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**”Computer games are full of a number of things to do.....”** – a brief look at concepts of affordances and gameplay in computer game studies

## **Introduction**

In this short presentation, I will take a look at a concept that I have deliberately avoided in my other Ph.D. related texts, namely *affordances*. When telling fellow researchers that I base my Ph.D. on the work of James J. Gibson, it is immediately implied, on their account that I must be working with affordances. I have studied the concept, but because of its widespread use and misuse, I have chosen to look at other aspects of Gibson’s approach to perception, knowing that the concept of affordances eventually would have to be reinstated in my thesis. The reason for avoiding the concept, in the first place, was that affordances are now used in various creative and scientific contexts and to use the term is a complicated affair since the meaning vary depending on interest and purpose of use. So not to fall in to the pit of misinterpretation, I felt that an understanding of the ecological approach to perception, in detail, would shape my use of affordances, as a concept. A typical use shows a detachment from the ecological perceptual field, which again, in my opinion, distorts the meaning of the concept. To understand what affordances are, it is vital to look at the realm in which it was created and integrate the discourse within which it was coined. Supporting the description of the concept with other properties of the ecological approach to perception is what makes the term functional. Affordances are at once, all and nothing, which in itself is an endangering feature and makes it apt for misinterpretation. Gibson made up the word *affordances* in order to break down the subject-object barrier that underlies most theories of perception, a term that at the same time could refer to properties in the environment and the observer seemed in place. Affordances are relations between the observer and its world and are perceived through the act of picking up information in the ambient optic array.<sup>1</sup> Basically an affordance therefore, is a relation and not an objective or subjective property. It is interesting in studies of computer based

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<sup>1</sup> J.J. Gibson in “The ecological approach to perception”, 1979/86

interaction, since it can bridge the gap between artifact and user, and hopefully explain the relation between virtually presented information and action.

### **Affordances in use**

Donald Norman<sup>2</sup> made himself famous by applying the term to the world of design. Most people are familiar with the term in his specific use and interpretation, but it is worth to note that he more than once has revised the concept.

Within computer games research affordances have been seen as a promising way to describe the relation between game and player. I.e. Linderoth and Bennerstedt(L&B)<sup>3</sup> has carried out experiments regarding children's gameplay based on the ecological approach to perception as well as a range of game research papers are now surfacing taking the term into account.

How the concept of affordances can be applied to computer games research seems to hold some problems because of the games virtuality and the fact that not all things can be manipulated the way they would, were they physical, which is one of the conclusions L&B arrives at. Second there is the double situation of the manipulation within the virtual world in correlation with the physical devices used for manipulation. As Rambusch & Susi(R&S) state in their paper, "The challenge of managing affordances in Computer Game Play"<sup>4</sup>,

"The study of the perception of affordance in computer games is, however a bit tricky, to say the least, since the game environment consists of *two worlds*: a virtual and a real one. As players are engaged in game play, they face the challenge of perceiving and acting upon affordances in both worlds, and we as researchers, subsequently face the challenge of capturing and explaining them. The challenge for players, though, is not the perception of affordances *per se*, but rather their integration, since players have to combine real world actions with actions in the virtual world". (p. 3)

As put forth in the statement, affordances can be studied on at least two basic levels; the affordances of the physical equipment and affordances as they function in the

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<sup>2</sup> The Psychology of Everyday Things, 1988 ed.

<sup>3</sup> "This is not a door: an Ecological approach to Computer Games" Proceedings of DiGRA 2007 Conference

<sup>4</sup> Human IT, published 28-10-08

game. In L&B's case affordances in the game world was of interest and one of the things they point to is that picking up affordances in a game world does not necessarily correlate with picking up the same affordances in the real world, which means that a door is not necessarily a door, if a door is understood as something that can be walked through. A 1:1 application is therefore not possible, so a distinction between real affordances and virtual affordances is lined out. L&B suggests the term *professional vision*, to explain how we pick up affordances in games with no natural equivalents.

What is interesting to remark is that the concept of affordances seems very promising, but to make it operational seems very challenging. R&S suggest in their paper not to overuse the concept and to do further studies. As pointed out in the introduction my presumption is that to make the application of affordances successful, Gibson's overall approach to perception and level of description cannot be abandoned. In the following I will make a preliminary suggestion of how the concept of affordances can become operational.

### **Affordances emerge where there are people and things...**

The situation that Norman created was that affordances became a substitute term for properties already equipped with a discourse. Affordances were seen as something relative to an object, thus causing the ear of a cup, to be described as an affordance. In an attempt to correct the mistake, Norman expanded the term and added that affordances in relation to design are more conventionally based than natural affordances and *perceived affordances* are more important than real ones.<sup>5</sup> In connection with L&B their notion of *professional vision* can be seen as possible in-game perceivable affordances that relates to the conventions of a game genre or game world. There will be doors that cannot be opened or passed through. In R&S's paper they refer to Neisser's idea of perceptual learning, which is at the core of L&B's paper, as "responding to variables of physical stimulation not previously responded to". (p. 20). The learning process of a game and the discovery of affordances in a game is then based on the encounter with and the experience of in-game virtual properties and the possibility of manipulation. How can the concept of affordances be fruitful if there isn't a

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<sup>5</sup> Norman, "The invisible computer", p.123 - 124

natural relation between affordances in virtual worlds and affordances in our natural environment?

First we can skip the dichotomy all together. Encountering, perceiving and acting on affordances is an environmentally and bodily constraint activity. We do not learn about the world unless we act upon it and observe the consequences of our actions, and the actions possible are relative to how our bodies are situated in a confined setting. The computer games graphical layout simulates properties known from our natural world in the sense that there is information for action available in the optic array. When learning about a game world we may find ourselves in a trial and error position, discovering which properties can be manipulated and which cannot. As things can be attached or detached to the ground or other things in the natural world, so properties in the game can be detached or attached to the layout. Attached virtual objects cannot be manipulated whereas detached objects can. The knowledge of which objects are detached or attached is a part of the learning process and is discovered in attempts of manipulation. In older computer games there was a high degree of object attachment due to computer power and technical graphical constraints, which means that only objects important to the gameplay was detached from the layout. Now more and more objects are detached from the layout, which gives the player a higher degree of manipulative possibilities and freedom of use.

In Juul & Norton's(J&N) article<sup>6</sup> "Easy to use and Incredibly Difficult: On the mythical border between Interface and Gameplay", they attempt to line out the relation between the interface and the gameplay. They state, for the purpose of their article that; "...the interface is considered to be the software and the hardware tools that the player uses to understand and affect the game state. The interface can include controller buttons, mouse clicks, menus, status bars, and field of view." The gameplay is then considered;"...the core activity of the game which is accessed through the interface." Both terms; interface and gameplay, are fuzzy. It is important to point out that J&N are not concerned with affordances, but their approach could benefit from the integration or at least a consideration of affordances. The statement that gameplay is accessed through the interface is a weak point. If we substitute the term interface with that of

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<sup>6</sup> <http://www.jesperjuul.net/text/easydifficult/>

“layout”, then the gameplay is something that unfolds as changes occur in the layout. That you manipulate a character, figure etc. is not as important as how this figure occupies the layout. Again this brings us into the ecological discourse. To be specific about affordances and their function, we need to be specific as to how all other features of a game is described. If gameplay is changes occurring in the graphical layout, then the distinction between natural and virtual affordances becomes obsolete, and the concept of affordances can become operational, since affordances are based on the presence of information for action.

### **Sum up!**

To sum up my main points here, I will make a statement. Affordances emerge in activities. Activities consist of events and sequences of events. In the activity, as agents, we engage in a perceptual process of picking up information for action and in doing so we perceive the environment while co-perceiving ourselves. If affordances should be an operational term within game research, we need to take basic ecological properties in to account.

### Sum up

I will suggest that gameplay from the ecological viewpoint *is* the changes that takes place in the layout based on the manipulative skills of the player and the manipulative possibilities of the game. When J&N conclude, “...a game is an activity not simply about accomplishing something, but about the beauty of the activity itself” (p. 7), they are partly right. Playing games is an activity that can be enjoyed with no greater purpose than being absorbed in the activity itself, but engaging in a seemingly pointless activity none the less requires a level of perceptual purpose, that is, the level at which affordances for action is picked up. Playing a computer game, no matter how poor the graphics, always requires a minimum of perceptual engagement, since playing involves the changes to the optical structures of the layout and the intermingling of input and output.