

Is it a Book...is it a Game? No, it is TOK

Cristina Sylla

Universidade do Minho
Portugal
sylla@engagelab.org

Pedro Ângelo

Universidade do Minho
Portugal
pangelo@void.io

Clara Coutinho

Universidade do Minho
Portugal
ccoutinho@ie.uminho.pt

Pedro Branco

Universidade do Minho
Portugal
pbranco@dsi.uminho.pt,

Nelson Zagalo

Universidade do Minho
Portugal
nzagalo@ics.uminho.pt

Eduarda Coquet

Universidade do Minho
Portugal
coquet.eduarda@gmail.com

Goal(s)

The interface presented here aims at helping children to create their own stories and to reflect over their narratives, in a process whereby they learn how to build logical sequences, enhancing their vocabulary and literacy.

At the same time we wanted to make it easier for young children to interact with digital content, through the tangibility of the interface.

Description

We probably can say that all children around the world simply love to hear and tell stories. Telling stories and fantasy role play is also children's way to explore and learn to know the world around them. This is an experimental and exploratory process whereby children experience how others behave and feel, try out different roles, and identify positive and negative aspects, while learning to express themselves and to communicate with others. Along this process children gradually acquire the discourse rules.

TOK, the prototype presented here is a tangible platform where children can create their own stories by placing picture cards on a platform, rearranging them until creating meaningful sequences and stories. As the cards give oral and visual

feedback after being placed on the platform, they help children to reflect over their narratives, whereby they can learn how to build logical sequences, enhancing their vocabulary and literacy. The tangibility of the cards invites and supports spatial interaction supporting performative behavior and embodied interaction, making it easy for young children to interact with the content. Simultaneously the cards act as generators of ideas, fostering imagination and creativity.

The design process

Following methodologies explored by previous authors two groups of 25 preschool children each, all aged five, were involved from the beginning in the design of the platform: informing the design process, testing and using the cards and the prototype. We worked with three children at a time. The first approach was to learn the kind of stories that children create. During two sessions we asked each child to invent and tell us a story. Most stories were about children's daily routines, their family and friends. The results of this first approach encouraged us to create an experimental space, where children can explore the language in a game like manner.

A tangible interface for storytelling

TOK is a platform for preschool children to create their own stories, the prototype consists of a platform with slots for placing cards, and a set of picture cards drawn on paper, it can be connected with a computer through an USB cable. When the picture cards are placed on the slots, an animation is triggered on the computer, e.g. if a card that represents a boy walking is placed on the platform, the animation of a boy walking along the computer screen will appear on the screen.

The system identifies the content of each card as well as its location. This way, each card can be placed anywhere on the slots, since the system supports connections between cards, or groupings of cards, thus giving the children the possibility of beginning the story where they want. Additionally the system reads the cards following the order they have entered it, this means that the children can place a card on the bottom of the platform and then continue placing the next card on the middle of the platform, jumping back and forth as they create their story.

The interface creates two levels of interaction: each card that is placed on a slot activates audio (all the sounds were recorded with the voice of a seven year child) and a computer animation. This means that each card contains an audio identification according to the picture that it represents, e.g. when a card with clouds and rain is placed on a slot the words "it is raining" are spoken by the system; at the same time the clouds and the rain appear as an animation on the computer screen. When the story is ready the children can press a button to hear it and a video comprising the audio and the animation is created. We are exploring scenarios where the stories can be then uploaded to a blog and shared with family and friends.

Although the platform targets preschool children, its use can be extended to primary school. It is being conceived to be used in the classroom as a pedagogical interface for storytelling, with an effective educational value. Therefore it is being designed from the start with the intervention of both children and educators. One of the aspects we are paying particular

attention is its feasibility to be integrated within the classroom, and its affordability for schools and students.

Discussion

The picture cards work as an input for the creation of stories helping children to generate ideas. Since the cards give audio feedback children can find out and learn about logical relations and sequences and the system might foster a better understanding helping the construction of a storyline. The fact that the content is attached to the cards may help children to think of how a story is built as well as about logical sequences, a process that can be guided by the teachers, who can work on the construction of the narratives with the children. Additionally the interface can be used by the teachers to propose a series of educational activities.

The tangibility of the interface allows younger children to easily interact with it; looking for specific cards, going through the cards, handling them on their hands, gives children time to think about the content and about what they are going to tell, creating a link between the movements and the process of thinking . The recorded stories, which can be uploaded to a blog, allow seeing children's progression over the time and can be shared with family and friends. The interface makes available a multitude of characters, scenes and objects that children can combine, allowing them to be the authors of their own stories, promoting creativity while proposing a framework that supports and guides the construction of logical structures.

Future work

This interface is an initial stage of a plan to develop a toolbox of tangible interfaces, consisting of low cost materials commonly used at preschool, such as paper and cardboard, so that children and educators can use the materials to build their own interactive interfaces, thus exploring, simulating, and creating knowledge in an active way. We will proceed exploring the cards and plan to develop different sets that focus on different skills and activities.

Acknowledgements

"This work is funded by FEDER through the Operational Competitiveness Factors Programme - COMPETE and by National Funds through the FCT –Portuguese Foundation for the Science and the Technology within the Project: PTDC/CPE-CED/110417/2009, and the Doctoral Grant: SFRH / BD / 62531 / 2009.