

Assessing the User Experience of Video Games: Relationships Between Three Scales

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Introduction

The current study investigated the relationships between three user experience scales and their subscales: UEQ-S, GUESS-24, and the ENJOY for six popular video games.

This is the first study that has explored the relationships between these three scales.

Method

Participants rated one of the video games of interest using a survey with all three scales.

131 participants recruited from MTurk and through ERAU SONA system:

- 78 Males, 52 Females, 1 no answer
- Ages: 18-64 ($M = 32.5$, $SD = 8.95$)

Participants were video game players that played one of the following games: Fortnite, PlayerUnknown's Battleground (PUBG), League of Legends, Overwatch, Hearthstone, & FIFA 19.

Results

Scale Reliability Analysis:

- Cronbach's α (UEQ) = .637
- .788 with 1 item removed
- Cronbach's α (GUESS-24) = .939
- Cronbach's α (ENJOY) = .938

Correlations Between Scales:

- Overall scores of the UEQ-S, GUESS-24, and the ENJOY were significantly correlated with each other (Table 1).
- There were several significant correlations between the subscales of the three scales (Table 4).

Non-significant Correlations:

- Pragmatic (UEQ-S) & Engagement (ENJOY)
- ($r = .139$, $p > .05$)
- Usability (GUESS-24) & Engagement (ENJOY)
- ($r = .105$, $p > .05$)

Table 1. Pearson r correlations of the overall scale score

	UEQ-S	GUESS-24	ENJOY
UEQ-S	-		
GUESS-24	.748*	-	
ENJOY	.689*	.852*	-

* $p < 0.01$

Discussion

There were several significant correlations between the three scales which may mean there are some overlapping concepts between the scales:

- Fun/Enjoyment
- Hedonic (UEQ-S), Enjoyment (GUESS-24), Pleasure (ENJOY)
- Usability
- Pragmatic (UEQ-S) & Usability (GUESS-24)
- Captivation/Attention
- Engrossment (GUESS-24) & Engagement (ENJOY)
- Social Aspects
- Relatedness (ENJOY) & Social Connectivity (GUESS-24)

Each scale has its own strengths and limitations:

- GUESS-24 has the most dimensions, UEQ-S has the shortest scale for quick evaluation, ENJOY can be used for almost any activity.
- UEQ-S and ENJOY were not specifically designed to evaluate games but several dimensions correlated with the GUESS-24, so they could be used to assess game experience.

Table 2. Games of interest and number of participants who rated that game

Game	Sample Size	Game	Sample Size
Fortnite	53	Overwatch	23
PUBG	17	League of Legends	15
Hearthstone	12	FIFA 19	11

Table 3. Scales measuring user experience and their subscales

Scale	Subscales
User Experience Questionnaire – Short (UEQ-S) (Schrepp et al., 2017)	Pragmatic (P) Hedonic (H)
Game User Experience Scale (GUESS-24) (Keebler et al., 2018)	Usability/Playability (Us) Narratives (N) Play Engrossment (PI) Enjoyment (En) Creative Freedom (Cr) Audio Aesthetics (Au) Personal Gratification (Pe) Social Connectivity (So) Visual Aesthetics (Vi)
ENJOY Scale (Davidson, 2018)	Pleasure (PI) Relatedness (Re) Competence (Co) Challenge/Improvement (Ch) Engagement (E)

References

- Davidson, S. (2018). *A Multi-Dimensional Model of Enjoyment: Development and Validation of an Enjoyment Scale (ENJOY)*. Dissertations and Theses. 381. <https://commons.erau.edu/edt/381>.
- Keebler, J. R., Smith, D. C., Shelstad, W. J., Chaparro, B. S., Phan, M. H. (2018). Validation of the GUESS-24: A short version of the game user experience satisfaction scale (GUESS). Manuscript submitted for publication.
- Schrepp, M., Hinderks, A., & Thomaschewski, J. (2017). Design and evaluation of a short version of the user experience questionnaire (UEQ-S). *International Journal of Interactive Multimedia and Artificial Intelligence*, 4(6), 12.

Table 4. Correlations between the subscales of the UEQ-S, GUESS-24, and ENJOY

		UEQ-S		GUESS-24								ENJOY					
		P.	H.	Us.	Na.	Pl.	En.	Cr.	Au.	Pe.	So.	Vi.	Pl.	Re.	Co.	Ch.	E.
UEQ-S	P.	-															
	H.	.340**	-														
GUESS-24	Us.	.526**	.335**	-													
	Na.	.405**	.528**	.430**	-												
	Pl.	.227**	.595**	.213*	.620**	-											
	En.	.354**	.686**	.462**	.662**	.563**	-										
	Cr.	.378**	.552**	.360**	.695**	.634**	.584**	-									
	Au.	.291**	.453**	.395**	.554**	.430**	.552**	.437**	-								
	Pe.	.375**	.579**	.377**	.512**	.446**	.690**	.527**	.442**	-							
	So.	.361**	.370**	.414**	.394**	.295**	.453**	.321**	.433**	.522**	-						
ENJOY	Vi.	.335**	.502**	.513**	.520**	.410**	.698**	.363**	.644**	.478**	.319**	-					
	Pl.	.424**	.716**	.479**	.612**	.608**	.880**	.599**	.455**	.677**	.455**	.595**	-				
	Re.	.327**	.522**	.259**	.433**	.502**	.412**	.532**	.350**	.480**	.639**	.365**	.497**	-			
	Co.	.472**	.415**	.547**	.476**	.453**	.644**	.472**	.420**	.613**	.390**	.445**	.696**	.297**	-		
	Ch.	.288**	.554**	.369**	.542**	.552**	.708**	.634**	.498**	.680**	.357**	.542**	.680**	.490**	.621**	-	
E.	.139	.436**	.105	.442**	.681**	.376**	.422**	.373**	.413**	.321**	.298**	.452**	.475**	.318**	.397**	-	

** $p < .01$ and * $p < .05$

Results (cont.)

Some Notable Correlations:

- Enjoyment (GUESS-24) & Pleasure (ENJOY)
- ($r = .880$, $p < .01$)
- Narratives (GUESS-24) & Pleasure (ENJOY)
- ($r = .612$, $p < .01$)
- Creative Freedom (GUESS-24) & Challenge (ENJOY)
- ($r = .634$, $p < .01$)