

SeapVRzzle – From problem context to HAM and design decisions

With the population explosion came the inevitable increase of users in nursing homes. The unavailability of human resources and logistics in such circumstances led to a drastic decrease in daily attention and interaction with the elderly. As a consequence, more and more cases of premature muscular and cognitive atrophy are emerging in these weak people. The loneliness and isolation of this age group are also because they are often excluded when it comes to contact with new technologies. Technology indeed has numerous negative aspects, however, when used correctly and moderately, it is capable of bringing human beings closer and making their lives more colourful. It was from these assumptions that the working group in question had the idea to develop the project entitled *SeapVRzzle* - a virtual reality mind game whose objective is to find the lost pieces on the seabed to complete a puzzle, through swimming movement with the appropriate controllers in each hand.

Typically, the approach taken to develop an artifact, in this case, a virtual reality mind game, is to look for a problem and create that artifact to solve it. However, taking into account the knowledge acquired in the *Human-Computer Interaction* course and also, a little common sense, the group concluded that the aforementioned methodology is insufficient: in addition to finding a problem, it is necessary to model the context that revolves around it. This context seems to be something very simple, but in fact, it is a container that houses a large number and variety of concepts.

- Ecology of artifacts ^[1] - it is necessary to be aware of the existence of artifacts with similar purposes, uses, and characteristics (as well as how they are articulated) to enhance the design of the artifact in question. The contemplation of alternatives to the artifact, repurposing others, and taking advantage of certain segments of others may lead to better design decisions.

- Artifact archaeology ^[1] - A look at the past and history of such artifact is useful as it alerts you to possible mistakes already made and thus makes design decisions that prevent potential breakdown situations.

- Scenarios and personas - the mental experience of being at the feet of a typical artifact user - in this case, an elderly person, with no experience in VR technologies -, in certain circumstances, allows obtaining precious information about the ideal design, which favours a more fluid and easier to use.

These concepts, among others, were used by the working group within the context of the artifact, to be able to build a human-artifact model (Why? What? How?) ^[1] of it, which dissects all the activity resulting from the interaction of the user and the artifact. It should be noted that this model does not have a merely expository purpose: its careful analysis encourages the emergence of better and more design ideas and potential problems. As a consequence, taking this model into account, it is possible, iteration after iteration of its prototyping, to bring the artifact closer and closer to a functional organ ^[1] or extension ^[2] - an artifact that is used fluidly and practically unconsciously by the user and which largely allows for the abbreviation of actions ^[1].

In conclusion, it is important to reinforce that, for a better design and subsequent prototype development of the artifact proposed by the group - *SeapVRzzle* -, it is essential to study and apply the concepts underlying the theory of activity and HCI, which mainly focus on modeling the context surrounding the problem to be solved.

Bibliography

[1] – Bødker, S. & Klokmoose, C. N. (2012). Human–Computer Interaction. *The Human–Artifact Model: An Activity Theoretical Approach to Artifact Ecologies*.

[2] – Verplank, B. (2009). *Interaction Design Sketchbook*.