Schematically Disruptive Game Design

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ABSTRACT

Many games focus their resources at satiating player 'needs', and meeting perceived expectations that players have of how games should behave and of what constitutes enjoyable, gratifying gameplay. This paper outlines an alternate position on game design – one which focuses on disrupting these expectations, on designing games that players cannot succeed in simply by relying on their pre-acquired gameplay experiences. A critique of current game design trends is offered, and possible future outcomes of these trends analysed. The proposed framework for 'Schematically Disruptive Design' is discussed in relation to the current body of literature, alongside a justification of taking a development-led, horror-focused approach to this research programme. The current position of the research and intended direction of study is lastly outlined, along with the intended application of future results.

Keywords

Schema, schematisation, disruptive gameplay, engagement, horror, development-led research.

INTRODUCTION

When people play games, computer or otherwise, they are usually seeking some form of gratification. When they choose to play a computer game, they expect that game to meet certain requirements that they feel make the process of playing a valuable one. An individual's expectations of how a game should behave and what it should contain may be formed from a combination of past gaming experience, wider life experience and learning, and that person's own worldview. Mental *schema,* as defined by Bartlett (1932), are constructed and updated through a constant process of cognitive learning and adaptation, and these frameworks of knowledge are called upon in order to inform future responses and decision making. This definition was further built upon by Neisser (1976), with other terms also being used for similar meaning such as 'frames' (Minsky, 1974) and 'scripts' (Schank & Abelson, 1977).

Because Schema Theory is such a comfortable fit in many different fields (physiology (Arbib, 1981) and linguistics (Stockwell, 2006) for example), it is not surprising that it has already been discussed in relation to many areas of games research. Indeed, games are particularly suited to its emphasis on learning and adaptation of knowledge due to the evolutionary nature of play. Schemas have been discussed for example in relation to narrative and story-telling (Mandler, 1984, Heliö, 2005), the "pleasures of play" (Lindley

& Sennersten, 2008), and immersion and enjoyment (Douglas & Hargadon, 2000, 2001). Their influence has also been argued against in the form of Linderoth's (2007, 2010) ecological approach. This collection of research is focused on the impact of *meeting* a player's expectations and of readily offering the gratification that they seek from playing; we could call this *schematic game design*. What has yet to be studied to any great degree however is what happens when games do not conform to a player's expectations, to a greater or lesser extent. This research asks if it is still possible to have a commercially viable game that disrupts schema-based player knowledge. Is it possible to keep a player interested and engaged in gameplay whilst employing designs, mechanics and game structures which either alienate the player to some extent, or force them outside of their known 'comfortable' gaming boundaries? Ultimately, could an understanding of such alienating techniques be employed in future design work in order to allow for a far more diverse range of gameplay experiences, rather than relying on model 'templates' that have been shown to work in previous games and are reapplied over and over again with the hope of repeating the same successes.

WHAT IS THE PROBLEM WITH 'SCHEMATIC' GAME DESIGN?

There is an assumption that, in the majority of cases, player's should not have to put a significant amount of effort into learning a game before they are able to enjoy it; that mechanics and rules should be easily understood and that the correct method of progressing should be self-explanatory and clearly signposted. One can see evidence of this in the trend towards games that provide the player with more and more hints and guidance during gameplay. This in itself is not an *incorrect* approach to game design; there is certainly much to be praised about games which are highly accessible, however an over-reliance on this approach can lead to negative consequences. For example, it has been relatively common in recent years for games to be criticised for 'hand-holding' – not letting the player make and learn from their own mistakes. *Prince of Persia* (Ubisoft Montreal, 2008) is an excellent example of this issue, coming under criticism for being too "consumer friendly" (Goldstein, 2008);

> When you need to double jump, the color bleeds out of the world. When an enemy is about to counter attack, the block button flashes on screen. There's no way to remove these prompts for those who want to add some challenge. At times, Prince feels a bit like Mister Toad's Wild Ride. Sure, you have your hands on the steering wheel, but you're being guided along. [2008:2]

VanOrd (2008) additionally notes that

> there is a checkpoint at almost every platform, so aside from possibly having to repeat a few seconds of gameplay, there is absolutely no penalty for plummeting to your doom. You will never see the words "game over," and you won't need to save and reload before difficult sequences. Nor will you need to ever puzzle over how to make it from point A to point B: Elika [the player character's 'assistant'] can fire off a magical homing orb that will show you the precise way of getting to your destination. [2008:para. 4]

Games which operate in this manner may also have the additional effect of instilling within a player an unwillingness to adapt, or to try different approaches to problems. In turn this may ultimately lead to wasted development time on behalf of developers, as new and innovative aspects of games go largely unnoticed or unused as players stick rigidly to what they have learned from other games.

Players construct expectations, either consciously or unconsciously, of how they believe a game should operate, and they will often attempt to play other similar games based on those expectations without exploring the nuances of the individual title. An over-reliance on simplicity and meeting of expectation can even lead to situations where players exhibit anger at developers for attempting to change elements of a game series. Take for example the initial reaction of Nintendo fans to the information that *Mario Kart Wii* (Nintendo EAD, 2008) would contain bikes as well as karts in its vehicle roster. Many fans were angered thinking that the core gameplay would suffer as it had to cater for the introduction of a new type of vehicle. In this case however the game still sold well, which supports the assertion that altering a vital element of a game *can* produce desirable results – if the players are willing to give it the chance to show this.

Schematically disruptive design is intended to offer a method for breaking the cycle of expectations being formed and subsequently met without ever being *challenged*, in order to provide the possibility for richer, more varied gaming experiences and possibilities.

DEFINING 'SCHEMATICALLY DISRUPTIVE GAME DESIGN'

Before going any further it is important to clarify where schematically disruptive design falls in the wider perspective. Importantly schematic disruption is not the same as *abusive game design,* as discussed by Wilson & Sicart (2009, 2010). Whereas abusive design aims to place the player into a situation where they are "punished by the game and its designer", schematically disruptive design aims to keep the player in control at all times; it remains a player-centric approach. This is not a method of developing *unfair* or intentionally *antagonistic* game but instead a method for encouraging active learning and re-learning of elements of gameplay that players thought they already knew; it asks players to work harder for their gratification. This is to be done so that established gameplay conventions and structures such as the 'breadcrumb trail' of reward and challenge are still present; albeit in a less obvious guise.

It is necessary if one is designing for games intended to appeal to as wide an audience as possible that the forms of gratification that player's seek are understood and taken into account, as well as the extents that players are willing to go to in order to achieve that gratification. Maslow's Hierarchy of Needs (Maslow, 1943), whilst considered largely outdated, nevertheless provides a viable starting point for considering how schematic disruption should and should not be implemented. The 'higher' level needs of this hierarchy are those which are most relevant to gameplay: desires for achievement, strength and prestige; to feel able to cope by oneself; a desire to satisfy one's curiosity and, to be open to new experiences. There is a noticeable and interesting similarity between these needs, and the motivational drives which Lindley & Sennersten (2008) propose to underpin the gameplay process, which include *Empowerment, Achievement, Curiosity* and *Discovery.* If these requirements and motives of play remain catered for, then it should be theoretically plausible to begin to disrupt other expectations of gameplay, such as game and narrative structure, level and environment design, and game systems and mechanics.

Furthermore, it could be argued that if the aforementioned needs are catered to, at least in part, it is entirely possible that games which go against pre-learned schematic knowledge may in fact offer greater player satisfaction than those which fit schematic frameworks more readily. As players progress through a disruptive game, motivational drives and emotional responses should be felt more intensely, as the player will be succeeding not in a scenario they felt partially prepared for, but in one that they had no prior knowledge of

how to tackle. By presenting itself in a way that confounds or challenges existing expectations, a game can force active learning and re-learning of skills, causing greater cognitive engagement and a greater level of gratification with one's successes. We can see this to an extent in the success of games such as *Amnesia: The Dark Descent* (Frictional Games, 2010), which has shown that a completely non-combative game can be successful, despite it not fitting comfortably into the wider gaming landscape in terms of its gameplay style.

Genre-Level Research: Focusing on Horror

Because the fundamental aspects of schematic disruption could be applied to almost any game, in any genre or sub-genre of the medium it is necessary to frame the initial research into the effects of the methodology in some way. To this end, this study will be operated with a specific focus on the Horror genre of video games. This specificity of 'Horror' incorporates both the popular *Survival* Horror genre, as well as other types of game which are clearly horrific in nature, but could not be described via their gameplay as being focused on survival; *F.E.A.R 3* (Warner Bros. Interactive, 2011) for example, is clearly closer to traditional First-Person-Shooter gameplay than to classic Survival Horror - such as *Silent Hill* (Konami Computer Entertainment Tokyo, 1999) - but uses a plethora of horrific themes and imagery. *Dead Nation* (Housemarque, 2010) co-opts a range of well known horror conventions, but its gameplay is that of an arcade style shooter.

Horror offers an excellent platform on which to carry out a study of this nature for a number of reasons. It is one of the oldest media genres, with roots reaching far back into filmic and literary history; with this long history comes a diverse range of established conventions and tropes which in turn draw upon well known myths, legends, folklore and superstitions. Additionally, the genre has been a part of game media since its inception, with titles such as *Haunted House* (Atari, 1982) and *The Texas Chainsaw Massacre* (VSS Inc., 1983) offering early indication of the games to come in future.

Horror is a part of human culture in many parts of the world. When a player engages in a horror game not only do they bring with them expectations of that game as a *game,* they also bring with them an entire range of other expectations which place that game in the context of the broader culture of horror. What this means is that as a designer, there is immediately a selection of expectations on a range of levels (from how the game operates, to the environments and milieus that frame the action) that can be twisted, distorted or broken to influence how the player responds to the game.

The additional benefit of researching in this genre is that it has undergone some very significant changes over recent years. Much of what is referred to as 'Horror' now is far removed from 'classic' titles such as *Resident Evil* (Capcom, 1996) or *Silent Hill* in terms of gameplay; the evolution of the *Resident Evil* series is an excellent example, with *Resident Evil 5* (Capcom, 2009) clearly adopting a style closer to that of Action-Adventure or First-Person-Shooter. Weise (2009) makes the suggestion that the game gives people "reared on *Gears of War* and *Halo* exactly what they want and *expect*: wave after wave after wave of dudes to shoot, giant bosses to kill, and an uber-macho hero" (para. 3, emphasis mine). The idea that there is an assumption that players now yearn for this type of action-heavy gameplay that requires minimal cognitive effort but offers maximum visceral thrill is one that can be challenged, and there are games that prove that such a challenge is worthwhile. *Amnesia: The Dark Descent's* disruptive gameplay and commercial success is testament to this, and games such as *S.T.A.L.K.E.R: Call of Pripyat* (GSC Game World, 2010) and *Metro 2033* (4A Games, 2010) brought a

successful return to the convention of incredibly limited supplies of ammunition and other resources, surrounded by a dark, oppressive and eerie post-apocalyptic world. These successes show that games that require more conscious processing and problem-solving are still viable. This is an important confirmation, because the act of disrupting 'standard' game conventions will inevitably require a greater level of cognitive activity on the part of the player.

DISRUPTING GAMEPLAY WITHOUT DISRUPTING ENGAGEMENT

If one is to still primarily place the needs of the player first and foremost, it is important that the disruptive nature of the games are bounded by a structure or format so as to avoid them devolving too far from established conventions; doing so would be likely to alienate players, pushing them out of their 'comfortable' zone to such an extent that they lose interest or motivation to play. It could be argued that designs should not only take into account the needs and motivational drives discussed previously but that they should also still facilitate other aspects that make the activity of playing so fundamentally pleasurable.

Works such as Madigan (2010), Warmelink, Harteveld & Mayer (2009), Jennet et al. (2008), Calleja (2007), Ermi & Mäyrä (2005), Brown & Cairns (2004), McMahen (2003), King & Krzywinska (2003), and Murray (1997), discuss at length concepts which are recurring across game studies; *escapism, immersion, presence* and *agency*. Their frequent recurrence and the complex debates surrounding them suggest a high level of importance with regard to game design theory. Similarly, the concept of *Flow* (Csikszentmihalyi, 1990) and its game-specific adaptation of *Game Flow* (Sweetster & Wyeth, 2005) are also often cited.

The schematic disruption and heightened requirement for the player to apply themselves cognitively suggested in this paper would appear to be at odds with the near autonomous mode of play that a pure state of 'flow' would arguably achieve. However, if one looks closely at the factors that Csikszentmihalyi suggests are linked to flow, we can see that there is the possibility of these being achieved through disruptive gameplay. "Intense and focused concentration" (Nakamura & Csikszentmihalyi, 2002, p. 90) could arguably be more attainable through schematic disruption than it would otherwise be, as players must think more in order to navigate unknown or unusual scenarios. Importantly, the "intrinsically rewarding" nature of the experience, and the ability of the player to become absorbed into the activity of playing, would remain despite the disruptive nature of the game play, and it is this that serves as the basis for the entire concept of flow.

What schematically disruptive design aims to achieve then is not a 'flow' experience in its purest form, but an experience of *constant and consistent cognitive effort.* This retains elements of the concept of flow, as above, but stops short of offering the player an experience that they can progress through autonomously.

In order to facilitate this state in the player, there must be limitations placed upon the types, intensities and timings of disruptive elements. High levels of frustration must be avoided as the majority of players will not be willing to put up with such negative feelings whilst playing something that they are seeking enjoyment from. This is a problem that was discussed in a post-mortem analysis of *Super Meat Boy (*Team Meat, 2010):

It was vital for us [the developers] to bring back the difficulty of the retro age, but also reinvent the idea of what difficulty meant. Frustration was the biggest part of retro difficulty and something we felt needed to be removed at all costs, in order to give the player a sense of accomplishment without discouraging them to the point of quitting. [McMillen & Refenes, 2011, p. 2]

If one begins to make sweeping changes that go beyond the remit of what the current generation of players is used to there is a very real risk of alienating players to the point of disengaging them from the game completely. This applies even if such changes recall techniques proven to work historically, as the expectations of players have changed. It is possible that players may be willing to accept a game not giving them explicit cues and guidance if the act of not doing so does not have an immediate detrimental impact on their ability to make progress. For example, the introduction of power-up items such as the *Tanooki Suit* or *Kuribo's Shoe* in *Super Mario Bros. 3* (Nintendo EAD, 1988) occur with no explanation provided in-game of their usage. However players can choose to ignore these items if they so wish and they will still be able to make progress, albeit with slightly increased difficulty. If players are prevented from making progress alongside the game also offering no useful information, frustration is likely to occur relatively quickly.

Similarly, under-stimulation and boredom needs to be avoided at the other extreme; excessive boredom will break player engagement as readily as excessive frustration. If the design is always fulfilling a motivation for play, even if it is as simple as keeping the player curious and wanting to know what happens next, or keeping them feeling that they are achieving small milestones consistently, the game can be said to be successfully maintaining player engagement.

It is here that the 'breadcrumb-trail' of reward and challenge becomes important; what is referred to as a feedback loop (LeBlanc, 1999, Green, 2010). The structure of challenge followed by reward, in turn followed by greater challenge in an ever evolving cycle is one that players automatically recognise and indeed, expect, from the majority of games. Arguably, with such a firmly understood structure of how a game evolves over its playtime remaining in place to act as a beacon of familiarity, it should be possible to implement disruptive and alienating designs around that, whilst still keeping that all important level of engagement between player, game and feeling of gratification. As LeBlanc (1999, p. 2) states, "hardship is not the same as gameplay"; even if one is intentionally alienating players through various means, there has to still be *some* reward in order to retain their motivation to continue.

Of course it is also entirely possible to fake this reward – making the player feel that they have succeeded when in fact they were never at risk of failing. This, alongside the impact of death in a game on the player's sense of immersion, is something discussed at length by Thomas Grip (2010), and something that he and the rest of the design team took into account in *Amnesia: The Dark Descent*. Their focus on reducing "trial-and-error" gameplay is an interesting consideration in relation to designing for schematically disruptive games.

A Hypothetical Example of Schematic Disruption in Gameplay
Imagine a scenario where the player is faced with an enemy rendered invulnerable whilst the player can see it. It can only be destroyed through indirect means whilst the player is looking away from it. This immediately creates a situation operating against everything a

player is used to, both within the context of games and within the context of their own survival; turning your back on an imminent threat requires a great amount of willpower, determination and self-trust. This will serve to heighten tension, heighten adrenaline levels and heighten engagement as a player will need to think very quickly whilst at the same time operating against their better judgement, in order to be successful. This is an example of schematic disruption, of upsetting player expectation and forcing them out of their comfort zone. It subverts schematic knowledge both in the context of games, as well as the context of human survival.

Importantly, this example offers great flexibility – it could be a smaller mechanic in a larger game, or it could be the core mechanic of a game. It could require respectively, an adaptation of a player's existing schema, or a vital learning and implementation of a new set of schematic knowledge frameworks to accommodate a new game mechanic. However it is implemented, it is merely there to offer an alteration in the way the game plays; it does not change the fundamentals of that game in such that it would still be clearly recognisable as a game, and not as an obscure gaming *experiment.* Schematically disruptive design targets either *small* alterations to a *large* number of game system conventions, or *large* alterations to a *small* number of game system conventions; both approaches encourage greater cognitive involvement than would otherwise be required of players.

A DEVELOPMENT-LED APPROACH
Previous research carried out into the effects of lighting on player decision making (Howell, 2010) along with this current research has highlighted a noticeable void between game theory and game practice. There is an abundance of work which analyses to great depth the designs, structures, patterns and functions of released commercial titles such as Consalvo (2003), Ekman & Lankoski (2009), Nitsche (2009), Krzywinska (2009) and Gallant (2009). Whilst such textual readings are highly necessary in the continued understanding of the medium, they could be considered hindered by the fact that they are, for the most part, subjective. The authors have extensive knowledge of the chosen game and those surrounding it in the wider gaming landscape; however this knowledge nevertheless often (although not always) remains personal and subjective as opposed to empirically based. Additionally, because such analysis is subjective, it is impossible to assign *motive* or *intention* to any element of a game's design. Unless a member of the development team states categorically what the intended impact of a particular mechanism was, one can merely speculate at what the design team was hoping to achieve at any given point. The problem with such criticism of the more subjectivity-oriented approach is that pure objective, experimental research into games that takes the approach of deconstructing the elements that make them up and individually analysing them similarly cannot offer data that has much relevance when applied to a 'real world' development scenario. Games are interactive, interdependent systems – one cannot analyse the parts without considering the whole.

There is also an abundance of theories that take an idealistic standpoint when suggesting solutions to perceived issues. For example, the proposed system of Adaptive Lighting for Visual Attention (El-Nasr et al., 2009) suggests a theoretically sound method of lighting game worlds to enable players to better understand and navigate game environments. However the practicality of such a system is questionable when one considers that its deployment in a commercial title would require taking into consideration all of the other areas of player perception that lighting has the power to influence (such as a player's emotional response to a game space) rather than merely focussing on 'Visual Attention'.

In an effort to address this issue of applying theory to scenarios outside the realm of research into that of commercial game development, this research programme will be conducted in a *development-led* fashion. The researcher will be working in an active design role on a currently in-development, commercial title allowing for specific events, scenarios and mechanisms to be inserted into the game for analysis. This eliminates the problem of speculatively assigning intention to any element of a game's design. Player feedback, as well as monitoring of player discussions in open areas such as online forums, will then serve as the major source of data for analysing the impact of schematic disruption and for discussing the advantages and disadvantages of designing in such a way. In this way, data is being drawn from the most interesting and ecologically sound source – real players, playing real games, in their own homes; just as they would play any other game. This level of ecological validity affords the deepest level of insight into precisely how various aspects of a game's design are being received by players and what impact they are having on how players engage with the game. It is arguably the only way to comprehensively address speculative questions about different approaches to game design such as that being discussed in this research.

The benefits of development-led games research are further explained by Pinchbeck (2010), a particularly notable point being "how do we innovate? Are we, as scholars, to be placed in a purely responsive position relative to the [games] industry?" (p. 2). Given the current economical situation, industry is far more risk-averse, meaning a greater abundance of games relying on proven mechanics – what has been previously referred to as schematic game design. This simply reinforces the aforementioned cycle of forming and meeting expectations. If research is able to support the hypothesis that disruptive gameplay can be accepted by gamers when offered in a package that still includes a core body of 'conventional' expectation-meeting techniques, this can only be beneficial to the industry and to games in the longer term. Furthermore, by closing the gap between theory and practice, the body of ludological knowledge can become more comprehensive, further informing future research efforts.

CURRENT POSITION AND INTENDED DIRECTION OF RESEARCH

Schematic disruption is a necessary area of research entirely because of its lack of presence within the vast majority of game designs. If this absence is because of some fundamental flaw with the premise then this flaw has yet to be tested and understood – if it is because of a lack of experimentation then this is all the more reason to pursue it, with the possibility of opening up whole new design spaces for games to flow into.

The experimental games released by *thechineseroom* are already exploring the possibilities contained within these spaces, and *Korsakovia* (thechineseroom, 2009) in particular offers much in the way of data for focusing this current work. The critical responses it received, particularly in relation to the inability of players to understand where they were supposed to be going, support the hypothesis that alienating the player too much will have a negative result. Experimental games such as this are able to insert themselves into a design space often considered redundant – by testing the boundaries of player acceptance they can inform the evolution of the theories that underpinned them and allow such theories to become viable design approaches for more 'mainstream' games. Indeed this has been the case, with *Amnesia: The Dark Descent* implementing many of the ideas displayed in *Korsakovia* alongside improved design with far greater success (D. Pinchbeck, personal communication, August 4, 2011).

This research is at a stage of combining the two poles of industry and research. The first major part of this is an analysis of schematic constructs, their creation and deployment across a range of horror games. Despite the development-led nature of this work, if one is dealing with player expectation it is only prudent to play and to analyse what expectations and schematic frameworks games are forming in one's own perspective. This also affords an understanding of the current 'field of play' for horror games – what are the themes, styles and mechanics most often deployed. This is important as these will be at the forefront of many players' minds when engaging in any new game.

The second element of this combination is the design work to be carried out on the aforementioned in-development game. In bringing the theories discussed in this paper to a real world development project, with real world constraints, it is intended to offer resultant data as to what is and is not capable of making the transition from game theory to game practice.

CONCLUSION

This paper outlines a new application of schema theory as applied to game design. Taking other research in the field as a basis, it suggests a method of schematic disruption as a way of increasing the amount of cognitive effort a player needs to dedicate to learning or re-learning game mechanics. It is proposed that a higher level of cognitive effort, and thus higher level of engagement, will lead to a greater sense of gratification for the player.

Through a development-led approach, it is intended to make the data gathered as ecologically valid as possible, thus making the results as applicable to 'real-world' game design as possible. The horror focus of this work offers the most flexible platform on which to work, as well as offering the richest variety of schematic conventions - in the fields of both horror media as well as games - that can be subverted and manipulated and the effects of doing so recorded. It is also hoped that as a secondary outcome of this research, evidence will be made available that supports the hypothesis that games which do not fulfil 'expected' player responses are still viable in commercial terms. This may lead to a wider variety of games being developed in future as developers see different approaches to design not as risks, but as opportunities.

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