Interaction Design on Educational Children's Sites

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Interaction Design, cognitive ergonomics, design for children

1. Context

In a digital product's navigation, the behavior and reach of user goals are consequences of cognitive associations stimulated by the design of their interfaces. In these interfaces, the graphical representations of the elements that signal navigation should contribute to the user being able to carry out its tasks.

How can designers adapt the children's websites navigation systems to users? This issue served as a starting point for a doctoral thesis (Carusi, 2010), considering the design of navigation signaling areas and the user int eraction in a digital product.

In children's universe, the access to computational technology has been present in residential and school environments with objectives not only playful but also educational. One part of this process has been the use of children's educational websites by children in their homes and in schools, specifically in computer labs. The use of these sites can help and stimulate the content learning, autonomously, in addition to awakening motivation and pleasure sensations, provided by entertaining environments, like games. Like other activities present in childhood, this type of system has an educational potential, that is, it can contribute and interfere with child development and assist in world understanding.

The current scenario is a generation of children and adolescents who have digital independence as much for using entertainment, like game products, as for school activities, like research and homework. According Gelman (2014), people were worried about keeping kids away from the web to protect them from inappropriate information. Educational sites that came up frequently were designed so that the child's access was supervised by an adult. However, we see children increasingly aware of the applications and websites language, and therefore increasingly autonomous in its use.

2. Method

According to these premises, the central problem addressed was: how does the design of graphic elements that represent the navigation system influence the cognitive processes and the performance in task accomplishment in digital children's products?

In order to investigate the problem, navigation was considered as the research object, resulting from the understanding of graphic elements (menus, photos, illustrations) that signal the clickable areas and influence the user task accomplishment of an educational children's site.

In this context, it was hypothesized that the inadequate design of clickable areas makes it difficult to perform the tasks related to navigation in educational children's sites. To test the hypothesis, we chose the *Kiagito* website, with interactive activities to be developed in lower elementary school.

Initially, based on the theoretical reference and the evaluation of design, human-computer interaction, and education specialists, the clickable areas were identified that could cause difficulties in the task performance on the interface for the educational children's website that was chosen for the study. Subsequently, based on the participation of a group of children, the adequacy of the design of these areas was analyzed, based on the cognitive process and the accomplishment of the tasks.

In order to achieve the research objectives, quantitative and qualitative data related to the structuring of the user's mental model were collected, influenced by the graphic representation of the pre-selected clickable areas on the Kiagito site. Consequently, aspects of the users' models were compared to the models of the site's usability.

From these considerations, the research was divided

into two phases: exploratory and participatory. Data from different origins were collected, coming as much from investigations with education specialists, teachers and designers regarding the research topic and the Kiagito site (exploratory phase); as from an evaluation with children using the same site (participatory phase).

At the end of the study, the results of the used methods were compared to the site's usability model. Thus, it was possible to analyze if the design of the clickable areas was in agreement with the mental models of the participating groups of children.

3. Final Placings

The study results made it possible to visualize questions that helped the elaboration of guidelines so that the interface design contributes to the facilitation of learning. It is worth mentioning that such guidelines were generated according to the limits assumed for each phase of the study such as the participants used, as well as the characteristics and the participating children's age range.

Finally, the study sought to show that cognitive issues are influenced by the way information is presented in a website, that is, by its design. This implies how such a product will be manipulated and understood. The responsibility of designing an educational site is broadened, as the interfaces can only be complete in their functions by keeping children motivated. It is also hoped that interactive educational products will serve an increasing number of children with different experience levels related to computational technology, and will be able to learn their content and develop their users.

4. References

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