Human-centric Computing and Information Sciences
a SpringerOpen Journal

RESEARCH Open Access

A comparison between experienced and inexperienced video game players' perceptions

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Abstract

In this article we examine the relationship between usability, hedonic attributes and general appeal of two types of video games, first-person shooters, and massively multi-player online role playing games. Through the use of a successful example of a game from each genre, we examine the perceptions of both inexperienced and experienced players of each game, and draw conclusions on comparisons. We find that playing experience only affects usability and appeal perceptions, while type of game played not only affects usability and appeal, but also hedonic perceptions as well. We also find that the perception of appeal by players of a video game in the context of this study can be predicted from a linear combination of the same players' perceptions of hedonic attributes and usability. We translate these findings into suggestions for game designers and developers.

Introduction

Clarke and Duimering [1] suggest that video game players' perceptions are not a well-studied phenomenon, but one worth investigating. They further speculate that "studying player perceptions will further provide understanding to how gamers make sense of computer games as complex socio-technical behavior settings, and will further help towards explaining how players behave while playing games" [1]. We add that by comparing populations of experienced players with populations of inexperienced players of a game, we may understand phenomena that may be directly related to game design issues, such as how new players are attracted to a game, and how experienced players decide to continue playing it. Also this examination and comparison may lead us to understand how players perceive video games as pleasurable consumer products. Viewing video games as consumer products allows us to examine how the more successful ones attract their players and manage to retain them either for long periods of time as in the case of World of Warcraft, or creating eagerness about releases of sequels, as in the case of Half-Life. Further, there are positions, such as the one by Jordan [2], which suggest that usability is a prerequisite for pleasurable use of a product. If that is the case, then we expect that usability will be correlated to – if not a predictor of – pleasurable use. Thus it is time that we examine player perceptions not only as a whole, but perform meaningful comparisons that will allow us to shed light to the aforementioned questions.

Here we report on a study performed to compare the perceptions of inexperienced and experienced players of two popular game genres: Massively Multi-Player Online

Role Playing Games (MMORPGs) and First-Person Shooter (FPS) games. The game genres were represented by World of Warcraft (MMORPG) and Half-Life (FPS). The player perceptions were gathered using the AttrakDiff questionnaire [3,4]. All the participants in our study were video game players. However, in this article we will refer to inexperienced players and experienced players as follows: Inexperienced players are those participants that have never played the game of the experiment. Experienced players are those that have played the game either to completion (in the case of Half-Life), or they have at least a year's playing experience and have leveled at least one character to the maximum allowed level at the time of the experiment (in the case of WoW). Nonetheless, we do not distinguish between experienced players as elite players, such as those belonging to top guilds and may be classified as hard-core players or power-gamers [5], and non-elite players.

The driving questions of the research were the following:

1 Are there differences between the perceptions of players and non-players for FPS and MMORPG games, in the four measured categories (non-player + FPS, non-player + MMORPG, experienced + FPS, experienced + MMORPG)?
2 Are player perceptions of the usability and hedonic experiences provided by the game, when taking into account the playing experience and type of game, predictive of the game's appeal?

One may say that the two questions may at first seem disparate, they are in fact related. The first question examines what the effects of playing experience and type of game played have on the perceptions of players. The second examines whether usability and hedonic perceptions are predictive of the games' appeal reported. Taking the two questions together we can better understand how players decide that a game is appealing or not.

As mentioned above, attaining video game perceptions was performed using AttrakDiff, a questionnaire that is designed to gauge the perceived User Experience of a product in four categories: Pragmatic Quality (PQ), Hedonic Identification (HI), Hedonic Stimulation (HS), and General Appeal (GA). The four categories provide a rounded examination of usability (PQ), hedonic characteristics (HI and HS), and likeability of the game (GA). Thus, we use an existing, well-developed tool for gathering perceptions about products, in a new light: to compare the perceptions of experienced and inexperienced video game players on two types of video games.

We find that there are differences in certain perception categories, but interestingly, they seem to be because of game played and not because of the experience or inexperience of the players. We also find predictive relationships between Pragmatic Quality, Hedonic Stimulation and Identification, and General Appeal, in the presence of playing experience and type of game played. We discuss possible explanations for our findings, and our findings' impact on video game design. We conclude with future research directions and specific questions that stem from this study.

Background

There have been numerous studies on several factors of video games, examining, for example, user demographics [6,7], social interactions and [1,8-10] ad-hoc group formation

in MMORPGs [11], and others [12-14]. These studies have brought forth a number of important findings that have been used to understand various aspects of video games and their players [15]. Steinkuhler [16] has suggested that there is learning that occurs in Massively Multi-player Online Games (MMOGs) in general. Yee [17] has looked at which factors motivate players to play MMORPGs, Ermi and Mäyrä [18] have analyzed how immersion shapes the gameplay experience, and others have looked at how culture and socio-spatial context affect the player experience [19,20]. More recently, Christou [21] studied the relationship between usability and appeal, finding that for WoW players, usability is connected to what players call a "good" game.

Virvou, Katsionis and Manos [22] have examined the attractiveness of educational games and how it affects motivation to play such a game. To examine attractiveness they used the time devoted by the participants to the educational game, in contrast to time devoted to educational software without any game features in it. Because of this, they could not evaluate the attractiveness of the game in absolute terms, but only compared to the alternative (the non-game educational software). They did show however, that game-based learning motivates students and attracts students towards material to be learned more than non-game based educational software. The attractiveness of educational games is the topic of a study by Zaharias et al. [23] as well. They examined the attractiveness of serious games, along with other hedonic and usability characteristics. They also examined the temporality of User eXperience (UX) as players play serious games. They found that usability characteristics are more stable indicators of overall UX than hedonic characteristics. They also found that hedonic and usability characteristics contributed evenly to the perceived attractiveness of the serious game. Thus they agree with Jordan's [2] position as far usability is at least a factor to be considered for pleasurable use.

To gauge player perceptions we used AttrakDiff, a questionnaire developed by Hassenzahl [3]. AttrakDiff is used to examine the attractiveness of products in relation to their usability and appearance. This questionnaire was selected because it is one of the most widely used and well validated tool to examine usability and hedonic attributes of products today (i.e. [24-26]). AttrakDiff was also the questionnaire used in the serious games study performed by Zaharias et al. [23] discussed earlier.

The questionnaire consists of word pairs each connected to a 1–7 point Likert scale, and each player had to rate how close to one or the other from each word pair they felt. The questionnaire examines four different attribute categories: Pragmatic Qualities, Hedonic Identification, Hedonic Stimulation, and General Appeal [3]. Pragmatic qualities measure users' perceptions on goal-based behaviors with a product, and thus examine the usability of the product. Hedonic identification addresses the need to express the self through objects, and thus is entirely social, through presentation of the self as users want to be seen by others. Hedonic Stimulation includes attributes of personal development, and General Appeal includes attributes that examine the beauty and goodness of the product [3].

Method

The study was a 2x2 between-groups design, with independent variables being playing experience (whether each participant had played the game he or she was assigned to), and game genre (which game each participant had been assigned to play). The dependent

variables of the study were the perceived PQ, HI, HS, and GA of the game, as they were measured by the AttrakDiff questionnaire.

The participants were assigned to one of the four conditions of the study as follows: the participants were asked to describe their experience in both WoW and Half-Life. If they mentioned that they had never played either game before, then they were randomly assigned to one of the two inexperienced player groups (either FPS or MMORPG). If they mentioned that they had experience (as defined in the introduction) in both of the games, then they were randomly assigned to one of the two experienced groups. Finally, if they mentioned that they had experience in one of the two games, they were randomly assigned to either the experienced group of the game they had experience in, or the inexperienced group of the game they did not have experience in.

Depending on the condition the players were assigned to, they were required to either play WoW for as long as they needed to level a character to level 5, or play the full tutorial of Half-Life along with about 20 minutes of playing the actual game. We found the two limits to play allowed players for a good chunk of playing time (about 30 minutes for experienced players and 45 – 60 minutes for non-players). The time limits were found through two pilot studies: one on WoW [21], and one on Half-Life (unpublished). It is also worth noting that during the first 10 levels of play, WoW provides help with the various features of the game, as they become available. Therefore in all four study groups the participants received the same help they would if they had started playing the game from the beginning on their own. This was important, because we wanted to see the perceptions, especially of the non-players, as if they had bought the game themselves and had decided to play it for the first time.

Participants

The sample size was $n = 201$. There were 146 males and 48 females and 7 undeclared, aged between 13 and 37 (M = 23.34, sd = 3.62). The participants were also asked to denote for how long they had been playing video games (in months) until the time they took part in the experiment. This is denoted as "play experience" in Table 1, which also shows the demographics for each group.

Apparatus

Both games were installed on identical machines that ran a Pentium Dual Core 2.2 GHz, 2 GB of RAM, and an ATI Radeon HD2400 graphics card. Audio was produced by a

Table 1 Demographics for the 4 participant groups

	Game genre	
	FPS	**MMORPG**
Experienced players	n = 34	n = 66
	Age M = 23.47 (2.70)	Age M = 22.98 (3.93)
	Play experience M = 10.50 (4.44)	Play experience M = 10.72 (4.31)
Non-players	n = 55	n = 46
	Age M = 23.96 (3.64)	Age M = 22.93 (3.81)
	Play experience M = 9.61 (4.86)	Play experience M = 10.10 (4.73)

Play experience is denoted in years of play time.

ALC888 integrated audio card, and was projected from two desktop speakers. The monitors used were Philips HWS8190T. Both games were shown at 1024 × 768 resolution.

Two video games were selected, one a MMORPG (WoW), and another an FPS (Half-Life). There are several reasons for the selection of these two video games. First, we wanted to examine video games that are generally accepted as appealing to their players. The two selected games have achieved high metascores according to the Metacritic website [27] The Metacritic website collects scores from credible magazine and website reviews about video games, and turns all of the reviews' scores into a combined score with 100 points being the highest. Half-Life scores 96/100 and World of Warcraft scores 93/100. At the time of writing, these were the two highest scoring games in their respective genres. Second, we wanted to have two genres that are different between them, so that our findings would have more generalizability. Third, we needed to find games for which we could find both experienced and inexperienced players from our participant pool.

As already mentioned, the measuring instrument for player perceptions was AttrakDiff [3]. This questionnaire has been used in several studies to measure the quality of the user perceptions about the usability and hedonic value of a product. In the case of the first question though, we used the questionnaire in a new way, namely to compare the perceptions of two player populations rather than to merely gauge the quality of those perceptions.

Procedure

Each participant was brought to an office, and given instructions which did not divulge any information about the game world, only about the user interface, as shown in Figures 1 and 2. WoW inexperienced players were introduced to the minimap by being told that "it is a small part of the map on the right upper corner of the screen showing the direction of the quests." They were shown the movement and abilities' keys, and were shown how to select targets, how to loot and how to accept and return quests. Finally,

Figure 1 World of warcraft interface elements.

Figure 2 Half-life interface elements.

they were shown the map, and were explained how to locate quest objectives and places where quests are completed. On the other hand, the Half-Life non-players were asked to go through the beginning tutorial of the game, and they were told that if they encountered a problem during playing the tutorial, they could ask the experiment supervisor. They were also explained the basics of the interface, as these are shown in Figure 2.

The experienced players were only asked to level the given character to level 5 in WoW and to play through the tutorial in Half-Life and continue playing the game until the experimenter stopped them. We found that this did not detract from their experience, but rather allowed them to remember the game controls and moved them into the actual game naturally, as the tutorial is basically connected to the actual game seamlessly.

For the WoW groups, and to avoid confounding because of the differences of classes and starting areas of races, we decided that we would use one of the new classes that were offered in the new patch out in November 2010, the 'Undead Hunter' class. We chose this because Blizzard (WoW's creator) had renovated both the way that the hunter class is played and the starting area quests during the patch release. Obviously, this class shares the same playability characteristics with Hunters of other races, and shares the same starting area with any Undead classes, but we felt confident that most experienced players would not have had played the new area with the particular class. There was only one exception to this, where one of the experienced participants had created an undead hunter, "just to see how the class looks like, and what the pet they have is", as he told us.

It was evident however, that for both experienced player groups the play that occurred during the study was incidental. Rather, some of the participants of the experienced player groups, when asked after they had finished answering the questionnaire, admitted that they had answered AttrakDiff drawing from their experience of the whole game, not just from what they had experienced during the study.

The players were then asked to start playing. In all four conditions, there were no further instructions during the actual play of either the Half-Life post-tutorial game

and of WoW after the brief introduction the players were given. From then on, the experimenter only watched them play, and made no comments, nor answered to any of the questions, particularly those of the inexperienced players. Once the participants reached level 5 on their character in WoW, they were asked to stop, and fill out the AttrakDiff questionnaire [3]. The same process was followed after 20 minutes of actual game play in Half-Life. As the AttrakDiff questionnaire is based on a Likert-scale from 1 to 7, any median closer to 7 means a preference for the right part of the word pair in the tables, while any number closer to 1 shows a preference to the left part.

Results

To examine the reliability of the scale used, we have performed Cronbach's Alpha analysis. All of the results are above 0.7, which indicates reasonable internal consistency reliability. To answer the first question posed in the introduction, we performed a two-way MANOVA. To answer the second question, we performed multiple regression analysis. The results for each type of statistical analysis are shown in separate sections below.

Two-way MANOVA

To assess the whether players with and without experience in the game played have different PQ, HI, HS, and GA scores, a two-way MANOVA was performed (results are shown in Tables 2 and 3). The assumptions of independence of observations and homogeneity of variance/covariance were checked and met. Also, bivariate scatterplots were checked for multivariate normality. The interaction was not statistically significant, Wilks' $\Lambda = .975$, $F(4, 194) = 1.254$, $p = .289$, multivariate $\eta^2 = .025$. The main effect for playing experience was statistically significant, Wilks' $\Lambda = .951$, $F(4, 194) = 2.524$, $p = .042$, multivariate $\eta^2 = .049$. This indicates that the linear composite of PQ, HI, HS, and GA differs for the two player categories. The main effect for game played is also statistically significant, Wilks' $\Lambda = .792$, $F(4, 194) = 12.749$, $p < .001$, multivariate $\eta^2 = .208$. This indicates that the linear composite also differs on the game played. Follow up ANOVAs indicate that playing experience effects were significant on the PQ and GA scores, whereas the game played effect was significant for all dependent variables. For playing experience, inexperienced players gave lower scores for the PQ category than experienced players. Inexperienced players also scored GA lower than experienced players. For game played, WoW was scored higher than Half-Life in all categories.

Multiple regression

To answer the second question posed in the introduction, a multiple regression was performed. The regression was used to examine whether type of game, playing experience, usability, and the hedonic attributes of each of the two games can predict general appeal. Due to a large correlation between HI and HS the two categories were summed into one measure of hedonic perceptions. Assumptions of linearity, normally distributed errors, and uncorrelated errors were checked and met. The means, standard deviations and intercorrelations can be found in Tables 4 and 5, and shown graphically in Figure 3. This combination of variables significantly predicted GA, $F(4, 200) = 73.201$, $p < 0.001$, with only two (Pragmatic Quality and Hedonic Perceptions) of the four independent variables significantly contributing to the prediction. However, removal of the other

Table 2 MANOVA results of multivariate tests[c]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta squared	Noncent. parameter	Observed power[b]
Intercept	Pillai's Trace	.983	2823.682[a]	4.000	194.000	.000	.983	11294.730	1.000
	Wilks' Lambda	.017	2823.682[a]	4.000	194.000	.000	.983	11294.730	1.000
	Hotelling's Trace	58.220	2823.682[a]	4.000	194.000	.000	.983	11294.730	1.000
	Roy's Largest Root	58.220	2823.682[a]	4.000	194.000	.000	.983	11294.730	1.000
NovExp	Pillai's Trace	.049	2.524[a]	4.000	194.000	.042	.049	10.094	.709
	Wilks' Lambda	.951	2.524[a]	4.000	194.000	.042	.049	10.094	.709
	Hotelling's Trace	.052	2.524[a]	4.000	194.000	.042	.049	10.094	.709
	Roy's Largest Root	.052	2.524[a]	4.000	194.000	.042	.049	10.094	.709
Game played	Pillai's Trace	.208	12.749[a]	4.000	194.000	.000	.208	50.994	1.000
	Wilks' Lambda	.792	12.749[a]	4.000	194.000	.000	.208	50.994	1.000
	Hotelling's Trace	.263	12.749[a]	4.000	194.000	.000	.208	50.994	1.000
	Roy's Largest Root	.263	12.749[a]	4.000	194.000	.000	.208	50.994	1.000
NovExp * game played	Pillai's Trace	.025	1.254[a]	4.000	194.000	.289	.025	5.018	.388
	Wilks' Lambda	.975	1.254[a]	4.000	194.000	.289	.025	5.018	.388
	Hotelling's Trace	.026	1.254[a]	4.000	194.000	.289	.025	5.018	.388
	Roy's Largest Root	.026	1.254[a]	4.000	194.000	.289	.025	5.018	.388

a. Exact statistic.
b. Computed using alpha = .05.
c. Design: Intercept + NovExp + GamePlayed + NovExp * GamePlayed.

Table 3 MANOVA results of tests of between subjects effects

Source	Dependent variable	Type III sum of squares	df	Mean square	F	Sig.	Partial Eta squared	Noncent. parameter	Observed power[b]
Corrected model	Pragmatic quality score	597.089[a]	3	199.030	6.279	.000	.087	18.837	.963
	Hedonic identification score	1067.555[c]	3	355.852	14.236	.000	.178	42.708	1.000
	Hedonic stimulation score	999.925[d]	3	333.308	11.958	.000	.154	35.875	1.000
	General appeal score	1268.029[e]	3	422.676	8.724	.000	.117	26.171	.994
Intercept	Pragmatic quality score	172708.495	1	172708.495	5448.668	.000	.965	5448.668	1.000
	Hedonic identification score	161124.726	1	161124.726	6445.859	.000	.970	6445.859	1.000
	Hedonic stimulation score	184829.438	1	184829.438	6631.310	.000	.971	6631.310	1.000
	General appeal score	207533.996	1	207533.996	4283.357	.000	.956	4283.357	1.000
NovExp	Pragmatic quality score	185.969	1	185.969	5.867	.016	.029	5.867	.674
	Hedonic identification score	.199	1	.199	.008	.929	.000	.008	.051
	Hedonic stimulation score	4.197	1	4.197	.151	.698	.001	.151	.067
	General appeal score	240.925	1	240.925	4.973	.027	.025	4.973	.602
Game played	Pragmatic quality score	261.792	1	261.792	8.259	.004	.040	8.259	.816
	Hedonic identification score	1013.265	1	1013.265	40.536	.000	.171	40.536	1.000
	Hedonic stimulation score	857.933	1	857.933	30.781	.000	.135	30.781	1.000
	General appeal score	757.067	1	757.067	15.625	.000	.073	15.625	.976
NovExp * game played	Pragmatic quality score	44.793	1	44.793	1.413	.236	.007	1.413	.219
	Hedonic identification score	2.854	1	2.854	.114	.736	.001	.114	.063
	Hedonic stimulation score	60.007	1	60.007	2.153	.144	.011	2.153	.309
	General appeal score	47.990	1	47.990	.990	.321	.005	.990	.168
Error	Pragmatic quality score	6244.384	197	31.697					
	Hedonic identification score	4924.335	197	24.997					
	Hedonic stimulation score	5490.831	197	27.872					

Table 3 MANOVA results of tests of between subjects effects *(Continued)*

	General appeal score	9544.896	197	48.451
Total	Pragmatic quality score	190512.000	201	
	Hedonic identification score	180411.000	201	
	Hedonic stimulation score	204267.000	201	
	General appeal score	232682.000	201	
Corrected Total	Pragmatic quality score	6841.473	200	
	Hedonic identification score	5991.891	200	
	Hedonic stimulation score	6490.756	200	
	General appeal score	10812.925	200	

a. R Squared = .087 (Adjusted R Squared = .073).
b. Computed using alpha = .05.
c. R Squared = .178 (Adjusted R Squared = .166).
d. R Squared = .154 (Adjusted R Squared = .141).
e. R Squared = .117 (Adjusted R Squared = .104).

Table 4 Means, standard deviations and intercorrelations for general appeal and predictor variables (N = 201)

Variable	M	SD	1	2	3	4
General appeal	33.22	7.35	.539*	.707*	.202**	-.304*
Predictor variable						
1. Pragmatic quality	30.23	5.85	-	.369*	.201**	-.238*
2. Hedonic perceptions	30.41	4.93		-	.106	-.454*
3. Playing experience	1.50	.50			-	-.206*
4. Type of game	1.44	.50				-

* $p < 0.001$.
** $p < 0.05$.

two (Playing Experience, Type of game) reduced the adjusted R^2 value which initially was 0.591. This value indicates that 59% of the variance in GA was explained by the four-variable model. According to Cohen [28] this is a much larger than typical effect. The beta weights, presented in Figure 4, suggest that Hedonic Perceptions contribute the most to predicting GA, and that the usability of the game also contributes towards this as well.

Discussion

In the introduction we asked two questions repeated below, now modified to incorporate the experimental variables and conditions:

1 Are there differences between the perceptions of players and non-players for FPS and MMORPG games, in the four measured categories (inexperienced-player + FPS, inexperienced-player + MMORPG, experienced + FPS, experienced + MMORPG)?
2 Are perceptions of PQ, HI and HS, when taking into account the playing experience and type of game, predictive of GA?

To summarize the findings of the previous section, it was found that both playing experience and game played affect perceptions. Playing experience was found to only affect the appeal and usability perceptions. Game Played was found to affect all measured variables. Also, it was found that GA is highly correlated to the summed measure of hedonic qualities and PQ.

There are indeed differences between the four measured categories. Inexperienced players report lower levels of appeal and usability than experienced players for both

Table 5 Simultaneous multiple regression analysis summary for pragmatic quality, hedonic perceptions, playing experience and type of game (N = 201)

Variable	B	SEB	β
Pragmatic quality	.39	.06	.31*
Hedonic perceptions	.92	.08	.61*
Playing experience	1.29	.69	.09
Type of game	.97	.76	.07
Constant	−9.75	3.36	-

Note: $R^2 = .59$; $F\ (4, 200) = 73.201$, $p < 0.001$.
* $p < 0.001$.

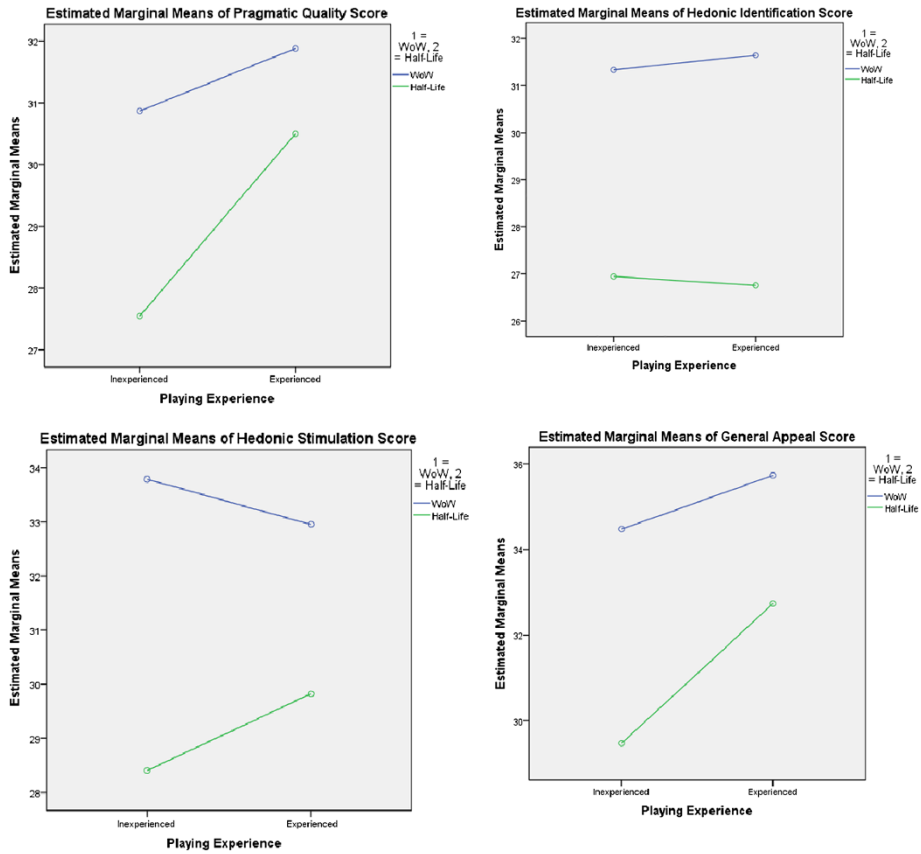

Figure 3 Effects of playing experience on the four dependent variables.

games. As players play a game over time, they find it more appealing, probably because they discover the game's depth. They also gradually find it easier to play because they become used to the controls of the game. On the other hand, we are hesitant to generalize over the difference found in appeal when compared on game played. WoW was found to be more appealing than Half-Life, but this result could be misleading. WoW is a newer game, with better graphics, thus the result here may be confounded by this fact. However, it was also found that inexperienced players rated the usability of WoW higher than they did the usability of Half-Life. WoW displays the actions that a player can perform on the screen, thus the player can immediately see what actions are available. On the other hand, Half-Life does not display available actions. Thus the player needs to memorize the control keys and their associated actions, something that makes control immediately harder in Half-Life when compared to the recognition-based control of WoW.

The finding that playing experience affects the appeal and usability scores is to be expected. The reason is that players who keep playing a game, or who have played a game to completion, probably found the game appealing in the first place, thus they finished it or they keep playing it, and through use now find it easy-to-use. However, this finding exposes of a usability testing pitfall: using experienced players to gauge a game's usability will probably result in bias towards ease-of-use. As it is usual practice to open alpha-version games to players for testing purposes, and because those players

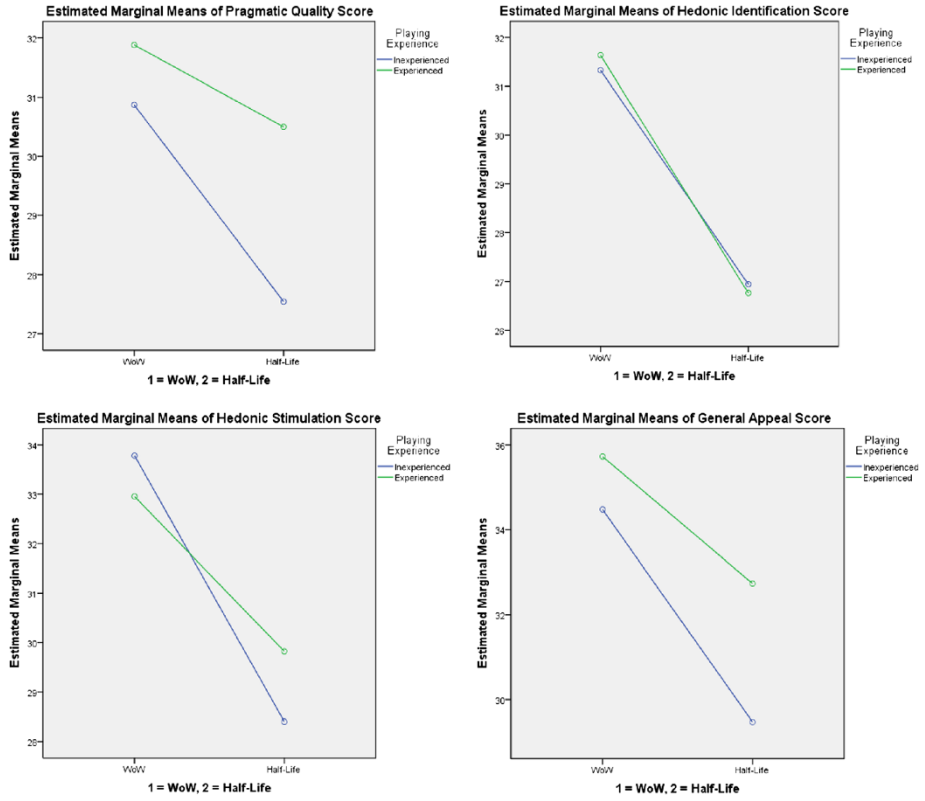

Figure 4 Effect of game played on the four dependent variables.

that are interested to alpha-test a game are probably ones that are experienced genre players, game developers and designers need to be aware of this finding. If possible, it is recommended that game designers and developers recruit usability testers who are not well versed in the type of game under testing.

The results of multiple regression analysis show that we can indeed predict the appeal of a game, and that the factor that impacts general appeal the most, is that of the game's usability. The interesting result here is that the type of game played and the playing experience do not play a significant role in the resultant appeal of a game. This result tells us that players will decide to play a game that is usable first. This result coincides with Jordan's [2] proposition, which states that the usability of a product is a requirement for finding the product pleasurable. Finally, we can also surmise that the time a player has spent on a game does not significantly change the player's perception of appeal of the game, as both game played and type of game do not significantly contribute to the linear model produced by the multiple correlation (see the β column in Figure 4).

A more general result that can be extracted when combining the two analyses, is that a game can become more appealing when its user interface is well-designed. It as shown that inexperienced players found WoW to be more usable than Half-Life, and this was explained as coming from the recognition-based rather than memorization-based controls of WoW. It was also found that usability does correlate to appeal, thus better usability will lead to more appeal. We believe that this is an important lesson to be remembered by user interface designers in video games, as the goal of a game is to

maximize appeal, thus leading to a longer-term relationship between the player and the game or the game franchise.

Conclusions

In this article we presented an experiment performed to examine the relation of players' perceptions to playing experience and game played, and to explicate the relationship between usability, hedonic attributes, and a game's general appeal.

The first question was a probing question examining the nature of player experience, and the second question was based on Jordan's [2] proposition that usability is a prerequisite of pleasurable use. We used two groups of participants, first time players and experienced players, and used two games, a MMORPG and a FPS. After a brief play session, all player groups were asked to fill out the AttrakDiff questionnaire [3]. We then analyzed and compared their answers and found results that we believe have a role to play in the design of computer games.

There are three findings that stand out. First, from the results of MANOVA we see that using experienced players for usability testing may be misleading, although the current practice of releasing alpha-versions of games to a select group of players may be doing exactly that. This is important for game designers, who need to understand that explicitly incorporating inexperienced players in their usability testing will give them a truer perspective towards the actual usability of their games.

The second is that the game's type affects how players perceive both usability and hedonic attributes of the game. Game designers need to be aware that players will view any game through their experience with other games of the same type. Thus, for example, moving away from established ways of controlling the avatar could affect the way that players perceive the game hedonically.

The third and last finding is that indeed usability is an attribute that affects appeal, hence providing evidence towards Jordan's [2] proposition. This finding also agrees with Zaharias et al.'s [23] finding that "hedonic and pragmatic qualities contribute evenly to the perceived attractiveness of the game" (p. 28). This is an important for game designers, because the result shows that the perception of a more usable interface will create a more favorable view of the game by potential players.

To further examine the way that perceived appeal changes as players continue to play a game, a longitudinal study needs to be performed. Such a study could shed light in a number of questions that have been touched, but could not be answered by the presented study, such as, for example, "how does perceived appeal change over the course of a player's playing of a video game". The study is of course, not without limitations. The greatest limitation perhaps, is that it was not possible to find players that were familiar with a newer game in the FPS genre, one that had a comparatively high metacritic score with Half-Life. This may have inadvertently introduced a problem in the study, because of the dated graphics of the game. However, despite this limitation, we still consider that the results will be useful to both game researchers and game design professionals.

Competing interests
The authors declare that they have no competing interests.

Received: 26 March 2013 Accepted: 16 September 2013
Published: 18 September 2013

References

1. Clarke D, Duimering PR (2006) How computer gamers experience the game situation: a behavioral study. ACM Comput Entertain 4(3). doi:10.1145/1146816.1146827
2. Jordan PW (2000) Designing pleasurable products. Taylor & Francis, London
3. Hassenzahl M (2004) The interplay of beauty, goodness, and usability in interactive products. Hum Comput Interact 19(4):319–349
4. Hassenzahl M, Monk A (2010) The inference of perceived usability from beauty. Hum Comput Interact 25(3):235–260
5. Taylor TL (2003) Power gamers just want to have fun?: instrumental play in a mmog. Paper presented at the Level Up conference of the Digital Games Research Association, Utrecht, pp 4–6, November 2003
6. Achterbosch L, Pierce R, Simmons G (2008) Massively multiplayer online role-playing games: The past, present, and future. ACM Computers in Entertainment. doi:10.1145/1324198.1324207
7. Seay AF, Jerome WJ, Lee KS, Kraut R (2004) Project massive: a study of online gaming communities. Paper presented at the CHI '04 Conference on Human Factors in Computing Systems, Vienna, Austria, pp 24–29, April 2004
8. Axelsson AS, Regan T (2004) In: Kommers P, Isaías P (eds) How belonging to an online group affects social behavior - a case study of Asheron's call. Proceedings of the IADIS international conference Web based communities, Lisbon, Portugal, p 2004
9. Ducheneaut N, Yee N, Nickell E, Moore RJ (2006) "Alone together?": exploring the social dynamics of massively multiplayer online games. Paper presented at the CHI 2006 Conference on Human Factors in Computing Systems, Montréal, Québec, Canada, pp 24–27, April 2006
10. Jakobson M, Taylor TL (2003) The sopranos meets everquest: social networking in MMOGs. Paper presented at the Proceedings of DAC2003, Melbourne, Australia, pp 19–23, May 2003
11. Bardzell S, Bardzell J, Pace T, Reed K (2008) Blissfully productive: grouping and cooperation in World of Warcraft instance runs. Paper presented at CSCW '08 The ACM Conference on Computer Supported Cooperative Work, San Diego, CA, pp 8–12, November 2008
12. Ducheneaut N, Moore RJ (2005) More That just 'XP': learning social skills in massively multiplayer online games. Inter Technol Smart Educ 2(2):89–100
13. Ravaja N, Saari T, Turpeinen M, Laarni J, Salminen M, Kivikangas M (2006) Spatial presence and emotion during video game playing: does it matter with whom you play? Presence: Teleoperators and Virtual Environ 15(4):381–392
14. Warner DE, Raiter M (2005) Social context in massively multiplayer online games (MMOGs): ethical questions in shared space international review of information. Ethics 4:46–52
15. Brown B, Bell M (2004) CSCW at play: 'There' as a collaborative virtual environment. Paper presented at CSCW '04 Proceedings of the 2004 ACM conference on Computer supported cooperative work, Chicago, IL, pp 6–10, November 2004
16. Steinkuehler C (2004) Learning in massively multi-player online games. Paper presented at the ICLS '04 6th international conference on Learning sciences, Santa Monica, California, pp 22–26, June 2004
17. Yee N (2006) The demographics, motivations, and derived experiences of users in massively multi-user online graphical environments. Presence: Teleoperators and Virtual Environ 15(3):309–329
18. Ermi L, Mäyrä F (2005) Fundamental components of the gameplay experience: analyzing immersion. Paper presented at the 2005 Digital Games Research Association's Second International Conference, Vancouver, British Columbia, Canada, pp 16–20, June 2005
19. De Kort YAW, Ijsselsteijn WA (2008) People, places, and play: Player experience in a socio-spatial context. ACM Computers in Entertainment. doi:10.1145/1371216.1371221
20. Zaharias P, Papargyris A (2009) The gamer experience: Investigating relationships between culture and usability in massively multiplayer online games. ACM Computers in Entertainment. doi:10.1145/1541895.1541906
21. Christou G (2012) Exploring player perceptions that contribute to the appeal of World of Warcraft. Paper presented at the Fun and Games 2012 conference, Toulouse, France, pp 4–6, September 2012
22. Virvou M, Katsionis G, Manos K (2004) On the motivation and attractiveness scope of the virtual reality user interface of an educational game. Lect Notes Comput Sci 3038:962–969
23. Zaharias P, Gatzoulis C, Chrysanthou Y (2012) Exploring user experience while playing educational games: Focus on temporality and attractiveness. Int J Gaming and Comput-Mediated Simulations 4(4):19–32
24. Isleifsdottir J, Larusdottir M (2008) Measuring the user experience of a task oriented software. Paper presented at the 5th COST294-MAUSE Open Workshop on Valid Useful User Experience Measurement (VUUM), Reykjavik, Island
25. Karapanos E, Zimmerman J, Forlizzi J, Martens JB (2009) User experience over time: an initial framework. Paper presented at the CHI'09 Conference on Human Factors in Computing Systems, Boston, MA, USA
26. Obrist M, Bernhaupt R, Beck E, Tscheligi M (2007) Focusing on elderly: an iTV usability evaluation study with eye-tracking. In: Cesar P, Chorianopoulos K, Jensen JF (eds) Interactive TV: a shared experience (Vol.). Springer, Berlin Heidelberg, pp 66–75
27. Metacritic (2013) All time game releases by score., Retrieved 18th July 2013, from http://www.metacritic.com/browse/games/score/metascore/all/pc?sort=desc&view=condensed
28. Cohen J (1988) Statistical power analysis for the behavioral sciences, 2nd edn. Lawrence Erlbaum Associates, Hillsdale, NJ

doi:10.1186/2192-1962-3-15
Cite this article as: Christou: **A comparison between experienced and inexperienced video game players' perceptions.** *Human-centric Computing and Information Sciences* 2013 **3**:15.