DEVELOPING AND UNDERSTANDING THE EXPIERENCE CREATED BY VIDEO GAMES
AND TRANSLATE THEM INTO INTERACTIVE PRODUCTS TO INFLUENCE BEHAVIOUR

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ABSTRACT

As we nowadays are so used to technology, we have reached a state in which it plays a dominant role in our daily lives without us being genuinely aware of it anymore. This trend of ubiquitous computing [15] makes current intelligent products inclined to disappear from view, to be taken for granted, because *"the central significance tends towards to go to the context"*. (Orlikowski and Iacono, 2001).
This means that no longer the aesthetical nor functional design might make a product appeal to its user, but rather the experience it creates. To emphasize this 'need of experience', this paper points out there is a great potential in developing and understanding the experiences created by video games. This can be pursued by removing focus from games on a screen to instead focus on video game elements in interactive products. Designers can use the guidelines proposed in this paper to create everyday commitment and responsibility in people's lives based on desired behaviours in order to have a positive impact on society at large.

Keywords
Behavioral Design, Experience Design, Game Design, Gamification, Interaction Design, Product Design

1. INTRODUCTION

Michael Highland [5] was the first person who encouraged me to reflect on video games with a different point of view than most people have by stating: *"Critically thinking about games and virtual experiences is the first step in collectively understanding video games have the potential to be far more than just entertainment products or educational tools"*. (Michael Highland, 2006)

It was his video "As real as your life" (Highland, 2006) which inspired me to think of product design regarding to what it should exemplify. In this video, Highland starts by telling that the boundary of his brain that divides fantasy from reality has finally become to crumble; he has trouble with distinguishing reality and his game environment and elaborates on this by saying:

- *"Video games left a mark on me"*
- *"At some point, something clicked"*
- *"Although I know am I losing my grip on reality, I still crave more"*

One of his most interesting comments was however when he said that he is addicted not because he plays for hours without sleep, but because by playing video games he claims to have *life altering experiences*. Moreover, Highland states that what he learns or plays in his virtual world, he is also likely to be able to do in the real world. He adds to this statement that the beauty of video games is that they make him emotional, more emotional than any news story or textbook could ever do.

I was very moved by the way a video game, a virtual reality [13], could trigger such strong feelings/emotions and wondered if products designed with the same approach could trigger the same effects.

2. VIDEO GAMES
Let us start with a definition of video games. Over time they have evolved in a lot of factors such as quality and scale, yet the core has always stayed the same. Especially the word *video* in video game claims the attention, by traditionally referring to a display device, it now implies any type of display, commonly known as platforms; examples of these are personal computers and game consoles. Generally speaking however, a video game was and still is a game that involves human interaction with a user interface to generate visual feedback on a video device. Yet it is exactly this interaction point where we can find new opportunities.

2.1 THE GAMING EXPERIENCE
But before discussing what these opportunities embody, we will identify what makes video games such a valuable source of inspiration.

These days a lot of research has been done regarding why people play video games and why they can trigger such strong emotions as pointed out by Highland. Noteworthy, a paper by Lazzarro [7] revealed that people play games not so much for the game itself, but rather for the experience the game creates. Based on Lazzarro's research, she concludes that people play games *to change or structure their internal experience* (p. 4). For example adults enjoy filling their heads with thoughts and emotions unrelated to work or school, others enjoy the challenge and chance to test their abilities.

The research showed that games offer an effectiveness and order in playing that they want in life. It is stated that *"players" value the sensations from doing new things, which they otherwise lack the skills, resources, or social permission to do* (p.4). In other words, this indicates that we are talking about a certain experience, people have difficulty accessing to in their 'normal life'.

2.2 GAMING AND EFFECT
Apart from gaming triggering experiences you would have troubles with finding in your real life, if we again look back at Michael Highland, we notice another important factor which games offer. Highland states on his blog gamerthink.com (2011) that the power of video games is that *people are kept engaged* while playing, particularly; games offer much room for both commitment and discipline. Which are both factors, people in their daily lives often have difficulty with realizing.

Also Lazzarro reveals in her paper details about this "player emotion". Here it is described as *instinctive, behavioural, cognitive, and social responses to games* (p.3). More interesting is that she adds that players play to experience these body sensations *that result from and drive their actions* (p.4).

So by analyzing the effects of playing video games, we are now able to grasp the opportunity mentioned earlier in the paper; by looking for ways which will let people experience life in a way they currently are not able to do, resulting in a behaviour characterized by commitment and discipline, this could accordingly drive their actions and intentions.

2.3   INFLUENCING BEHAVIOUR

This direction, in which we sketch out a scenario in which gaming or game elements would have an influence on our behaviour, is not new.

One of the people whom predicts the increasingly prominent-role games will play in the near future is Jesse Schell [12] (2010). Schell draws a line from the recent wave of *reality-based games* like the Wii Fit, Guitar Hero and Webkinz, to a future where game-like point systems are in place for every possible human activity, from brushing your teeth longer to taking public transport to getting to work on time. He characterizes a future *"where 1-ups and experience points break 'out of the box' and into every part of our daily lives."*

Furthermore, in Schell's opinion this prominent-role of gameplay in our daily lives would lead to significant improvements – using increased monitoring and measuring by the use of sensors – all in order to change our personal behaviour.

It seems that Schell sees gaming as the tool to get to a specific effect, it is however not necessarily "playing the game", but the fact of being watched, measured and judged which would trigger the change in behaviour; an interesting hypothesis, yet a correlation which may be somewhat oversimplified. I argue if there is indeed a correlation between information display (e.g. receiving *points* for getting out of bed in time) and a change in behaviour. As described by Kanouse and Jacoby [6] (1988), only providing information is seldom enough to accomplish a change in behaviour. If information has to influence a change, then the game Schell is talking about must be designed to maximize the conditions facilitating this change. Kanouse and Jacoby also stress the importance not to ignore other factors that determine whether change will occur, such as a *participant's motivation* to change, the *context* in which the decisions are made, and how the information is *presented*.

In this perspective we are redefining the boundaries of Schell's vision, by no longer talking about a game based on "reality enhancement", but rather a game based on "motivation enhancement". This could mean the change in behaviour in a gaming context as described by Schell as well as in this paper, could still be realized if we take into account what motivates a participant.

2.4   GAMING AS MOTIVATOR

There are two types of motivation; the first one is *extrinsic motivation*, motivation that comes from outside an individual. Examples of extrinsic motivation are for instance grades, money and status. Or more related to the current game dynamics; achievements, rewards and self-expression. This approach would be high likely shared by Gabe Zichermann [17] (2010) who states that not reward, but status is the main motivator while playing a game; when everything is public,

people want to show off their skills, especially to their friends.

However in a paper by Deen and Schouten [2] (2010), the opposite is argued, namely the importance of identified regulations in order to get *intrinsically motivated*. When developing the game, game designers should *create a correspondence between the game regulations and the participant's perception about the displayed information* (p.1). To accomplish this, game designers should not hide the effect caused by the game, but should explicitly communicate it to the player. Progressive feedback, the availability of various gameplay styles, and the embedding of the game in a social environment, might satisfy a participant's need for *competence*, *autonomy* and *relatedness* [10] to significant others. When these needs are all satisfied, participants might become motivated to play and consequently change their behaviour.

Either way, an involvement of gaming in our daily lives can be seen as something positive as long it suits the context. An optimism which is also shared with Jane McGonigal [8] (2010), who claims games will lead to improvements using gaming activity to solve real-world problems by players keeping up the habits that they have learned in their game. By combining McGonigal and Schell, you could state that by introducing a point-system to one's activity could be highly beneficial, for example for people who fight against obesity; the habits learned through getting points for their daily activities could lead to a healthier lifestyle.

2.5   GAMIFICATION

In that scenario, we would be applying the mechanics of gaming to non-game activities to change people's behaviour, commonly known as *gamification* [1]. Though the overall goal differs from the previous sketched out scenario, because gamification nowadays mainly serves as strategy to engage with consumers and get them to participate, share and interact in some activity or community. Moreover, it is mainly used for websites, business services, online communities or marketing campaigns, all in order to drive participation and engagement. Yet it has not found its way into the interaction design community. Hopefully by the end of this paper, designers are inspired to pursue this further.

Although the term gamification is related to make a change in people's behaviour, it may be better to speak of an influence to act, than an actual change in behaviour as to how it was discussed earlier in this paper. To get to an actual change in behaviour, I wonder if game mechanics and dynamics are sufficient enough to facilitate this.

3.   ANALYSIS OF GAMING STRATEGIES EMBEDDED IN INTERACTIVE DESIGNS

So far we have sketched out what makes games interesting, in what context they could be used, which effects they may offer and how we could realize these effects or how they have been realized already. There is nonetheless a big difference between how the term gaming is used by Highland, Schell and McGonigal and the way how it is treated in this paper. In their perspectives, similar to Salen and Zimmerman's *Rules, Play, and Culture framework* [11] (2003), the applied medium to get to the specific effect would still be a video game. Yet so far we have only described the effects games trigger and the potential to use these effects for other desired outcomes (*"side-effects"*). If we take into account what motivates and triggers the participant to keep them engaged, I believe we can realize desired behaviour and the according actions/intentions,

by *translating* the effects of playing video games in *a product*, and not in a display.
This means that we are no longer designing the product, but designing the experience it creates. As explained earlier, this experience has the same characteristics as when playing a video game.

Therefore the role of a designer becomes to design the experience rather than the actual product.

3.1 EXPERIENCE DESIGN

Today, the notion of experience design is becoming more and more central to the interaction design community and its literature. Some of the approaches take the perspective of the user, others attempt to understand experience as it relates to the product, and a third group attempts to understand user experience through the interaction between user and product, as illustrated by Forlezzi and Battarbee [4].

The proposed take on experience design discussed in this paper, tends to go in the direction of the user-product interaction approach. More precisely, towards an expressive user-product interaction*; interactions that help the user form a relationship to a product, or some aspect of it* (p.262). In contrary to cognitive and fluent interactions, Forlezzi and Battarbee illustrate that in expressive interaction *users may change, modify, or personalize, investing effort in creating a better fit between person and product* (p.262).

3.2 DESIGN TO AFFECT BEHAVIOUR

An existing example will be illustrated to put these statements into perspective. In 2010 a Ford Hybrid was developed with a so-called *SmartGauge* [3]. This LCD screen shows lively animations to guide drivers on good driving habits by displaying a stylized greenery for good behaviour; the more efficient you are driving, the more green leaves you will generate. As a result people were inclined to get as much green leaves as possible and (most likely unconsciously) changed their driving behaviour simultaneously.

So apparently a simple game element as making a tree grow connected to driving, had an impact. In this example of an expressive interaction, we can clearly see that the SmartGauge gave similar effects like games; commitment and discipline and at the same time it caused an obvious effect on the participant's behaviour, which raises the question: what if we design more products like this? Or rather: What if we design more experiences which will generate the same emotions to trigger a change in behaviour?

Of course one could argue that the SmartGauge is still a display, and therefore does not completely fit the criteria to how the involvement of gaming in design is anticipated as described in this paper. Therefore a different setting will be demonstrated, similar to the hybrid car, by again referring to an existing project: the fun theory [14]. As an initiative by Volkswagen, it is described as follows:

"The Fun Theory is dedicated to the thought that something as simple as fun is the easiest way to change people's behaviour for the better. Be it for yourself, for the environment, or for something entirely different, the only thing that matters is that it's change for the better." (Volkswagen, 2009)

Although there are several examples, there is one I would like to point out in particular, the well-known Piano-Staircase [16]. The idea was to encourage people to take the stairs instead of the escalator or elevator. To do so, the stairs was made interactive, by hitting one of the stairs, a sound was produced

(the sound of a piano). And as it turned out, 66% more people than normal chose the stairs over the escalator.
Although in this case "fun" is seen as the main motivator, we will shortly analyze and try to improve this concept by the notions stated in this paper.

When we are talking about fun, this may be too vague as different people will experience 'fun' differently. Yet, it does seem to have had an effect on people. Therefore I would rather state that the designers have successfully created a life altering experience; an experience they were not able to achieve before that moment, resulting in a behaviour characterized by commitment and discipline, which accordingly drove their actions and intentions by taking the stairs over the escalator.

Additionally, to keep people engaged, so that the day after they will still prefer to take the stairs over the escalator, we have to have a better understanding what would motivate them to do so. If we take a look what intrinsically motivates them as pointed out by Deen and Schouten, participants should for example be made aware that it helps to be more healthy/fit. Or from a different viewpoint, when someone is able to see that you took the stairs, or maybe even listen to the song you produced; you will be communicating some sort of status, as pointed out by Zichermann. Due to this form of extrinsic motivation you will want to show off your best side, so you will adjust your behaviour in such a way, that you generate the desired behaviour the designer was aiming for.

3.3 LIMITATIONS

In that point of view, we are generating a co-experience [13] which takes place as experiences are created together, or shared with others. *"People find certain experiences worth sharing and "lift them up" to shared attention. Shared experiences allow a range of interpretations by others, from the expected and agreeable to the unusual or even deviant."* (p.263)
Co-experience reveals how the experiences an individual has and the interpretations that are made of them are influenced by the physical or virtual presence of other.

Still, one of the important aspects left out in understanding this experience is that it is focused on the interactions between people and products, and the experience that results. So this indeed also includes all aspects of experiencing the product itself: *physical, sensual, cognitive, emotional, and aesthetic.* (p.261)

So although the main aim is to design the experience, the product still plays a crucial role. Also, the produced emotion serves other roles in social interaction as well: *exceeded social regard is pleasant, failed interaction expectations can be disappointing, embarrassing or even enraging.* (p.264)
This again indicates the context's range the proposed approach offers, because clearly social contexts play a role in how we feel, express, and modify our emotions, as well as the resulting meaning that is made. Emotional experiences change, often quickly, in the presence of other people, activities, artifacts, and environments, and are therefore not suited in all contexts.

4. EVALUATING GUIDELINES

Note that when we are talking about translating game elements, this does not necessarily mean that you are still playing a game. Up to this point we have however illustrated how it is still possible to get to the same effects and what these effects accordingly could produce.

Nevertheless one could question if an interactive product could indeed let people experience life in a different way, and thus recreate an experience you have while playing a video game.

As indicated by Orlikowski and Iacono [9] it is explained that *the IT artifact tends to disappear from view, to be taken for granted, because the central significance tends towards to go to the context* (p. 1). They stress for a situation where *technology is taken as seriously as its effects, context and capabilities* (p. 1).

This means that the technology addressed in this paper should take a more prominent role in the design process and not only passive as the one whom is being developed, implemented and used. The observation of Orlikowski and Iacono is very relevant to this paper, because if we do not take this into account, we are heading towards a scenario in which people are only focused on context as well, resulting in a situation where everyone is getting more and more used to the technology. This would accordingly mean that it may occur to be very difficult to come up with the `life altering experience`, because people will simply take the offered technology for granted and thus not experience it in the way intended.

4.1   RESPONSIBILITY

When talking about interaction design and influencing behaviour this urges that the ethical side should be addressed as well. Understanding user experience, how people interact with products, other people and the resulting emotions and experience that arise, will result in interactive products that improve the lives of those who use them.
This implies that these designers will have the role and share the responsibility of exercising influence on society by taking into consideration the behaviours they want to address and the corresponding actions they want to achieve. This effect is however not only the responsibility of the designer and anyone else involved in the design process, but also the responsibility of the user. The experience should guide yet not force the user in a specific direction to change his/her behaviour. That will still be the choice of the user.

CONCLUSION

By revisiting and reflecting on several previous studies and work related to the topic, we demonstrate
the relevance of getting to a better understanding of how translating video games to interactive could influence behaviour. Briefly summarized, we are looking for ways to remove focus from games on a screen to instead focus on video game elements in interactive products in order to let people experience life in a way they currently are not able to do. To get to the so-called "life-altering experiences", we also have to understand what motivates the participants both extrinsically and intrinsically. Then we are able to keep them engaged by providing emotions as discipline and commitment, consequently resulting in a desired behaviour which accordingly drive their actions and intentions.

We have analyzed several trends with a similar approach, in which gamification offers the opportunity to experiment with rules, emotions, and social roles and the fun theory tries to get a link between a fun activity and a change in behaviour, yet the game mechanics and dynamics may be overvalued, whereas this paper provides guidelines to indicate if similar experiences can be designed without actually playing a game.

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