Player-Character Dynamics in Multi-Player Role Playing Games

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ABSTRACT
This paper presents the results of a comprehensive empirical study of the impact of integrating complex game characters in multi-player Role Playing Games across tabletop and digital formats. Players were provided with characters that had detailed background history, personality and goals. Player and character personality were assessed using the Extended Personal Attributes Questionnaire (EPAQ) and further questionnaires administered to measure player enjoyment and the player-character relationship. Results include a high level of player enjoyment across all formats, a high correlation between enjoyment and player engagement with their character and no correlation between enjoyment and similarity between player and character personality.

Keywords
Player, character, design, personality, role playing games.

1.0 INTRODUCTION

In the early days of digital games, game characters were little more than generic figures without personality or depth in their design. They have since evolved from the original iconic figures to sophisticated 3D embodiments, many conveying the appearance of personality, emotion and purpose, and a major reason for the success of the games in which they feature. As digital games have evolved into increasingly complex interactive entertainment platforms, the characters inhabiting them have likewise evolved [21]. Jointly with the technological development, games have increased their audience reach and developed characters that create powerful social, emotional or cultural connections with players through the act of game play [12].

Despite efforts placed on character appearance, behavior and animation to create these connections, game characters remain fairly one-dimensional constructs in their personalities and backgrounds. This apparent dichotomy of the pain-staking care in defining character appearance vs. their personality is however intentional, and follows what could be termed the blank-slate approach of game character design, where we see: "… *Full character design, but with a necessarily one-dimensional personality so that the player can flesh out its motivations. The trick is to strike a balance between establishing the actor's personality without letting that personality disturb the player*" [10]. The result is game characters with internal personalities that are intentionally left open and loosely defined, to avoid both character motivations that might conflict with a player's, and character reactions that make the player feel uncomfortable: "*At the end of the day, a game character shouldn't have anything more than superficial personality traits since, whatever the point of view, the player needs to retain as much control as possible."* [10].

This approach to character design is especially obvious in First-Person Shooters (FPS), where characters rarely contain more detail than a name, some background supported by a selection of catchy one-liners (i.e. voice). E.g. *Serious Sam,* where the main character arguably has attitude, but very little personality. The same pattern is arguably the case for early versions of *Lara Croft*, and even more marked in cartoon-style character such as *Sonic the Hedgehog*. In some FPS' and "storytelling-based" games such as *Max Payne* or *Chronicles of Riddick,* a measure of personality of the player character shines through in the dialogue and cut-scenes.

The contemporary digital games approach generally avoids complex character personalities and instead conveys a limited modus of emotions and personality via appearance and body language, as exemplified in the emotionally driven movements of *Ico* [12]. This has arguably proven a successful strategy in terms of sales, and today characters, like *Lara Croft*, that have branched out of the digital world to movies, comic books, novels and merchandise could be considered cultural icons [5,13,17]. Where character personalities are comparatively more elaborate, this is often at the expense of player freedom, as seen in heavily scripted console games such as the *Final Fantasy* series.

However, the blank-slate approach ignores some opportunities that emerge with more complex character personalities, as evidenced in books and films where characters can be very well developed. While these are not

Situated Play, Proceedings of DiGRA 2007 Conference

interactive media like games, they point to opportunities for integrating personality in game story, and providing personality based rewards. Perhaps more significantly, digital characters are set to play an important role in the development of the next generation of computer games and other forms of interactive digital entertainment with an increased focus on interactive storytelling and believable and embodied agents [18,26] - whether AI- or character-driven [6]. However, the concerns noted by e.g. [10] need to be addressed, and a key issue is whether the use of well-developed character personalities prevent positive gaming experiences, and if not, how broad the solution space for the design of complex characters is. For example, if a computer game integrates characters with pre-defined personalities and motivations beyond what is currently observed in mainstream computer games, are there any personality types or motivations that should be avoided in order not to alienate the player base? In addressing these questions, it is of interest to investigate game forms that already utilize complex characters. Multi-player tabletop Role Playing Games (RPGs) form one such game form.

1.1 Aims and Purpose

This paper presents the results of a comprehensive empirical study of the impact of integrating complex game characters in multi-player Role Playing Games across tabletop and digital formats. The study evaluates whether: 1) The inclusion of complex game characters causes significant problems for player enjoyment of the gaming experience and relationship with the character; 2) There exists a specific solution space for character personality design within which designers can operate, within which the character personality does not prevent the player from engaging with and appreciating the character; 3) The solution space correlates with gaming experience, age, gender or the cultural background of the participating players.

1.2 Characters in Role Playing Games

RPGs form one of the major game genres, with representative games found across hardware platforms and formats, e.g. physical embodiment in Live Action RPGs (LARPs), tabletop Pen and Paper RPGs (PnPs), single/multi-player Computer RPGs (CRPGs) and within the last decade graphical Massively Multiplayer RPGs (MMORPGs), which were developed from e.g. text-based Multi User Dungeons (MUDs) and similar applications [3,14].

The blank-slate approach in game character design is in contrast to the way characters are designed in Role Playing Games (RPGs) outside the digital medium [see e.g. 1,16]. In traditional tabletop or Pen-and-Paper RPGs (PnPs), players can spend large amounts of time developing their characters; integrating them into the fictional game world and building their background histories. These features can be further developed over years of game play, which signifies an incredible amount of emotional attachment between the player and character[1]. Irrespective of their format, RPGs are based on character-centered storytelling, with the fictional character controlled by the player forming the central link between the player and the game. However, the detailed characters in PnPs are not represented in the digital forms of RPGs, which similar to other computer games must be marketable to a broad player segment. While the creation of the characters CRPGs and MMORPGs are often controlled to some degree by the players, in the definition of general statistics, character class, gender and appearance; the personality and background history of the character is generally not featured in the character construction process, or only to a very limited degree (e.g. *Icewind Dale, Neverwinter Nights*). While CRPGs such as *Oblivion* and *Fallout* do provide a background history for the character and a place in the game story, they are relatively nonspecific compared to the detailed backgrounds typical of PnPs. It is even rarer for CRPGs to pre-define character backgrounds and histories in a way that actively impacts on the player's freedom of character creation, with a notable exception being *Planescape Torment.* It could be argued that more defined characters are more commonly featured in console RPGs, however, at the expense of player freedom compared to those noted above.

It can be argued that PnP characters are developed by the players or player groups and therefore tuned to the specific player[2], which prevents conflicts between character and player motivations and personalities. Furthermore, that this attunement of character to the player is not possible in a computer game that must be marketable to a broad player segment. Finally, that the PnP format is much more flexible than digital formats in terms of the player ignoring aspects of their character which they do not enjoy. This can however be tested empirically, by providing players of CRPGs with pre-defined characters with detailed personalities and background histories, and evaluate the resulting gaming experience.

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[1] Not all PnP characters are complex; the details vary between players and specific PnP rules systems and settings. E.g. in the cartoon-based *Toon*, one-dimensional characters would be more common, however, the unique feature of PnPs is that this can vary – it is as possible for well-developed characters to appear in a cartoon-based PnP system as in the gothic-themed world of the storytelling–oriented PnP system *Vampire the Masquerade*.

[2] Pre-made complex characters are also used in PnPs. For example, pre-made characters are a typical component of PnP products and scenarios (pre-designed game modules), and convention scenarios.

2.0 Approach and Methodology

For reasons of space, this section will be necessarily brief; however the key points in character design and experimental setup will be outlined. The experimental work involved the running of PnP and CRPG multi-player game sessions.

2.1 Experiment Setup and Design

As empirical research, the basic assumption of this study is that the player sample and games utilized are representative of the population. For RPGs, this can be a problematic assumption due to the variety of these games. Care was taken to ensure that the RPGs utilized in the experiments were as generic as possible, e.g. in using the rules system from the PnP *Dungeons & Dragons* (D20 System). The conditions of the tabletop and digital experiments were kept as similar as possible (e.g. in using the same rules system), in order to limit any bias imposed by differences in the game framework, such as story, rules etc. For all experimental setups, the players were situated around the same table with full visual and verbal access. Many aspects of RPG play have not been captured in the current model, and this study is an exploratory start to investigating relevant issues.

The CRPG utilized in the experiments was *Neverwinter Nights*. This is a fairly typical representative of the CRPG genre – featuring a fantasy game world, character-based development and uses *Dungeons & Dragons*-rules. *Neverwinter Nights* is multi-player capable with a support system featuring e.g. text-based chat and avatar emotes. It also provides a toolkit which allows one of the players to take on the mantle of Game Master (GM) similar to PnPs [24].

There were 51 participants in the experiments (36 Australian, 15 Danish, 37 males, 14 females) divided into 10 groups of 5 players each (one with six). The same groups of players carried over through the two game formats to avoid bias caused by changing the group composition. All participants were adults (18-54 years of age, 28.8 average), and none had any prior knowledge of the experiments. Three sets of experiments were run, the PnP game and 2 CRPG games, one with a human GM. All 10 groups participated in the PnP and CRPG games, 8 (all the Australian and one Danish) in the CRPG with a human GM. The same observations for character design, rules system, story theme etc. were observed in all three, and each had a separate set of five characters.

The PnP, CRPG and GM-supported CRPG sessions were run individually for the different groups on two different days, to avoid player tiredness as a game session could last 3-4 hours (CRPG and GM-supported CRPG) to 4-7 hours (PnP). The length of game playing was necessary in order to test the player-character relationship over a relative long period of exposure. Breaks in game playing were integrated at the discretion of the players, although most of the groups chose not to have actual breaks but to keep playing, including eating lunch/dinner at the gaming table. The game sessions were recorded on video and audio, and game logs extracted from the *Neverwinter Nights* games, showing all text-based chat.

Before the first game session, the players were asked to complete a personality assessment questionnaire (the EPAQ, see below), as well as a questionnaire about their experience with RPG play. After each game session the players were asked a series of questions evaluating their characters and the gaming experience. These questionnaires are described in the below sections.

2.2 Categorizing Personality

In order to examine the relationship between players and characters, a method for mapping and categorizing a wide variety of personality profiles is needed. This allows: 1) The design of characters with a wide spectrum of personality profiles necessary in order to map any solution space for player acceptance of character personalities; 2) The measuring of the character and player personality profiles by virtue of a specific set of variables; 3) The comparison of character and player personality profiles and relation of this comparison with a measure for the quality of the gaming experience.

The study of personality is a recognized sub-domain of psychology, where considerable effort has been applied over the years to develop tools for measuring and categorizing personalities. Two tendencies, Agency and Communion, (originally developed as measurement constructs by [2]), pervade the psychological literature [11], and form the basis for several personality evaluation methods, including the Personal Attributes Questionnaire (PAQ) [23] and the BSRI [4]. Agency is linked to a focus on the self and separation, reflecting existence as an individual; where Communion is linked to a focus on others and connection, reflecting the individual as part of a larger organism or group. Typically, men score higher on agency, whereas women score higher on communion scales [2,11], however the relations among the agency and communion scores hold across male and female subjects [23].

Unmitigated Agency (UA) and Unmitigated Communion (UC) [9], are the extreme versions of each construct and generally associated with unhealthy behavior [11]: UA is a focus on the self to the exclusion of others. UC on the contrary is a focus on others to the exclusion of the self. UA and UC are distinct from Agency and Communion, meaning that an individual with a high score on a Communion-derived scale does not necessarily have to score highly on a UC-derived scale. Agency and Communion are broad dimensions of personality; while UA and UC are more specific sets of traits that have clear negative associations.

2.3. Measuring Personality: The EPAQ

The four personality constructs described above can be measured using the extended PAQ (EPAQ) [23], extended

to include the UC scale of [9]. This questionnaire covers a very wide range of personality traits, and therefore offers a way of classifying a range of personalities.

The EPAQ consists of 33 questions, eight for Agency, Communion and UA, and nine for UC. The EPAQ is provided as a self-report questionnaire that asks the subjects to indicate the extent to which they can be characterized in terms of various adjectives. Each subscale consists of eight items, each of which is rated on a bipolar scale ranging from 1 ''not at all'' possessing the attribute to 5 ''very much'' possessing the attribute. Each category can then range between 8-40 in summed score (9-45 for UC),

Items on the UA scale include adjectives focusing on self-absorption and a negative view of others, e.g. arrogant, greedy and cynical. Items on the A scale reflect a positive orientation towards the self, including adjectives such as independent, self-confident and makes decisions easily. The Communion scale reflects a positive orientation towards others, including adjectives such as helpful, kind and understanding of others. UC items reflect focus on others to the exclusion of self, and include questions on placing the needs of others above those of one self, getting overtly involved in the problems of others, and the need for others to be happy for one self to be happy. The four categories necessitated four characters per player group, with a character representing each of the four EPAQ categories. A fifth character was included in order to test the use of a character with more mixed EPAQ profile.

2.4 Character Design

With the EPAQ employed to measure player personalities, the same approach was applied to the design of the characters. By designing the characters with specific values of each of the four EPAQ personality attributes, the difference in scores for each attribute (or subscale) can be calculated. E.g., if a player scores 25 on the Agency-subscale, and the character played scores 20, the difference in scores provide a quantitative measure of the difference in this component of personality, which can be assessed against a measure of the quality of the gaming experience or the sympathy between the player and the character.

However, a character is more than a series of adjectives given specific weight. In order for the player to utilize the character, more is needed, such as character background, rules-based stats, notes on the personality of the character, etc. [16]. While an in-depth discussion of the pros and cons of character design are beyond the scope of the current paper [e.g. 1,16,20,21], it should be noted that characters ideally should contain the potential for story, e.g. in the form of conflicts between the characters (conflict is a powerful driver for drama). A further requirement, that the characters in a group should be balanced, while retaining the potential for conflict and motivation for interaction. The character descriptions were separated into two parts:

1) Stats: The stats component was in the PnP sessions provided as a character sheet detailing the character in terms of the game rules. In the CRPG sessions a similar character sheet was provided, however, players could also call up their character stats on the monitor.

2) Background history, personality and goals: All characters were created using the same model and include the same sections. The descriptions contained an introduction/background styled to the theme of the character, written in a style and language that the character would use – e.g. interview form for a reporter. Each character description also contained a section describing in clear detail the personality of the character, a list of goals and an introduction to the other four characters in the group and the nature of the character's relationship with them.

Each character personality profile was described in terms of the EPAQ adjectives. By giving the different adjectives different weights, an approximate EPAQ point score value for that personality trait could be defined [Table 1]. These adjectives could either be written directly into the personality profile, or presented in a context, which however portrayed a clear meaning. The latter approach would typically be used in the background histories of the characters, while the first would be presented under the header *Role playing notes*, which provided the player with a description of the character's personality. Helgeson [11] noted that while the four EPAQ traits are independent, there is a tendency for UA to correlate with A, and UC to correlate with UC. Therefore the characters with high UA and UC values for given relatively high A and C values also, respectively [Table 1]. The UA and UC scores were maximized in the characters emphasizing this trait.

Table 1: EPAQ scores for the game characters, rated for each of the four subscales.

	Target EPAQ subscale score			
Character Template	**UA**	**A**	**C**	**UC**
Unmitigated Agency [UA]	40	34	16	9
Agency [A]	32	36	8	18
Communion [C]	15	14	37	35
Unmitigated Communion [UC]	8	24	32	45
Mixed	30	40	21	31
Average	25	30	25	28

Care was taken to ensure that the characters were built on the same template and using the same EPAQ adjectives across the tabletop and digital format, however different in theme so that the players would not recognize previously encountered personality templates.

2.5 Measuring the Quality of the Gaming Experience

Measuring the quality of a gaming experience can be difficult as a substantial number of variables could be argued to contribute to the experience, e.g. degree and type of immersion [8], enjoyment, the feel of temporal dissociation etc. [7,15]. However Newman [19] presents a measure of gaming experience that encompasses a broad spectrum of variables. This model is based on extensive work on immersion and engagement, and was tested in experiments where players interacted with role-playing based digital content across various online formats. The evaluation is based on a self-test questionnaire featuring 16 bi-polar questions scoring between one and five, where five is the highest score possible. Questions were modified to suit a multi-player RPG situation, and four extra questions concerning the narrative aspects of the gaming experience were added to this scale for the purpose of the current study. The RPGs investigated featured a central game narrative, and it was therefore important to be able to evaluate the impact on the gaming experience.

The questionnaire is divided into questions that focus on five subscales: Temporal Dissociation (TD) = lost track of time while engaged in the current activity; Focused Immersion (FI) = felt immersed in the current activity; Heightened Enjoyment (HE) = enjoyed the current activity; Narrative Engagement/Play (NE) = felt they engaged with the role playing and narrative aspects of the current activity; Intention to Re-use (IR) = If given the chance the user would want to re-visit the current activity. The averaged score of these five subscales is termed the FUN construct [19], and provides a measure of the quality of the gaming experience. A substantial advantage of the FUN construct is that, due to its breadth, a variable must have a substantial impact on the general gaming experience in order to show a statistically significant correlation with FUN. The questionnaire was given to each player following each of the three game sessions (PnP, CRPG, GM-supported CRPG), and the FUN value calculated [see 19].

2.6 Character-Player Sympathy

While the EPAQ model provides the means for measuring the difference between the personality of a character and a player in terms of four subscales (or potentially 33 individual items), this difference does not contain a measure of how well the player engaged with the character. In order to evaluate this, a character-player sympathy and understanding questionnaire was developed [Table 2]. The questionnaire covers a wide range of character-player relations and immersive quality, as shown in the questions [Table 2]. The questionnaire was designed along the same model as the FUN questionnaire, and the average score of the 12 items abbreviated to SYMPA. As with the FUN construct, the SYMPA construct was designed to cover a broad range of measures of the player's experience of the character. The advantage of this approach is that any variable strong enough to impact statistically significantly on the SYMPA construct is likely to be important, however this can also mean that more detailed patterns are not identified. Splitting the SYMPA scale up in smaller scales can however alleviate this problem (see below).

2.7 Experience, Age and Gender

In order to be able to examine if the gaming experience of the players contributed significantly to the relationship with the characters, a 10-item questionnaire was designed to assess the experience of the players with PnP and CRPG play. The questionnaire was divided into two sub-constructs: PnP_{exp} and $CRPG_{exp}$, calculated as the average of the questions (6 and 4 respectively, rated from one to four). The average score for the entire questionnaire was used as a general expression of the individual player's experience with the game formats, referred to as Exp_{tot}. Age and gender of each player was recorded. The experience scores indicate a good spread in the experience levels of the participating players. [Table 3]. The average experience for PnP is high, driven by ten of the players who were very highly experience PnP players (scores of 4.0 for the PnP_{exp} subscale). The average for CRPG is close to the scale average of 2.5.

Table 3: Experience scores of the sample players. St.Dev. = Standard Deviation.

	Min	Max	Avg	St.Dev.
PnP	0.77	4.00	3.20	0.77
CRPG	0.60	4.00	2.54	0.60

3.0 DATA EVALUATION

The questionnaire-based data were evaluated in two steps. Firstly, the consistency and strength of the FUN and SYMPA constructs were evaluated; secondly, the constructs as well as the raw data were used as the basis for further analysis.

3.1 Evaluating the FUN construct

A thorough evaluation of the data obtained from the gaming experience questionnaire is presented in [25], and the process of evaluation and validation of the FUN construct as a coherent measure for the quality of the gaming experience (or more specifically the five aspects contained in the scale) is therefore only summarized here.

Pearson's correlation coefficient was calculated for the responses to each question and its corresponding sub-construct (TD, FI, HE, NE, IR) and between the questions/sub-constructs and FUN. Apart from one question (of 20) that correlated non-significantly but equally so across all three game formats, and therefore kept in the analysis, only three questions correlated non-significantly in one format only. All were therefore kept in the analysis. The majority of the remaining questions correlated with $p<0.001$, with six questions having one or two correlations at the $p<0.01$ or $p<0.05$. All sub-constructs correlated significantly with FUN across the formats.

	Question text	PnP	CRPG	CRPG GM
1	I had fun playing my character	0.39**	0.60***	0.59***
2	I found my character to be easily understandable	0.55***	0.47***	0.62***
3	I played the character as true to the description as possible	0.58***	0.63***	0.71***
4	I found my character to be very interesting	0.61***	0.54***	0.82***
5	It was difficult for me to engage in my character	0.78***	0.77***	0.87***
6	I experienced the emotions of my character during play	0.61***	0.66***	0.76***
7	My character was easy to enact/play	0.68***	0.73***	0.49**
8	The personality of my character is similar to my own	0.17	0.28	0.34*
9	I do not share the moral and ethics of my character	0.37*	0.30*	0.20
10	My character functioned well with the other characters	0.37*	0.45**	0.71***
11	I mostly made decisions/took actions in the game according to my understanding of my character	0.61***	0.63***	0.67***
12	I would rather have played one of the other characters	0.48***	NA	NA

Table 2: Correlation of the Player-Character Sympathy (SYMPA) constructs for the RPG experiments. Pearson correlation coefficient probabilities calculated from correlation r-values with n=51 (PnP), n=49 (CRPG) and n=34 (GM-supported CRPG): * $p>0.05$/** $p<0.01$/*** $p<0.001$.

The data-driven substructure was not investigated as the construct of interest was the complete FUN value, and likewise the pre-defined sub-constructs were not utilized either. The correlation between the questions and the FUN construct suggests a high degree of internal consistency of the response data.

3.2 Evaluating the SYMPA construct

The SYMPA scale includes a wide variety of questions targeting the player-character relationship, and it is important to assess the internal consistency of the SYMPA construct, confirming whether it is measuring a single feature of the relationship or several, and whether any question items do not correlate with the main construct.

The correlation of the individual items on the SYMPA construct to the SYMPA construct was evaluated using Pearson's correlation coefficient. The questions generally show a high degree of correlation ($p<0.001$) [Table 2], with a few exceptions (questions 8, 9 and to some degree 10). Question 12 was, due to a formatting error, only included in the PnP questionnaires and is not included in the analysis presented below.

The data-driven structure of the SYMPA construct was examined by factor analysis using Principal Components (PCO), as well as a Principle Axis factoring with varimax rotation (forces a two factor solution), and a quartimax rotation (allows one factor solution). The PCO indicate that a one-factor solution could be achieved if questions 8, 9 and 10 are removed (questions 8 and 9 load on factor three, question 10 loads on factor two). This was tested using quartimax, and even the varimax analysis supported a virtual one-factor solution. The degree of variance in the dataset explained by a one-factor solution in the PCO is 43.53% (PnP), 45.47% (CRPG) and 52.60% (GM-mediated CRPG), which is a good result for the analysis, and basically shows that the one construct explains a substantial amount of the variation in the questionnaire data. For the PnP games Cronbach's alpha = 0.795, for CRPG sessions = 0.826, which indicates a substantial degree of internal reliability of the one-factor solution utilized. The modified SYMPA construct is here termed **$\text{SYMPA}_{\text{mod}}$** [item-total statistics are available from the authors on request]

Questions 8 and 9 deal with the differences in personality and moral/ethical values between the player and the character, importantly, as they are perceived by the player. The factor analyses indicate that these questions do not correlate with the other questions in the SYMPA scale. Pearson's correlation between these questions and $\text{SYMPA}_{\text{mod}}$ support this. The two questions correlate internally with varying strength across the three formats: 0.49, $p<0.001$ (CRPG), 0.344 $p<0.5$ (CRPG with GM), 0.25 (PnP). Question 10 deals with the fit of the player character with the other characters. This question is thus not directed

at the relationship between the player and the character, and would therefore be expected that it would not load on the main SYMPA construct.

In order to confirm the results of the factor analysis further analysis of the internal consistency of the SYMPA construct was performed using cluster analysis (Paired Linkage, Single Linkage and Ward's Method). The results consistently group questions 8, 9 and 10 separately from the remaining questions, across all three game experiments, adding support to the results of the factor analyses. Neither Q8 nor Q9 correlate significantly with $SYMPA_{mod}$ or FUN in any of the three formats, except for a weak, negative correlation at $p<0.05$ for Q9- $SYMPA_{mod}$ in the CRPG GM format. This would appear to be coincidental as all other correlations are non-significant.

Due to the sample size the results of these analyses are tentative; however, the strength of the analysis calculations and their persistent nature over an array of tests, provide substantial evidence for the validity of the internal consistency of the $SYMPA_{mod}$ construct.

Pearson correlation coefficients across the three game formats are generally significant with $p<0.001$, following the removal of questions 8,9 and 10, the $SYMPA_{mod}$ construct appears to be coherent for the component questions. The $SYMPA_{mod}$ construct correlations occur across wide range of values, and standard deviations are narrow [Table 4]. The mean $SYMPA_{mod}$ values are above the average for the scale (3.0); however the degree varies between game formats.

Table 4: Range and means of the SYMPA construct of the three experimental setups.

	$SYMPA_{min}$	$SYMPA_{max}$	StDev	Mean
PnP	2.13	4.88	0.64	3.97
CRPG	1.25	4.63	0.78	3.32
CRPG GM	1.75	5.00	0.74	3.68

StDev = Standard Deviation.

Finally, it was investigated whether the $SYMPA_{mod}$ construct correlated with the FUN construct. The results [0.54 (PnP); 0.64 (CRPG); 0.74 (GM-supported CRPG)] are significant for $p<0.001$ There would appear to be a strong positive correlation between $SYMPA_{mod}$ and FUN, stronger for the digital RPGs as compared to PnP.

Category	Range	Min	Max	Mean	St. Dev.
Agency	39	9	48	31.53	11.08
Communion	41	4	45	22.96	11.39
Unmitigated agency	45	1	55	32.24	13.18
Unmitigated communion	48	1	49	27.41	13.66

3.4 Distribution of player EPAQ profiles

In order to assess whether the distribution of EPAQ values in the sample of players is within expected parameters, the range of the profiles was examined. A wide range of variation is shown [Table 5], meaning that results are applicable for a broad variety of personalities. No maximum or minimum values occurred.

Table 5: Descriptive statistics of the player EPAQ category scores and their range of variance.

	Range	Min	Max	Mean	St. Dev.
A	15	20	35	28.18	3.55
C	16	22	38	29.86	3.46
UA	17	15	32	22.69	3.74
UC	22	17	39	30.12	5.04

Category pair	Pearson's r	p
A-C	-0.07633	None
A-UA	0.196368	None
C-UC	0.44777	$p<0.01$
UC-UA	-0.152	None
A-UC	-0.104	None
C-UA	-0.331	$p<0.05$

Table 6: EPAQ correlations between the four categories of the scale. Only player data.

Although the extreme EPAQ traits UC and UA are viewed as constructs separate from the C and A scales, it would generally be expected that there is a minor, highly variable, degree of correlation between the UC-C and UA-A pairs [11]. This was tested using Pearson's correlation coefficient [Table 6]. As expected, the Agency and Communion subscales do not correlate, signifying that they are measuring two distinct traits. The Agency and Communion subscales do not correlate significantly with their extreme opposites, except for a weak negative correlation between C-UA ($p<0.05$). A non-significant but positive correlation is apparent for the A-UA pair, and a somewhat stronger correlation between the C-UC pair ($p<0.01$).

3.5 EPAQ differences, SYMPA and FUN

The differences between character and player EPAQ category scores were assessed, in order to confirm that a good spread existed in the dataset. This appears to be the case [Table 7]. All difference values had 30 added to them to avoid negative values when calculating the differences in player and character profiles.

Table 7: Descriptive statistics of the Player-character EPAQ differences.

To avoid negative values constant was applied to each difference score, when calculating the differences in player and character profiles.

Table 8: Correlations between character-player personality differences, $SYMPA_{mod}$ (S_{mod}) and FUN.

	A_{dif}-S_{mod}	C_{dif}-S_{mod}	UA_{dif}-S_{mod}	UC_{dif}-S_{mod}	A_{dif}-FUN	C_{dif}-FUN	UA_{dif}-FUN	UC_{dif}-FUN
PnP	0.15	-0.12	-0.05	0.01	0.1	0.05	0.01	0.09
CRPG	0.03	0	-0.03	0.12	-0.03	0.11	-0.09	0.19
CRPG GM	-0.29	0.17	-0.1	-0.08	-0.03	0.02	0	-0.11

Note that EPAQ scores are all differences between the player and the character score for the specific personality category, as follows: A_{dif} = Agency, C_{dif} = Communion, UA_{dif} = Unmitigated Agency, UC_{dif} = Unmitigated Communion. Sample size: n=51 (PnP), n=50 (CRPG), n=34 (CRPG GM). $S_{mod} = Sympa_{mod}$.

In order to evaluate whether the differences between the personality of the player and that of the character impacts on the sympathy between the two and/or on the gaming experience, the difference between the player and character EPAQ profiles were calculated. The resulting numbers were correlated with $SYMPA_{mod}$ and FUN [Table 8]. None of the correlation pairs shows a statistically significant correlation. As an independent check on the FUN construct, two of the key questions from the SYMPA questionnaire (Q4, 5) were correlated (Pearson's correlation coefficient) with the values for the personality difference across the three formats. No statistically significant correlation between the reported degree of interest or engagement with the characters and the personality difference was found.

4.0 DISCUSSION AND CONCLUSIONS

The results of an empirical study on the relationship between player and fictional character in cross-platform multi-player RPGs have been presented. A range of data was derived from the experiments, which have been analyzed using a variety of methods from factor analysis to correlation. Three results can be drawn from these experiments, notably:

1) Despite the use of complex player character with detailed personalities and backgrounds, there are no direct indications in the FUN data that these characters substantially impacted negatively on the broad player experience. As is evident from the average FUN scores, which are all above the average for the scale, the players did enjoy themselves. The purpose of the current study was to evaluate whether complex characters would be a disaster to the gaming experience in digital RPGs, however this does not appear to be the case. This result is limited to the examined sample. However, as outlined in the above, the sample includes both genders and a wide variety of personalities and experience levels, features a substantial age range, and involves two different cultures (Australian and Danish), supporting a claim that the sample is representative of a larger population of players.

Finally, it should be noted that no comparative study with one-dimensional characters was performed, and that the purpose of this study is not to claim that complex characters are better than one-dimensional ones - different types of character-avatars appeal to different forms of games, and it is hard to envision e.g. the appeal of *Sonic the Hedgehog* with deep-seated neuroses. Character- and story-based games such as RPGs lend themselves to experimentation with character-avatars, however. Future studies will focus on examining different types of character designs in a joint context, as well as examine the current material in more detail, adding additional data in the form of communication transcriptions and game logs.

2) When included, complex characters appear to be linked to the quality of the gaming experience. The strong correlation across the digital and non-digital formats between SYMPA and FUN indicates that this relationship is a core feature of RPGs. Preliminary results of the transcript analysis of the player communication in the CRPG and GM-mediated CRPG sessions indicate that the virtual world – in some player groups dramatically - diminishes the verbal communication of the players. Instead, emphasis is put on communication via the characters (or avatars) inside the virtual world. This supports the results above indicating a stronger correlation between $SYMPA_{mod}$ and FUN, suggesting that the characters may be more important to the quality of the gaming experience in the digital format, relative to the tabletop format. Importantly, the lack of correlation between Q8 and Q9 in the SYMPA construct and FUN/$SYMPA_{mod}$ indicate that the personality differences perceived by the player between the player and the character do not impact significantly on the gaming experience nor on the player interest/engagement with the character.

3) The similarity of the personalities of the player and the game character does not appear to have a significant impact on the quality of the gaming experience. No statistically significant correlation is observed for the EPAQ personality categories and FUN [Table 8]. Similarly, the difference in personality does not appear to impact on $SYMPA_{mod}$ either [Table 8], suggesting that it is not the personality component of a character that will impact negatively on the players' experience of the game character, but rather the actual character design – how interesting it is, how clearly it is presented, and how much fun it is to play. This indicates that the solution space for character design in multi-player CRPGs is broad.

In summary, the results of this study support the hypothesis that young adult and adult RPG players readily accept and engages with complex characters with unique personalities, background histories, flaws and virtues, as long as these are designed in a way that makes them understandable to the player and easy to engage with. While this study is specific to multi-player RPGs, and therefore of special interest to

this and the MMORPG formats, this opens up venues in games design, e.g. in personality-based storytelling, facilitating more reactions to the character personality, or even personality-based rewards. These implications could also be valid for next-generation interactive entertainment experiences.

5.0 ACKNOWLEDGEMENTS

The authors would like to thank Dr. Ken Newman for discussions about the FUN construct. They would also like to extend their sincere gratitude to the ICT Innovations Centre of Macquarie University, Sydney, as well as the Centre for Computer Games Studies, IT University, Copenhagen, for hosting the experiments and providing equipment. The authors would also like to express their heartfelt gratitude to the participants in the experiments. The experimental work was approved by the Macquarie University Ethics Committee (HE23SEP2005-D04313).

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