

Pulling the Strings

A Theory of Puppetry for the Gaming Experience

The paper aims to bring the experience of playing videogames closer to objective knowledge, where the experience can be assessed and falsified via an operational concept. The theory focuses on explaining the basic elements that form the core of the process of the experience. The name of puppetry is introduced after discussing the similarities in the importance of experience for both videogames and theatrical puppetry. Puppetry, then, operationalizes the gaming experience into a concept that can be assessed.

The Experience of Playing Videogames

The experience of playing videogames, or the gaming experience, is the topic of discussion of this paper. Here, we present a theory that aims to operationalize the concept of the gaming experience. The theory is grounded in a concept called puppetry. It was obtained by using a bottom-up approach (Calvillo-Gómez et al. 2008), starting with narratives that reviewed videogames until a theory was formulated using different types of iterative coding mechanisms in order to find those common elements (Strauss/Corbin 1998). In this paper, instead of focusing on the methodological formulation of the theory, we take a top-down approach. We present the theory and discuss the different elements that form it. In justification, we will discuss both the importance of having a theory that operationalizes the gaming experience and the use of the theatrical concept of puppetry to describe the experience of playing videogames.

After presenting the basic definitions that will be used in this paper, we divide our discussion into three sections: First, we present puppetry in the concept of theatre. The aim is to highlight the

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similarities that it has with videogames, in particular the idea that puppetry is defined in terms of its experience and not of its physicality. Next, we present a theory of puppetry to describe the gaming experience. We do not discuss the origins of the theory, but just the theory itself. We argue that the experience of playing videogames is centered on the control and ownership of the player towards the videogame. The final discussion is about the importance of operationalizing the concept of the gaming experience, and how puppetry takes the first steps towards this operationalization by identifying a clear set of hypotheses grounded in latent and observable variables.

We focus on the importance of operationalizing the concept of experience as we are interested both in understanding the experience and having a falsifiable theory about it. Experience is by definition a subjective term: an individual tells of the lived experience according to that person's own accounts (McCarthy/Wright 2004). And there are no objections from us regarding that perception. However, if we are to study the concept of experience, we need to be able to operationalize it under scientific grounds. When individuals play the same videogame and have good experiences, they are able to share them among other players under a common framework of what constitutes a good gaming experience. We are looking for that common framework in which the experiences are shared. The experience might be personal, but the framework in which the experience is built is general. We write this paper under two influences, that of our own discipline of Human Computer Interaction and that of objective knowledge according to Popper (1997).

Basic Definitions

User experience is a relatively new concept within Human Computer Interaction (HCI). Preece et al. (2002) define experience as how the interaction *feels* to the users. They succinctly address experience leaving it as a vague term full of subjectivity: an application taps into

experience when during the interaction process factors such as fun, enjoyment, pleasure or aesthetics are influenced. This seems a typical understanding of user experience within HCI. The use of the concept user experience has problems and advantages. Ironically, the problems and the advantages both spring from the many meanings this concept can take, making it too widely applicable. The term user experience is usually employed when interaction designers or analysts refer to a concept that goes beyond usability and looks at the relation of the user with the application (Dix 2003). Usability defines how an application is implemented to let the user perform a task effectively and efficiently. The main focus is productivity, to let the user do the tasks with good quality in an optimal time and the secondary goals are user satisfaction and user preference (Bevan 1995). As designers tried to maximize satisfaction and user preference, they started looking at something beyond usability, something that could provide the user with a better experience. This meta-usability approach is one in which the user would think about the experience. It is not only about using it, but using the application to have a better experience performing the task.

Understanding experience as part of human life has long been the concern of different branches of philosophy. In this section, we address two of the schools of philosophy that have dealt with this issue and that are of recurrent use within HCI: phenomenology and pragmatism. Phenomenology considers that “the central structure of an experience is its intentionality, it is being directed towards an object by virtue of its content or meaning together with appropriate enabling conditions” (Smith 2007). Phenomenology looks at the experience beyond the sensory qualities of it. It explains the relationship between the individual and the experience. This relation of object and individual was greatly studied by Heidegger (1971). He introduced two concepts, “ready-to-hand” and “present-at-hand”. Ready-to-hand is the way we perceive tools as instruments to pursue

a task, that is, the tool is invisible as long as we are able to use it. The ontology of the object depends on the use given by the individual, as the tool by itself is useless. Present-at-hand is when the individual reflects upon the tool; in other words, the individual studies the tool instead of using it. The concept of present-at-hand is not necessarily the inverse of ready-to-hand. It is true that when an object is present-at-hand, it ceases to be invisible; this might be because the tool failed to allow the task to be performed, or because the individual became interested in understanding how the tool performs. These two concepts reflect Heidegger's position against the Cartesian dualism. He defended that it is not possible to separate mind and body as one needs the other. Individuals can think and be, but not one as a consequence of the other, but as a relationship between both of them that it is reflected upon the interaction with the world. In order to understand an experience, both the object and individual are joined together either to perform a task or to understand how the tool performs the task.

On the other hand, pragmatism studies the practical consequence of the actions of the individual. Among the many branches of pragmatism, Dewey studied experience for education and art. Dewey was interested in how our interaction with art or education affected the future; he stated

the quality of experience has two aspects. There is an immediate aspect of agreeableness or disagreeableness, and there is its influence upon later experiences [...] Hence the central problem of an education based upon experience is to select the kind of present experiences that live fruitfully and creatively in subsequent experiences (Dewey 1997:27).

Dewey explains that an experience can be "mis-educative if it has the effect of arresting or distorting the growth of further experiences" (Dewey 1997:25). He defined experience as the result of the inter-

action of the individual with the environment at a given time. The individual internalizes the experience in order to make it personal. Pragmatism helps us understand the individual in the face of the outcome of the interaction process.

Experience is dual: it is both a component (a phenomenological approach) and a consequence (a pragmatic approach). Dewey's and Heidegger's concepts relate to the idea of the colloquial experience. Whenever there is interaction, there is experience. From this stand point, HCI's concept of "creating an experience" is, at best, a conceit. Experience can not be created as it always exists. However, it can be influenced by acting upon the environment and understood by looking at it in these two-fold phenomenon. As it has been presented so far, experience is both the process and outcome of the interaction. Here, we build on the theories presented by Dourish (2001) and McCarthy & Wright (2004). During the interaction, there are elements of the application, which, if they are missing, can eventually provide a negative experience. The outcome of experience is linked to the elements that form the process. We start the discussion on understanding the gaming experience by modifying Dewey's concept of experience and proposing our own: *Experience is both the process and outcome of the interaction of a user with the environment at a given time*. Environment is defined by the interactive application. By looking at the process and outcome of the interaction separately, we are able to look into a more tractable concept of experience. Having defined the approach that we are taking towards experience, we proceed now to discuss the concept of gaming experience.

Gaming Experience

There have been different efforts that aim to understand the experience of playing videogames. There has been a big effort to compare the experience of playing videogames with that of reading (Aarseth 1997, Rush 2005, Murray 1997, Ryan 2002). This has generated a furi-

ous debate (Juul 2001, Frasca 2003) of whether games tell stories or not. We see this debate not as a matter of whether a game indeed tells stories, but as matter of understanding videogames in terms of the experience they provide.

It can be said that the objective of a videogame is to provide players with a positive experience. Salisbury and Fields (2004) identify three phases of the experience of playing videogames: selecting the game, engaging with the game and mastering the game. Out of these three phases we concentrate on the second one: engaging with the game. We are interested in the prosaic experience of a player with the game. We do not look at why was the game selected, or how can the player master the game while becoming immersed (Brown/Cairns 2004, Ermi/Mäyrä 2005), present (Spagnolli/Gamberini 2002) or in flow (Csikszentmihalyi 1990, Sweetser/Wyeth 2005). Neither are we interested in the social aspect of playing videogames (Lazaro 2005) nor in the design process to produce a good videogame (Crawford 1984/Hunicke et al. 2004). Our primary interest is to identify, once the player is playing, the core elements of that experience, which we are calling the gaming experience.

Before discussing the different elements that form the gaming experience and the theory of puppetry that encapsulates such elements, we proceed to discuss the concept of puppetry in theatre. As mentioned earlier, this is done with the aim of highlighting the similarities between puppetry and videogames. It is also done to clarify the meaning of puppet, which goes beyond a doll attached to a set of strings.

Puppets, Artists & Audiences

Puppets are shadows, hands, dolls, figures and figurines. The physical representation of the puppet is eclectic, but still, we are able to recognize one when we see it. They are not puppets because of their physical characteristics, although they share a common semiotic, but because of the experience they convey.

Puppetry is experienced differently depending on whether it comes from the artist or the audience (Tillis 1992). Upon the artist, the puppet is a medium under his control that frees him of any responsibility. The artist is free to act in an unreal world as the consequences are only in that world. However, the object manipulated by the artist only becomes a puppet once the audience gives life to it. The audience recognizes that it is an object performing in front of them, but they suspend their disbelief and bring life to the object so that it becomes a puppet. Tillis calls this effect “double-vision”, seeing the object both as an object and as alive. Puppet is defined as a

theatrical figure perceived by an audience to be an object, that is, given design, movement and frequently, speech, so that it fulfils the audience’s desire to imagine it as having life, by creating a double vision of perception and imagination, the puppet pleasurablely challenges the audience’s understanding of the relationship between object and life (Tillis 1992:65).

We find that in videogames the player performs both the functions of the artist and the audience, while the videogame performs the function of the puppet. The player has control over the medium, a medium unbounded by reality. While at the same time, the player becomes the audience by allowing, via double-vision, the game to be real. It is this process of control and life giving that is at core of the gaming experience.

Puppetry as a Theory for the Gaming Experience

The player forms the gaming experience by grabbing control of the videogame and creating ownership the experience. The gaming experience is built by the puppetry of the game. Puppetry is achieved when the player has ownership, which is achieved when the player has control over the game. In case of poor control, the player can be influenced by other factors that facilitate ownership. We define pup-

petry as a concept formed by control, ownership and facilitators. Control represents the basic actions that the player takes upon the game. Ownership is when the player takes responsibility of the actions of the game, he feels them as his because they are the results of his conscious actions and the game has acknowledged these by rewarding him. Facilitators are the external factors, such as the available time to play, previous experiences, or the aesthetics of the game.

Players see the videogame, in relation to the experience, as game-play and environment. The former is the soul of the game, providing the rules and scenarios on which the game develops. The latter is the body of the game, creating a scenario, providing the sound and the graphics. The player controls the videogame and makes it his own. The player owns the experience of the game by applying his strategies. These strategies are used to win the game or to accomplish the player's own goals. As the game progresses, the player starts to receive different types of rewards, which can be helpful towards winning the game, or just something that the player enjoys doing. It is also an opportunity so that the player can do something alien to his reality. In order to have ownership, the player has to grasp the control of the game. There are two types of control, mechanical and virtual. Mechanical is related to how the game is implemented into the specific console. Virtual control is formed by the basic actions that the game provides to the player. The facilitators that influence puppetry are part of the subjective relationship of the player with the game. They can be a previous experience with a similar game, the amount of time willing to play, or the aesthetic value that the player can perceive from the game.

Describing the Gaming Experience Using Puppetry

We now proceed to discuss each of the members of the elements of puppetry. Two different videogames are used as examples: TETRIS (1985) and STARCRAFT (1998). They are chosen because they rep-

resent two tangential different types of videogame. The concept of Control has six members clustered in two groups: Virtual and Mechanical. Virtual are the basic tools available to the player: small actions, goal and something to do. Small actions are the basic actions that the game performs. In TETRIS, they are rotating the figures or moving them left, right and down; in STARCRAFT, they could be selecting the troops, moving them or telling them to attack or to build something. Goal is the high level objective that the game poses to the player. In TETRIS, the goal is not to lose by arranging figures while avoiding cluttering the figures at the top; in STARCRAFT, the goal is to conquer your enemy. Something to do is the game keeping the player occupied while achieving the goal. In TETRIS, the player is kept busy by providing figures to the player every time the previous one is placed; in STARCRAFT, the player is kept busy by developing the settlement or scouting the land. Mechanical control is bounded by the physical implementation of the game: controllers, memory and point of view. Controllers are the physical devices used to manipulate the game: control pads, mouse, etc. Memory is the ability of the player to remember the binding between small actions and controllers. In TETRIS, this bound is defined by knowing that, for instance, pressing the left arrow moves the figure to the left; in STARCRAFT, it is such things as using the mouse to draw a rectangle to select the troops. Point of View is the position of the player in respect with the rest of environment, what the player sees. In TETRIS, the player has a front view of all the game and the upcoming figure; in STARCRAFT, the player sees the environment from above, but only a small part of the map is displayed.

The concept of Ownership has four members: big actions, personal goals, rewards and you but not you. Big actions are the strategies that players take towards accomplishing the goal. It is using the available small actions to form a big action. In TETRIS, the player performs a big action when he takes the figure from the top of the screen to his desired place, moving it to the left and rotating it; in STARCRAFT,

it is finding a new mine, exploiting the resources and defending it from attacks. It is not only through strategy that the player makes the game his own game, it is also through personal goals. In TETRIS, it is not necessary to arrange the figures so that four lines can disappear at once, when the appropriate figure appears, but players do it. The game responds to the player's efforts by rewarding him, either by passing levels, defeating bosses, or by saving his record as the highest score or the fastest time. Finally, there is catharsis on behalf of the player, to be someone alien. The player becomes a general, a murderer, or starts solving under pressure or time constraints. As it is the case in STARCRAFT and TETRIS respectively.

Sometimes, control is poor, but the player is still willing to get ownership. This can be due to the game aesthetic properties, previous experiences or time. The player is only willing to play aesthetic property longer because of the aesthetic pleasure in the environment. In STARCRAFT, the player may select Terrans solely because he likes how they look, even though he might have no control over them. Previous experiences refer to the fact that the player may play longer just because a previous similar game was engaging. Finally, it is the amount of time that the player is willing to dedicate to a particular game. TETRIS could be played for only five minutes, while STARCRAFT is usually played for hours.

Puppetry as an Operator

The objective of this paper is to present a theory that can operationalize the concept of the gaming experience. Towards this end, we presented a definition of user experience and a theory that described the basic elements and their relationship to produce a positive gaming experience. This is done with the objective of bringing the concept of user experience to "World 3" (Popper 1994). The importance of "World 3" is that it is here where objective knowledge resides, the type of knowledge that allows ideas and concepts to be falsifiable and autonomous.

Puppetry proposes four clear hypotheses: The absence of puppetry leads to a poor experience; high ownership leads to high puppetry; high control leads to high ownership; and control and high facilitators lead to ownership. Puppetry is formed by three main categories: ownership, control and facilitators. These three categories are three latent variables or constructs. They were introduced in order to explain the process of the gaming experience. The three constructs cannot be observed or measured directly. However, it is possible to learn about them by observing their members. The members of each category are observable variables that can be quantified through empirical observations. The following Figure presents all the elements of puppetry.

Latent Variable	Measurable Element
Mechanical Control	<ul style="list-style-type: none"> • Controllers • Memory • Point of View
Virtual Control	<ul style="list-style-type: none"> • Small Actions • Goal • Something to Do
Ownership	<ul style="list-style-type: none"> • Big Actions • Rewards • Personal Goals • You but not You
Facilitators	<ul style="list-style-type: none"> • Aesthetic Values • Previous Experiences • Time

Fig. 1: Elements of Puppetry

Puppetry describes the relationship between the player and the videogame. It does not measure the game or the player, but their relationship. It does so by proposing a series of falsifiable hypothesis and observable measures that bring the concept of user experience closer to the world of objective knowledge and operationalizes the

concept of experience. We argued that the concept of experience as it stands is problematic as it is hard to operationalize. To overcome this, a definition of user experience was introduced that looks at it as a two-fold phenomenon: process and outcome. The process was justified as a consequence of a phenomenological interaction with the world. It is in the process where the common elements that influence the outcome create a personal experience while also allowing it to be shareable.

Puppetry covers both sides of the definition, the name gives a metaphor to which the player can help internalize the experience and its elements are those that affect the building of the experience. We identified the core elements of the process of the experience as control, ownership and facilitators. The theory was named puppetry as it shares several characteristics with the theatrical puppetry. Puppet and videogame have to be defined in terms of the experience they produce and not in terms of their physicality. The roles of artist and audience in the theatrical puppetry have parallels with the player. The player is the artist who has control of the game-play and environment of the videogame. Besides, the player is responsible for bringing the game to life. Puppetry, as we have proposed, describes and assesses the gaming experience. Puppetry describes the experience in relation to the player and the videogame. It helps to understand both the process and the outcome of experience. Puppetry brings experience as an objective concept that can be evaluated and is falsifiable, as well as be internalized.

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