

ZooMor: Three Stages of Play for a Sleeping Creature

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Abstract. This paper presents a design case of an interactive zoomorphic play object for open-ended pretend play, based on De Valk's three stages of play framework. It was designed to invoke pretend play around a sleeping object. Design iterations were tested in a public play environment.

Keywords: open-ended play, pretend play, stages of play, zoomorphic.

1 Introduction

A sleeping being – animal, human - is intriguing for many children. It is tempting to wake it up to see how it reacts, but there is the risk of a negative reaction. This was the inspiration for ZooMor: a 'sleeping' zoomorphic object placed in an open play space, designed to invite children to play with it, moreover, to develop pretend play around it.

With the last question, we position ZooMor as an interactive object that aims to support open-ended pretend play, like for example [1]. Design for open-ended play aims to support children in creating their own play, without predefining the rules of play [2].

ZooMor is an object that has much similarity to relational artifacts. Turkle defines relational artifacts as 'objects presenting themselves as having "states of mind" that are affected by their interactions with human beings' [3].

The challenge of designing for interactive open-ended play is to provide opportunities to players. This is fundamentally different from for example game design, in which the play activity is largely predefined. De Valk's Stages of Play provides a framework to design for this open-ended play. In this framework, an interactive experience in play goes through three stages. First, a potential player must be attracted to start playing. This first stage is called the *invitation phase*. Once a player is attracted to the play design, she or he explores opportunities for interaction and play in the '*exploration stage*', wanting to understand aspects such as rules and affordances. Once a player has acquired sufficient understanding of possibilities for play, immersion in play may occur: the '*immersion stage*'.

2 Design Iterations

ZooMor was designed to be a zoomorphic creature, its form giving leaving room for interpretation in order to support open-ended pretend play. Its basic form was symmetric, with a 'leg' part at front and back side, and a heightened back. The form allowed children to sit on it and crawl underneath it.

In total three design iterations have been done. All iterations were completed with a field test in 'De Ontdekkfabriek', an open play environment. Children from ages ranging from 3 to 9 could enter freely to play. ZooMor was available for play for about two hours per study. In every test, 5 to 10 children played with the prototypes for 5 to 30 minutes. Evaluation of play was done in two ways: analysis of video and semi-structured short interviews with the children leaving the place. The interactivity of ZooMor was tested with the Wizard of Oz technique. [4A]

In the first design iteration, emphasis was on the first stage of play, invitation [5]. Applied to ZooMor, it had to sleep but arouse curiosity of children nearby. It is known that life-like sounds like pulse, breath, snore or cough are strong triggers of zoomorphic perception [5]. To invite children to interact, we chose the sound of snoring.

The experimenter followed a strict protocol in controlling ZooMor's behavior. The initial state in all tests is asleep. After 5 seconds of sleep, it starts snoring loudly. It wakes up if a child does at least one of the following things: crawl under the belly, climb on top of it, stroke or pet it, or kick or hit it. It does not react to sound. When it wakes up, it stops snoring and to give further feedback to the child a blue light under the belly is switched on. When no one is touching ZooMor for more than 10 seconds, it will go back into the asleep-state.

The snoring did invite children to come to ZooMor and start playing with it. Interaction comprises petting, lying down next to it, and sometimes more aggressive interactions like hitting, kicking, hopping on top of it and shouting occurred. The sleeping state was very well understood; the awake state with the blue light was not. Children referred to ZooMor as "sleeping beast", "giant", "horse". One child did not dare to enter the space because there was "a monster sleeping".



Fig. 1. The final version of ZooMor

In the second iteration, the emphasis was on De Valk's exploration phase. Several changes were made to the design. First, the poorly understood blue light was replaced by abstract eyes on one side of the form, to appeal more to zoomorph identification. Second, the interaction opportunities were extended somewhat: the possibility to 'wiggle' the back perpendicular to the spine of ZooMor. This movement could for example lead to rubbing, stroking, shaking or wiggle while sitting on top of it. The wiggling movement was also defined as an input that could wake up the creature, when repeated at least 3 times. Finally, a second ZooMor was added to the scene, having the same affordances, but in a different color. These changes were successful in invoking a stronger zoomorphic perception: children were talking about the two creatures as living things frequently, and started having "inappropriate expectations" [6]: attributing capabilities to them they did not have. The second design did stimulate children effectively to explore ZooMor's behavior. It was not however interesting enough to create a long lasting and playful experience.

Therefore, the third iteration focused on De Valk's *immersion* stage. We aimed for richer behavior than be awake or asleep, to elicit more variety in play. This was done through a redesign of the eyes, Fig. 1. These now could be anything in between fully open and fully closed. The expectation was that this would allow for perceptions like drowsy, tired, dreamy, and so on. We indeed observed richer and more lasting play, children assigning meaning to the intermediate states of the eyes.

3 Conclusion

In 3 iterations, ZooMor was developed as a zoomorphic creature that invited children to play with it. The stages of play framework proved to be very useful for the systematic development of ZooMor. The last iteration, addressing all stages of play including immersion, indeed led to the most sustained pretend play.

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