PRESS "A" TO CONTINUE: LIMITED EVIDENCE THAT GAMING EXPERIENCES MAY INFLUENCE BACKCHANNEL RATES

Sophie Masters
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Abstract: Evidence is emerging that both specially designed pedagogical games and leisure focused gaming can affect various aspects of speech (Bawa 2018, Hsu 2018, Aguilar 2019, Saeedi et al 2024). The present study investigates whether speakers' gaming habits, specifically concerning game mechanics here conceptualised as Feedback-Based Mechanisms (FBMs), influence their conversational backchannelling rates. Backchannelling, defined as 'the short utterances produced by one participant in a conversation while the other is talking' (Ward and Tsukahara 2000, p.1177), is a linguistic phenomenon with a significant degree of individual variation (Pipek 2007, Cutrone 2010). Differences in this behaviour demonstrably have biographical correlates (Ike 2009, Habalet 2019, Wehrle et al 2024). This investigation goes further in considering backchannel preferences as malleable. While previously shown traits are to some extent permanent, playing video games is a more flexible activity, and would constitute an effect more like habituation or training. The mechanism of pressing "a" to advance through dialogue is argued to be an analogue for backchannelling. I hypothesise that speakers who have spent extended amounts of time in this dynamic – speakers who report playing lots of games featuring this – will transfer this practice into increased backchannelling rates in face-to-face conversation. To test this, I use the Map Task experimental framework (as described in Brown et al 1984). Participants' self-reported gaming experiences are measured using a purpose-designed scale. Gaming measures are compared with backchannels per minute. Statistical tests do not show a robust relationship between these variables, but the overall trend is that those who play more games with backchannel-like game mechanics do backchannel more. If playing video games can indeed encourage more frequent backchannelling in conversations, then this presents new considerations for what might condition people's interactional strategies.

Keywords: Backchannelling, feedback, conversation strategies, video gaming, Map Task

Supervisor(s): Dr Daniel Duncan

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Press "a" to continue: Limited evidence that gaming experiences may influence backchannelling rates

1. INTRODUCTION

Backchannelling is a linguistic behaviour that is fundamental to maintaining a positive relationship between speaker and listener. It marks attention and active participation from the listener as the speaker takes an extended turn (Gravano and Hirschberg 2009, p.1019). It has been cross-linguistically shown to underpin feelings of support from the interlocutor (Gravano and Hirschberg 2009, Romero-Trillo and Newell 2012, Allen 2019), and even to contribute to how much participants enjoy a conversation (Li et al 2010). Instances of backchannelling – predominantly monosyllabic (Pipek 2007) tokens of affirmative words like *yes, mm, right* that do not constitute a full conversational turn (Gravano 2009) – are 'implicit, other-oriented vocal signals with a predominantly social function' (Wehrle et al 2024). In this way, they are a primordial aspect of the interactional facet of linguistic inquiry: how, despite potentially transmitting identical linguistic signals, one interaction may be judged as a success, and another as a failure.

This study stems from an observation of fans of Nintendo and Game Freak's *Pokémon* franchise. In an informal, anecdotal discussion with the researcher prior to this investigation, several of these individuals reported receiving comments from conversational partners that they speak too much when they are in the "listener" role in a conversation – that the rate at which they backchannel is too high. Based on the knowledge that backchannelling rates are variable according to certain social factors (see Section 2.2 below), the present study was proposed, aiming to determine whether it was plausible that something as seemingly "non-linguistic" as playing video games for leisure can affect speech. This represents an as-yet unasked question within the field of linguistics: can something like an individual's preferred rate of backchannelling be habitually acquired by means of exposure to a certain rate? Previous research on first language (L1) backchannelling strategies persevering into speakers' second language (L2) speech suggests this may be the case – but what about an experience that is not so obviously linguistic? Did the *Pokémon* players appear to backchannel more based on the fact that they played *Pokémon*, or was this a coincidental conversation between people who backchannel at high rates for other reasons? This gives a broad idea of the issues this study sets out to solve, to be refined over the following sections into specific research questions and hypotheses.

2. BACKGROUND

To ground this observation in the existing literature, the following section aims to outline what is already known about backchannelling and gaming and how the current research landscape informed methodological and theoretical choices.

2.1. BACKCHANNELLING – AN OVERVIEW

While exact definitions are nebulous, backchannelling is understood as 'the short utterances produced by one participant in a conversation while the other is talking' (Ward and Tsukahara 2000, p.1177). It is a fundamentally supportive behaviour: by backchannelling, listeners are not interrupting the interlocutor's speech or signalling that they wish to take a full turn (Li et al 2010). Although backchannels often take the form of affirmative utterances such as *yeah*, they do not necessarily communicate that the listener agrees with or has fully synthesised the information transferred (Pipek 2007). The interpersonal facet of backchannelling is definitionally important: Gravano (2009) points out that the primary role of a backchannel, and the grounds on which it is separated from other short utterances, is that it 'indicates only *"I hear you and please continue*" in response to another speaker's utterance' (p.97).

Traditionally, the category of backchannels includes non-vocal behaviours with the same purpose, such as nodding. Due to methodological constraints, the present work could not collect data on visual (non-vocal) backchannels without making compromises on sample size. Therefore, while interesting, visual backchannels will remain outside the scope of this study and will not be described in detail here. It is relevant to note that 'globally, gestural and vocal backchannels show a comparable behaviour since they can be produced in a similar prosodic and discursive context' (Bertrand et al 2007, p.3). While works such as Truong et al (2011) and Ferré and Renaudier (2017) highlight important differences between visual and vocal backchannels in terms of appropriate contexts and nuances of meaning, the two behaviours are generally treated as manifestations of the same phenomenon. This is the attitude adopted by the present study: I investigate only vocal backchannels, but I suggest that the overall picture may be similar if the work was repeated with gestural backchannels incorporated.

There have been many attempts to precisely define vocal backchannels. Gravano (2009) details a framework of Affirmative Cue Words (ACWs), encompassing all instances of short, affirmative utterances like *yeah, uh-huh, right, okay*. He notes that in his data 'all backchannels are instances of ACWs' (p.90), but ACWs are not always backchannels. ACWs may also answer questions, mark the beginning or end of an utterance, be used to stall for time while one speaker holds the floor or indicate that a speaker is 'back from a task' (p.97) and ready to continue. The essence is that backchannels can appear very similar to lexical items fulfilling other functions and so must be discriminated in a detailed manner.

In a similar vein, Maynard (1986) discusses issues with Yngve (1970)'s initial conception of backchannels, suggesting that what unites all backchannel behaviours is that they do not constitute a full turn. In this way, a backchannel cannot be considered a genuine contribution of novel information to the conversation (Maynard 1986, p.1084; Pipek 2007, p.44). Thus, backchannels cannot include responses to questions (Ike 2016, p.131). From here, Maynard (1986)'s approach remains narrow, implying that backchannels must be 'turn-internal' (p.1085). This is not a universally agreed feature, however, and many definitions do not specify this at all. As such, the primary thing separating backchannels from other instances of ACWs can be argued to be their interactional intent: they are tokens of reassurance designed for the speaker of an extended turn, communicating that taking such a turn is currently permitted and is not, to use a particularly influential pragmatic framework, in violation of Grice's Maxim of Quantity (Grice 1975).

The exact purpose of backchannelling may be further divided into six possible categories. These are continuers, agreement, understanding, emotion, support and empathy, and minor additions (Maynard 1997 in Cutrone 2010, p.51), with continuers, aimed at encouraging the current turn-taker to continue their contribution, being the most frequent type of backchannel (Pipek 2007). This aligns with the suggestion that supporting an extended turn's continuation is a central function of backchannelling behaviour.

Therefore, the definition of backchannelling within the remit of this paper will be as follows:

'short, vocal signals intending to communicate that the listener has understood the speaker and supports their extended turn; not communicating that the listener wishes to take the floor from the current speaker'.

Other research on backchannelling shows that backchannel items tend to be 'cued, encouraged, or allowed' by the speaker taking the extended turn (Ward and Tsukahara 2000, p.1203). Such cues may include a 110ms region of lowered pitch (Ward and Tsukahara 2000), syntactic completion points or pauses (Cutrone 2010), intonational markers such as final rising intonation and low noise-to-harmonic ratio (among others) (Gravano and Hirschberg 2009) and, principally, gaze (Hjalmarsson and Oertel 2012; Ondáš et al 2013; Ferré and Renaudier 2017). Ondáš et al (2013) find that more than two-thirds of backchannels take place after mutual gaze is established between conversational participants. In order for people to feel as if they are 'allowed' (Ward and Tsukahara 2000, p.1203) to backchannel, it is particularly important that they are able to establish mutual gaze; this was considered in the experimental design.

Further findings include that backchannels are very frequent, taking place in Australian English conversation approximately every 3.1 seconds (Ike 2009); as for British English, Cutrone (2005) finds that British English speakers provide a backchannel for every 8.1 words said by their interlocutor (p.256). Additionally, speakers are sensitive to the amount of backchannelling they receive: in a doctor-patient roleplay task with a following conversational enjoyment survey, Li et al (2010) find that as the frequency of backchannels increased, scores of reported enjoyment of the conversation decreased slightly. Other research suggests that most backchannels are monosyllabic (Pipek 2007), perhaps to minimise the disruption they cause when uttered during someone else's turn – the majority of backchannels are reported to overlap with the current speaker's talk (ibid; MacCarthy 2003, p.59). Most backchannels have intonational movement (Romero-Trillo and Newell 2012, Pipek 2007), which can encode nuances in meaning and speaker attitudes (Romero-Trillo and Newell 2012, p.122; Pipek 2007, p.17).

Studies of backchannelling often echo the concluding sentiment of Ward and Tsukahara (2000)'s paper: 'clearly, we have raised more issues than we have resolved' (p.1203). Studies often struggle to determine what makes something recognisably a backchannel: although Lai (2008) starts from an observation that speakers can reliably distinguish between instances of the word "really?" as a backchannel as opposed to a genuine information-seeking question, they are unable to construct a specific framework describing the acoustic and intonational differences between such instances. There is something that makes speakers sensitive to the purpose of what they hear and able to pick out what is a backchannel, but current research has not been able to confidently reveal what this may be. This is likely why the exact definition of backchannelling remains tied to pragmatic intent: we do not yet know what a backchannel necessarily is in terms of the acoustic speech stream. However, we know that conversational participants are sensitive to them, the rates at which they are given or received, and the meanings that they can communicate.

2.2. VARIATION IN BACKCHANNELLING

Backchannelling behaviours are highly variant between individuals (Pipek 2007, Cutrone 2010). Blomsma et al (2024) go so far as to call this 'idiosyncratic' (p.1158) and choose to relate this to individual participants' 'personality characteristics' (p.1174). Some further work has been done to this end, as to be described later in this section, but it is noted that 'it would be valuable to take into account the characteristics of the addressee' (Blomsma et al 2022, p.1175). Personality is a rather imprecise descriptor; it may be more useful to investigate specific parts of participants' personalities to get a more precise idea of the factors conditioning variation. Here, playing video games is considered one of these aspects related to personality as it concerns a leisure activity linked to significant time investment and which can lead to strong self-identification (considering oneself a "gamer"). Previous findings about variation are summarised in this chapter to refine predictions about gaming's impact on backchannelling.

Some gender-based variation has been reported. Ueno (2004), analysing speech from Japanese TV shows, finds that women backchannel more than men and notes that this is consistent with findings from earlier literature such as Tannen (1990). However, in this sample, there may be a confounding effect of conversational role, as the female speakers are all guests on the TV shows, whereas male speakers may be hosts or guests. Elsewhere, Habalet (2019) investigates speakers from Algeria, finding that in English conversation, women backchannel more than men; Demina (2021) points out that 'female speech is abundant in overlapping phenomena' (p.153) such as backchannelling. This finding is not, however, unanimously attested. Pluszczyk (2013) reports that for proficient Polish speakers of L2 English, male speakers backchannel slightly more frequently than female speakers. Of the 25 male-female dyads investigated in this study, 12 were dyads where the male participants backchannelled more, 10 where the female participants did so, and 3 where the rates were equal. The author concludes that backchannelling rates between men and women are 'approximately the same' (p.72). In sum, previous work suggests that women tend to, but may not always, backchannel at a more frequent rate than men.

Much of the work on backchannelling thus far has concerned L2 speech (Ike 2009, Pluszczyk 2013, Habalet 2019, for example). In some cases, the reasoning for this is not clear: although all participants speak Polish natively, Pluszczyk (2013) only investigates their backchannel production in English. This may have something to do with the availability of existing literature on certain languages other than English. In other cases, L2 speech is investigated as part of a particular research aim. For instance, Ike (2009) compares the backchannelling rates of Australian English speakers and 'Japanese English speakers' (p.206), defined as 'English spoken by educated Japanese who are proficient in English' (p.205) – seemingly, this is alternative phrasing for L2 English. In particular, Japanese has garnered much attention in this field. A potential reason for this is that Japanese allows for meta-linguistic discussion of backchannel behaviour through the term *aizuchi*.

Aizuchi is defined as saying short utterances or performing small actions intending to show that the listener is paying attention (Allen 2019, p.12). Determining whether or not this is exactly the same as backchannelling is not necessarily essential for the purposes of this study, and 'has been discussed for some time in the literature' (Allen 2019, p.18), but the behaviours can be considered to satisfy a similar interactional need. Additionally, awareness of work on *aizuchi* provides context for why so much study has been undertaken on the backchannelling habits of native Japanese speakers in English.

In Japanese, *aizuchi* occurs very frequently (Allen 2019, p.3). Maynard (1986) suggests that this effect persists when Japanese speakers learn a second language; later, Ike (2009) asserts that 'Japanese English speakers use backchannels much more frequently' than native English speakers (p.212); Cutrone (2010) also reproduces this. It is consistently found that, for people whose L1 is Japanese, when they speak L2 English, they backchannel more than the average native English speaker. Therefore, *aizuchi* occurring at a particularly high rate is not linguistically tied to the Japanese language in the narrow sense, but could be argued to exist on a different abstract mental "layer". That Japanese speakers do *aizuchi* very often is not an inherent, unchangeable feature of Japanese. It is a social, interactional, and discourse-pragmatic "habit".

Backchannelling rates can vary according to whether speakers are autistic. Autistic speakers backchannel less frequently than the non-autistic speakers (Wehrle et al 2024, p.125, Lawley et al 2023) and appear to prefer rising intonation more than the control group (Wehrle et al 2024, p.123). They suggest this interaction could arise from backchannelling 'not [being] governed by specific rules and rather [seeming] to follow complex, implicit, culture-specific conventions' (p.125). This experiment does not attempt to pick apart whether autistic speakers backchannel differently because of an inherent cognitive difference or because of an alternative interpretation of social norms – whether such factors could be extricated from one another is questionable in the first place. What is relevant here is that it is possible that the differences tied to autism arise as a result of differences interpretation, suggesting that rules surrounding how often it is appropriate to backchannel could hold a degree of flexibility – they could be thought of as a social understanding which can be influenced by speaker experience.

Backchannelling is also linked to some extent to personality, which is considerably more flexible than anything described so far. Blomsma et al (2022) show that 'feedback behaviours significantly influenced the perceived personality of recorded participants' (p.8), suggesting that participants expected the conversational agents to be certain kinds of people based on how they backchannelled alone. From a causative perspective, Vinciarelli et al (2015) provide some evidence linking certain aspects of the Big Five personality traits to backchannel behaviours, most notably for Conscientiousness (p.8), defined as the 'tendency to be planful, reliable, thorough etc' (p.7). This brings into question whether leisure activities that constitute a significant amount of an individual's experiences can similarly be considered as an aspect of personality.

These conditioning factors attested in the literature represent an interesting range of characteristics. A speaker's L1 cannot change; gender has lasting effects relating to the way an individual is socialised growing up; personality has the ability to change over time. Even though autism diagnosis status is generally fixed, it still suggests some degree of flexibility in the nature of backchannelling, as it is plausibly linked to a different interpretation of social conventions rather than an inherent cognitive difference. Could it be the case, then, that playing video games can also cause a shift in how people think of backchannelling? Whether or not backchannelling rates can be skewed extended non-linguistic exposure to high-rate scenarios, this would be meaningful for our understanding of the behaviour.

2.3. GAMING AND LINGUISTIC BEHAVIOURS

Gaming as a leisure activity is an increasingly important consideration in research concerning human behaviour. Yim et al (2023) note that 'for deeply involved individuals, computer video games might well be the medium through which their behaviours are shaped and expressed' (p.1). The video game should be thought of as a valid arena for developing and experimenting with all manner of behaviours, including linguistic phenomena, just as spoken conversation is.

In speech and language therapy, games can be used therapeutically, helping users learn to strengthen areas such as phonemic distinction (Saeedi et al 2024), prosody (Aguilar 2019), and intensity maintenance (Grunert et al 2019). Since this kind of instructional game can be used to make long-term changes to someone's speech behaviours, essentially providing informal linguistic "training", it seems reasonable to suggest that games played recreationally could also have some (unintended) effect on speech. Admittedly, the pedagogical games above explicitly request and reward certain linguistic behaviours, but as some of these games are designed for children (Saeedi et al 2024), the user is not necessarily aware that the function of the game is educational. Taken abstractly, the game rewards certain behaviours more than others, encouraging people to act in a certain way – could it be the case that when the game is not purposefully designed to do this, there can still be an effect?

This constitutes a gap in the current literature. Studies to date include investigations of the role of masculinity on speech on online video game forums (Chandler 2019); the 'French gamer idiolect… in the video game text and gamer interactions' (Strong 2019, p.39); and gamers use of game-specific vocabulary when describing video clips of gameplay (Hsu 2018). What is common to all of these is that they concern speech closely tied to the act of gaming: speech produced during or about games. It is informative to know that gamers speak uniquely enough during games to form an 'idiolect' (Strong 2019, p.39), but where the present investigation aims to push the boundary of this is in tying these areas together: games can have a lasting impact on people's speech, as shown by their use in speech and language therapy; could this be true when the linguistic conditioning is non-explicit or unintentional, such as in the gaming studies? Can training be both accidental and persistent?

The current observation – that *Pokémon* players report backchannelling more frequently than the average person – is a potential example of linguistic patterns accidentally informed by digital experiences. In the following section, I identify a game mechanic in a *Pokémon* game that appears to behave like backchannelling, except at a remarkably high rate. In the same way that, perhaps, certain personality traits cause people to backchannel more frequently; in the same way that speaking a first language with more frequent backchannel-like behaviours seems to influence speakers to do the same in English – could it be the case that spending a lot of time in games with these mechanics can skew gamers' perceptions of "normal" backchannelling towards more frequent production?

2.4. CONCEPTUALISING BACKCHANNEL ANALOGUES

To reiterate, backchannels are minimal utterances supporting a speaker's extended turn, showing that the listener is still invested in the conversation and is prepared to accept more information without taking a turn of their own. With this in mind, consider the following screenshots from *Pokémon White* (Nintendo, 2010) on the Nintendo DS.

Figure 1: Screenshot of gameplay from Pokémon White (Nintendo, 2010)

Figure 1 demonstrates how dialogue is presented in this game. It appears in a box at the top of the screen and remains in place until the player either interacts with the device's touchscreen or presses a button – until the player gives some signal that they have understood the current unit of text. The triangle in the bottom-right of the text box indicates that there is more text to come, cueing a button press in order to advance the text: this is common, but not

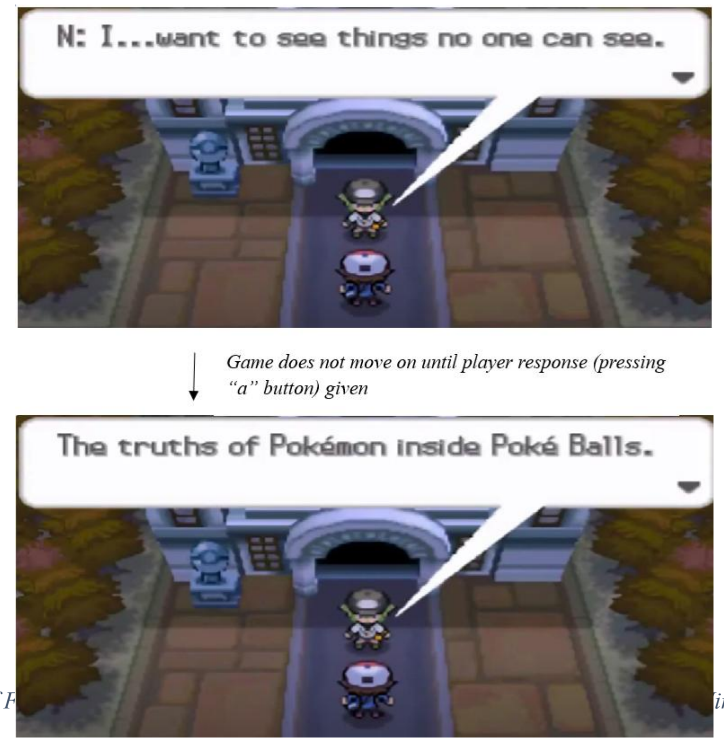

Figure 2: Summary of F ... intendo, 2010)

universal, in games like this. After the button is pressed, the next line of dialogue appears. This

	Conversational Feedback/Backchannelling	Pressing "a" to advance dialogue
Not a whole turn; does not constitute any new information transfer	✓ *No new information (Maynard 1986, Pipek 2007)*	✓ *No typical gameplay "action"*
Supports the continuation of an extended turn	✓ *Frequency of "continuer" category (Pipek 2007)*	✓ *Allows text to continue*
Demonstrates the listener's active participation	✓ *Shows attention (Gravano and Hirschberg 2009)*	✓ *Game does not move on until response given*
Demonstrates readiness to accept new information	✓ *Not a full turn (Pipek 2007, Li et al 2010)*	✓ *Occurs once player understands current text*
Very frequent	✓ *In AmEng, every 3.1 seconds (Ike 2009)*	✓ *Appears the end of every unit of dialogue*
Important to speaker/listener bond	✓ *Romero-Trillo and Newell (2012) p.122*	- *There is no "speaker" entity*
Variable	✓ *'idiosyncratic' (Blomsma et al 2024)*	- *Player cannot choose whether/when to do it*
Permitted by certain interactional cues	✓ *Backchannel inviting cues (Ward and Tsukahara 2000)*	✓ *Optional arrow on screen*
Verbal, lexical	✓ *Investigation of lexical choice (Pipek 2007)*	- *Player signal is non-linguistic*
Tactile, visual	? *Unimodal and bimodal BCs (Ferré and Renaudier 2017)*	✓ *Requires tactile press of button*

is summarised in Figure 2.

This is the backchannel analogue I propose in video games. An overview of similarities and differences are shown in Table 1 below.

Table 1: Comparison of Conversational Feedback and FBMs

What is particularly relevant is that the “a” press occurs incredibly frequently: much more so than in previous studies of English conversation. Interestingly, many games heavily featuring feedback-based gameplay mechanisms, including *Pokémon White*, are developed at Japanese companies – could this be a kind of holdover from the cross-linguistically high frequency of *aizuchi*? Could this game mechanism accidentally expose non-Japanese speakers to a Japanese-inspired feedback-heavy conversational context? And aside from these, could native English speakers who play lots of these games be adapting their conversational style based on exposure to one with frequent feedback?

The foundational assumption of the present work is that this “a” pressing mechanism can be considered an analogue of conversational feedback, with the game as the “speaker” and the player as the “listener”. This is especially relevant as the “a” pressing mechanism often appears when game characters are involved in conversations, potentially putting players in a “dialogue”-based headspace. Aside from the comparisons in Table 1, there are several other parallels between backchannelling and the “a” press. Firstly, pressing “a” is usually insufficient as a response to a question, where a player must select a response (backchannels as distinct to whole turns). Additionally, the text tends to appear letter by letter in these games, and the “a” response can be given before the full dialogue has appeared (similar to overlapping speech). Third, there are, in a way, several “interactional items” available to a player, who may feed back to the game using the “a” button or the touchscreen (standard response) or the “b” button (causes text appearing letter-by-letter to load faster or instantaneously). This is in the same way that there are several lexical items available to a listener producing backchannels, each with nuanced meanings. Table 1 highlights that the behaviours do not map perfectly onto each other, and there are details to be carefully considered – not least that creating an analogue for a ‘prosocial’ (Wehrle et al 2024, p.125) behaviour without the presence of an interlocutor seems abstract. But the above shows that the form and function of the two actions can be considered parallel, at least to an extent. The present investigation is concerned with whether being expected to give frequent feedback in order to facilitate continuation on digital interfaces can impact how people envision their human interlocutors’ expectations of them.

3. CONCEPTS, RESEARCH QUESTIONS, AND HYPOTHESES

Returning to the initial observation with the above in mind, the following research questions and hypotheses were formed.

3.1. CONCEPTS

Pressing "a" to advance game text, due the similarities outlined in Section 2.4, will be henceforth referred to as a Feedback-Based Mechanism (FBM). This is any pattern of gameplay whereby a player must give some indication of feedback to facilitate continued gameplay. It refers to the underlying mental processes involved with providing feedback; it does not stipulate anything about how said feedback can be provided. FBMs may rely on button presses, touchscreen interactions, gyroscope manipulation, voice activation, or any similar interaction.

3.2. RQs

- Can an individual's range of tolerable backchannelling rates be altered through habituation to certain conversational contexts?
- Can games without explicit pedagogical aims have lasting impacts on the speech of their players?
- Can pressing "a" to continue be considered analogous to backchannelling?

3.3. HYPOTHESES

H1: Gamers will backchannel at a higher rate than non-gamers. (H0: backchannelling rates will be distributed randomly between gamers and non-gamers).

H2: People who have spent time playing games utilising FBMs will backchannel at a higher rate than those who have not. (H0: backchannelling rates will be distributed randomly between people who have played such games and those who have not).

4. METHODOLOGY

To answer the above questions, the following were needed: participants with a range of gaming experiences; a way to elicit speech, including backchannels, from these participants; measures of participants' gaming experiences, both generally and in terms of FBM exposure; and a way to compare backchannelling rates. The following section details how each of these aims was met.

4.1. PARTICIPANTS

Frequent gamers were recruited from gaming-focused groups in the Newcastle upon Tyne area. Advertisements were posted on the social media channels of the following groups: Newcastle University Pokémon Society, Board Games Society; Northumbria University Computer and Video Games Society; and the Pokémon Go North-East community. Posters featuring well-known game characters were also distributed in high-traffic locations of Newcastle University campus. For non-gamers, similar posters were created targeting people interested in language and communication. These general adverts were shared in first- and second-year undergraduate linguistics and modern foreign languages classes, as well as displayed in separate busy university locations Based on a finding that participants who know each other already tend to produce more talk in a similar experiment (Berríos et al 2023, p.11) (see Section 4.2), each participant was instructed to bring someone they were comfortable with to the experiment session. Eliciting more talk seemed ideal as it would give participants more opportunities to backchannel.

There was no incentive to take part in this research. Participants commented that it was a fun and interesting use of their time and enjoyed learning about backchannelling. All participants showed some awareness of this behaviour, citing examples of interactions where too much/not enough feedback was given, but they expressed having no appropriate words to describe this in English. Data surrounding this was not formally collected during this investigation but could be an interesting starting point for future qualitative research.

This experiment received approval from the Newcastle University School of English Ethics Board. Accordingly, all participants were informed that their participation was voluntary and that they could request that their data be deleted at any time. Participants gave both written and verbal consent at several points throughout the process. Participant data was handled in compliance with GDPR.

Demographic details of the participants can be seen in Table 2 below. Note that the categories under "dialect" vary in specificity; this is because the Demographic Form (Appendix 2) asked participants to self-describe their dialect. This was not the most effective way to collect this information and limited the present study's ability to investigate regional variation.

Table 2: Participant Demographic Details

Age				
	Minimum	**Maximum**	**Mean**	**SD**
	19	28	21	1.76

Gender			
	Category	**N=**	**As % (to whole number)**
	Male	9	36%
	Female	12	48%
	Non-Binary/Other Diverse Gender Expression	3	12%
	Prefer not to say	1	4%
Dialect			
	Category	**N=**	**As % (to whole number)**
	Geordie/Northumbrian	4	16%
	Yorkshire	3	12%
	Mancunian	3	12%
	Northern	3	12%
	RP	2	8%
	London	2	8%
	North-West	2	8%
	Midlands	1	4%
	Pitmatic	1	4%
	Southern	1	4%
	West Country	1	4%
	English	1	4%
	Southampton	1	4%

4.2. STIMULI

The aim was to generate conversation including backchannels between the participants. To do so, the Map Task experimental paradigm (as described in Brown et al 1984) was selected. Previous map task experiments, both those investigating backchannelling (Sbranna et al 2022, Wehrle et al 2024) and those with other aims (Grice and Savino 2003, Berríos et al 2023) were instrumental in informing design choices.

Two participants take part in a Map Task trial. Each receives a printed map, an example of which can be seen in Figure 3; the remaining maps used in this experiment are available in Appendix 1. Maps were produced as pairs, such that for each trial, participants were looking at maps of the same fictional location. Many map tasks feature discrepancies within map pairs (Grice and Savino 2003, Wehrle et al 2024) – for instance, in Map 2.1 in Figure 3, there is a snowflake above the highest point of the icy lake, whereas this is absent on Map 2.2. Such discrepancies have proven an efficient strategy for generating more talk (Brown et al 1984, p.111). The overall aim was to reproduce the route that one participant could see drawn on their map onto the other person's map using exclusively verbal instructions. The participant who could see the route describes it while the other notes it down on their map; along the way, they negotiate the minor differences in their maps. In this investigation, participants' success at reproducing the route accurately was not measured; perhaps it would be interesting to see if different rates of backchannelling lead to different degrees of task success. Here, however, the task was simply an excuse to generate talk and to give participants a focus so as not to be too self-conscious.

Figure 3: Map Pair 2, featuring the "icy lake"

Maps were made in Microsoft PowerPoint using pre-installed icons. Although uncharacteristic of Map Tasks, landmarks were not given names, except for in the case of the blue shapes on Map Pairs 1 and 2, which I predicted could cause confusion. The only instances of labelling anything else on the maps were the START and SWITCH descriptions on Map 1.1 to give the first participant a frame of reference for what the task would be. Berríos et al (2023) use unnamed landmarks as another strategy for eliciting more talk.

Maps were standardised to have 15 symbols and at least one body of water each. Bridges were consistently represented by black rectangles. Discrepancies were also standardised. For each map pair, version 1 had one icon added, one deleted, and one changed to a different icon when compared to version 2 (Brown et al (1984) indicate that the task is harder if the maps' incompatibility comes from 'two conflicting features in the same location' (p.71)). For clarity, in Figure 3 above, Map 2.1's unique icon is the snowflake, Map 2.2's unique icon is the fifth forest icon closest to the eastern tip of the icy lake, and the substituted icon is the log cabin/windowless house south-west of the bridge.

Finally, Map Pair 1 represented a 'shared authority' trial described as a warmup, during which participants could ask the researcher any questions. This trial was included for two reasons. Brown et al (1984) suggest that participants who had experienced both giving and receiving instructions in this task produced 'nearly twice as much talk' in subsequent trials (p.136). Additionally, it gave an opportunity to establish in the first trial that this was a co-operative effort; by highlighting this, I hoped to simulate something as close as possible to genuine collaborative conversation.

4.3. PROCEDURE

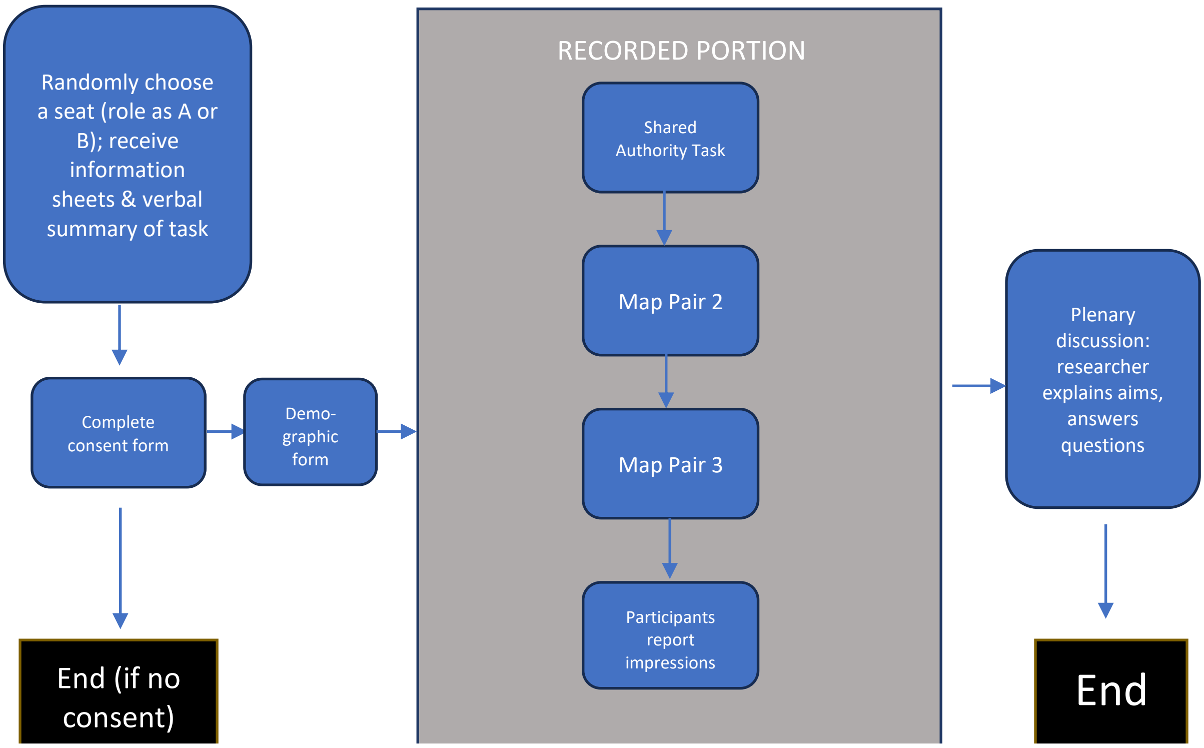

Figure 4: Procedure Flowchart

Trials took place according to Figure 4 in the Newcastle University Linguistics Laboratory. Participants chose a seat on either side of a 1m table, on which all necessary sheets of paper and a pen were laid: a sequence of three maps face-down, all either versions 1 or versions 2 from map pairs; the Demographic Form (see Appendix 2); a participant information sheet; and a consent form. In allowing participants to decide which side to sit without foreknowledge of the task, whether each participant received versions 1 or 2 of the maps was randomised.

Each participant had an individual Olympus VP-20 microphone. In the middle of the table was a divider approximately 30cm tall, such that participants could not see each other's workspaces, but were able to establish mutual gaze over the barrier (see discussion of gaze in Section 2.1). Each map pair was worked through in succession, at the end of which the researcher asked participants what they noticed during the experiment. No participants made reference to backchannelling behaviour. Comments instead included describing different styles of description, perceived difficulty, or the strategies they used to visualise each other's maps. This likely suggests that participants were not self-conscious of their backchannelling during the experiment, which is positive for the validity of findings. After this discussion, the recording was switched off, and the researcher explained the aims of the research, introducing participants to the term 'backchannelling'. These unrecorded discussions revealed interesting folk insights into backchannelling rates; future research could include this in investigations.

4.4. ANALYSIS

All recorded talk was analysed, including talk between the researcher and participants and small talk between tasks. Some previous backchannelling experiments (Wehrle et al 2024) opt not to do this. Presently, due to a relatively small sample size and perhaps an over-emphasis on capturing as many tokens of backchannelling as possible, these sections of talk were included; the conversations were relatively structured and people who backchannelled frequently during the tasks behaved very similarly in the interim conversations. This should possibly be excluded in future studies.

Individual backchannel items were identified by listening to each participant's audio recording collected during the task. Backchannels were categorised as any small utterances or repetitions of the previous speaker's talk that seemed to intend no meaning other than encouraging continuation of the interlocutor's turn. Answers to questions were excluded for constituting a whole turn; vocalisations appearing in the same intonational phrase (judged by ear) as other talk were also excluded, as they seemed to perform functions other than backchannelling (see ACWs in Gravano 2009). Some of these criteria, being based on speaker intent, are subject to some rater bias. Judging speaker intent was heavily reliant on the researcher's own impressions, which is not particularly robust. Ideally, multiple raters would have counted backchannels to minimise the effect of this.

Backchannel counts were normalised as backchannels per minute, following the example of Sbranna et al (2022) and Wehrle et al (2024). This was taken as a proxy for participants' habitual approach to backchannelling. Their Backchannels per Minute (BCpM) were compared with region, age, and gender, as well as the Gamer Scores produced by their responses to the demographic form, as detailed below.

4.5 THE GAMER SCORE

Two measures of the extent of participants' gaming experiences were needed to address the hypotheses. One needed to target how much of a gamer an individual was: how often they played games, whether they had played a few different kinds of games, and if they self-identified as a "gamer". The other needed to address how much exposure participants had had to FBMs through gaming. This data was collected using the Demographic Form (Appendix 2). Yim et al (2023) indicate that a multi-item questionnaire investigating different facets of the gaming experience is most appropriate here; a novel scale is used as the FBM part of the scale is very specific, and the results of this would ideally be comparable to results of the general gaming score.

Questions 1 to 3 collect data for the raw gamer measure. These were designed after consideration of Reed (2016)'s work on quantifying the extent to which individuals felt 'rooted' in their dialectical area. In this investigation, self-identification with the specific in-group jargon attached to a facet of identity – for Reed, the name "overhome" for Appalachia – was a particularly important aspect; this also seemed applicable here, so Question 1 explicitly asked whether participants considered themselves a "gamer". Participants received higher scores for reporting playing games more frequently, both in childhood and now (Questions 2 and 3). 5 points were added if at least 3 boxes were circled for Question 4, and 5 points if at least 5 games were cited in Questions 5 and 6 combined. This made up the Raw Gamer Score.

The FBM weighted score shares identical ratings for Questions 1 to 3, but the rest of the responses are weighted differently to target how many games featuring FBMs participants had played. During the preliminary investigation detailed below, certain genres (visual novel, RPGs, and story driven games) were found to rely heavily on this mechanic; scores for Question 4 were revised accordingly. Table 3 summarises the different approaches thus far.

Table 3: Comparison of Gamer Score Weighting Methods

	Raw Gamer Score	FBM-Weighted Gamer Score

Question 1	Yes: +5 No: 0	Yes: +5 No: 0
Question 2	Most days: +4 A few times a week: +3 Once a week: +2 A few times a month: +1 Less than this: 0	Most days: +4 A few times a week: +3 Once a week: +2 A few times a month: +1 Less than this: 0
Question 3	Most days: +4 A few times a week: +3 Once a week: +2 A few times a month: +1 Less than this: 0	Most days: +4 A few times a week: +3 Once a week: +2 A few times a month: +1 Less than this: 0
Question 4	At least 3 genres: +3	Visual novel: +3 JRPG/RPG: +2 Story Driven: +1 Anything else: 0
Question 5/6	At least 5 titles: +5	See Appendix 3

This left identifying individual games which relied on FBMs. This needed to be more detailed than genre-level observations as I noticed some variation within very similar games: The Legend of Zelda: Breath of the Wild (Nintendo 2017), for example, uses a moderate-to-high amount of FBMs, but the original entry in The Legend of Zelda (Nintendo 1986) uses none whatsoever. Most games employ FBMs to some extent: a very common example is an exit dialogue along the lines of "[PLAYER] saved the game" (*Pokémon White,* Nintendo 2010), which demands feedback before moving on. Hence an individual's FBM weighted score was to be a combination of whether or not they were a gamer and the impacts that individual games may have had. To be as precise as possible with this latter factor, I conducted a preliminary survey of video games.

The sample of video games came from the personal collections of friends and colleagues. I played through the introductory level of each (approximately 15 minutes), noted how often I had to give feedback to advance gameplay, and rated them according to the criteria in Table 4. I played 75 games in this way, and watched "Let's Play" videos on YouTube for 25 further popular games that I did not have access to. YouTube was a slightly less reliable way of investigating this, as I could not always tell when a button was pressed.

Table 4: Individual Games' FBM Rating Criteria

Description	Prototypical example	Points scored for each game of this type

ALWAYS: "dialogue" with FBMs is the primary focus of the game and/or text is delivered in this way the overwhelming majority of the time.	*Pokémon White*, Nintendo DS -All text boxes require interaction to proceed -Battles largely text based -Everything in the game delimited by player feedback -Few cutscenes	+3
USUALLY: most dialogue uses FBMs, but this may not be how the main gameplay loop operates (fighting games using FBMs exclusively in menus, for example)	*Tony Hawk's Underground*, PlayStation 2 -Text boxes frequently need to be responded to with a button press when they appear (start and end of every stage) -Most of the game involves skating with little dialogue, but when there is dialogue it is all FBM	+2
SOMETIMES: players use FBMs, but other mechanisms are common, there is little dialogue, or the majority of the game is spent doing something else	*Warioware: Smooth Moves*, Nintendo Wii -Little, infrequent dialogue -Most of the game centres around non FBM gameplay -Occasionally text boxes must be responded to with a press of A in order to proceed	+1
NEVER: little to no dialogue is delivered using FBMs.	*Minecraft*, Various Platforms -All text scrolls/fades away in its own time -Very little text at all	0

Question 5 on the demographic form listed a selection of these games. 47 games were listed (one box was included for people who had played none of these games; one title was mistakenly included twice). Games with ratings of +3 or +2 according to the above criteria were included to capture the most pertinent experiences; other popular games were also listed in case participants identified a link between these games.

Question 6 was included so that participants could add any games which were not already mentioned on the form. Although fairly extensive, my preliminary survey was not exhaustive, so this seemed important for capturing participants' gaming habits. For any games added in this way, I repeated the procedure, watching YouTube "Let's Plays" for approximately 15 minutes, judging whether gameplay/dialogue moved on based on button-presses or not. A further 44 games were added to the total in this way. Appendix 3 shows all 144 games I played, sorted by FBM score and at what stage they were investigated.

Participant FBM scores were calculated by adding the scores for responses shown in Table 3 to the total of all their circled games' FBM scores. This was taken to be a proxy for how much they had been exposed to FBMs, thereby testing the theory that it was this that could influence real-world backchannelling rates.

In sum, each participant had two separate gamer scores: the "raw gamer" score, identifying how much of a gamer they were, and the "FBM exposure score", describing how many games with FBMs they had played. This allowed for separate investigations of H1 and H2 (Section 3.3), and a more detailed analysis of the talk generated during the Map Task.

5. RESULTS

This section outlines the quantitative results of the study, including backchannel rates according to demographic features, the effectiveness of the gamer measures in measuring degrees of involvement with gaming, and the proposed link between gaming and backchannelling.

Participant (N=28) data was collected throughout February 2025. Two participants' data was excluded on the basis of having misunderstood the task; one further participant's data was excluded as they spoke a language other than English to a native level. Thus a total of 25 recordings of participant trials were analysed, totalling 499 minutes and 6 seconds of talk. Mean trial duration was 16 minutes 54 seconds; standard deviation 12 minutes 35 seconds; median 12 minutes 45 seconds.

5.1. DEMOGRAPHIC FACTORS

Figure 5 shows average rates of backchannelling according to gender. The "0" column, denoting the option not to provide this data, only represents one participant, so is not greatly informative. Otherwise, in the present data, women backchannelled slightly less than men, who in turn backchannelled less than people with diverse gender expressions. However, with reference to the population mean (the solid horizontal line, X=3.437971), none of the gender-based differences were greater than one standard deviation (X=1.185213) either side of it (this interval is represented by the light grey shaded area). A single standard deviation has been chosen to represent a "normal" range here instead of a 95% confidence interval because of the dataset's limited size; it is an attempt at illustrating whether the averages generated lie within the central portion of the data to judge whether or not they are exceptional.

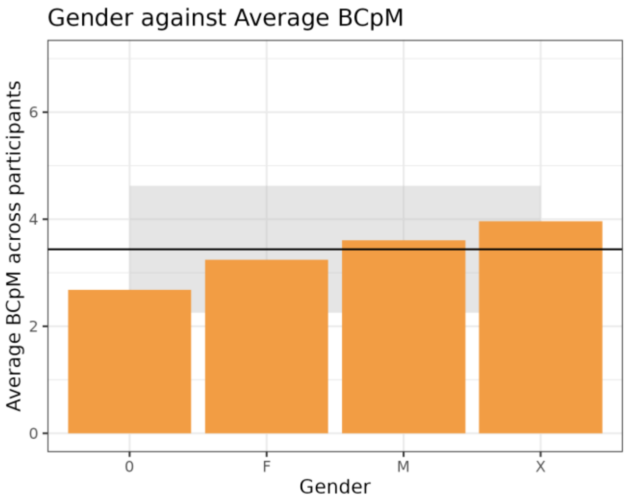

Figure 5: Gender against Average Backchannels per Minute

Figure 6 shows backchannelling rates grouped by region. As commented on in Section 4.1, the open-format nature of the regional dialect segment of the demographic form did not

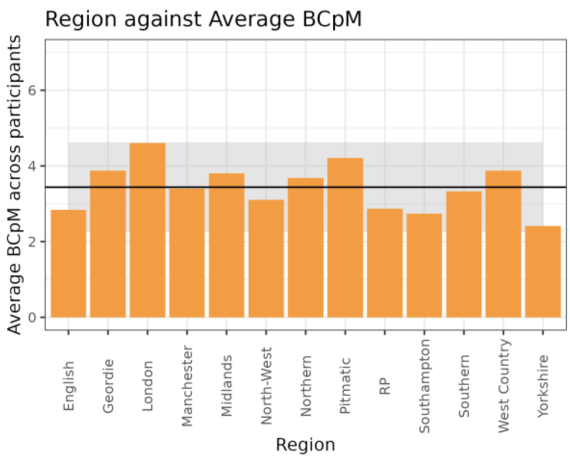

Figure 6: Region (as given) against Average Backchannels per Minute

produce ideal data for this. The graph below shows the regional data exactly as it was collected;

Figure 7 attempts to simplify these distinctions, broadly grouping dialects into 'Northern', 'Midlands', 'Southern', 'Non-Regional' (the latter comprising accents described as "RP" and "English").

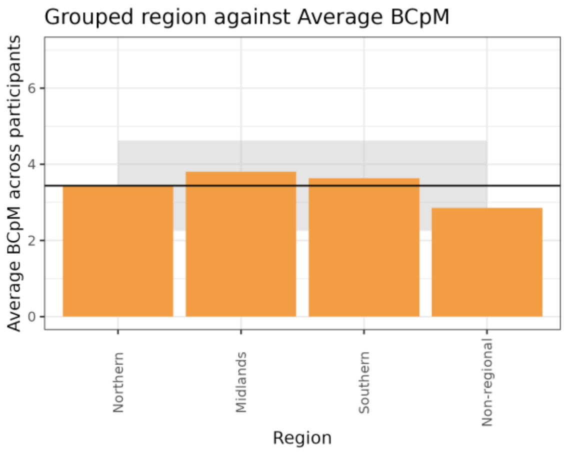

Figure 7: Region (grouped) against Average Backchannels per Minute

Whichever way this region data is categorised, no group generates values outside of the mean ±SD. In Figure 6, the extreme values of London (X=4.610294) and Yorkshire (X=2.417901), are close to exceeding this, however.

Figure 8 shows average backchannels per minute against participant age. There is no visible correlation in this graph. It does suggest that the participant aged 28 should have been

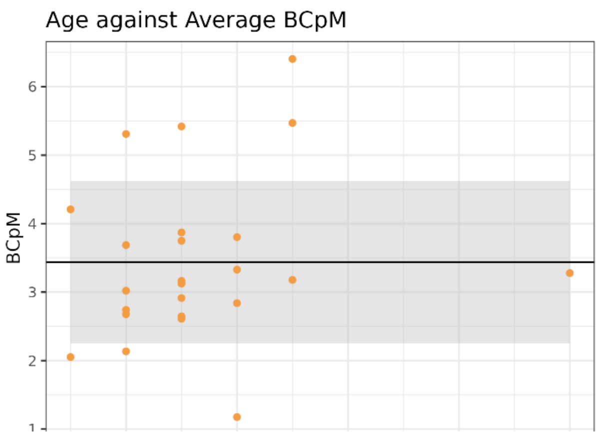

Figure 8: Age against Average Backchannels per Minute

discounted, but the present methodology favoured avoiding unnecessary exclusions as the sample size was already limited.

5.2. PERFORMANCE OF GAMING MEASURES

Figure 9 is a histogram of the results of the unweighted gamer score. Scores ranged between 0 and 21, median = 19.5, mean = 14.7, standard deviation = 5.6. As expected, most respondents reported having some video game experience. The measure seems to have effectively discriminated between gamers and non-gamers, but it did not differentiate people who played a moderate amount of games and those who played a more substantial number. A Shapiro-Wilk test on this data confirms that the spread of raw gamer scores cannot be considered normally distributed, as the appearance of the histogram would imply.

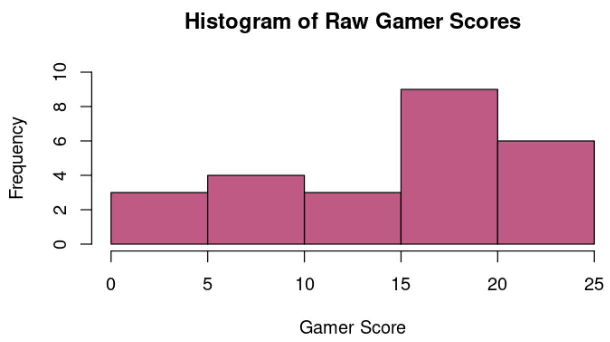

Figure 9: Histogram of Raw Gamer Scores

Figure 10 shows a similar histogram for the FBM score, intended to estimate exposure to feedback-based dialogue systems within video games (see Section 2.4), based on the values for individual games in Appendix 3. Scores ranged between 0 and 37 out of a possible 49 (before games added in Question 6), median = 20, mean = 15.6, standard deviation = 10.1. It is a less narrow measure designed to capture more nuance between individuals, particularly those at the top end of the scale, hence the greater range and standard deviation. Measures of central tendency are proportionally much lower in the FBM score, occurring closer to the

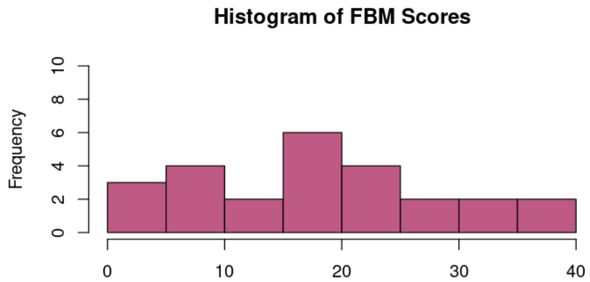

Figure 10: Histogram of FBM Scores

hypothetical midpoint of the data (18.5). A Shapiro-Wilk test reveals that this data can be considered normally distributed (p=0.472).

5.3. GAMING/BACKCHANNELLING INTERACTIONS

Figure 11 demonstrates participants' individual calculated rates of backchannels per minute plotted against their raw gamer score. As visible in the histogram, this data is right-skewed; there are far more data points in the region 18-21 than there are in the remainder of the graph. Visually, a positive correlation can be seen; a Spearman's Rank test gives a correlation coefficient of 0.1008, p=0.6319. A Spearman's Rank test is employed over a Pearson's Coefficient here as the data is not normally distributed. The result is not statistically significant, barely indicative of a very weak positive correlation. However, the extreme values are notable: the participant with the lowest rate of backchannelling (=1.18 BCs per minute) had the minimum gamer score (=0); and the participant with the highest backchannels per minute (=6.40 BCs per minute) was maxed out on the gamer score (=21).

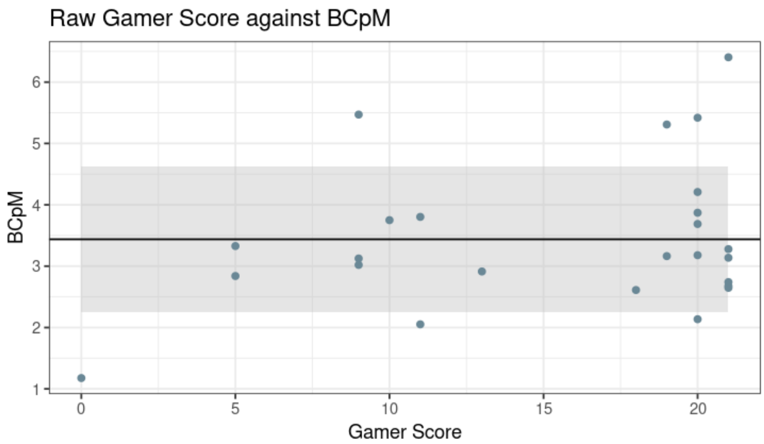

Figure 11: Scatter Plot of Raw Gamer Scores against Individual Backchannels per Minute

Figure 12 displays participants' FBM exposure weighted gamer scores against their backchannels per minute. With finer gradations at the upper end of the scale, there appears to be a slightly stronger positive correlation. This data has a Pearson's Coefficient (used here as this data is normally distributed) of 0.248085 (p=0.2318). While still far from being statistically significant, this indicates both a stronger positive correlation and at a higher likelihood of truly existing than the raw gamer score's result. Implications of this will be considered in detail in the discussion to follow.

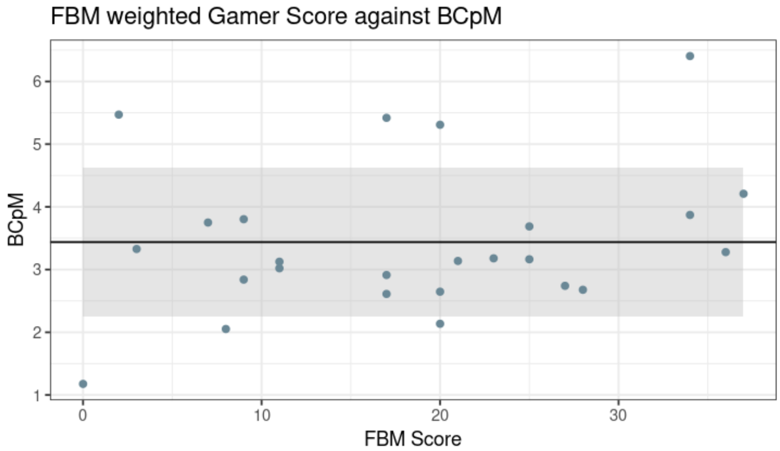

Figure 12: Scatter Plot of FBM Score against Individual Backchannels per Minute

Finally, in Figures 13 and 14, the data in Fig. 11 and Fig. 12 are grouped, such that a bar represents each quartile of the data. That is, people who scored in the lowest 25% of the gamer score appear in the ‘Q1’ bar of Fig. 13; people who scored in the highest 25% of the FBM score appear in the ‘Q3’ bar of Fig. 14. This was done in an attempt to gloss over individual variation: to see if the trends were generalisable, or if the outliers had just fallen in convenient positions. A pairwise comparison was considered for this, but as pairs could be made up of two frequent gamers, two non-gamers, or one of each, it was not particularly informative. As such, this seemed the best way to show differences between gamers and non-gamers en masse. Reed (2016) also employs this methodology, using the median to split his participants into two groups based on the designed scale for rootedness in place.

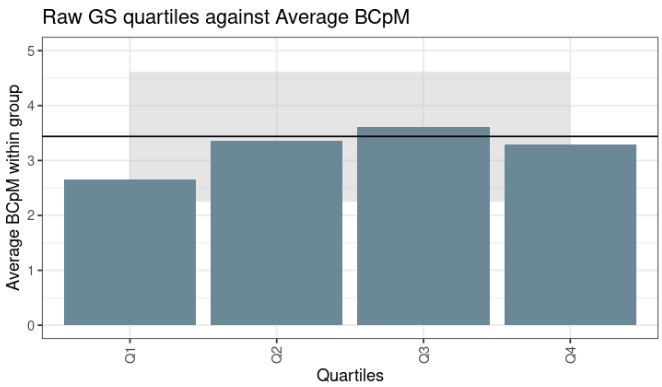

Figure 13: Quartile-wise Average Backchannels per Minute for Raw Gamer Score

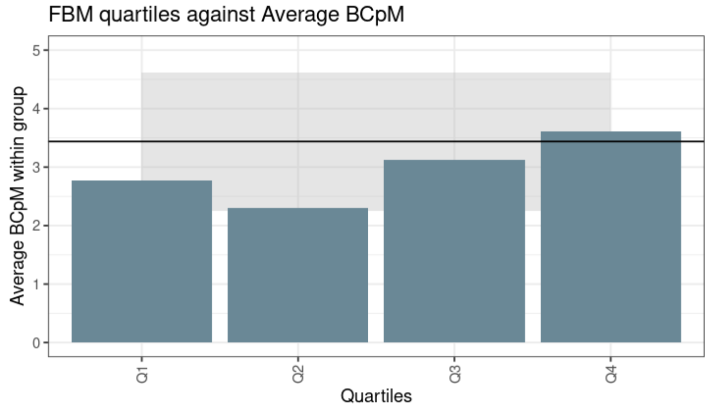

Figure14: Quartile-wise Average Backchannels per Minute for FBM Score

6. DISCUSSION

Demographic details were poor predictors of participants' backchannels per minute. Discounting the sole participant who answered "prefer not to say" regarding gender, women showed the lowest rate of backchannelling. Perhaps contrary to expectations, this provides support for Pluszczyk (2013)'s findings rather than the more widely reported phenomenon that women backchannel more than men. With its small sample size, this study and its results do not make a particularly strong case that the pattern observed here is representative of reality, especially as the effect found here is very slight. However, it represents an interesting addition to the discussion and motivates further research in the area. Furthermore, previous literature has not measured backchannelling rates of people with gender expressions beyond the traditional binary; this study presents preliminary evidence that these people may backchannel more. This also seems worth pursuing in larger-scale studies.

Region was largely uncorrelated with backchannels per minute, excepting a particularly high rate for Londoners and a particularly low rate for participants from Yorkshire. As there is not yet any 'comprehensive analytical framework' for backchannelling in any singular variety of English (Cutrone 2010, p.35), it is difficult to compare this behaviour cross-dialectically. However, the present evidence suggests that dialect is unlikely to be a major predictor of backchannelling behaviour. As for age, the range represented by this study is very narrow – it would be strange to have seen age-based variation in a sample with a standard deviation of less than 2 years. Any meaningful comment on age is outside the scope of this study.

The primary aim of this work was to determine the relationship between gaming and backchannelling behaviours, particularly through the conceptual lens of feedback-based mechanisms in games. Both gamer scores did seem to very weakly pattern with backchannelling rates: the more participants reported playing games, the more likely it was that they produced a higher-than-average rate of backchannels per minute. As each participant is only represented by a single data point, this is not a particularly robust finding, and did not meet statistical significance for either of the gamer measures used. Ideally, multiple counts would be taken over different trials with participants in the "receiver" role – but as a pilot study, this investigation has revealed a few things worth noting.

The extreme values in Figs. 11 and 12 show that the participant with the lowest individual backchannels per minute performed very low on both measures of gaming, and the participant with the highest backchannels per minute scored very high. Overall, here, gamers seemed to produce slightly more backchannels per minute than non-gamers, especially if they reported playing games which used FBMs. Admittedly, though, the failure to meet tests of significance and the indirectness with which the evidence supports this conclusion echoes Ward and Tsukahara (2000)'s conclusion that 'clearly, [I] have raised more issues than [I] have resolved' (p.1203).

Turning to the specificities of the findings, participants with higher raw gamer scores tended very weakly to have higher rates of backchannelling in conversations (Fig. 11). According to Fig. 12, the peak backchannelling rates were found in the third quartile, which is counter to the hypothesis that gaming more will lead to backchannelling more; I argue that this is an effect of this scale being considerably right-skewed, failing to draw gradations between participants in the upper end of the gaming spectrum. Additionally, the result of the Spearman's Rank test for correlation between non-normally distributed variables does suggest a positive correlation, but not convincingly, with a very high likelihood that this data could be obtained if the null hypothesis were true ($p=0.6319$). Whether this is informative at all is questionable. For further investigation, more rigorous measures will be necessary, and scales should be tested for reliability and validity prior to use.

The expected effect arose in that the FBM score was a stronger predictor of backchannelling than the raw gamer score. Figs. 13 and 14, where the effect by which the graphs grow taller as gamer score increases is stronger for the FBM score than the Raw Gamer Score, I believe that the results of this study provide some evidence that pressing "a" is to some extent similar to conversational backchannelling. Were the raw gamer score more robust, this evidence would be more convincing. Knowing the flaws involved in constructing this measure, however, seems to indicate that this study points towards a possibility that this can be considered like backchannelling, rather than a robustly evidenced truth.

There is plenty of precedent that backchannelling can be affected by strictly linguistic experiences like speaking other languages (Ward and Tsukahara 2000, Ike 2009) or by features concerning socialization, such as gender (Pluszczyk 2013, Habalet 2019, Demina 2021) or neurotype (Wehrle et al 2024). This study constitutes the first indication that backchannelling could be considered more as a habit that can be acquired and continually attenuated based on speakers' experiences, including those that are not necessarily linguistic. Ike (2009) shows that Japanese speakers of English backchannel at a higher rate in both languages, but chooses to call this a 'feature of Japanese English' (p.212); what would be the implications of a perceptual shift to this being a habit acquired from the Japanese conversational space persisting into L2 conversations? Conversely, could spending time engaged in English conversation gradually cause Japanese speakers of L2 English to backchannel less frequently? As yet, this has not been explicitly investigated but could contribute to our knowledge of whether this kind of behaviour is fixed or malleable.

Additionally, this represents a move towards investigating the long-lasting impact that gaming recreationally could have on conversation. A substantial body of work investigates the speech of gamers during games (Hsu 2018, for example), and a number of studies investigate talk about video games (Strong 2019). Yet although evidence suggests gaming can make lasting changes to other aspects of life such as the nervous system (Krarup and Krarup 2020) and cognitive flexibility (Zioga et al 2024), gaming has not been investigated in this respect. Despite its limitations, the results of this study suggest that this could be a worthwhile line of investigation.

Understanding conditioning effects on such conversation-level phenomena could explain other social patterns. Morgenroth, Stratemeyer and Paaßen (2020) highlight a degree of stigma towards people who play video games, especially those who either self-describe or are described as "gamers". These people can be characterised by images of social awkwardness or insular behaviour. This, coupled with Li et al. (2010)'s claim that too much backchannelling can be off-putting to interlocutors, raises important questions. If gaming increases backchannelling rates, could this cause slightly limited enjoyment in conversations between gamers and non-gamers? Given that the initial observation came from receiving negative comments on frequent backchannelling behaviour, to what extent could this increased backchannelling be linked to stereotypes surrounding gaming?

Another interesting dynamic is the relationship between gaming and autism. This study tentatively proposes that gaming may be able to raise backchannelling rates; autism has been found to lower them (Lawley et al 2023, Wehrle et al 2024). However, gaming is reportedly popular among autistic populations, with 98% of autistic adolescents reporting daily computer use (often for gaming) exceeding 5 hours (Kuo et al 2013), and certain individuals identify that “if it wasn’t for video games, I wouldn’t have a social life at all”, a quote which Finke et al. (2018) use as the title of their article. Attention should be paid to the interplay of these factors in ongoing research to negotiate how these seemingly paradoxical conditioners can coexist: perhaps, for instance, investigating autistic gamers and non-autistic gamers separately could lend insight into this?

Several flaws in this study’s methodology have been identified. First, despite the careful design of the FBM score, more could still be done to isolate the “a” pressing mechanism in gaming to test that this is linked to backchannelling. Perhaps future research could look to examine immediate/priming effects: do people backchannel more immediately after playing games where they are required to press “a” frequently? The methods by which I collected data are not detailed enough to investigate this within the produced dataset. This will have to be left for future research.

A further complication with the treatment of FBMs here concerns the construction of the FBM score. It did not become apparent until late in the investigation that the inclusion of games rated “1” in the FBM score may not have actually been very informative. This is because gamers would not be trained to offer conversational feedback at a higher rate than usual in games where they “occasionally” (to quote from Table 3) were required to engage with FBMs. This would only really be an effect of games that earned a score of “3” or perhaps “2”. These key games numbered only 8, most of which were *Pokémon* or *Animal Crossing* games – both Nintendo properties – or other visual novel-style games Perhaps the observation should have been tested with a narrower lens before trying to abstract out general properties of gaming. Perhaps I should have investigated how much *Pokémon* someone had played, or how many Nintendo games, or simply how many games that were rated “3” in the games survey. By choosing to approximate exposure to FBMs as opposed to *exposure to FBMs at an unusually high rate*, this study slightly lost its focus, and the FBM score does not quite target the exact experience that it intended to. This is, aside from the ignorance of non-vocal backchannels, the major flaw of this work.

Beyond this, despite 144 games being rated, this is still a considerable approximation of people's gaming experience. For example, further to the observation that Nintendo games featured highly in the top category for FBM reliance, there are certain Nintendo-published game series that were not considered at all (*Kirby, Xenoblade, Pikmin, Luigi's Mansion, Metroid*, to name a few). A measure such as this can never encapsulate the full range of gaming experiences, but perhaps more investigation into what series or titles participants were familiar with would have helped to demarcate different levels of FBM exposure.

Similarly, there are confounding factors that were not accounted for during the data collection process: for example, some participants reported having received training on active listening. It is possible that some, or all, of the participants who backchannelled at particularly high rates did so for reasons entirely unrelated to their gaming experiences: in order to further isolate this as a variable, future study should either design more complex methods for eliminating confounds or use a very large sample size (perhaps in the form of corpora) to attenuate the impact of individual variation. If specific research aims are to definitively confirm or deny the effect proposed here, greater numbers will be needed.

Initially, this study intended to derive participants' backchannel rates using backchannels per utterance as a measure. However, 500 minutes of talk proved too much to transcribe accurately with only one researcher, meaning that it was not easy to generate numbers of utterances for each individual speaker. Although backchannels per minute has been used in previous studies, there are several other options for calculating rates of backchannels: Ike (2009) uses seconds and words between backchannels; Pluszczyk (2013) standardises each conversation by number of turns; Vinciarelli et al (2015) predict how many backchannels they expect to see and calculate a relative measure of how many they actually saw. Reviewing this same dataset with one of these measures could perhaps be more illustrative of backchannelling differences between speakers. However, backchannels per minute has proven serviceable in a number of other studies; this should not be taken as a flaw as much as a choice whose alternatives may be equally worth investigating.

Further issues with the present methodology include a perceived difference in map difficulty. Many participants expressed surprise when beginning Map Pair 3, stating that it was significantly more complex than the others, although the number of icons and degree of variability between maps had been standardised. Despite these attempts, participants may have spoken more while solving Map Pair 3, skewing backchannel rates. Additionally, a number of smaller potential methodological concerns revealed themselves throughout the course of the study – the self-description of regional dialect, the sole rater of the audio files, inclusion of talk between tasks, inclusion of as many participants as possible at the expense of keeping participants at similar ages – while all accounted for here, they do potentially limit the power of any conclusions drawn from this data, and should be carefully considered in future. It must also be remembered that in the present study visual and bimodal backchannels were entirely excluded: one obvious flaw with this is that perhaps participants who backchannelled infrequently did not actually do so but rather were nodding to provide feedback, going unnoticed in the audio recordings. Whether it was a sensible decision to limit the investigation to vocal backchannels is debatable, but given people's reticence to take part in unincentivized research that relies on video (or even audio) recordings, it was a necessity for research at this level.

Again, this study is limited to providing some evidence that it *may* be the case that gamers backchannel more than non-gamers. With more researchers, more participants, more detailed data collection, and the elimination of the other issues listed above, a much more robust and detailed experiment could be run. This could hopefully provide a much more representative idea of the true incidence of all kinds of backchannel behaviours and how they pattern with gaming.

7. CONCLUSIONS

This study intended to scientifically evaluate a group of *Pokémon* players' impressions that they backchannel more than the average person. Through a detailed explanation of how the current literature shows that this is not an outlandish question, and a novel theoretical interpretation of gameplay mechanics as found in the game *Pokémon White* (Nintendo, 2010), I motivated study into this conversational behaviour's interaction with playing video games. Based on recommendations from previous experiments, I used the Map Task paradigm to generate pseudo-naturalistic speech in dyads of young adults from around the UK. Despite oversights that did not become apparent until the testing process, this empirical study provided limited evidence that gamers may backchannel slightly more than non-gamers, and that this is intensified when specifically investigating gaming experiences that use mechanisms akin to backchannelling. Results were not statistically significant, but this is not to say that they are meaningless: it motivates further investigation of similar research questions and suggests that gaming may well interact with backchannelling.

The implications of this are broad. Firstly, it reiterates that linguists may not yet have a full picture of what conditions backchannelling. If gaming can be added to the list of variation-causing traits, then what else could? It also underscores that gaming as a hobby could affect linguistic behaviour far beyond the domain of the game itself. Where previous studies have interrogated speech related to or during the act of gaming, this investigation attempts to find lasting effects of gaming on language, even when people are not thinking about it. Admittedly, the Map Task is not *un*like a game, and participants knew that the research was somehow related to gaming; but many of them reported getting "lost in the task" and did not know about the focus on backchannelling behaviour. When participants are put in an environment that does not invoke any specific gaming experience, there is potential that their linguistic behaviours are conditioned by their gaming habits. This alone reiterates the importance of certain future avenues of study.

Overall, this investigation brings the field only very slightly closer to understanding the observation from the start. It is still as yet unproven that the *Pokémon* players from the beginning really did backchannel more, and if so, whether this was linked to their gaming habits. Methodological refinements and larger samples are needed to determine this. Hopefully, though, this study has shown that the impact of gaming on speech and backchannelling in particular is a worthwhile area of investigation – and perhaps brings us a step towards understanding conversational support between speakers and listeners.

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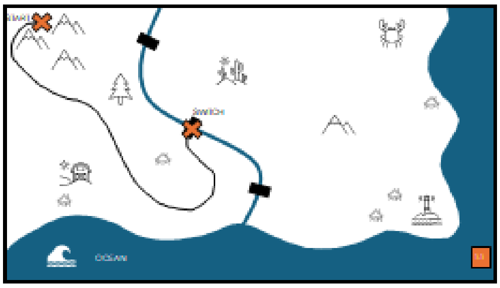
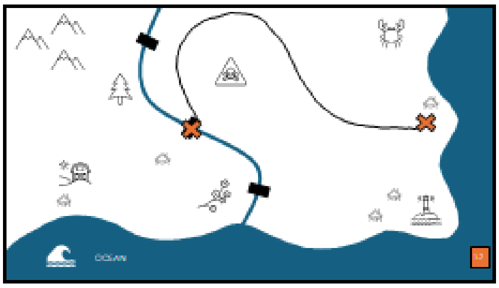
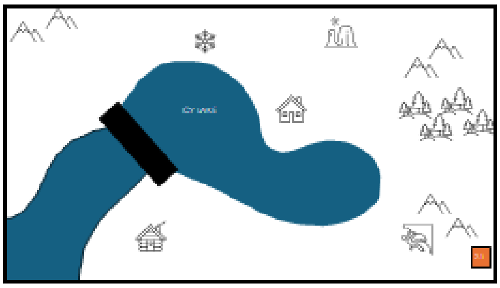
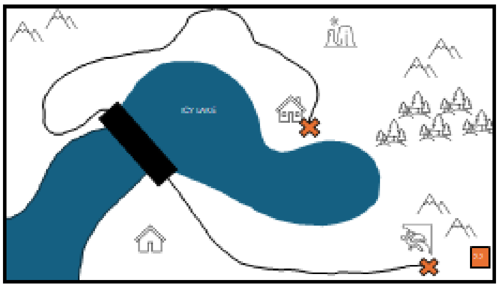
APPENDICES

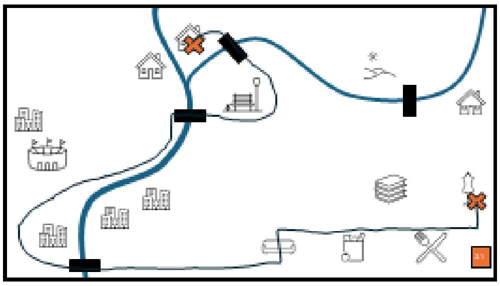
APPENDIX 1: MAPS

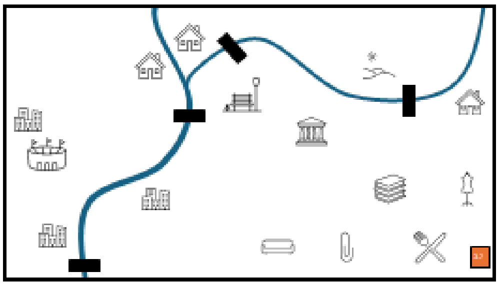












APPENDIX 2: PARTICIPANT DEMOGRAPHIC FORM

FOR RESEARCHER USE:

Pseudonym: Date/Time of Data Collection:

PARTICIPANT DEMOGRAPHIC QUESTIONS

All information will be anonymised. Your name will not be associated with it.

PART 1

What is your age? _____________

How do you describe your gender? _____________

What is your native language? _____________

How would you describe your accent or dialect?? (If unsure – where did you grow up?) _____________

PART 2

Please circle as appropriate.

1. Do you consider yourself, or have you ever considered yourself, a "gamer"?

Yes	No

2. How often did you play video games growing up?

Most days	A few times a week	Once a week	A few times a month	Less than this

3. How often do you play games now?

Most days	A few times a week	Once a week	A few times a month	Less than this

This research is concerned in part with the *kinds* of games you are used to playing. The following questions aim to create an image of this. Please answer in a way that reflects your preferences, habits, and experiences; there will be an open answer space to make any comments you feel are relevant. There is no limit to how many answers you can circle for each question. Bear in mind there is no right way to answer!

(Please turn over – form continues on reverse)

4. What kinds of games would you typically play? (as many as relevant)

Singleplayer	Multiplayer	First-Person Shooter	Story-driven	Choice-based
Strategy/puzzle-solving	RPG/JRPG	Visual novel	Battle royale	Other
PC	Console	Handheld	Mobile	*I did not play games*

5. Are any of these franchises/games particularly important to you?

Pokémon	Call of Duty	Animal Crossing	Warioware	Tony Hawk's Underground	Super Mario Bros (Mainline)	Rayman
Kingdom Hearts	Wii Fit	Overwatch	Mario & Sonic at the Olympic Games	FIFA	Splatoon	Mario Kart
Super Smash Bros	Mario Party	Okami	Final Fantasy	Stardew Valley	Mario Galaxy	Halo
Minecraft	Fortnite	Among Us	Grand Theft Auto	Overcooked	Just Dance	The Legend of Zelda
Wii Party	Skylanders	The Last of Us	Sonic (Mainline)	League of Legends	Five Nights at Freddy's	Far Cry
Sims	Team Fortress 2	Monster Hunter	Skyrim	CS:Go	Doki Doki Literature Club	Super Paper Mario
Final Fantasy	Fallout	Ace Attorney	Professor Layton	Genshin Impact	Steins; Gate	*I did not play games*

6. Are there any other games not mentioned here that you feel you played a lot or were otherwise important to you? Or do you have any other information you feel is relevant?

APPENDIX 3: TABLE OF GAMES AND SCORES

Game/Franchise Title	Platform	Rating
Pokémon Scarlet and Violet	Nintendo Switch	3
Pokémon Sun and Moon	Nintendo 3DS	3
Animal Crossing New Horizons	Nintendo Switch	3
Animal Crossing New Leaf	Nintendo 3DS	3
Doki Doki Literature Club	PC (watched)	3
Phoenix Wright: Ace Attorney	Game Boy Advance (Watched)	3
Phoenix Wright: Trials and Tribulations	Nintendo DS (Watched)	3
Steins; Gate	PC (Watched)	3
Professor Layton and the Curious Village	Nintendo DS (Watched)	2
Professor Layton and the Last Specter	Nintendo DS (Watched)	2
Monster Hunter 4 Ultimate	Nintendo DS (Watched)	2
Stardew Valley	Nintendo Switch	2
Wii Fit	Nintendo Wii	2
Wii Party	Nintendo Wii	2
Tony Hawk's Underground	PlayStation 2	2
Kingdom Hearts	PlayStation 2	2
The Legend of Zelda: Breath of the Wild	Nintendo Switch	2
The Legend of Zelda: Twilight Princess	Nintendo Wii	2
The Legend of Zelda: Majora's Mask	Nintendo 64	2
Okami	Wii	2
Sonic Unleashed	Nintendo Wii	2
Super Paper Mario	Nintendo Wii	2
Mario Galaxy	Nintendo Wii	2
Mario Party 8	Nintendo Wii	2
Rayman Revolution	PlayStation 2	1
Final Fantasy X	PlayStation 2	1

PES 2010	PlayStation 2	1
Chicken Run	PlayStation 2	1
Ratchet and Clank	PlayStation 2	1
Warioware: Smooth Moves	Nintendo Wii	1
Mario and Sonic at the Olympic Games 2012	Nintendo Wii	1
Mario and Sonic at the Olympic Games 2020	Nintendo Switch	1
Monster Hunter: Rise	Nintendo Switch (Watched)	1
Genshin Impact	PC (Watched)	1
Assassin's Creed: Black Flag	Nintendo Switch	1
Splatoon	Nintendo Wii U	1
Overcooked 2	Nintendo Switch	1
Donkey Kong Country Returns	Nintendo Wii	1
Super Smash Bros Ultimate	Nintendo Switch	1
FIFA 25	PlayStation 4	1
Diablo 3	PC	1
Minecraft	PC	0
Among Us	Mobile	0
Guitar Hero	Nintendo Wii	0
Rock Band	Nintendo Wii	0
Wii Play	Nintendo Wii	0
Just Dance 4	Nintendo Wii	0
Mario Kart Wii	Nintendo Wii	0
Mario Kart 8	Nintendo Switch	0
Star Wars: Pod Racer	PlayStation 2	0
Rayman Raving Rabbids	PlayStation 2	0
Rayman Raving Rabbids: TV Party	Nintendo Wii	0
Cars	PlayStation 2	0
Quake III	PlayStation 2	0
Transformers	PlayStation 2	0
Spyro: Reignited Trilogy	Nintendo Switch	0
Wii Sports	Nintendo Wii	0
God of War 2	PlayStation 2	0
Crash Bandicoot: The Wrath of Cortex	PlayStation 2	0

Simpsons Hit and Run	PlayStation 2	0
Tom Clancy's Splinter Cell	PlayStation 2	0
Alpine Skater 3	PlayStation 2	0
NFL 2010	PlayStation 2	0
Super Mario Bros Wii	Nintendo Wii	0
Skylanders	Nintendo Wii	0
Skylanders: Swap Force	Nintendo Wii U	0
Call of Duty Finest Hour	PlayStation 2	0
Call of Duty Black Ops 3	PlayStation 4	0
Sonic Heroes	PlayStation 2	0
Lethal Company	PC	0
Terraria	PC	0
Monkey Island	PC	0
Red Dead Redemption 2	PlayStation 4	0
The Last of Us	PlayStation 4	0
Uncharted 4	PlayStation 4	0
Far Cry 5	PlayStation 4	0
Bloons: Tower Defense	PC (Watched)	0
Five Nights at Freddy's	PC	0
Five Nights at Freddy's: Security Breach	Nintendo Switch	0
The Quarry	PlayStation 4	0
Detroit: Become Human	PlayStation 4	0
Clash of Clans	Mobile	0
The Legend of Zelda	Nintendo Switch (NES virtual console)	0
League of Legends	PC	0
Sims 4	PC	0
Sims 3	PC (watched)	0
Overwatch	PC (watched)	0
Elden Ring	PC (watched)	0
Halo 2	Xbox 360 (watched)	0
Grand Theft Auto V	PC (watched)	0
Team Fortress 2	PC (watched)	0
The Elder Scrolls: Skyrim	Nintendo Switch (Watched)	0
Fallout 4	PC	0
Player Unknown: Battlegrounds	PC	0
The Witcher 3: Wild Hunt	PC	0

Counter Strike: Global Offensive	PC	0
Cyberpunk 2077	PC	0
Baldur's Gate 3	PC	0
Left 4 Dead	PC	0
ADDITIONAL GAMES FROM DEMOGRAPHIC FORM RESPONSES	//////////////////////////////////	////////////////////////////////
My Sims	Nintendo DS (watched)	2
Undertale	PC	2
Fire Emblem	Game Boy Advance (watched)	2
Factorio	PC (watched)	1
Oblivion	PC (watched)	1
LEGO Star Wars	Gamecube (watched)	1
LEGO Indiana Jones	DS (watched)	1
LEGO Pirates of the Caribbean	DS (watched)	1
LEGO Batman	DS (watched)	1
Dark Souls III	PC (watched)	1
Slay the Spire	PC (watched)	1
Clash Royale	Mobile (watched)	1
Clash of Clans	Mobile	1
Starfield	PC (watched)	1
Rocket League	PC (watched)	1
Sea of Thieves	PC (watched)	1
Marvel's Spiderman	PS4 (watched)	1
Pokémon TCG Live	PC (watched)	1
RimWorld	PC (watched)	1
Age of Empires III	PC (watched)	1
Apex Legends	PC (watched)	0
Star Wars Fallen Order	PS5 (watched)	0
ULTRAKILL	PC (watched)	0
Batman Arkham	PC (watched)	0
Titanfall 2	PC (watched)	0
Just Cause 3	PS4 (watched)	0
Assassin's Creed Odyssey	Xbox One (watched)	0
For Honor	PC (watched)	0
Sonic All Stars Racing	Wii U (watched)	0

It Takes Two	PS4 (watched)	0
Rainbow 6 Siege	PC (watched)	0
Star Wars Battlefront	PC (watched)	0
Plants vs Zombies	Xbox 360 (360)	0
Crusader Kings 3	PC (watched)	0
Marvel Rivals	PC (watched)	0
Hogwarts Legacy	PS4 (watched)	0
Borderlands	PC (watched)	0
Club Penguin	PC (watched)	0
Portal 1	PC (watched)	0
Portal 2	PC (watched)	0
Smite	PC (watched)	0
Gran Torismo	Ps4 (watched)	0
Red Dead Redemption	Xbox 360 (watched)	0
Motherload	PC (watched)	0
Hearts of Iron	PC (watched)	0