Customization and Perceived Choice in an Extended MMO Study

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Abstract: As famous game designer Sid Meier said, a game is a series of interesting choices (Rollings & Morris 2000, p. 38). Understanding the role and effect of choices, is critical to effective game design and, quite likely, to learning. With this in mind, the overarching question asked was: Do the effects of customization, defined as a series of choices, change players' experiences over time? A mixed method study was designed with two conditions: customization (n=33) and no customization (n=33). Adult participants played Lord of the Rings Online (*Lotro*), a Massively Multiplayer Online game (MMO), for about ten hours over four sessions. Data was collected through surveys, interviews and observations. Results showed that participants' perceived choice changed over time and customization had a small effect on players' perceived choice.

Background

Control is a basic human desire that is common in almost all aspects of life. It is related to many positive outcomes such as achievement, persistence, motivation and self-esteem (Skinner, 1996). Today, many technologies, from mobile phones to social networking sites and games allow users to control their interaction. Wise and Reeves (2007) succinctly state that control is "user influence, user activity, and power over discourse" (p. 4). Averill (1973) defined three types of control: decisional, behavioral, and cognitive. In this paper, we are interested in decisional control that is defined as the ''...range of choice or number of options open to an individual'' (p. 298). For example, increasing the number of features to customize in a game can increase decisional control.

Customization offers many choices and is common practice in videogames, especially in MMOs. It may impact player engagement with videogames (e.g. Bakkes, Tan, & Pisan, 2012). It may also increase players sense of autonomy which may result in increased motivational outcomes (Ryan, Rigby,& Przybylski, 2006). An increasing number of games allow players to customize their avatars' look in great detail, create custom user interfaces (Adinolf, &Turkay, 2011). Customization of virtual spaces in games corresponds with the concept of territory marking. Sundar and Marathe (2010) emphasize the importance of research on customization "...as newer digital media offer more and more customization, it is important for scholars to understand how it transforms the process of communication" (Sundar & Marathe, 2010, p.299).

Opportunities for customization may give users decision-making authority over the technology enabling them to influence and create their own experiences, as well as providing ways to be a part of a group based on their needs and desires. We encounter the word "customization" almost every day. What customization means to users in various areas still needs to be studied. This study aims to shed more light on the effects of customization on player's decisional of control and motivation. It poses the following research questions:

1. Does customization impact players' perceived choice in an MMO?
2. What is the relationship between players' perceived choice and their engagement with and motivation to play the game?

User Choice

A large body of findings suggests that giving individuals choices leads not only to better performance and more intrinsic motivation when performing tasks, but also to higher overall satisfaction. These findings relate self-efficacy and a sense of control to more motivation and more persistent efforts to succeed, which in turn lead to better performance in the task at hand (Cordova & Lepper, 1996).

The motivational aspect of choice has been a part of multiple motivational frameworks such as expectancy-value model of achievement motivation (Eccles & Wigfield, 1995), social cognitive theory (Bandura, 1997), and Self Determination Theory (SDT; Deci & Ryan, 1985).

SDT represents a broad framework for the study of human motivation and personality within social contexts. According to this theory, there are three basic psychological needs that, when satisfied, enhance intrinsic motivation and lead to autonomous internalization of behaviors of initial extrinsic origin (Ryan & Deci, 2000). These needs are the need for autonomy, relatedness, and competence. The need for autonomy refers to the need to feel a sense of full volition and "choicefulness" regarding one's activities and goals, a feeling that emerges when one's actions

and goals are experienced as emanating from one's authentic self (Deci & Ryan, 1985). A central focus in SDT on autonomy contributes to adaptive motivation and has been interpreted by many as the practice of providing choice (Iyengar & Lepper, 1999). Therefore, one may predict that the need for autonomy is one of reasons that players customize in virtual worlds. The need for relatedness refers to the need to feel closely related to other people (Deci & Ryan, 2000). Especially in multiplayer games, the need for relatedness may be one of the main reasons to customize. Many MMO players start playing a game because their friends play this particular game (Nardi & Harris, 2006). It is quite a common practice to create game characters that will fulfill a need in a game community (i.e. making a healer character because there is not one in their playgroup) and this may satisfy a player's need for relatedness in the game. The need for competence is the need to be effective in one's interactions with the environment, and to feel that one is capable of mastering challenges (Deci & Ryan, 2000). Ryan and Deci (2000) emphasize that intrinsic motivation can emerge only if people feel all three needs are being satisfied.

Several researchers have examined the relationship between choice and learning. Zuckerman, Porac, Lathin, Smith, and Deci (1978) assigned 40 students each to a choice or no-choice puzzle-solving condition. Individuals in the choice condition reported a greater feeling of control, indicated that they would be more willing to return for another session of puzzle solving, and spent significantly more time solving similar puzzles in a free-choice period at the end of the experiment. Cordova & Lepper (1996) investigated the effects of choice on elementary school children's learning within a computer game. Subjects made choices on features that are not relevant to the pedagogical aspect of the game. They had either the opportunity to make several choices about which icon would represent them in the game, what player name they would use, the name of their spaceship, their opponent's name, and their starting point related to two shortcuts. Conversely, they played the game with the icon and names assigned by the experimenter. The results showed that minimal choices produced a significant increase, not only in the participant's motivation, but also in the depth of their engagement in learning, as evidenced by a preference for more challenging versions of the game, the greater use of complex operations, and an emphasis on strategic play. Moreover, the amount they learned increased, as did their perceived competence and level of aspiration. It is possible that although the choices in this study appear trivial the opportunity to choose icons and names representing the player and her/his opponent made the game personally meaningful to the participants.

A more recent experimental study conducted by Kinzer et al. (2012) examined the impact of providing students (N = 171) with choices of a on-screen agent that would provide students with feedback in an educational game. Middle school students chose among six images of scientist characters before they started playing the game. Results showed that students not only displayed more affective engagement and motivation towards the game when they were given the choices, but they also showed increased learning outcomes as shown by significant differences from pre- to post-test.

Choice is equated with interactivity, yet only a small number of studies have investigated its psychological consequences in media use. Sundar (2007) notes that the fundamental goal of interactivity is to offer the user different choices, with the result of a highly personalized end product.

In a similar vein, Chen (2007) suggests that in order to design an interactive experience for a broader audience, the experience has to adapt to different users' personal "Flow Zones" by offering them many choices (p.33). At the same time, he warns that simply increasing the number of choices can be costly as it may create choice overload. He predicts that one way for game designers to avoid such situations is "to embed the player's choices into the core activities of the interactive experience." (Ibid: p.33). Today, videogames offer more and more choices. They enable players to individualize their game experiences through allowing them to decide on various features. Recently, game designers and game researchers have been considering personalization and customization as paths to maximize player affective engagement with videogames (e.g. Bakkes, et al., 2012).

Methods

Adult participants were recruited through fliers for a lab study at a medium-sized East Coast University in the US, and were remunerated $50 ($5 per hour) for their time. The current study used a between-subjects design. Participants were randomly assigned to one of two groups by gender, Customization (CG) (*n*=33; *f*=17, *m*=16) and No Customization (NCG) (*n*=33; *f*=17, *m*=16).

MMOs are long-term games and a reliable study of player behavior in these games should take place over more than one experimental session. To approximate voluntary gameplay, this study's procedure involved about 10 hours of game play, which was divided into 4 sessions over two weeks.

Player engagement was assessed with revised a twenty-two item, 5-point Likert scale questionnaire (O'Brien & Toms (2010). Game motivation was assessed with a single 7-point Likert scale item from the *Intrinsic Motivation Inventory* (Ryan, Mims, & Koestner, 1983): "I would be willing to play this game again." Another 7-point Likert scale item was used to measure participants' perceived choice/decisional control: "I think I had some choice in this gameplay session." A repeated measures analysis of variance (RM ANOVA) was employed to reveal differences on outcome variables over time (sessions) and between CG versus NCG on engagement. Assumptions were met for the test. For qualitative data, semi-structured interviews were conducted after gameplay sessions.

Procedure

In the first session, CG created their game characters and customized their appearance. NCG were assigned well-made, pre-generated characters that matched each participant's gender. Participants continued to play with that character throughout the study. For both groups, the first session ended upon completion of the *LotRO* tutorial (which takes about 2 to 2, 5 hours). At the end of each game session, participants completed a survey on the computer. CG participants were introduced to various ways they could customize the game, whereas NCG participants' choices were controlled. For example, NCG did not choose their mission rewards or professions; the researcher chose for them, binding keyboard shortcuts for that purpose. Participants had freedom to pick profession related quests. NCG participants were told that the computer would make the reward choices for them until they learned the game. The reason to limit mission rewards is that rewards provide ways for players to customize their characters by boosting their stills or changing the appearance of their character (e.g., picking a hat or weapon). We did not limit quest choice. NCG participants were able to choose quests, which gave them some autonomy on narrative. None of the participants explored auction houses, which would have got around the limits on mission rewards for NCG. During the study, participants had no line of sight to the researcher. This allowed smooth control of NCG's choices. NCG's characters' appearance were set with the cosmetic outfit option in *LotRO* so that participants would see the same outfit no matter how their characters were equipped throughout the sessions. These differences aimed to control CG's and NCG's autonomy and decisional control by dictating their customization options.

Results

Perceived Choice/Decisional Control

An independent samples *t*-test showed that Perceived Choice/Decisional Control did not statistically significantly differ for CG and NCG except in the last session (see Table 1). A mixed ANOVA was conducted to assess whether there were group and session differences in participants' reported perceived choice. The following assumptions were tested: (a) independence of observation, (b) normality, and (c) sphericity. Independence of observation and normality were met. The assumption of sphericity was violated. Thus, the Greenhouse-Geisser epsilon was used to correct degrees of freedom.

Sessions	Ind. Samples t-test			CG		NCG	
	t	*p*	η^2	*M*	*SD*	*M*	*SD*
Session 1	-1.48	.143	.03	3.94	1.19	3.44	1.50
Session 2	-1.53	.130	.04	4.35	1.22	3.92	1.06
Session 3	-1.81	.075	.05	5.17	1.57	4.36	1.25
Session 4	-2.73	.008	.11	4.74	1.04	4.05	1.04

Table 1: Means and standard deviations of perceived choice/decisional control scores.

Results indicate a statistically significant but small main effect of time (number of play sessions), F (2.26, 144.29) = 11.72, $p < .001$ (Perceived Choice significantly change over time), $\eta^2_{partial} = .16$ of customization, F (1, 64) = 9.30, $p < .01$, $\eta^2_{partial} = .13$. There was no statistically significant interaction between groups and sessions, F (2.26, 144.29) = 3.23, $\eta^2_{partial} = .05$. Figure 1 represents the interaction between sessions and groups (CG and NCG).

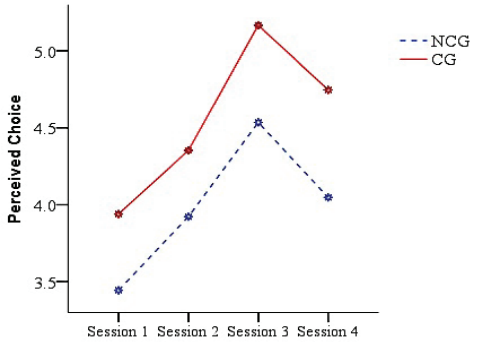

Figure 1: Estimated marginal means of Decisional Control over four sessions.

A set of Pearson correlations for all four game sessions was conducted. There were significant correlations between sense of control and perceived choices for all the sessions (see Table 2).

	Session 1	Session 2	Session 3	Session 4
Sense of Control	0.47***	0.36***	0.57***	0.62***
Motivation	0.18	0.29*	0.31*	0.40***
Engagement	0.17	0.39**	0.47***	0.54***

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Table 2. Pearson correlations for Perceived Choice and Motivation and Engagement

Qualitative Findings on Perceived Choice/Decisional Control

One of the interview questions was "Did you feel in control of your game experience today?" Several patterns emerged from the interviews related to players' decisional control in the game.

Choosing vocation/crafting: Players talked about feeling in control because they decided on certain professions or performed crafting-related activities in the game. In this topic, [P60] remarked that "I think this time I had more control over what I did. Hmm… such as picking items especially when I got to take my craft."

Customization: Players enjoyed the act of choosing rewards in the game as part of the continuous avatar customization. For example, during the last interview [P70] talked about such acts as the most enjoyable moments for her:

> The most enjoyable moments were when I got some rewards and when I got to choose the best one among the ones that they gave me…And then when I customize my character with the weapons and armor that I earned…to make my character better and stronger… (P70, Interview 3, CG, Female)

In addition to choosing rewards, some players talked about discrete cosmetic avatar customization including the initial avatar appearance customization during the character creation and cosmetic outfits. For example, [P15] from CG talked about how he liked having a control over his characters' outfit through the cosmetic outfit option in the game. "... I really like the cosmetic outfit options… I like to have my character look the way I want to look. …. And that was fun... there were dyes, there was crafting."

Some players talked about the possibility of experimentation with character skills, thanks to having options. For example, [P12] from CG talked about such experimentation, "Then with all the skill buttons… I thought that was also pretty interesting, because I could do different things as I advance in the game…"

Choosing quests: Thirty-eight percent of the participants talked about decisional control related to having options on what tasks they may accept or reject in the game. For example, [P37] from CG stated his reasons to reject side quests in the first session as, "Some of the side quests were like I can choose to do and I felt like it was not important to the critical mission… So, I ignored it because I'm interested in the main story. I chose to do so…" Participants also commented that the choices on tasks increased as they progressed in the game. For example, [P72] talked about this freedom:

> … Compared to the first time that you needed to complete quests to finish the intro, there was a lot more

freedom as far as what quest to do and when I wanted to do. So, I enjoyed that I had large variety of quests that I can choose from and tackle them on my own leisure and explore at the same time. (P72, Interview 4, NCG, Male)

In the same line, players talked about their satisfaction with choices they had in different types of quests that would fit with their play styles. For example, [P25] disliked the fighting in the game and she talked about her content with having non-fight related quests in the game:

…yeah I would say that I was happy with the choices I had. In the beginning getting into the game I knew that I had to do some fighting because of the nature of the game and the nature of the Lord of the rings and I felt better about it later because it wasn't in every quests. …I can take a break. I can sell stuff or go to the pub... I don't think that you were there at that time but it was really cool that you can get drunk [laughter] so those little details... (P25, Interview 4, CG, Female)

In summary, many participants talked about having different options on quests and the positive effect of these options on their game experiences. In fact, some players think that having choices makes the game environment more immersive. [P51] from CG reported "I feel like it [having choices] adds to the experience of being in a virtual world." Players also talked about the possible relationship between why people, in general, play MMOs or even get addicted to MMOs, and the ways that these games foster players' decisional control. For example, in a representative quote, [P27] talked about her reaction when I stopped her at the last session and why she did not get bored while playing:

I think it is very addicting. Even now 'oh, I want to keep playing' like when you came in I was sad... 'Oh, really that's it? I want to keep playing…' hmmm... I think it is very addicting because there is so much going on. You really lost track of time and it is very distracting. I think that is it is so addicting that there's so many things going on you don't really get bored like in other games after certain point you get bored and you turn off but in the games you do have so many choices in so many things going on you just don't feel like stopping. (P27, Interview 4, CG, Female)

Although players talked about such freedom in the game world, some people wished for more choices on specific aspects in the game. For example, [P7] from CG wanted an option to control day and night in the game. She said "if I could turn that in night to day. If I do too many tasks at night I get so tired. If I could change it to 20 minutes daytime and 20 minutes nighttime." Another player [P73] wished for more options for the characters that they get to choose. "I wish that there were more options, being able to control more than one character or choosing between good or evil side…"

A quote from [P43] highlights the choices presented above:

> I made choices about which rewards I would receive and which quests to take. Being able to decide made the experience feel more within my control; however, I still wish I had more different options for quests. (P43, Interview 1, CG, F)

Discussion and future studies

Decisional control refers to the range of choices or number of options available and involves choices prior to an event (Averill, 1973). In this study, participants' decisional control was measured with a single 7-point Likert scale item, "I think I had some choice in this gameplay session."

Results showed that both CG and NCG players' decisional control increased over the first three sessions. Interestingly, players' decisional control dropped during the 4th session even though the number of choices reported was the most of all four sessions. Perhaps the reason was participants knew that was the last session, and they knew that they would not be able to play with their characters after that session. So, this knowledge might have reduced their decisional control. They may also have felt decreased decisional control because the categories of choices they made did not increase in the fourth session. They were still making choices for quests, mission rewards etc. When CG and NCG were compared, there was no significant difference between groups except during the last session. Whatever the reason for this drop, it was more severe for NCG.

Participants' perceived choice was significantly positively correlated with their sense of control in each session. An examination of the correlations between Perceived Choice, and engagement and willingness to play the game revealed that Perceived Choice had a positive relationship with both, though only in sessions subsequent to the first. In the first session, participants were introduced to a new environment and they were too busy learning how to play: getting familiar with game controls and interface to pay attention to the extent of choices available to them.

This may be explained by the positive psychological impact of making choices; the more players were engaged in making choices, the happier they were. However, there is still a question whether giving people fewer choices would have produced the same result, since some studies suggest that people's happiness may depend on "having a choice, not having many choices" (Schwartz et al., 2002, p. 1194). To my knowledge, no such study exists and it is not possible to state at this time whether the number of choices available made players happy. Future studies should investigate this open question. For instance, board games provide many choices to players, ranging from aesthetics (e.g., color and shape of game pieces) and strategies to win. Are these choices enough to give people sense of decisional control? Would changing the number and the range of choices impact players' motivation and engagement with those games?

While decisional control is directly related to availability of choices, it also depends on how a person perceives available choices, rather than on the objective range or number of choices. In other words, decisional control is perceived, so it is the degree to which people agree or identify with the choices available, no matter how limited. One of the main choices that CG had was on their mission rewards. However, if a player does not realize s/he has options when picking a weapon, we cannot expect that her/his decisional control to be affected by the number of choices. Another common practice in MMOs is that mission rewards are usually tailored to character class. In this case, the player does not really have a choice, but has to figure out what is best suited for his character. So, it becomes a puzzle rather than a choice. This is why it was important to investigate participants' perceived choice and its relation to player engagement and motivation, as well as the actual choices made. Even though CG had more choices in the game, NCG did not feel significantly less decisional control, perhaps because of the high behavior control provided in MMOs. Another reason for this finding may be that having a choice to complete tasks given by quests was a great enough control for players. We could not limit all the choices artificially since we could not change mechanics of the game by programming different versions. Future studies should be conducted with custom games or in collaboration with game developers to manipulate the variables more consistently for robust results.

Although this study involved significant amounts of gameplay, it is likely that as players gain more expertise, the impact of certain types of customization (i.e., being able to choose items to change character skills or characters appearance) may become more salient and others may become weaker to impact participants' perceived choice. Moreover, MMOs are long-term games. Ten hours of gameplay content is still very novel to players and there may be a relation between novelty and perceived choice. Future studies should investigate this possibility with even longer gameplay time, ideally in players' regular play environments rather than in research labs or in combination of both.

This study was conducted with a single MMO. It is likely that participants' decisional control may be impacted by available choices differently in different types of games. For example a shooting game might differ, as might a game of chance. As the perceived choice relates to motivation and engagement, future studies are needed to examine which types of choices impact decisional control and when they become irrelevant.

Participants in this study were novice players. It is likely that as players gain more expertise with the game, the number and type of choices available may impact their perceived decisional control and motivation differently. Future studies should investigate how expertise relate to decisional control.

Lastly, Wouters et al. (2013)'s meta-analysis showed that there is a gap on the literature on the investigation of user control in serious games. Future studies are needed to examine to what extent different types of control impacts players' learning and motivation in educational games.

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