PLAYING WITH THE PIXELATED PAST: NEED SATISFACTION AND ENTERTAINMENT EXPERIENCES IN GAMING MEMORIES

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From *Pong* to *Pacman* and Mario to Master Chief, videogaming is a staple of digital media culture. The average gamer is 35 years old and has played for 13 years (ESA, 2016). From this, an emerging line of inquiry considers the notion of nostalgia—recollections of and yearnings of past experiences (Sedikides et al., 2015) often tied to specific artifacts, such as videogames (Suominen, 2008).

Nostalgia and Gaming Experiences

Retro and classic video games are surging in popularity, as players look to recreate and reconnect with games from their youth (Everett-Haynes, 2016). Modern consoles offer access to classic games, and file-sharing platforms allow for sharing and recreating the games through emulation software (cf. Lizardi, 2015). Forums such as r/RetroGaming encourage discussion of nostalgic gaming memories.

Given that nostalgic experiences are unique emotional feelings that come from recollection of self-relevant artifacts (Natterer, 2014), it makes sense that such memories would differ based on contextual factors. This could be as broad as the differences between a recent and more distant memory (one of a game from a few weeks ago, compared to a few years ago). A critical context to gaming is also the social gaming experience (compared to solo-playing)—critical, given the social nature of both

nostalgia (cf. Sedikides et al., 2015) and gaming (cf. Bowman, Weber, Tamborini, & Sherry, 2013).

We focus on language variance on dimensions of specific importance to gaming: need satisfaction and entertainment experiences. Tamborini et al. (2010) empirically linked gaming and need satisfaction associated with autonomy (independence and agency), competence (mastery of ludic challenges), and relatedness (social connections with others, including human and non-player characters); Oliver et al. (2015) added insight (elevation and understanding, and an emotional connection to content) as relevant to gaming. Our first research question asks **(RQ1) do mentions of need satisfaction differ as a function of (a) nostalgic play compared to current play and (b) co-playing compared to solo play?**

Gameplay recollections might also vary in terms of hedonic (short-term) enjoyment and eudaimonic (longer-lasting) appreciation, both established outcomes of gaming (cf. Oliver et al., 2015). Our second question asks **(RQ2) do mentions of entertainment experiences differ as a function of (a) nostalgic play compared to current play and (b) co-playing compared to solo play?**

Method

A total of $N = 582$ respondents completed a paid online survey through Amazon MTurk. The average age of our sample was $M = 32.38$ ($SD = 8.60$) and 64% of respondents identified as male. Respondents were randomly assigned to one of four gaming memory prompts: nostalgic solo play, nostalgic coplay, recent solo play, and recent coplay. Neither age nor gender distribution differed among the four survey conditions, nostalgic memories were older and had more nostalgic affect than recent ones (see Table 1).

Table 1. Sample descriptives, within conditions.

	Age	Gender (% male)	Time (months) since memory	Nostalgic affect
Nostalgic, Solo $n = 126$	32.40a (8.63)	68%a ($n = 88$)	221.49a (111.24)	5.93a (.94)
Nostalgic, Coplay $n = 145$	32.80a (9.15)	69%a ($n = 100$)	218.17a (115.28)	5.92a (1.01)
Recent, Solo $n = 121$	32.90a (8.37)	77%a ($n = 94$)	7.58b (34.95)	4.99b (1.36)
Recent, Coplay $n = 121$	32.38a (8.60)	75%a ($n = 91$)	11.39b (38.95)	5.09b (1.36)

NOTE: Means with different subscripts within each column differ at $p < .001$ level; Gender was self-reported via open-ended question; complete test statistics (including effect sizes) available on request.

Respondents were given three minutes to respond to the randomly-assigned memory prompt (Figure 1).

Figure 1. Question text for randomly assigned survey conditions, social context manipulation in bold

Nostalgic gaming experience	Recent gaming experience
For our study, we would like you to think back in your childhood/young adolescence and remember a positive video game experience. Specifically, try to think of a past situation when you were playing video games **[by yourself that you enjoyed / together with other people and found to be enjoyable]**. Bring this experience to mind. Immerse yourself in the experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel.	For our study, we would like you to think about a **[solo video game that you recently played on your own / video game that you recently played together with friends and found to be enjoyable]**. Bring this experience to mind. Immerse yourself in the experience. How does it make you feel? Please spend a couple of minutes thinking about how it makes you feel.

Participants' responses were examined with Linguistic Inquiry Word Count (LIWC), using six custom dictionaries designed *a priori* to assess need satisfaction (autonomy, competence, relatedness, and insight) and entertainment (enjoyment and appreciation), with specific language manifest in gaming contexts. LIWC outputs a probability of how often language from these dictionaries occurs per 100 words analyzed.

Average words-per-response were $M = 75.11$ ($SD = 34.99$), words-per-sentence was $M = 15.65$ ($SD = 6.56$), and six-letter words was $M = 15.79$ ($SD = 5.99$); MANOVA

confirmed that these averages did not differ between conditions, Wilks' λ = .978, $F(3,576)$ = 1.445, p = .164, $\eta2$ = .007).

Games representing nearly two dozen genres were named, the most popular being platformers (n = 109, 18.7% of the total sample), first-person shooters (FPS, n = 93, 16%), role-playing games (RPG, n = 89, 15.3%), and sports (n = 48, 8.2%). Genres varied by condition, unsurprising given shifts in genre popularity over time, $\chi2(12)$ = 78.4, p < .001, Cramer's V = .212. Platformers were most often named in both nostalgia conditions (n = 81, 71% of all mentions), RPG in the recent, solo-playing condition (n = 35, 39%) and FPS in the recent, coplaying condition (n = 35, 38%).

Results

RQ1 probed potential variance in players' language associated with intrinsic need satisfaction. MANOVA revealed an overall main difference, Wilks' λ = .633, $F(12,1521.60)$ = 23.88, p < .001, $\eta2$ = .141, see Table 2. Mentions of autonomy were highest when discussing recent, solo-playing memories. Competence was lowest when recalling recent, coplaying memories. Relatedness was equally present in both coplaying conditions (nostalgic and recent), and insight was least frequent in recent, coplaying memories.

Table 2. *Variance in need satisfaction language, by survey condition.*

	Autonomy	Competence	Relatedness	Insight
Nostalgic, solo	1.15b (1.41)	2.78b (2.32)	1.63a (1.61)	1.12b (1.30)
Nostalgic, coplay	.54a (.928)	2.12a,b (1.94)	4.22b (2.76)	1.14b (1.21)
Recent, solo	1.80c (2.22)	2.73b (2.62)	1.05a (1.45)	1.14b (1.21)
Recent, coplay	.873a,b (1.25)	1.98a (2.19)	4.85b (3.41)	.55a (.882)
F(3,578)	18.35 p < .001 $\eta2$ = .087	4.68 p = .003 $\eta2$ = .024	82.34 p < .001 $\eta2$ = .299	8.28 p < .001 $\eta2$ = .041

NOTE: *Means with different subscripts within columns represent significant variance, using Tukey's HSD method.*

RQ2 probed for potential variance in language associated wit entertainment outcomes. MANOVA revealed an overall main difference, Wilks' λ = .934, $F(12,1154)$ = 6.70, p < .001, $\eta2$ = .034, see Table 3. Enjoyment was more prevalent in recent memories. Appreciation was more prevalent in nostalgic memories.

Table 3. Variance in entertainment experiences language, by survey condition.

	Enjoyment	Appreciation
Nostalgic,solo	2.59a (2.02)	2.07c (1.98)
Nostalgic,coplay	2.57a (2.08)	1.69b,c (1.74)
Recent, solo	3.00a,b (3.51)	1.51a,b (1.82)
Recent, coplay	4.02b (5.97)	.99a (1.43)
$F_{(3,578)}$	4.86 $p = .002$ $\eta^2 = .025$	4.68 $p < .001$ $\eta^2 = .046$

NOTE: Means with different subscripts within columns represent significant variance, using Tukey's HSD method.

Discussion

Players reflected on need satisfaction and entertainment, although neither set of concepts was explicitly prompted by the survey. Feelings of relatedness were highest regardless of the memories being nostalgic or recent, challenging the inherently social nature of nostalgia suggested by Sedikides et al (2015). Autonomy was highest with recent solo play (RPGs, which focus on player agency, were the most popular genre in that condition), and competence was lowest when recalling recent coplaying (indicative of a greater import placed on social bonds than personal performance). These patterns suggest that some elements of need satisfaction are more salient than others—notable, given that future media usage is mostly driven by notable past experiences (cf. Atkin, 1985).

Appreciation was more common when recalling nostalgic memories, which comports with how nostalgia is attached to enduring and personally meaningful experiences. This finding might also explain the recent success of retro and classic games. Players are actively seeking out ways to recreate enduring and eudaimonic gaming memories (in our data, from platforming games played nearly two decades ago)—suggesting that in understanding digital cultures, it is as important to engage the past as it is the present and the future.

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