

TECH3002 – Questioning Technology

RESEARCH REPORT:

**AN ANALYSIS OF VIDEOGAME DESIGN METHODOLOGIES
REGARDING THE CREATION OF 'FUN'**

ABSTRACT

The success of videogame development is often attributed to how much 'fun' the user experiences during gameplay. I will attempt to determine the fundamental values of gameplay that translate into fun for the user, and how developers are using this knowledge in the development of videogame technologies.

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Introduction

Determining the criteria for success in the production of any form of media is paramount in the formulation of design structure and theory. Although frequently compared to non-participatory visual media, videogames provide the user with a very unique experience, as Mark J. P. Wolf (2001) explains: *“While film or TV may influence behaviour, in the video game, the player is called upon not just to watch but to act; simulation becomes emulation, and sympathy becomes empathy.”* It is clear that game design requires very different methodologies than those of other forms of media.

The success of videogame development is often attributed to how much ‘fun’ the user experiences during gameplay, but this term is somewhat vague in its description of how games translate the information-feedback loop of human-computer-interaction into satisfaction and entertainment.

- Raph Koster (2005) defines ‘fun’ (referring to Will Wright’s ideologies) as *“the process of discovering areas in a possibility space.”*
- Sid Meier famously referred to ‘fun’ as *“a series of interesting choices.”* (Rollings and Morris 2000.)
- Chris Crawford (2003) prefers not to refer to games as ‘fun’ at all, (any more than scaling a mountain or other such challenges).

Clearly, the term ‘fun’ is somewhat ambiguous – the meaning of which changes significantly depending on the context – so defining design methodologies in order to create such experiences is a particularly difficult process. Here I will discuss the findings of many academics in the field of play, entertainment, and in particular, videogame design theory. I will attempt to determine the fundamental values of gameplay that translate into fun for the user, and how developers are using this knowledge in the development of videogame technologies.

Defining play

In order to properly analyse the ways in which videogame technology is used, we must understand the concept of ‘play’. In his book *Homo Ludens*, Dutch historian J. Huizinga describes play as:

“A voluntary activity or occupation executed with certain fixed limits of time and place, according to rules freely accepted but absolutely binding having its aim in itself and accompanied by feelings of tension, joy, and the consciousness that it is different from ordinary life.” (1950: 20)

Although other, perhaps broader definitions of play have been given, most pertain to the idea that we separate the world of play from the real world; a notion that Brian Sutton-Smith adds insight to in his introduction to William Stephenson’s *The Play Theory of Mass Communication*.

“We seem to enjoy escape into fantasy and reverie almost as much as we enjoy “reality,” and the modern agencies of mass communication are calculated to stimulate those worlds with such extraordinary vividness that we are hardly aware that there has been any change in our status. The signals are so taken for granted, the communication so implicit, we are taken by stealth as in dreams.” (1988: xviii)

Sutton-Smith’s commentary is especially relevant to video games, and describes quite accurately the state into which a player enters upon becoming immersed in a game world. It is this state of immersion which contributes largely to the enjoyment of a player’s experience.

Immersion

It is generally accepted that complete visual and aural realism is not necessary in order to induce a sense of immersion, as Janet Murray’s (1997) widely accepted definition of immersion draws attention to.

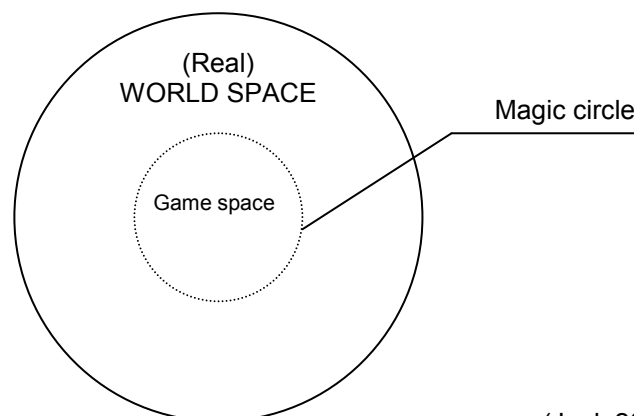
“A stirring narrative in any medium can be experienced as a virtual reality because our brains are programmed to tune into stories with an intensity that can obliterate the world around us.”

Indeed, this phenomenon is frequently experienced by game players. When playing videogames, one often loses sight that they are playing a game, and the experience is perceived as very real. This, of course, is synonymous with other forms

of media, but for 3D videogames to fully immerse the player, it is proposed that three conditions must be met:

- That the user's expectations of the game or environment match the environment's conventions.
- That the user's actions must have some non-trivial impact on the environment.
- That the conventions of the world are consistent, even if they don't match those of "meatspace." (Sheridan 2000)

Not only must the player be allowed to have considerable impact on the game world, but a strict internal logic must be followed. If the environment is littered with contradictory elements and 'invisible walls' (where the game fails to clearly show the boundaries of its world) the suspension of disbelief is destroyed and immersion fails. Based on Huizinga, this concept of delineating boundaries enclosing a subset space of the real world (the game world) was described by Katie Salen and Eric Zimmerman as the *magic circle*.



(Juul, 2005. p165)

This border between the context of the fiction and that which is outside of it maintains the game space; thus, a poorly defined circle restricts the amount of immersion that can take place within it.

Included in this concept of game space is the *affective tone*, which refers to the intended emotional stimuli that the game designer aims to present during play. Where Crawford finds that a majority of games are 'emotionally sterile' (Rouse 2001),

LeDoux (1998) argues that games simply include a smaller range of emotions; those which trigger past memories rather than evoke new emotions. He suggests that this method may trigger implicit memories of childhood, triggering a happier response.

Alison McMahan notes that the concept of 'immersion' refers not only to the diegetic level of interaction; that of being caught up in the story and world presented in the game (more accurately described as *presence* - the feeling of 'being there,') but also to the nondiegetic level; referring to the connection the player has to the strategy involved in playing the game, brought about by rules, objectives and the desire for mastery.

Categorising play elements

Having established immersion as one key requirement of creating fun, closer inspection of the various types of play should be made in order to understand frameworks for game design. Heavily influenced by Huizinga, Caillois (2001) proposes that game play can be divided into four distinct (though not mutually exclusive) categories:

- *Agon*: Activities which focus primarily on competition. Enjoyment may be derived from competing with other players, systems, or indeed the world.
- *Alea*: Games based on gambling and chance, where the player's actions have no effect on the outcome. Risk-taking, potential winnings and perception of successful 'system' development provide enjoyment here.
- *Mimicry*: Make-believe play and alternate-persona development, for example the children's activity cops-and-robbers, or simulation and role playing games such as *The Elder Scrolls* (Bethesda Softworks)
- *Ilinx*: Activity based on the achievement of vertigo (characterised by the temporary destabilisation of the perceptual system). Examples of this would be the riding of fairground rides until dizzy, or games such as *Extreme G* (Acclaim, 1997) or *Sonic the Hedgehog* (Sega, 1991) which seek to disorientate the player with high speeds and large amounts of vertical motion.

Miller (1968) adds to these;

- *Exploration*: Play centred around discovery, either geographical or of game mechanics, rules and interface.
- *Social play*: The active cooperation or competition between two or more players; sometimes requiring clan or group membership, passwords and internal lexicon.

Sykes (2006) comments on Caillois' mediation of these categories, referring to the *formality scale*; based on varying amounts of formality that are involved during a play experience.

“The informal end of the spectrum represents the spontaneous expression of the animalistic impulse to play – referred to by Caillois (2001) as paidea. Such play is characterized by the lack of ritual and rules and can be seen in activities where children spin themselves until they fall through dizziness or the kitten playing with a ball of wool.

The formal zone of the formality scale represents disciplined, ritualistic, rule-based play – referred to as ludus (Caillois 2001). Ludus is exemplified by formal competition such as the Olympics or Puzzles.”

Challenging the idea that paidea play is completely unbounded by rules, Vidart (1995) notes that even during the most seemingly unstructured act of play, rules are necessary and present, whether or not they are immediately evident. In his example of a child pretending to fly a plane, this seemingly unregulated, freeform act does adhere to conventions of behaviour, such as mimicking the wings of the plane and banking as one would expect one to. He suggests instead that paidea refer to the lack of *goals* as opposed to *rules*.

The necessity of rules

It can be said then, that entirely free-form play is not possible in videogames, as the incorporation of basic rules (such as those of forces, avatar properties and interaction with world space objects) must be defined in order to provide a context for actions. Without some semblance of rules, a virtual space has no meaning, and the player may as well be presented with an empty space and no avatar at all. Limiting

the player's actions provides the possibility of interesting symbolic interactions which can be seen as the basis of fun gameplay.

Jesper Juul (2005) notes three key factors that define gameplay; each one pertaining to the inclusion of and interaction with rulesets.

1. *The rules of the game.*
2. *The player(s)' pursuit of the goal. The player seeks strategies that work due to the emergent properties of the game (see Challenge – risk and reward.)*
3. *The player's competence and repertoire of strategies and playing methods.*

While rules are often definite, clear and easy to understand, they create situations for the player which are not trivial to overcome. Not only do rules create meaning and context within the game world, but the limitations set present challenges and force the development of strategy upon the player. When rules are not clearly defined, the understanding of these hidden elements can add a learning aspect to the experience, and during paidea play, satisfaction is gained through the setting of ones own rules and goals.

Juul observes that the integration of rules is intrinsically linked to the world presented, as fiction plays an integral role in allowing the player to understand the rules, and vice versa.

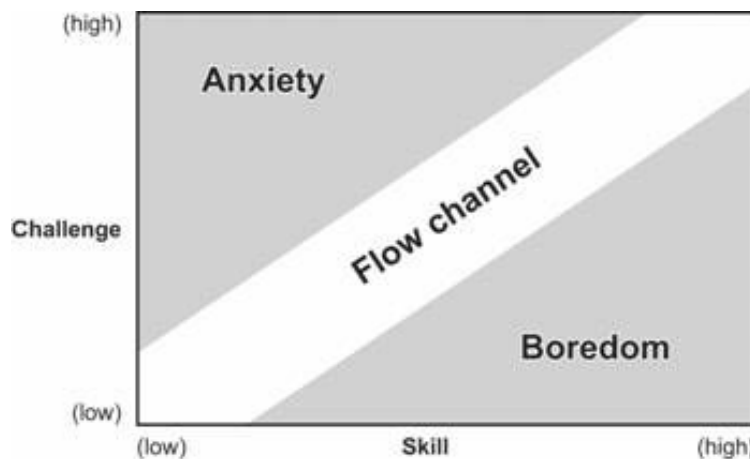
“In the game design process, the game designer must select which aspects of the fictional world to actually implement in the game rules. The player then experiences the game as a two-way process where the fiction of the game cues him or her into understanding the rules of the game, and, again, the rules can cue the player to imagine the fictional world of the game.”

Challenge – risk and reward

One universally agreed factor in determining the entertainment value of a video game is that of risk and reward. Juul states that *“Playing a game is an activity*

of improving skills in order to overcome these challenges, and playing a game is therefore fundamentally a learning experience.” Poole agrees that fun is based on “a perceived match between the demands of the activity and the subject’s skills” and that “pleasure increases up to a point according to difficulty so it seems very likely that one crucial component of videogaming pleasure is in fact a certain level of anxiety.” The player should always be made to work for their reward, but it should never be completely out of reach.

This fine balance of increasing difficulty level matching that of the player’s gradual mastery is important, as highlighted by Mihalyi Csikszentmihalyi’s *flow framework* (1990). This concept suggests the mental state of those participating in a variety of tasks; proposing that a given challenge has a *flow channel* in which the participant experiences optimum enjoyment.



(Juul, 2005. p113)

Pitching the game’s demands slightly higher than that of the player’s skill level provides the enjoyment of mastery while maintaining a constant learning experience. If the challenge rises too far above the skill level of the player, anxiety and frustration set in. Likewise, if the challenge is not maintained, the player will become bored. Reinforcing the effect of this flow channel, many designers opt to reinforce and highlight mastery and achievement in the form of further rewards of contextual in-game artefacts such as new skills, weapons or currency (whether this be in the form of ‘money’ to trade for items, or ‘points’ to spend on avatar development.)

Human response during interaction

A report published in *American Scientist* (Vol. 94 p247) explains the reason for the feeling of enjoyment that is experienced when a challenge is encountered,

and thus, brings us closer to a more solid definition of 'fun.' Edward Vessel (New York University) proposes that *"the neural pathways through which we learn about the world tap into the same pleasure networks in the brain as are activated by drugs like heroin."* Regarding this innate hunger for information, Vessel coined the term relating to humans as *"Infovores."*

This concept appears to explain a lot about the satisfaction gained when learning or interpreting new information, and expands to the triggering of past memories, the formulation of patterns and strategies, and the avoidance of repetition; all major aspects of successful gameplay. This could be seen to contribute considerably to the rise of cyber-addictions such as those relating to the use of the Internet and videogames.

It would seem that the key to successful game technology use is indeed the triggering of these mechanisms, but the highly complex nature of the design and development processes involved causes issues with regards to achieving a reliable outcome (LeBlanc, 2004).

MDA – a design framework

Developed for the Game Design and Tuning Workshop at the Games Developers Conference, (San Jose 2001-2004) Robin Hunicke, Marc LeBlanc and Robert Zubek proposed the *MDA framework*; a formal approach to understanding games not as media, but artefacts.

"By moving between MDA's three levels of abstraction, we can conceptualize the dynamic behavior of game systems. Understanding games as dynamic systems helps us develop techniques for iterative design and improvement – allowing us to control for undesired outcomes, and tune for desired behavior."

An attempt to standardise understanding between design and development, the framework attempts to formalise the consumption of games by breaking them into their distinct components, establishing their respective design counterparts.

Rules	Mechanics	Fundamental components of the game at code level.
System	Dynamics	Behaviour of the mechanics dependant on internal interaction of subsystems and player input.
“Fun”	Aesthetics	Desired outcome of emotional response in the user.

The system enables far greater analysis of results on both ends of the scale during production, providing a formal framework with which to approach videogame design, research and development. Hunicke, LeBlanc and Zubek propose that that this approach will vastly improve the way that technology is used in the creation of ‘fun’ gaming experiences, as each part of the framework affects the others in a reliable and predictable manner.

Conclusion

As developers edge ever closer to more reliable definitions of the very artifacts they strive to create, it can be concluded, at least in part, that the fun and enjoyment of videogames largely derives from a combination of:

- Unbroken immersion (maintaining the *magic circle* and ensuring cohesive narrative)
- Affective tone (evoking emotion and the triggering of past memories)
- Establishment of rules (limitation and goals)
- Challenge (finely balanced to ensure *flow*) and
- Mastery

According to the *Infovore* concept, all of these factors provide stimulation to human pleasure receptors, so their importance in game design and the use of game technology is quite clear. It would seem that focusing player-centric design on these elements is paramount to the successful creation of ‘fun,’ and frameworks such as MDA enable a more accurate adherence to them during the production process.

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