LoL, Why Do You Even Play? Validating the Motives for Online Gaming Questionnaire in the Context of League of Legends

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Motives are essential concepts in understanding a player's experience in video games. We report and describe the analysis of a widely used questionnaire to measure players' motives in video games, the Motives for Online Gaming Questionnaire (MOGQ). The present research aimed to investigate the psychometric quality of the MOGQ in the context of League of Legends (LoL). The MOGQ is a 27-item self-report scale designed to measure the motives for playing online games. To this end, 256 participants completed an online survey asking about their experiences and motives to play LoL. Results of confirmatory and exploratory factor analyses indicate weaknesses in the original 7-factor model. By removing five conspicuous items from the original 7-factor model, we propose an alternative 22-item version of the MOGQ. Additional confirmatory and exploratory factor analyses results indicate that the 22-item version of the MOGQ is more suitable in the context of LoL than the original 27-item questionnaire. However, further investigation into the quality of this alternative version compared to the original questionnaire is needed.

1 INTRODUCTION

Video games have become a widespread source to connect, relax, and be entertained [3]. With the increasing popularity of video games, the need to understand and improve the player experience (PX) is growing. PX is a concept describing the personal player-game interactions experienced during and after playing a video game [1, 37]. To ensure optimal quality of PX, game user researchers use different methods to measure and assess PX [1, 5, 14, 37]. A common and cost-effective method is questionnaires [5]. Through self-report items, questionnaires allow us to gather information on players' experiences, attitudes, and characteristics, but also the players' motives to engage with video games [5]. Based on past literature [9, 10, 23, 28, 31], we understand motives as determining factors for actions and behavior that direct

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a person's drive towards specific goals. In addition, motives cover several motivational dimensions, such as coping, escape, or social motives [9, 10, 23, 28, 31]. Questionnaires concerning PX have been widely applied in research, but further validations of such measurements have been hardly a subject in research [20]. One of the few questionnaires to assess the players' motives is the Motives for Online Gaming Questionnaire (MOGQ) [12]. Based on the idea that video games can satisfy the basic needs of a person, Demetrovics et al. [12] developed the MOGQ to measure the motivational basis of players for online gaming. The MOGQ is a frequently used questionnaire in player experience (PX) research,[1] which has also been translated into various languages including Chinese [38], Korean [22], Turkish [15], Italian [27], and recently Persian [16]. Moreover, the authors imply that the MOGQ is an instrument that can be used for all types of online games [12]. Despite its widespread application in research, no independent validation effort of the original English version has been made. Furthermore, the MOGQ was initially validated only within a general gaming context. It thus remains unclear how the MOGQ performs within the context of a specific game. Moreover, Demetrovics et al. [12] called for further research into the motives of different types of games.

As part of the research effort in evaluating and developing appropriate player experience survey scales, we set out to independently evaluate the psychometric properties of the MOGQ within the specific context of League of Legends (LoL) [32]. We chose LoL because it has a player base of almost 180 million players [34], making it one of the most popular Multiplayer Online Battle Arena (MOBA) games in the world. In addition, LoL has been frequently studied in past PX research [e.g., 7, 19, 21, 24, 25], further emphasizing the importance of PX questionnaires that work in the context of LoL. In this paper, we report results of an initial validation study with 256 LoL players. Psychometric analyses could not support the originally proposed 7-factor structure. Furthermore, several items seem to perform poorly in the context of LoL, and we propose an alternative 22-item version of the MOGQ. As a next step, this alternative version needs to be further refined and tested in the context of MOBAs, such as LoL, and other online games to gather evidence for its validity.

2 METHOD

To assess the psychometric quality of the MOGQ, we published an online survey including the MOGQ alongside a series of additional questionnaires. A total of 272 participants were recruited via reddit.com, from which 256 remained after data cleaning.

2.1 Measures

2.1.1 Motives for Online Gaming Questionnaire (MOGQ). The Motives for Online Gaming Questionnaire (MOGQ) was developed by Demetrovics et al. [12] to measure the motivational basis for online gaming. The MOGQ is a 27-item self-report scale covering seven motivational dimensions: social, escape, competition, coping, skill development, fantasy, and recreation [12]. Social refers to the need to meet and be with other players, play with them, and get to know each other. Avoidance of real-life problems and challenges characterize escape. Coping implies stress reduction and mood improvement. Fantasy describes the idea of seeking a new identity and trying things in a different world that can not be done in real life. Skill development is about improving one's abilities, such as concentration and coordination during play. While the motivational dimension of recreation concerns the relaxing and enjoying aspects of gaming online, competition can be described as a sense of superiority through gaining achievements by defeating other players. The

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[1]Shown in the 341 citations for Demetrovics et al. [12] on Google scholar, 19.08.2022.

MOGQ uses a 5-point Likert-type scale ranging from 1 (almost never / never) to 5 (almost always / always). A higher score suggests a higher level of agreement with the items in the corresponding dimensions.

2.1.2 Additional Scales. In addition to the MOGQ, we also collected data for the Internet Gaming Disorder Scale [26] and the User Motivation Inventory [6]. We collected this data to assess the convergent and divergent validity of the MOGQ, using correlations with these additional scales. However, this analysis is beyond the scope of the present work in progress. We thus refer readers to the OSF repository for detailed information: https://osf.io/c5rqg/.

2.1.3 Procedure. We published an online survey on the subpage *r/leagueoflegends* of the website Reddit (https://www.reddit.com/r/leagueoflegends/), which addresses the community of LoL players. Hence, our participants had at least some experience with the game. We collected data from mid of April to the start of July using an English online survey created with the online survey software Unipark. After providing informed consent, participants were asked about their demographics (e.g., age, gender) and gaming habits (e.g., time played). Next, participants assessed their motives to play LoL with the MOGQ. Afterward, they filled out the additional scales before having the opportunity to provide open feedback. Participants received no compensation for their time. The complete survey is provided on OSF.

2.1.4 Participants. A total of 272 participants completed our survey, of which 256 remained after data cleaning, which followed recommendations by Brühlmann et al. [8]. First, we excluded participants who self-advised not to use their data for our study, using an SRSI useME item [30] placed at the end of our survey (In your honest opinion, should we use your data in our analyses in this study?). Second, we excluded participants that did not pass two attention check items. These items consisted of one bogus item and one instructed response item (IRI). The bogus item stated: "I play League of Legends because I work twenty-eight hours in a typical work day" [18]. Only participants who selected "almost never / never" were kept. The IRI asked to "please leave this item blank" [13]. Finally, all participants under the age of 18 were excluded, given that this was a requirement for participation outlined in the consent form. Participants from the final sample predominantly described themselves as male (223 male, 20 female, six non-binary, three preferred not to disclose, and four preferred to self-describe). Participants' age ranged from 18 to 54 years ($M = 24.07, SD = 4.72$). Furthermore, we asked for participants' time spent playing LoL per week and session. Most participants ($n = 81$) indicated playing up to twelve hours per week, and most participants ($n = 99$) played up to two hours per session.

3 RESULTS

3.1 Reliability Analysis

To investigate the reliability of our measures, we looked at the internal consistency of the dimensions of the MOGQ using coefficients alpha (α) [11] and omega (ω) [29]. All values were larger than $\alpha > 0.60$, and $\omega > 0.70$ except for recreation (α= .55, 95%CI[.45,.64], ω = .56, 95%CI[.46,.66]). In addition, larger than $\alpha > 0.80$ were skill development (α = 0.87), escape (α = 0.89), and fantasy (α = 0.85). Larger than $\omega > 0.8$ were also skill development (ω = 0.87), escape (ω = 0.90), and fantasy (ω = 0.85) and competition (ω = 0.81). Detailed results, alongside descriptive statistics for each dimension of the MOGQ are shown in Table 1.

3.2 Confirmatory Factor Analysis

A Confirmatory Factor Analysis (CFA) was conducted to assess the model fit of the original 7-factor model of the MOGQ proposed by Demetrovics et al. [12] using the lavaan package (0.6-10) [33] for R. All 27 items were specified to load on their designated factor. Because multivariate normality was violated (Henze-Zirkler Test = 1.00, $p < .0001$), a robust

Table 1. Descriptive Statistics and Reliability Indicators of the Motivational Dimensions

Dimension	M	SD	Mdn	S	K	α	α 95% CI	ω	ω 95% CI
Competition	3.26	1.28	3.5	-0.23	-0.89	0.79	0.75 - 0.83	0.81	0.77 - 0.85
Coping	2.43	1.23	2.25	0.63	-0.16	0.68	0.60 - 0.74	0.74	0.69 - 0.79
Escape	2.71	1.41	2.25	0.29	-1.19	0.89	0.87 - 0.91	0.90	0.87 - 0.92
Fantasy	1.73	1.20	1.00	1.59	1.42	0.85	0.82 - 0.88	0.85	0.81 - 0.89
Recreation	4.01	1.09	4.33	-1.13	0.88	0.55	0.45 - 0.64	0.56	0.46 - 0.66
Skill Development	2.56	1.36	2.25	0.37	-1.06	0.87	0.84 - 0.89	0.87	0.84 - 0.90
Social	2.05	1.19	1.75	1.06	0.51	0.72	0.66 - 0.77	0.71	0.64 - 0.78

Maximum Likelihood Estimation method with Huber-White standard errors and a Yuan-Bentler-based scaled test statistic was used. Results of the CFA suggested that the proposed model does not adequately fit the data [$\chi^2(303) = 558.42$, $p < .0001$, $\chi^2/df = 1.84$, $CFI = .902$, $SRMR = .085$, $RMSEA = .063$]. Hence, we performed an exploratory factor analysis (EFA).

3.3 Exploratory Factor Analysis

To explain the non-optimal CFA fit of the factor model suggested by the original authors and to further examine the factor structure of the MOGQ, a 7-factor EFA with all 27 MOGQ items was conducted. The Bartlett's test of sphericity indicated factorability ($\chi^2(351) = 3366.12, p < .0001$), and the overall Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was meritorious, scoring 0.83. Still, item recreation7 had an unsatisfactory value (< 0.60) with 0.51. Given the non-normal data, and because we expected some factors to be correlated, we chose a principal axis factoring method. To determine the number of factors that best explain our data, we conducted a parallel analysis, which proposed a 6-factor model. We also conducted a 7-factor model EFA, following the original theoretical considerations behind the MOGQ. The proposed 6-factor model did not provide a theoretically sensible solution. Thus, we focused on the 7-factor model for this paper. Details on the 6-factor model can be found on OSF. The 7-factor solution resulted in a cumulative explained variance of 53.6%. We interpreted item loadings following the .40-.30-.20 rule [17], which states that an item should load $\geq$ .40 on the primary factor, $<$ .30 on any other factor, and the difference between the primary loading and any secondary loading should be $>$ .20. Table 2 contains all factor loadings > 0.25 for the original 7-factor EFA. With the EFA, we detected some weaknesses in the originally proposed 7-factor model. While most items loaded as expected, several items exhibited suspicious loadings. Items comp3, social15, and social22 showed high cross-loadings onto a second factor. Item coping18 also showed high cross-loadings and loaded onto a separate factor compared to the other coping items. Furthermore, recreation7 did not load well onto any factor ($max = 0.37$). Results from the 7-factor EFA would thus call for removing these five items (comp3, coping18, recreation7, social15, social22), resulting in a 22-item alternative version of the MOGQ. To assess the model fit of the shortened MOGQ, we further conducted CFA and EFA of the alternative 7-factor model.

3.4 Alternative CFA and EFA for 22-Item Version

The CFA for the alternative 22-item version of the MOGQ was conducted in the same manner as the original 7-factor model. Results of this CFA suggested that the alternative 22-item MOGQ using a 7-factor model does fit the data better compared to the 27-item version [$\chi^2(188) = 268.32$, $p < .0001$, $\chi^2/df = 1.43$, $CFI = .969$, $SRMR = .049$, $RMSEA = .042$]. To explain the improved CFA fit, we conducted a 7-factor model EFA with the 22 items. The Bartlett's test of sphericity

Table 2. Factor loadings >.25 of all 27 MOGQ items with the 7-factor model.

Dimension	Item name	Item (I play League of Legends…)	PA6	PA1	PA2	PA5	PA4	PA3	PA7	h2
Competition	comp10	… because I like to win				0.7				0.53
	comp17	… because it is good to feel that I am better than others				0.82				0.67
	comp24	… for the pleasure of defeating others				0.77				0.61
	comp3	… because I enjoy competing with others				0.42			0.31	0.42
Coping	coping11	… because it helps me get rid of stress						0.74		0.64
	coping18	… because it helps me channel my aggression	0.46			0.26				0.4
	coping25	… because it reduces tension						0.66		0.62
	coping4	… because gaming helps me get into a better mood						0.48		0.47
Escape	escape16	… because gaming helps me escape reality		0.79						0.77
	escape2	… because gaming helps me to forget about daily hassles		0.68						0.62
	escape23	… to forget about unpleasant things or offences		0.53						0.59
	escape9	… because it makes me forget real life		0.96						0.84
Fantasy	fantasy13	… to feel as if I was somebody else	0.79							0.64
	fantasy20	… to be somebody else for a while	0.8							0.67
	fantasy27	… because I can be in another world	0.7							0.64
	fantasy6	… because I can do things that I am unable to do or I am not allowed to do in real life	0.73							0.54
Recreation	recreation14	… because it is entertaining							0.71	0.55
	recreation21	… because I enjoy gaming							0.57	0.43
	recreation7	… for recreation							0.37	0.15
Skill Development	skill12	… because it improves my skills			0.59					0.55
	skill19	… because it improves my concentration			0.81					0.66
	skill26	… because it improves my coordination skills			0.83					0.69
	skill5	… because gaming sharpens my senses			0.9					0.73
Social	social1	… because I can get to know new people					0.86			0.75
	social15	… because it is a good social experience					0.43	0.27		0.26
	social22	… because gaming gives me company					0.32	0.42		0.32
	social8	… because I can meet many different people					0.93			0.87

Note: Items removed for the 22-item alternative are marked in bold.

indicated factorability ($\chi^2(231) = 2905.68, p < .0001$). The overall Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was meritorious, scoring 0.83. We again chose a principal axis factoring method. The alternative 7-factor solution resulted in a cumulative explained variance of 61.1%. Table 3 contains all factor loadings > 0.25 for the alternative 7-factor EFA. The EFA provided additional support for the better fit of the alternative 22-item 7-factor model. All items fitted as expected, with only one item (coping4) showing a cross-loading > 0.25, although still below the problematic threshold of > 0.30 [17]. Results from the EFA thus are also in favor of the alternative 22-item version of the MOGQ.

4 DISCUSSION

Demetrovics et al. [12] called for future research to study motives within different types of games in addition to a general game-unspecific context. However, to our knowledge, the MOGQ, a scale used to measure motives for online gaming, has only been validated in a broad context. Therefore, we evaluated the validity of the original English version of the MOGQ within the specific context of the MOBA LoL. Initially, CFA indicated that the data could not support the original 7-factor model of the MOGQ. An EFA with seven factors further highlighted issues that might be responsible for the ill-fitting model. Four items (comp3, coping18, social15, and social22) showed high cross-loadings onto an additional factor. In addition, item recreation7 did not load well onto any factor. Using the example of LoL, initial results indicate that the MOGQ might not cover all types of online games, despite contrary assumptions by Demetrovics et al. [12]. Furthermore, in its original state with 27 items, the MOGQ does not work as expected in the context of LoL. Thus, we propose a 22-item version of the MOGQ for use in the LoL context by removing the above-mentioned items. We conducted CFA and EFA again with the alternative 22-item version. Results of the CFA indicate a much better fit for the alternative item set. In addition, the EFA for the alternative selection of items showed that the items now load onto

Table 3. Factor loadings >.25 of the alternative 22-item MOGQ with the 7-factor model.

Dimension	Item name	PA1	PA2	PA6	PA5	PA3	PA4	PA7	h2
Competition	comp10				0.64				0.48
	comp17				0.77				0.63
	comp24				0.87				0.74
Coping	coping11					0.78			0.65
	coping25					0.81			0.7
	coping4					0.43		0.26	0.47
Escape	escape16	0.85							0.8
	escape2	0.7							0.62
	escape23	0.55							0.59
	escape9	0.94							0.81
Fantasy	fantasy13			0.81					0.65
	fantasy20			0.83					0.7
	fantasy27			0.68					0.63
	fantasy6			0.71					0.51
Recreation	recreation14							0.6	0.42
	recreation21							0.69	0.53
Skill Development	skill12		0.62						0.56
	skill19		0.8						0.67
	skill26		0.84						0.7
	skill5		0.85						0.71
Social	social1						0.9		0.82
	social8						0.92		0.86

their designated individual factors. Hence, these results show that the MOGQ might be suitable in the game-specific context of LoL after some modifications.

Past research has found several peculiarities for MOBA players compared to other types of games. MOBA players report increased frustration, which might be due to the intense competition but also difficult social interactions, such as toxic player behavior [19, 24, 25, 36]. Hence, the PX is affected, which can cause players to quit playing MOBA games due to the lack of enjoyment [36]. These past findings highlight that MOBAs are unlike other types of games, which might explain some of the issues found with the 27-item version of the MOGQ. Motives such as recreation, competition, and social might differ in importance for LoL players compared to a broader gaming population. Based on the results, we can assume that at least some items of the original 27-item MOGQ can not be applied within the context of LoL. Further research is recommended to explore this assumption on specific items, such as the ones removed in the 22-item version, because such investigations might raise concerns about both the items of the MOGQ and its theoretical structure.

Interestingly, when we consider mean ratings for the dimensions of the MOGQ, some values were rather low (see Table 1). While this might indicate certain issues with the items of the MOGQ, this again shows that certain motives are less important in the LoL context. If we assume the MOGQ is of good psychometric quality, these results can give us insights into which motives might be important to LoL players, indicated by a high mean value, and which might not. While recreation ($M = 4.01$) and competition ($M = 3.26$) seem to be key motives for players, fantasy ($M = 1.73$) and social ($M = 2.05$) appear to be less important. This contrasts with Brühlmann et al. [7] who found most LoL players to be less intrinsically motivated, while a high motive of recreation arguably speaks for at least some intrinsically motivated players in our sample. Motives and motivations for playing LoL might thus be more nuanced than initially assumed.

Given that a solid theoretical foundation is crucial for proper measurement in PX research [2], clear distinctions between motives and motivations are needed. Indeed, in early works on the reasons people play video games, Bartle [4] studied *motives* while more recent work is often concerned with *motivation*, frequently utilizing concepts of Self-determination Theory (e.g. see [35] for an overview). Thus, clear definitions that distinguish between motives and motivations and research on these two concepts are needed. Such research can contribute to a better understanding of game-specific and global motives and motivations in play.

4.1 Limitations and Next Steps

Although some items showed unsatisfactory psychometric values, it is not justified to call the original MOGQ not valid. For one thing, the findings could be attributed to the context (MOBAs or even LoL), or else the 27-item version may only be valid for general motives in online gaming. Therefore, results from the present work should also only be seen as initial evidence for an alternative version of the MOGQ. Given that we did not investigate the newly proposed 22-item version with independent data, our next goal is the confirmation of the psychometric quality of this alternative version.

As a next step, we aim to investigate whether the 22-item MOGQ also applies to other games than LoL. Therefore, evaluating the alternative version in the context of different online games such as the MMORPG "Final Fantasy XIV" or the battle royale game "Fortnite" could provide additional evidence for its validity and general applicability to various genres. As mentioned in the introduction, multiple papers have already used and translated the MOGQ. In all of these papers, the MOGQ was validated as a measure for general motives for playing online games. Therefore, it would also be worthwhile to test whether a 22-item version of the MOGQ is able to measure such general motives to play.

Given the uneven number of items per subscale (2 to 4), developing additional items for subscales with fewer than four statements may be helpful. For example, the subscale for social motives consists of only two items, which limits the conceptual breadth that this scale can cover. Therefore, it seems relevant to reexamine social motives, especially in the context of MOBAs, and to conduct generative qualitative research to understand better whether and how social motives influence behavior and experience. These findings could then be used to develop new items that fit better in this context and may also apply to games of other genres.

5 CONCLUSION

In this paper, we report an initial psychometric evaluation of the English language version of the MOGQ in the context of LoL. A CFA ($N = 256$) showed that the originally proposed 7-factor structure could not be supported. Further results from a 7-factor EFA showed that certain items of the MOGQ are inadequate, pointing towards an alternative 22-item version of the MOGQ likely to provide an improved fit. Results from a second CFA yielded a better fit for the alternative set of items, and an additional 7-factor EFA was also in favor of the 22-item MOGQ. As a next step in this project, we aim to test the 22-item alternative version of the MOGQ, both with additional samples for LoL and within other gaming contexts. Until then, we recommend that researchers working with the MOGQ investigate the factor structure of the questionnaire before working with it to ensure the validity of their results.

6 DATA AVAILABILITY STATEMENT

Data, analysis scripts, and supplementary materials for this study are available on OSF: https://osf.io/c5rqg/.

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