby J.F. and Reiser M. (2012). Perceptions of news media, external efficacy, and public affairs apathy in political decision making and disaffection. *Journalism & Mass Communication Quarterly, 89*, 23-32.

Putnam R.D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon and Schuster.

Ratan, R.A., Chung, J.E., Shen, C., & Williams, D. (2010). Schmoozing and smiting: Trust, social institutions, and communication patterns in an MMOG. *Journal of Computer-Mediated Communication, 16*, 93-114.

Ryan, R.M. & Deci, E.L. (2000) Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.

Schack, G.D. (1989). Self-efficacy as a mediator in the creative productivity of gifted children. *Journal for the Education of the Gifted, 12*, 231-249.

Selnow, G.W. (1984) Playing video games: The electronic friend. *Journal of Communication 34*, 148-156.

Scheufele, D. A. (2002). Examining differential gains from mass media and their implications for participatory behavior. *Communication Research, 29*, 46–65. doi:10.1177/0093650202029001003

Sherry et al., 2006

Skoric, M.M., & Kwan, G.C.E. (2011). Platforms for mediated sociability and online social

      capital: The role of Facebook and massively multiplayer online games. *Asian Journal of*

      Communication, 21, 467-484.

Steinkuehler, C., & Williams. D. (2006). Where everybody knows your (screen) name: Online

      games as "third places." *Journal of Computer-Mediated Communication, 11*, 885-909.

TED.com. (2010). Jane McGonigal: Gaming can make a better world. Online source retrieved

      March 5, 2014, from

      http://www.ted.com/talks/jane_mcgonigal_gaming_can_make_a_better_world.

Tierney, P., & Farmer, S.M. (2002). Creative self-efficacy: Its potential antecedents and

      relationships to creative performance. *Academy of Management Journal, 45*, 1137-

      1148.

Valenzuela, S., Park, N., & Kee, K.F. (2009). Is there social capital in a social network site?

      Facebook use and college students' life satisfaction, trust, and participation. *Journal of*

      Computer-Mediated Communication, 14, 875-901.

Verba, S., Schlozman, K.L., & Brady, H.E. (1995). *Voice and equality: Civic voluntarism in*

      American politics. Cambridge, MA: Harvard University Press.

Vieira, E.T. (in press). The relationships among girls' prosocial video gaming, perspective-

      taking, sympathy, and thoughts about violence. *Communication Research*

      doi:10.1177/0093650212463049

Williams, D. (2006). Groups and goblins: The social and civic impact in an online game. *Journal*

      of Broadcasting and Electronic Media, 50, 651-670.

Yee, N. (2006). Motivations for play in online games. *CyberPsychology and Behavior*, *9*, 772-

      775.

Yee N (2007). *Motivations of play in MMPORGs: Results from a factor analytic approach.*

Online source retrieved March 11, 2014 from

http://www.nickyee.com/daedalus/motivations.pdf

participation

Table 1. Regression results for the discovery, role-play, and customization subcomponents of the immersion motivation of video game play as predictors of political participation.

Sex	.05	.09*	.06
Age	.01**	.02**	.01**
Australia	.09	.03	.09
Philippines	.37***	.31***	.35***
South Korea	.18*	.08	.10+
Political interest	.32***	.32***	.32***
Political ideology	.07**	.06**	.07**
R^2	.36***	.36***	.36***
Discovery	-.00	--	--
Role-play	--	.10***	--
Customization	--	--	.02
R^2	.36	.37***	.36
Creative self-efficacy	.08**	.07*	.08*
Constant	.18	.05	.26
R^2	.37**	.20*	.37*

Note: Table presents unstandardized coefficients, * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

participation

Table 2: Regression results for the discovery, role-play, and customization subcomponents of the immersion motivation of video game play as predictors of creative self-efficacy.

Sex	-.16**	-.17**	-.19***
Age	.00	.00	.00
Australia	.20*	.20*	.23*
Philippines	.00	.02	.03
South Korea	-.36***	-.33***	-.33***
Political interest	.06*	.06*	.06**
Political ideology	.11***	.11***	.11***
R^2	.10***	.10***	.10***
Discovery	.10**	--	--
Role-play	--	.06*	--
Customization	--	--	.04
Constant	3.03***	3.17***	3.23***
R^2	.11**	.10*	.10

Note: Table presents unstandardized coefficients, * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

participation

Notes:

1. A questionnaire in English was translated into Korean by a professional translator who is bi-lingual in English and Korean. Subsequently, one of the authors who is also bilingual in English and Korean examined the translations for inconsistencies and inaccuracies. After the translator and author negotiated the translations, a questionnaire in Korean was finalized.

2. In the case of South Korea, an online panel sample was used to recruit college students. Specifically, one survey company based in Seoul was commissioned to collect data online. The company had registered approximately 1 million online users as of the end of 2013. All participants received compensation (e.g., cash-equivalent points) from the company.