Engaging in Videogame Play: An Activity-Centric Analysis of the Player Experience

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ABSTRACT
This paper focuses on examining play activities in people's favourite videogame experience. Through interviews with 30 videogame players we discovered which types of play activities are most appealing. Our research identifies the level of appeal of a wide range of game play activities. We have established that high levels of engagement for many participants is grounded in play as power and play as strategy, with play as fantasy adding to the experience. Through our study we established that conflict-based activities hold strong appeal. We subsequently investigated the context in which players talked about their experience of conflict within game. By using activities as a categorisation of gameplay we have been able to capture the play experience across a range of games and a range of gaming contexts. By examining players' individual experience we begin to understand why conflict in videogames appears to be a popular choice of activities.

Author Keywords
Videogames; Conflict; Activities; Player Experience

ACM Classification Keywords
K.8.0 [**Personal Computing**]: General, Games

INTRODUCTION
The interactions of videogame players are driven by individual preferences and game play evolves as a function of these preferences. Game design is focused on tapping into these preferences and on understanding what makes a particular experience fun for a particular person or group of people. Research has sought to categorise and classify these preferences, grouping the play styles of videogame players as they play certain types of games (Bartle, 1996; Bateman & Boon, 2006; Bateman, Lowenhaupt, & Nacke, 2011; Nacke, Bateman, & Mandryk, 2011). Rather than take a player-centric view of preference, that is to consider players as explorers or achievers (Bartle, 1996), or conquerors or managers (Bateman & Boon, 2006), our focus has been examine player preferences from an activity-centric perspective. We're interested in how individual preferences are manifest through the play activities in which people engage.

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As with the design of any user-centred system, game designers are interested in determining the activities that a game should offer the user within a particular context (Benyon, 2010; Nardi, 1996). We must understand the things that players want to do in a game and why they want to do them, in order to understand and effectively design the game (Ermi & Mäyrä, 2007). The moment-to-moment actions that occur during game play are core to the player experience; they are representative of individual preferences and are derived from individual motivations and intentions.

Terminology around the way in which players achieve goals and interact within a videogame environment varies – game literature describes this as players being involved in activities (Fabricatore, 2007), engaging in challenges (Adams, 2014) and dealing with conflict (Crawford, 2003). In general terms, it is through player actions to overcome a series of challenges that the overall goal of a game is accomplished (Adams, 2014). The research reported in this paper examines players' preferences for certain game play activities, in an entertainment setting. At a high level the research allows us to identify patterns in activity choice and the relationship between activities undertaken and the games being discussed. More specifically, the research exposes the details of player activity preferences and examines how particular game contexts create differences in how an activity is experienced.

We believe that an advantage of our approach is that it is neither game-centric (i.e. focused on examining activity preferences in a particular game or genre) nor is it focused on classifying players in relation to their preferences (i.e. focused on determining player types). Through examining in-game play activity, we are able to establish how *many* activity preferences might be manifest within *one* game or genre, or how *one* activity preference might emerge across *many* games and genres. For example, the activity such as *learning combination moves* may refer to learning how to execute the special techniques in Tekken, or it may refer to learning about the strength and weaknesses of elemental moves in Pokémon. In Pokémon, the appeal of other activity types, such as *defeating enemy forces* in the form of defeating other Pokémon trainers, may emerge.

The core aim of this research is to advance our knowledge of engagement and motivation as a function of the play activity choices that emerge through a person's interaction with a game environment. It is anticipated that this understanding of engagement through play *activity* might lead to new insights on how to design engaging activities across a range of software applications. We use play theories to frame our analysis of game activities, thereby allowing for a deeper understanding of how game activities align with cultural conceptualisations of play.

PLAY ACTIVITY AND GAMES

Play is a form of human interaction which can be difficult to describe (Rieber, 1996; Smith-Sutton, 1997). Play is a freely chosen (Ellis, 1973), enjoyable and voluntary activity that is intrinsic and doesn't depend on external rewards (Csikszentmihalyi, 1975). Caillois (1961) adds that play is unproductive and uncertain; meaning that no outcome is required during play, and that any outcomes should not be predictable.

Play is an interlinking concept with games (Salen & Zimmerman, 2004) and a game is a type of play activity (Adams, 2014) that allows us to take risks, avoid fear of failure, be autonomous, create something new and/or actively engage our minds and our bodies. Play becomes a game when it is formalized through rules, and these rules provide playful behaviours with context to create a meaningful experience (Juul, 2011; Salen & Zimmerman, 2004). In a similar fashion, videogames stripped of their contexts are a series of playful actions. There is a mistaken belief that the act of playing is always easy or childlike, however playful activities in which we partake as we grow become more challenging (e.g., music or sports) (Rieber, 1996).

Play has been classified in terms of distinctive patterns. Based on analysis of a number of play theories we've identified four key themes:

- Power – play as power represents play which relates to competition, conflict or involved in a contest (Rieber, 1996). Such play that brings opponents into direct competition with one-another is defined as Agôn by Caillois (1961). Typically play outcomes can be determined by physical ability (Roberts, Arth, & Bush, 1959).
- Chance – play outcomes are determined through moves that are generated through some system of chance (e.g., rolling a die) (Roberts et al., 1959). Sutton-Smith (Pellegrini, 1995; Rieber, 1996) defines this as a rhetoric of fate, and Caillois labels such games Alea (Caillois, 1961).
- Fantasy – play that involve players using their imagination to pretend to do or be something other than reality have been defined by Caillois as Mimicry; it exists in a make believe state. Such play is categorized by Sutton-Smith as a rhetoric of play as the imaginary.
- Strategy – play outcomes that can be determined through a serious of moves that derive from a choice of alternatives (Roberts et al., 1959).

Despite the advancement of technology that has allowed games to move from the physical to the virtual world, these categorisations of play remain relevant. Videogames, just as normal games, may be broken down into a system and include basic design components such as challenge, goals, feedback and rewards (Salen & Zimmerman, 2004; Schuytema, 2007).

Game activities are the things that players do in game in both directed and non-directed play. Activities encompass challenges, i.e. the things players can do to overcome obstacles and conflict, and include goal driven behaviours and player-driven gameplay (Fabricatore, 2007). While there have been high-level definitions of the activities that take place in games in terms of combat (Björk & Holopainen, 2004; Ermi & Mäyrä, 2007) , solving, creating, exploration (Ermi & Mäyrä, 2007), movement, manoeuvring, construction, and collecting (Björk & Holopainen, 2004), the most comprehensive consideration of in-game activities has been undertaken by Adams (Adams, 2014).

Adams (2014) comprehensive list of common activities players can do in games has been used as a starting point for this research study. He considers these activities in 10 categories – physical coordination, formal logic, pattern recognition, time pressure, memory and knowledge, exploring, conflict, economic, conceptual reasoning, and creation/construction. Activity types (Adams, 2014) included in each category are:

- Physical coordination: speed and reaction time; accuracy or precision; timing and rhythm; learning a combination of moves
- Formal logic: deduction and decoding
- Pattern recognition: static patterns; patterns of movement and change
- Time pressure: beating the clock; achieving something before someone else
- Memory and knowledge: trivia; recollection of objects or patterns
- Exploring: identifying spatial relationships; finding keys; finding hidden passages; mazes and illogical spaces
- Conflict: strategy, tactics and logistics; survival; reduction of enemy forces; defending vulnerable items or units; stealth
- Economic: accumulating resources or points; detecting hidden meaning; achieving balance or stability in a system; caring for living things
- Conceptual reasoning: sifting clues from red herrings; detecting hidden meanings; understanding social relationships; lateral thinking
- Creation / construction: aesthetic success; Construction with a functional goal

PLAY ACTIVITY STUDY

We conducted interviews with 30 videogame players to better understand the activities that they engage in during their favourite game and investigate how activity preferences emerge across different types of games.

Participants

Interviews were conducted in order to gain insight into the participants' in-game experiences, and their preferences with respect to gameplay activities. There was no particular restriction on recruitment other than that participants must play videogames. The aim was to gather a wide range of data from the gaming community regardless of frequency of play. Perspective participants were approached face-to-face from around the Engineering and Technology precinct of the university, via email, and via Facebook event invitation. Thirty participants took part in the study. The average age of participant was 26.6 years, with 23 male and seven female participants.

Procedures

Interviews were conducted individually and took approximately 10-20 minutes. Participants were given a stack of cards and asked to take a moment to pick out the five or six terms on cards that best describe the activities in their favourite gaming experience. The terms were based on Adams (2014) comprehensive list of common game play activities. There were 30 cards; each card included one activity and an example or definition of that activity (see Figure 1). For example, the card labelled Beating the Clock included the description 'Do something before time runs out, e.g. Frogger' and Sifting Clues from Red Herrings included the description 'Finding clues or leads amongst information designed specifically to be misleading'. Each card belonged to one of the ten activity categories identified by Adams (2014). Participants were asked to discuss their activity choices in relation to their favourite gaming experience. Interviews were audio recorded and the interviewer also took notes.

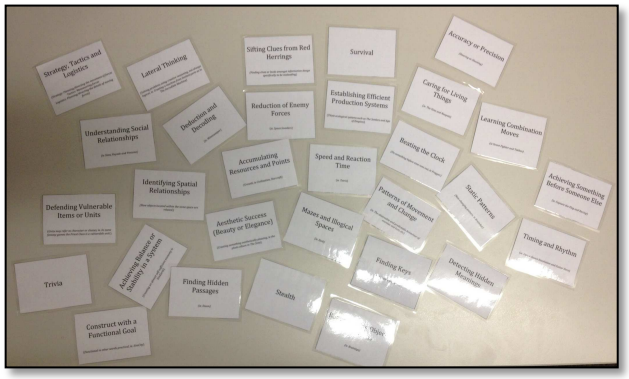

Figure 1: Play Activity Cards

Analysis

The interview data was analysed by looking at the frequency and type of activity choices in relation to the favourite game experiences identified by participants. We grouped all participant comments together that reflected our interest in activity preferences with respect to play experience qualities. This research used Adams 10 activity categories and subsequent 30 activities to structure our analysis of the comments, and also considered how comments related to the four themes that have emerge from the literature, e.g., (Caillois, 1961; Henricks; Pellegrini, 1995; Rieber, 1996; Roberts et al., 1959).

RESULTS

Activity Card Selection

With respect to the activity choices participants made from the selection available on the cards, the 30 participants selected 153 activity instances across the ten challenge categories. *Survival* was the most common selected activity with 18 participants choosing this activity card. This was followed by *strategy, tactics and logistics* (15), *accuracy and precision* (14), *speed and reaction time* (12) and *reduction of enemy forces* (11).

Activity Choice by Category and Play Theme

All participant selected activities from a range of Adams' categories. Six participants selected activities from two categories, 11 participants selected activities from three and four challenge categories respectively, and two participants selected activities from five activity categories.

As seen in Figure 1, conflict-based activities were the most frequently chosen in the study with 56 activity choices coming from Adam's (2014) conflict category. Of the 30 participants, 26 of them selected at least one conflict-based activity. These experiences covered the spectrum of game genres from first person shooter games, to role playing games, strategy games and casual games.

Next was physical coordination with 35 instances. Twenty-two participants selected at least one activity from the physical coordination category as a favourite activity. Five participants selected activities that came entirely from the conflict and physical coordination categories.

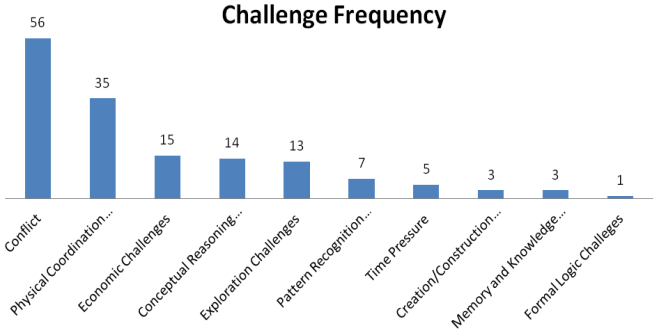

Figure 2. Frequency of activity choices

While conflict and physical coordination are separate categories in Adam's classification, both may be considered in relation to the theme of play as power. The conflict categories of *survival* and *reduction of enemy forces* can be seen as clearly aligning with this theme, as do *speed and reaction time*, and *accuracy and precision*. Within the study, approximately one third of favourite activity choices (55 of the 153) were from these four classes of activity. Only one participant discussed

activities in a favourite gameplay experience (during a turn-based role playing game) that did not involve conflict or physical coordination. While the time pressure category activity of *achieving something before someone else* may also be considered within the play as power theme (a contest), only three people selected it as one of their favourites.

The other Adams categories with over 10 activity choices represented were economic, conceptual reasoning and exploration. Within the economic category *accumulating resources and points* was the most popular, being selected by nine participants, while players were most likely to enjoy *finding hidden passages* (7) as a part of exploration and *detecting hidden messages* and *lateral thinking* (both identified by 6 participants) as part of conceptual reasoning.

It can be seen that activities related to the theme of play as strategy were well represented in participant choices. In contrast to play as power, activities related to this theme are spread across a number of Adam's categories. Examples include [conflict] *strategy, tactics and logistics* (15), [economic] *accumulating resources and points* (9), [physical coordination] *learning a combination of moves* (8), [pattern recognition] *patterns of movement and change* (7) and [conceptual reasoning] *detecting hidden messages* (6).

CONFLICT AS A PLAY ACTIVITY

Based on the prevalence of conflict-based activities identified by study participants, we decided to delve more deeply into how conflict is experienced by videogame players. In an attempt to define the nature of videogames, researchers have identified conflict as central to games, through a contest of powers (Salen & Zimmerman, 2004; Wolf, 2001), where that contest can take many forms (Salen & Zimmerman, 2004), and arising when a player versus an opponent or circumstance within a game (Salen & Zimmerman, 2004; Wolf, 2001). According to Emi and Mäyrä (2007) combat (as in conflict) has been identified as having a significant impact on the play experience. While others identify conflict as a subcategory of challenge (Adams, 2014; Crawford, 2003), it is still seen as any obstruction to success (Crawford, 2003) created by the direct opposition of forces (Adams, 2014).

Looking at literature pertaining to play and games, many explanations for the ubiquity of play activities can be linked back to conflict. For example, economics can be explained as an indirect form of conflict (Crawford, 2003), strategy is employed to address conflict (Adams, 2014), physical activities such as hunting and boxing exhibit conflict qualities (Roberts et al., 1959), and both play as power (Pellegrini, 1995) and agôn (Caillois, 1961) embed qualities of conflict.

Adam's (2014) provides the following definitions for his four classes of conflict activity:

- *Strategy, tactics and logistics* essentially involves planning a course of action and executing it.
- *Survival* is the primary objective of games that use conflict based challenges. In some games surviving is the victory condition, while in others you must survive in order to continue playing.
- *Reduction of enemy forces* is a combative activity and is usually linked with killing or destroying enemies. Reduction of enemy forces may be considered opposite to survival, with the player's focus on destroying enemies in order to win or continue the game.
- *Defending vulnerable items* or units occurs when the items or units are unable to defend themselves from conflict or are of great importance.
- *Stealth* based activities require players to execute actions without detection. Sometimes this is the purpose of the game, resulting in a loss if detected; other times it is a means to another goal, for example sneaking past a large number of enemies to collect a reward.

Participants selected activities across all five conflict activity classes. As mentioned earlier *survival* was the most common activity class identified by participants in the conflict category, followed by *strategy, tactics and logistics* and *reduction of enemy forces* (see Figure 2).

We chose to examine activity in more detail in those activity classes where there were greater than 10 instances selected by study participants: survival; strategy, tactics and logistics; and reduction of enemy forces.

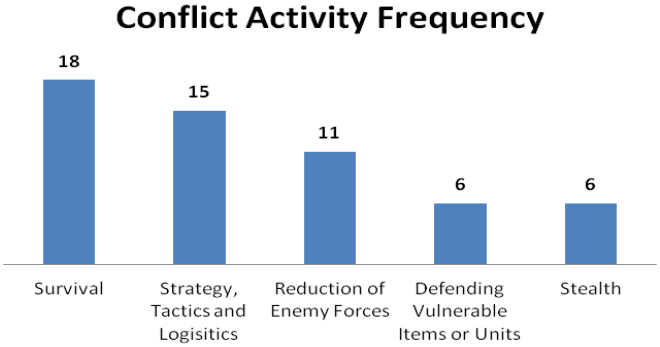

Figure 3. The frequency of conflict activities

Conflict Contexts and Themes

Survival

Survival is a common activity in games. Through our discussion with study participants we have established that survival activity is treated differently or with a varying level of importance.

There were several themes that emerged when exploring how players experienced survival. One of these themes was surviving to continue the game. Often games include surviving as a tacit objective to continue the game. For example in a shooting based game such as Battlefield 3 players must survive in order to continue and win the game. When they die players may no longer compete in that round; they must wait until the other players win the round.

This idea of survival directly pitches one player against another or against the system. *"Well, you know, you can't*

play the game unless you survive…" (P21, Excelsior); *"… making sure you're alive and carrying on with the storyline."* (P29, Baldur's Gate).

Another dominant theme from those players who identified survival as a favourite activity relates to the reciprocal nature of survival, that is the idea of 'kill or be killed'. In such a context survival activity is explicated related to power and the competition that comes from a direct contest (Pellegrini, 1995), *"trying to kill the enemy before they kill me, for example, so you can complete the task at hand."* (P10, Battlefield 3); *"…survival is you know, staying alive while, before you … you have to kill all the bad guys."* (P11, Outlaws).

While survival might generally be considered in terms of a physical battle, there were other forms of survival discussed by study participants. For example in the puzzle game Candy Crush, P13 stated "*sometimes you need to be very careful about … matchings you are going to get together to survive … the level*".

From the way that interview participants discuss survival, its appeal as an in-game activity may be explained through notions of competition, agôn and power. Survival results from thwarting other players (the case with a game like Battlefield 3) or the system (the case with Candy Crush). Generally, it is not a passive activity; players are attempting to survive an opposing force that is acting in opposition to them.

Reduction of Enemy Forces

Reduction of enemy forces essentially refers to killing or destroying opposing players or characters. For example in Spyro: Year of the Dragon you breathe fire at the enemy to defeat the opponent and in Battlefield 3 the player will shoot enemies in a realistic death style. While conquering opponents in Spyro seems much more benign, it is still in essence reducing the number of enemies on the field in the same way as those playing Battlefield 3.

It is perhaps unsurprising that a majority of the games that were said to include reduction of enemy forces were shooter games (e.g., Halo 4 and Outlaws) or included shooting elements (e.g., Mass Effect 2). It is interesting however that, given the fact that one third of the participants chose a first person or third person game as their favourite, the reduction of enemy forces activity wasn't selected as a favourite activity on more occasions. While there may be a perception that players of these games are largely focused on "killing stuff", clearly players of these types of games are enjoying a much broader range of activities either within the conflict category or beyond it.

There is a close relationship between survival and reduction of enemy forces. Of those participants who selected the reduction of enemy forces activity category, almost all indicated that survival was a favourite activity. *"I think survival and reduction of enemy forces kind of links in together 'cos um in the particular arena there a section where it's surviving the waves of enemies…"* (P2, Uncharted).

Another common motivation for the reduction of enemy focuses included killing enemies to get through the game or get to a boss, *"Reduction of enemy forces, as in to get to the boss, you had to kill pretty much everything else."* (P11, Outlaws); *"…like I said you have to fight your way forward…"* (P19, Mass Effect 2); *"Well, so there would be monsters, you'd have to fight them or they would just follow you, so you have to reduce the enemy forces to keep going."*(P21, Excelsior).

In Excelsior, rather than the enemies being a direct obstacle to the player, they appear to slow the player down. Reduction of enemy forces may not be an end in itself, but closely associated with performing well and victory. In a more direct sense than survival activities, reduction of enemy forces is a contest and participants in the study used words like *"kill", "survive"* and *"fight*" to describe actions at the core of this activity class. In this case, players are directly competing with other players or game AI, where killing enemies represents a mechanism for achieving survival (often survival can be the victory condition). Play as power is central to the activity.

Strategy, Tactics and Logistics

Strategy, Tactics and Logistics appears to be the most ambiguous and overarching activity class. Many games include strategy. While most obvious within strategy games, these activities also emerge in role-playing games and battle arenas as the creation of certain characters classes involves strategy. For example in DOTA the Demon Witch is best suited to using disabling spells and support roles, as opposed to rushing in to attack opponents directly *"make sure that I find the right lane for me, like for example, because Demon Witch is very good if, you know if the opponent has low HP, so I tend to find where is that lane. Yep, so yeah, I try to match up my skills with the opponent."* (P18, DOTA).

Strategy, tactics and logistics activities may include character development elements associated with selection of weapons, armours, and the strategy that surrounds encounters with enemies with specific abilities, strengths and weaknesses. Given the breadth of this activity class, it is unsurprising that participants' favourite experiences would be focused on a much wider range of games than reduction of enemy forces. While the previous activity class drew more shooting based games, players who enjoyed strategy, role-playing, action adventure and casual games included strategy, tactics and logistics as a favourite activity. The common themes of strategy, tactics and logistics are centred on learning and planning, and killing.

While strategy, tactics and logistics activities are not common in action and shooting games (Adams, 2014), participants who play war/combat based games within our study planned tactics to defeat opponents,*"…you're fighting towards your target and then you're fighting your way out. Ah so, your tactics basically, you have command of your two team mates so you could say go to that cover and suppress that target or try and destroy that target while I, you can run up to the right hand side and flank them…"* (P19, Mass Effect 2).

Players planned their responses to the games challenges. However often planning and strategy can be a learning process, which came across as another theme with participants. For example, while playing Battlefield 3, one participant experienced learning in strategy, tactics and logistics by playing the game multiple times, *"…when you play a game over and over you begin to learn the best strategy for attacking a certain position, or the best strategy maybe then you're flying a helicopter, when there is anti-aircraft machines there you can make a strategy to go around them or behind them in another objective."* (P10, Battlefield 3); *"… you knew at that point to start shooting as soon as you can, 'cos if you wait any time at that point, it was learning that as well. I thought that was a cinematic at one point when it picked me up…I didn't realise that because it never happened to me at any other point in the game…"* (P9, Dead Space). For these participants, strategy, tactics and logistics appear to be a learning process of trial and error to discover the best way to play the game.

Even when players discuss the learning of strategies, tactics and logistics, in many instances they were being discussed in relation to how they would help with killing, *"Um, so there was different scenarios where they were hard like this large mass of enemies that you have to sort of overcome; and they have superior firepower so if you just come in, you just get wasted, um which is whatever, so yeah, you just use some form of tactics."* (P16, Red Dead Redemption*); "…it's about utilising your team as a whole to have the best outcome when trying to kill the enemies and stuff like that."* (P29, Baldur's Gate).

Strategy, tactics and logistics can represent three forms of play, including play as progress as players are often encouraged to think creatively and learn new strategies for eliminating enemies. Clearly, players engage in fantasy and mimicry, through *"flying a helicopter"*, having *"superior firepower"* and *"find cover"*. For a majority of players who selected strategy, tactics and logistics, the focus is on using this activity to overcome and defeat enemies, which again links back to play as power and agôn as the player competes with an opposing force.

DISCUSSION

From our study it is clear that play in the form of competition, conflict and contest is very appealing for many game players. They enjoy outcomes that can be determined by physical ability. There was also evidence that strategy oriented play is important and that engagement emerges through making meaningful choices (e.g., as they decide on tactics or manage scarce resources). Fantasy play and play as chance are more likely to indirectly add to the appeal of an experience, adding a layer of excitement to combat or a level of anticipation to puzzle play.

Survival (a category of Conflict) appears to be a largely popular activity and was chosen the most frequently throughout the study. The popularity of the survival class across a range of different games may be related to the fact that it occurs as a major component or a tacit objective in most games.

Strategy, tactics and logistics was the second most popular activity class. Like survival, strategy, tactics and logistics was also chosen across a wide range of games. The frequency of this class may be attributed to that fact that 'strategy, tactics and logistics' can be interpreted very broadly. For example, in the action based games we saw a more traditional army-like concept of strategy, while in RPGs it may relate to character selection.

The physical coordination challenge of *accuracy and precision* was the third most popular activity choice. While not within Adams Conflict category, it does fall within the theme of play as power and reinforces the idea that game players, like many other sports people, enjoy game play that embodies a contest of physical prowess.

Activity Context

Through investigating how people talked about their experience we gained an insight into how different classes of activity may occur within different game contexts for a specific player. For example, while we expect survival in shooting based games, it also occurs in strategy games where the participants need to find a way to survive to maintain their win ratio.

Choice of activity may be impacted by how the game treats 'death'. For example, in Counter-Strike, if a player dies they are forced out of the round but will respawn after a short period of time. However, the death counts against them in their overall score. While in Candy Crush, if the player 'dies' or fails a level five times they are unable to continue the game for an hour, or until a friend in the game gives them a new life. In Mass Effect 2, the choices the player makes may lead to 'permadeath' where a character may be permanently removed from the game. Often the survival/ death paradigm acts as a barrier to the next level or further content of the game. Survival may also be tied in with the social context in which the games are played. For example in Counter-Strike and Battlefield 3 players' kill/survival ratios are compared with other players', surviving to kill more enemies may be tied to bragging rights.

Reduction of enemy forces may be considered the opposite of survival (Adams, 2014). However, as we saw in our study, reduction of enemy forces acted as a mechanism for survival – the participants would kill enemies in order to continue to the next level or meet the boss. Reduction of enemy forces appears less varied in context than survival; it usually refers to the killing of enemies. However the goal of this activity changes with the context of the experience. Most of the time enemies act as a barrier for the boss, the next level or the players' survival.

Strategy is a unique conflict class compared to survival and reduction of enemy forces in that it does not actually relate directly to in-game conflict or the actions used by a player to overcome an opponent. The concept of conflict is founded in the idea of defeating a force (Salen & Zimmerman, 2004; Wolf, 2001), while strategy is more vague and can be very different based on different gaming contexts. Adams (2014) notes that strategy, tactics and logistics are not common in action/shooting-

based games while the rest of the conflict category activities are common; survival and reduction of enemy forces are conflict-focused. However as we saw in our study, strategy tactics and logistics has a range of contexts, from army-like battle tactics to choosing the right kind of character for an RPG, or in Candy Crush where the player is attempting to make the right kind of candy matches to complete the level.

Drawing from the literature, agôn and mimicry emerge as a part of conflict. Agôn represents the very nature of conflict where players are brought into competition with each other; this also links back to play as power. In our conflict activities, agôn was presented by the idea of killing or defeating enemies, which is a common theme across strategy, survival and reduction enemy forces. The relationship is particularly strong between survival and reduction of enemy forces where participants would often use one to refer to the other. However, even strategy dealt broadly with the concept of killing and defeating enemies through planning and executing plans to defeat their opponents. This strong theme of striving for victory reinforces conflict-based activities as play for power. The idea of mimicry is introduced in strategy, tactics and logistics where players put themselves into make believe situations and use military tactics to deal with enemies. Often while strategizing, players are involved in play as progress as they learn the best strategies in order to overcome enemies and win.

Implications for Games Research and Design

The popularity of conflict-based activities reinforces the concept of conflict as a central factor in videogames (Crawford, 2003), as opposed to a subcategory within games (cf. (Adams, 2014)). Adams' (2014) suggests that conflict is a subset of challenges. The popularity of conflict-based activity selection indicates that conflict is central to adult videogame play, creating memorable challenges that engage and motivate.

The nature of conflict-based activities is that players are brought into direct competition with an opposing force (Adams, 2014). When drawing on emotion and games literature we note that players who enjoy overcoming obstacles and like using strategy can experience fiero (feeling triumph over adversity). Such feelings are related to hard fun (Lazzaro, 2005, 2009). and can, in turn, create a sense of mastery over the game (Lazzaro, 2009), and flow, which is represented by the feeling of control over one's own actions and the sense of overcoming difficulty (Lazzaro, 2009; Nakamura & Csikszentmihalyi, 2002).

From a game design perspective it is imperative that expand our view of conflict beyond physical battles that involve fighting and killing. The interaction between survival and strategy activities can be capitalized in a range of different game contexts to motivate play experiences. Conflict as a motivator engages those who love competition, but may also be deeply satisfying to a person who likes to make progress through applying different strategies to overcome obstacles generated by the system. It creates a palate of rich possibilities that allows for fantasy play, exploration of fate and elements of chance. Increasingly, we see survival and strategy emerge as key features of successful casual, puzzle-based games.

Our research has signalled a need to more clearly consider the positive impact that conflict activities may have within game-based learning experiences and gamified applications. The type of hard-fun promoted through these types of activities is considered to be core to motivated playful learning (Resnick, 2004).

Implications for the Software Design

Implicit in much software design is the idea that we are creating the path of least resistance, of minimizing frustration and narrowing the choices available. This appears to make sense in a world where we are short on time, where we need to be productive and where safety and efficiency are quite often crucial. Yet this study has demonstrated that people find highly enjoyable hard activities that embody conflict, competition, strategic challenge and difficult choices. It is probably a mistake to think that these features would transfer well to contexts where multiple failures are not acceptable and where the chance shouldn't be playing a part. But it is interesting to think about the "word processor" game, which pitches you in a typing "battle" with a colleague done the hall, or the email sending game which rewards a high re-use strategy. Maybe it is time to think beyond simple gamification strategies, to take some exciting (and possibly outrageous) steps in redesigning our workplace tools to create experiences that embody powerful play motivations.

Limitations

There were several limitations for this study, including the gender split. Very few females took part in this study. Many of the participants were recruited from the STEM area of the university. This again may have been an impacting factor on the representation of women in the sample – as women are often underrepresented in in STEM areas and there are few women available for participation. A further difficulty which compounded the collection of female participants is the concept of 'gamer' or play games – some women and girls have difficulty with this label and despite playing games do not necessarily consider themselves to be gamers or consider their own gaming experience equal or advanced enough to believe that their experience could be of interest to us or do not consider their experience ample enough to say they 'play games'. If more women had been included we would have seen a wider range of games or a different selection of activities.

Additionally, the sample size is quite small and is not representative of the whole population. Finally, the study was limited by the number of shooting-based games included in the study. While it may be attributed to the popularity of shooting games, it limits our understanding of activities across a range of different games. Future work in this field should focus on gathering a much deeper understanding of activities in a wider variety of games, across the whole gaming experience and for both genders.

CONCLUSION

In this study conflict-based activities appeared to be the most prevalent throughout participants' favourite videogame play experience. By collecting participants' experience of conflict activities we can begin to understand why these activities appear to be popular. Conflict-activities appear in a large number of modern games within a number of different contexts. For some games researchers, conflict appears as a subset of challenges; while others feel that conflict is central to videogame design. These categories have a foundation in literature, where play as power and agôn games. Conflict may be represented as the player being placed in direct competition with an obstacle. Conflict as a core concept may be supported by our study where a majority of participants said that they experienced conflict-activities in their favourite experience.

Future Research

Future research will centre around further identifying activities in games, while conflict activities was the focus of this work, further investigation will go into looking at other activity categories. In addition to this, further work should go to addressing some of the studies limitations, such as the sample of games, by including a much wider variety of games, and looking at conflict in games that are non-conflict orientated; and include a more diverse gender sample, to explore whether the events looked at in this paper are still applicable.

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