

Theatre Maker: A Role-playing Facilitator for Children

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ABSTRACT

This paper presents the design of Theatre Maker, a tool for inspiring children between the ages of six to nine to role-play with the aim to help in the development of their social and empathy skills. The design process followed guidelines provided by the Child Computer Interaction field. The different methods used are described, as well as the encounters held with children for testing and co-designing Theatre Maker. Challenges that were present during the design process regarding the target users are analyzed, as are future considerations for further development of Theatre Maker, such as usability testing and refinements of the graphical user interface.

ACM Classification Keywords

H.5.2. Information Interfaces and Presentation: User Interfaces. - Graphical user interfaces.

Author Keywords

Children technology; role-playing; social interaction; empathy; creativity

INTRODUCTION

This project started within the domain of designing for the social and emotional development of children aged six to nine. The Developmentally Situated Design (DSD) cards were used to get information about the different physical, cognitive, social, and emotional skills the target users have or are about to develop, based on their age [1]. The context of use to design for was agreed to be at school for after class activities during children's free time, to encourage them to interact with other children with whom they do not usually socialize. The methodology followed implied three different encounters with children: observation, co-design, and evaluation of the design. Each of these steps are described thoroughly with the methods applied, the reasons behind why those methods were used, and the learning goals for the children.

After the first encounter, the design team started to research the importance of role-play, storytelling, and performing theatre in enhancing social and emotional development. The decision to pursue this path, in addition to insights gained at each visit with children, resulted in the development of Theatre Maker. Theatre Maker is a tool that scaffolds the theatre creation process, helping children to come up with a story or script to be performed within a group. Through the use of Theatre Maker, children are easily inspired and guided in their storytelling activities. The intended benefit of Theatre Maker is to help

children develop social and emotional skills such as cooperation, empathy and self-control, which take an important role in catalyzing children's development. However, whether these goals have been reached has yet to be established.

RELATED WORK

There are many sources that suggest that taking part in theatre activities, either by playing with friends or by performing in a show, can be beneficial for children's social and emotional development. One such source is the College Board, which suggests that for elementary school students, "*group theater activities can enhance social and emotional skills including conflict resolution and empathy*" [2]. Another source that presents similar thoughts is the DSD cards, which mention that children between seven and nine years old are starting to express their emotions and learn how to collaborate with other children. Hence, it suggests that "*Acting in a play encourages a child to understand the emotions of their characters and act out these emotions so that others can understand them*" [1]. These cards, as well as the College Board, also explain how in this age group, children start to feel empathy for others and start to explore how to deal with those feelings. Moreover, children are practising two-way cooperation, which helps them in building friendships [1].

A tool similar to Theatre Maker is Lipa Theater, which allows children to create theatres with an app by choosing characters, settings and props. According to Lipa Learning, "*Lipa Theater boosts narrative and social-emotional skills as you ... invent fantastical tales of your own*" [4]. These social and emotional skills seem to naturally accompany theatres, and are also present in the Theatre Maker. Children are able to interact with Lipa Theater alone, without cooperating with friends or family. In order to make theatre creation even more social and encourage cooperative play more, Theatre Maker relies on a group of children playing together with each other, rather than interacting mostly with the app.

Theatre Maker also has certain similarities with traditional role-playing games, such as Dungeons & Dragons (D&D) [6]. In D&D, the players pretend to be heroes in a fantasy world, who defeat evil beings, solve problems and explore the world. The game sessions are facilitated by a Dungeon Master, who creates and narrates the story, in which the other players take part. The players, however, have a high degree of control over their own character within the context of the story, and hence fill in many details of the plot. Theatre Maker mimics this general theme in that it provides characters, environments and a basic plot, while letting the participants fill in all the details regarding their character through acting. Another similarity between Theatre Maker and D&D is that the participants have

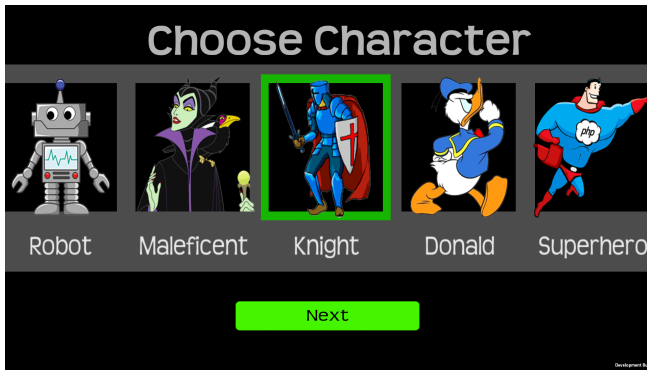


Figure 1. Choosing a character, interactive digital prototype

distinct "play styles" and interests. Theatre Maker tries to accommodate for both play styles, of either being more involved in creating the story or more involved in acting, and let the children's interests complement each other.

THEATRE MAKER

Theatre Maker is a scaffolding tool that helps children build their own theatre by choosing characters to play and creating a storyline. It suggests characters to choose from, but the decisions are made entirely by the children. Since everyone chooses from the same pool of characters, it is possible for multiple children to have the same character, supporting observations from the co-design session about children copying their friends. Theatre Maker encourages children to explore traits and relationships between characters involved, so that they can become more immersed in role-playing. The core idea is that, while immersing themselves in their characters' lives, the children will develop empathy, as well as social skills.

The plot of the story is given to the children as a means to encourage them to start role-playing. It is presented in a very broad and nonspecific way in order to inspire children's imagination to start creating the storyline, by merging ideas together with the other participants. Having a general plot for the play helps to frame the story so that children will all be working towards the same goal. This was seen to work successfully during the evaluation session, where children built their story upon the base of the plot provided to them. They also appreciated and took interest in each others suggestions and ideas.

Each participant interacts with the app on a tablet and chooses their character (see Fig. 1), decides whether they want to be good or evil, and what trait they want their character to have. Afterwards, the device is passed to the next child who goes through the same process, until all the participants have chosen their character. In the next step, everyone makes a collective decision about the place where the story will take place. This activity is important to help children to collaborate, negotiate and reach an agreement. Once the place is decided upon, the story starts and it is presented through text and audio on the device. Children are expected to act out the story based on the general plot that is supplied to them.

Theatre Maker provides certain benefits that cannot be gained from a traditional analogue role-playing game. For example, it provides output in multiple modalities such as text and audio, making it suitable for children who are not yet proficient readers. Additional benefits include its adaptability; Theatre Maker can be updated with new characters and storylines, so that players do not get tired of having the same script. Unlike a card-based game, these updates happen automatically (software); hence, children do not have to purchase a new game expansion or wait for the school to purchase it.

METHODOLOGY

This section describes the design process, presenting methods applied and findings that led to the development of Theatre Maker.

Observation

The design process started with two observation sessions performed at a cultural playground. The aim of the observations was to get inspiration and learn more about how children interact with each other, as well as how such an environment influences them. During the first visit, children below the age of six were observed while they were playing freely in an indoor playground, without interference from the design team.

The most interesting learning outcome of this visit was the realisation that children are more socially active when the environment encourages them to role-play, for example by allowing them to operate a hamburger store where they can pretend to sell or buy food with other children. It was perceived that these settings allow children interact naturally with other children that they do not even know, which was not noticed to happen as much in other contexts (other games).

A second observation session was held in the same indoor playground where older children (school class of six to seven years old) were going to participate in a chemistry workshop. The purpose of this session was to learn and understand how the target users behaved in an organized activity. Besides watching a theatre show, there were interactive activities with technology that the children had to take part of. These interactive activities influenced children in a positive way, making them more enthusiastic and engaged with the workshop and with learning in general.

Both observations led to conclude that role-playing could work as a strong incentive of social interactions among children, and could ease children's engagement. Thus the design challenge was defined as: "create a tool that encourages and facilitates role-playing between groups of children".

Co-design

The purpose of the co-design session was to see how the roleplaying games are perceived in children's minds, what their feelings surrounding roleplaying are and to get ideas that addressed the design challenge. The session took place in a school setting, with children who stayed in after school extra curricular activities. This opportunity made it possible to interact with many participants (fourteen children aged seven or eight). They were divided into two groups, each managed by two members of the design team.



Figure 2. Children drawing and acting out their characters

The learning goals of this session for the children were defined to be to: get a feeling on how it is to be a designer, as their ideas would influence the final design; practice expressing their ideas through nonverbal means, as they would express through drawings and acting; communicate with classmates and improve collective decision-making, as everyone was collaborating for a common goal. These goals were presented to the children in a way that assured them that their expertise in being children was vital for the success of the design, and that without their participation, the design process would not be possible to carry out. As a reward for their help, a certificate that emphasized their contributions as designers was awarded to them.

The co-design session started with an icebreaker to help them feel comfortable in expressing themselves. Following this activity, the children were invited to either choose a character from a deck of cards or create a character themselves. Later, they discussed and drew stories together, using the characters that they had chosen (See Fig. 1). Children were also given the option to act out the story they had created after defining, in collaboration, the scenario where the story takes place.

At the end of the session, fictional inquiry [3] was adopted by introducing a magic box to the participants to find out which ideas they came up with that could be useful for a theatre, with the magic box being a metaphor of the technology to be designed. The ideas gotten from the children varied greatly, including having sound, lights, curtains and slime coming out of the box. Ultimately, the design team chose to focus on the aspect of creating a theatre, helping children to build the characters and the story.

It became clear that children are very imaginative but some of them struggled to make decisions and to start drawing. It is also worth mentioning that the type of characters that children chose tended to be famous ones from children's movies, video games and cartoons. This important finding was central to the design, where the available characters were chosen based on their popularity during the co-design session.

Following the co-design session, a lot of ideas were extracted through an online brainstorming session, which was conducted among group members remotely through a collaborative tool. In a blank document members wrote ideas inspired by the data gathered from the co-design session and that address the design challenge; they participated in an anonymous way during

a limited period of time. These ideas were separated into seven categories based on their applications: games, tools, creating stuff, drawing, possible content, storytelling and theatre/role-playing. Continuing forward, two top ideas with high feasibility for each category were voted on and proclaimed to be more interesting than others. Afterwards, these chosen ideas were grouped in order to create more substantial concepts related to children's social development.

Theatre Maker concept was developed by combining four of the filtered ideas. Resulting in Theatre Maker being a tool that helps children in creating their own theatre, by providing ideas about characters and storylines. In addition, it lets children create bonds between their characters, such as friendship, family bonds and even hostility.

Evaluation

The goal of the evaluation session was to test the children's reactions to the Theatre Maker, understand how they would use it, if they would like to use it at all, and also to find out how the interactions between children would be influenced by this tool. Furthermore, it aimed to get answers to specific questions regarding whether children want to be a part of the pre-theatre decision making process, or have all information, such as: characters, place and traits; assigned to them.

The learning goals for the participants were to practice empathy by: acting out a character, express themselves through role-play, improvise and make decisions, and to understand that their opinions are valuable and can make an impact. The latter goal was meant to be learned both through how their ideas influenced the story being created, and through how the technology would change depending on their preferences. Another important learning outcome was for the children to practice taking their friends' thoughts and opinions into consideration, and reaching agreements, as well as working on their communication skills.

In the evaluation session, six children (different from the co-design) participated. The session included task completion and post-task interview methods [5], which were used to evaluate a paper prototype of the Theatre Maker. In this session, instead of being evaluated with a digital prototype, Theatre Maker was evaluated by using cards with pictures of characters and venues, and the facilitators interacted with the children in the same way as the app would, to prompt them for input and to give output in the form of a story.

Children were asked to complete tasks in each phase as follows: being assigned or choosing their character and traits, finding out the relationships between different characters, determining the story scene and acting the story out. A post-task interview followed each task to get a deeper understanding of their thoughts and feelings. At the end of this session, the children wanted to repeat all the tasks all over again. After the session was over, a funometer was used to measure how much the children enjoyed the experience, getting very high results.

During this session, it became clear that assigning characters to children was not the best option, because while some children were happy with their assigned characters, others were not. Ultimately, Theatre Maker should help children to have fun;

therefore, it was decided to let children change or choose their characters themselves.

The participants were very enthusiastic and enjoyed creating stories; there were many smiles and laughs, and the children said that they would download the app, when available. Some children had never tried acting before, and appreciated the introduction of theatre. Moreover, it became clear that the tool allowed children to interact with their peers, taking their friends' thoughts and opinions into consideration to reach agreements, and work together to create a theatre. Children learned how to use verbal and non-verbal communication to have a better role performance in their stories in this session. Thus, it is no doubt that the Theatre Maker could have a positive effect on children's social development.

FUTURE WORK

In retrospect, there are further features that could be considered for future work. At the cultural playground, children liked to see themselves in the video that showed their performance during the workshop. From this, a future function that Theatre Maker could offer could be to allow children to video record and playback their theatre. Watching their performances, children could become more motivated to be involved in theatre and perhaps it could help them practice a play several times to perform it in front of an audience.

Also, the video could spark discussions among the children. Another way of sparking children's interests could be to have the system take a picture of their face when choosing characters, and subsequently display their face on the character's body. The outcome would increase the curiosity of the children and enable them to be more immersed in the play. Seeing themselves as part of the character might even encourage the child to feel more empathy toward the character, and see the world from the perspective of the character.

Designing an app based on theatre creation can present some challenges, for example supporting the adding option of new characters in the middle of a story or adapting when a child leaves while the play is ongoing. Some thoughts were also given to allow the possibility to change characters after the plot was setup, though further tests need to be performed to determine what should happen in any of these situations, and the feasibility to implement them must also be considered. Furthermore, refinements on the graphical design need to take place, followed by evaluating those details with an interactive prototype, in order to test if the interface is easy to interact with, and if the app provides enough, effective information and is strategically placed.

DISCUSSION

Theatre Maker aimed to help in the development of social and empathy skills on children, which cannot be evaluated in a short term period, especially because children are constantly developing. Only one evaluation session was held, and the findings gotten could not lead to conclude that the Theatre Maker goal was completely reached. Designing for users who are not fully mature makes it challenging to confirm whether the skill they have acquired is due to your design or due to other reasons.

The overall design process has been well structured with three different encounters with children and reflections on the methods have arisen. Designing for children presents difficulties not noticeable when designing for adults. It is more difficult to predict how a session with children will unfold, and the designer must be prepared to be flexible, making sure that children feel comfortable, and if needed, make adjustments depending on the environment or on their performance. This skill of being flexible and able to improvise is also important when adults are involved, but even more crucial when children are the focal point of the design session.

Regarding recruiting participants, it is more difficult to approach children than adults. The response rate from schools that were contacted was very low, and many who seemed interested at first changed their minds or did not respond further. Another challenge is the need of approval from parents and schools, hence the waiting time is longer. A strategy that worked well was to call schools, as it is easier to get a direct and fast answer, though it does not imply that the process to have a session with children will be fast.

It was also noticed that the number of participants matters a lot to ensure a well-working session. For the co-design encounter, the number of participants was much greater than expected, therefore the plan changed to some extent in order to make sure that the session would finish in one hour and without any problem. However, some uncontrollable situations were present, having a lack of experience with children, made it challenging to take care of every child properly. In contrast, the evaluation session with only six children worked in a more structured way, as anticipated. In the future, a good option for keeping a more controlled session could be the involvement of their teacher. However, it is also unclear what negative effects that could have on the children's behaviour.

Another important consideration is how much adults influence children. Since children are used to perceiving adults as authority figures, it is difficult not to influence them. The design team tried to make the children feel in a relaxed environment and be comfortable, for example by encouraging them not to raise their hands. Whenever a child asked about what was allowed, or how things should be done, the team explained that it was up to him or her to decide, and that what really mattered was to have fun.

An issue present in the design process was that the children observed during the observation phase were slightly younger than the intended age group. Thus, there was a risk that early findings were not relevant in the following steps. However, during the second observation session, it was noticed that older children were also interested in watching theatre, as well as participating in small roleplaying session. This workshop proved that theatre was still an interesting topic for our target audience, but it was unclear to what extent it was popular, and whether children of that age (six years old) actually enjoy creating plays, or merely appreciate watching theatre. To be more certain, it would have been beneficial to perform a third observation study with children between ages six and nine, to determine their interests in theatre.

Involving the same children for all three visits would have ensured that the children were the correct target group. However, such an approach would not allow for the exploration of how a large number of possible users would experience the design. It would have been difficult to tell if the design was interesting for the intended user group in general, or only for the group of children involved in the design process. The co-design and evaluation involved twenty children in total, who inspired, created and tested the design. It is reasonable to assume that the design provides a positive experience even to children who did not participate in the design process. Furthermore, with different children in each session, it was possible to analyze and compare findings from both sessions and also, ensuring that there was no bias where children might be more positive with the design if they had seen it or influenced it earlier.

CONCLUSION

In this paper, three encounters with different groups of children were conducted: observation, co-design and evaluation. After these three encounters, Theatre Maker was designed as a tool to enhance children's social interaction and developing empathy through role-playing. Moreover, the evaluation showed that the design was a strong scaffolding tool, offering characters and plot line as inspiration, and providing enough aid for children to create imaginative plays.

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