

# **CHILDREN'S STORYTELLING APP FOR DETECTING POTENTIAL CHILD SEXUAL ABUSE**

by

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## **ABSTRACT**

Child Sexual Abuse (CSA) is a global issue of concern warranting global mitigation strategies. This project designed a prototype storytelling app to foster uninhibited creative expression by children of their daily life events and associated feelings. By monitoring their children's stories, parents and caregivers might be able to take supportive steps when stories reveal situations of potential CSA. Backed by a literature review and environmental scan, the prototype was designed through a participatory design process involving parents, caregivers and other adults concerned about CSA by way of a survey and focus groups. Participants were invited from Canada and India to examine cross-cultural notions around CSA and design elements. Research was conducted onsite in India for four months. Through further participatory steps, the prototype will be developed into an app that can be used by children both online and offline. The app will be hosted on a website to create a platform for parents to form a community of interest.

Keywords: Child Sexual Abuse, CSA, App design, Inclusive Design, Storytelling, Cross-cultural, Canada, India, Online platform.

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## **DEDICATION**

**TO G-STAR, MY LITTLE FRIEND**

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# **1 INTRODUCTION**

With a view to providing a safe non-intrusive tool for parents and caregivers to identify potential Child Sexual Abuse (CSA), this project designed a storytelling game for children to encourage uninhibited self-expression. The intent is that the stories would capture the feelings of children in visual/textual forms in ways that they might not be able to express through conversation. Involving parents and other adults concerned about the issue living in Canada and India in a participatory design process, the project also examined cross-cultural notions around CSA.

## **1.1 CONTEXT AND RATIONALE**

CSA is “any sexual activity with a child where consent is not, or cannot be, given;” (Higgins & Swain, 2009, p.15). Over 13,600 child and youth sexual offences were reported in Canada in 2008 (Statistics Canada, 2008). According to the *Canadian Badgley Royal Commission Report on Sexual Offences Against Children and Youths* (1984), one in three girls and one in six boys experience an unwanted sexual act (p. 175). The first ever survey on CSA in India reported in 2007 that 53% of children interviewed had been subjected to sexual abuse (Human Rights Watch report, 2007).

Children tend to gravitate towards attention in any form. As a result, they might be unable to differentiate between harmless love and CSA. Therefore, in some cases, they might not even be aware that they are being abused. In most cases, the perpetrators of CSA are members of the child's family or are known closely to the child (Snyder, 2000). Therefore it is not surprising that, more often than not, CSA remains the best-kept secret in families and in children's minds. In some cases, they might be threatened to keep the "secret". This could cause a lot of trauma for the child and could also impact their development into adulthood. Studies show that adults who have a history of child sexual abuse tend to be more dysfunctional than those who grew up without such childhood experiences (Beitchman, 1992).

Sometimes, children might not be aware of the danger of their being exploited until it is too late. The longer the duration of abuse, the greater is the impact, and the use of force, or threat of force, is associated with greater harm (ibid). Given these staggering details, it is important that children be educated about protecting themselves. They must be taught to differentiate "good touch" from "bad touch" to

protect themselves from the latter. They must be provided with resources to turn to in the event of attempted or actual sexual abuse.

Art therapy with children who have been abused or neglected is popular as a means of providing them an opportunity to give voice to their pain (Pifalo, 2002). It is often the primary form of therapy with children who are recovering from physical or sexual assault, verbal abuse, and neglect (Art Therapy Blog, n.d.). There have been debates around the efficacy of art therapy in the context of therapist's engagement in the creative process (Bragge & Fenner, 2009). More importantly in the context of this project, art therapy works after the event and does not help in proactive detection of potential/actual attempts or early intervention.

To enable parents to remain alert and take supportive steps when children are still very young; they need a way to constantly monitor their children's daily life events and associated feelings. This could be possible by providing children with an accessible medium to express their feelings freely in the form of stories from which parents or caregivers might

decipher CSA attempts early enough to provide necessary support to the children.

Historically, storytelling has always fascinated mankind. Every culture has ways for sharing stories or narratives as a way of preserving itself through entertainment and education. Not just in the literary world, even in the world of sciences, researchers have observed that storytelling could be a very interesting tool. Today, the Internet has made digital storytelling popular, especially through social networking, websites. The photo-sharing application Flickr uses ‘Visual Story Telling’ and ‘365 Project’, inspire its members to tell their stories (Page & Thomas, 2011). According to Wang and Singhal, who are expert researchers in the domain of entertainment education, an entertaining storytelling game can help children express themselves in a safe way (2009).

## **1.2 DESIGN CHALLENGE AND OUTCOMES**

The previous section provided a rationale for why storytelling might be a creative way for children’s self-expression. A more elaborate review of relevant literature and environmental scan are presented in

Section 2 to back up the idea of using digital storytelling to help children easily convey events and feelings using multiple media.

In a preliminary survey conducted by the researcher on this topic in 2015, respondents indicated storytelling to be one of the preferred ways for helping children express themselves. This was reinforced by similar views expressed by participants in the initial research phase of this study as well as detailed in Section 4 of this report.

Following this, the design challenge undertaken by this project was to use participatory design principles to design a prototype storytelling app that allows children to express themselves in creative ways. By involving parents, caregivers and other interested adults from Canada and India, further cross-cultural nuances were discovered and integrated into the design. Onsite research was conducted for five months in India.

Through further work beyond this project, the prototype will be developed into a working app and situated on a website to create a more effective and engaging platform for parents, guardians and other

concerned adults to form a community. The app and the website will be developed in compliance with the WCAG guidelines for accessibility.

### **1.3 APPROACH AND METHODS**

The research underlying this project sought answers to the following questions:

Q1: How do adults from different cultures approach the topic of CSA and the design of tools to manage it?

Q2: How could a tool be designed to help children express themselves in a secure, engaging and culturally supportive way?

Methods employed in this project were: literature review, environmental scan, online survey, and prototype design and refinement through focus groups. The Research Ethics Review Board of OCAD University approved the protocol for the design research in this project after several rounds of careful examination and discussion.

A participatory design approach was adopted, involving parents, guardians, and other adults interested in the topic through surveys and focus group sessions as they would be the persons making the resources

available to children they care about. Design inputs for the storytelling app were derived from parents, guardians and other adults interested in the welfare of children. The survey also explored the role played by culture in the design. Participants were not required to share any personal experiences. Their inputs were primarily design based, and related to children's preferences. Children were not directly involved in the research.

This introductory section is followed by a review in Section 2 of literature from domains relevant to the project. An environmental scan of popular organizations in Canada and India that are engaged in spreading awareness about CSA and promoting its prevention and management is also presented in Section 2. The processes used in Canada and India to collect data and engage in a participatory design of a prototype storytelling app are described in Section 3. Section 4 presents the findings from the survey, followed by Section 5, where the design and development of the prototype is described in detail. Some insights from the project are discussed in Section 6. Contributions made, and

future work planned, are outlined in Section 7. Additional materials, such as the survey questionnaire, are given as appendices.

## **2 BACKGROUND**

This section presents a brief account of Child Sexual Abuse as relevant to the project's objective, and provide a rationale for why storytelling would be an appropriate medium for designing a solution.

### **2.1 LITERATURE REVIEW**

#### **2.1.1 CHILD SEXUAL ABUSE**

Children are the future citizens who will shape the way the world will function. However, one incident of Child Sexual Abuse (CSA) could destroy their childhood and ruin their life. According, to the Canadian Centre For Child Protection<sup>1</sup>,

Child sexual abuse includes a range of behaviours from obvious contact offences such as touching or fondling a child's genitalia, to less obvious non-contact offences which include exposing a child to sexually explicit material. Children can experience trauma from both contact and non-contact sexual offences.

Child Sexual Abuse (CSA) is an issue faced by children all over the world. Additionally, in most of the cases the abuser is a close relative or acquaintance of the family. This makes it that much more difficult to

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<sup>1</sup>[https://www.cybertip.ca/pdfs/C3P\\_ChildSexualAbuse\\_ItIsYourBusiness\\_en.pdf](https://www.cybertip.ca/pdfs/C3P_ChildSexualAbuse_ItIsYourBusiness_en.pdf)

identify, report, and subsequently fix. Additionally, CSA has long-term effects on the child as they grow older and become adults. The reminiscence of the abuse is also carried with them through adulthood if not treated appropriately. Smith (2014) in *Child Sexual Abuse: Issues and Challenge* states that CSA, particularly within an individual's family of origin, has serious implications on the Child. He further argues,

Child sexual abuse (CSA), particularly within an individual's family of origin, has been implicated as a risk factor for a wide variety of adult psychiatric diagnoses and behavioural problems, including borderline personality disorder (BPD), dissociative identity disorder, depressive disorders, anxiety disorders, alcoholism, eating disorders, somatization disorder, sexual dysfunction, and suicide attempts.

Given that sometimes the abuse is from a known person, children are often in denial of what is happening, and therefore do not admit to it. Additionally, sometimes even the lack of vocabulary on explaining what is going on deters them from talking about it. In *How children tell: the process of disclosure in child sexual abuse*, Sorensen, & Snow (1991) observed that of the sample that the authors interviewed "Almost three-fourth of all the children examined denied having been sexually abused." (p. 9)

This information can be communicated through educational resources by parents, guardians or other concerned adults in ways that are effective and age-appropriate for children. Moreover, to be able to effectively prevent or manage CSA, these adults should also recognize subtle changes in their children that might signal the start of a situation of potential CSA. A review of digital storytelling as an effective way to help with this is presented in the next section.

### **2.1.2 STORYTELLING**

Today storytelling is very popular on the World Wide Web, with different people participating in the creation and telling of stories. Storytelling in education is an engaging way to communicate ideas. Given that storytelling could be individual or a community event, it gives listeners the opportunity to communicate, collaborate, understand, build confidence, and respect each other's contributions. Storytelling helps children absorb complex concepts through 'play' making them more receptive to the idea of learning. Additionally, it develops imagination and listening skills (Isbell, Sobol, Lindauer, Lowrance, 2004). Stories enable children to create a mental map of events and ideas and revisit

them as and when the stories are narrated again or remembered. This also gives children the opportunity to engage and create their own stories.

Regular engagement with storytelling and story creation encourages children to also question their realities, based on the stories that they have heard. They could spark conversations and thereby result in thought provoking nuances of the story, the learning from the story and it's plot. Not just in the literary world, but even in the world of sciences, researchers have observed that storytelling could be a very interesting tool. In the article *Storytelling sagas: an effective medium for teaching early childhood mathematics* the authors look at an alternate way to teach kindergarden to grade 2 mathematics through the medium of oral storytelling sagas (Casey, Kersh & Young, 2004). According to Clark Aldrich in *Learning by doing*, storytelling through branching stories is a viable option as one of the four traditional simulation genres (Aldrich, 2005).

Given the different options that are available, the storytelling game that is to be designed will hopefully provide a non-intrusive, and

engaging way to help children express themselves about abuse that they have faced. The storytelling game will enable children to narrate stories that are expressive and parents or responsible adults can then further monitor the stories and determine and build conversation surrounding the stories that seem suspicious of abuse.

## **2.2 ENVIRONMENTAL SCAN**

### **2.2.1 GLOBAL RESOURCES**

Worldwide, there are several organizations that provide support to children in distress. INHOPE is a global organization that works towards the eradication of online sexual exploitation amongst children. On their website, they describe themselves as follows: “INHOPE is an active and collaborative network of 51 hotlines in 45 countries worldwide, dealing with illegal content online and committed to stamping out child sexual abuse from the Internet.” (INHOPE, n.d).

Additionally, there are several mobile applications available about CSA: Elements of Child Sexual Abuse<sup>2</sup> is a mobile application that

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<sup>2</sup> <https://play.google.com/store/apps/details?id=com.andromo.dev88207.app127483>

provides social workers information to evaluate child sexual abuse in investigation. Offender Locator<sup>3</sup> is an iOS app that provides information on sex offenders in the area. Brave Little Panda<sup>4</sup> is an educational app that narrates a story about CSA and available for download in multiple languages at a cost.

There are also country specific organizations, such as the Canadian Center for Child Protection<sup>5</sup>, a charitable organization in Canada working to reduce child victimization by providing programs and services to Canadians; and Childline<sup>6</sup>, a toll-free tele-helpline in India for children in distress. Specifically, the resources available in Canada and India will be reviewed next, given that the context of this project spans these two countries.

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<sup>3</sup> <https://itunes.apple.com/en/app/offender-locator/id317435796?mt=8>

<sup>4</sup> <http://www.cchrhealth.org/violence-prevention/Child%20Sexual%20Abuse%20Prevention%20and%20Education>

<sup>5</sup> <https://www.protectchildren.ca>

<sup>6</sup> [www.childlineindia.org.in](http://www.childlineindia.org.in)

## **2.2.2 CANADA**

### **ORGANIZATIONS**

Canadian Coalition for the Rights of Children<sup>7</sup> according to their website “brings together organizations and individuals to promote respect for the rights of children. The guiding framework for all Coalition activities is the Convention on the Rights of the Child.”

Little Warriors<sup>8</sup> is an organization that deals with educating children about CSA and further preventing. Their primary goals and objectives include Awareness, Prevention, and Treatment.

The Canadian Center for Child Protection<sup>9</sup>, in Winnipeg, operates multiple programs across Canada for children. According to their website, they are a “registered charitable organization dedicated to the personal safety of all children”.

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<sup>7</sup> <http://rightsofchildren.ca/>

<sup>8</sup> <http://littlewarriors.ca/>

<sup>9</sup> <https://www.protectchildren.ca/app/en/>

Boost Child & Youth Advocacy Center<sup>10</sup> focus on the elimination of violence and abuse. They conduct campaigns and spread awareness across and work even in collaboration with the Canadian Center for Child Protection.

The Gatehouse<sup>11</sup> is a social service organization. According to their website their objectives include providing formal and informal support and outreach, mobilizing community capacity, strengths and skills of volunteers, increase service capacity through collaboration and partnerships, and facilitating knowledge creation and knowledge transfer.

Ontario Association of Children's Aid Society<sup>12</sup> focuses on the wellbeing of children, youth and families. They have a group of associate members that all work towards the same focus of child welfare. According to their website, "OACAS provides advocacy and government relations, public education, training, information and knowledge management, and event planning".

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<sup>10</sup> <https://boostforkids.org/>

<sup>11</sup> <http://www.thegatehouse.org/>

<sup>12</sup> <http://www.oacas.org/>

## **WEBSITES**

- Kids in the Know<sup>13</sup> is an informational website providing a program that engages students with interactive activities to help promote safety.
- The Door That's Not Locked<sup>14</sup> is an online resource that teaches adults on age appropriate conversation about CSA with children.
- Kid Power<sup>15</sup> provides information on CSA.

### **2.2.3 INDIA**

#### **ORGANIZATIONS**

Childline India Foundation (CIF)<sup>16</sup> launched CHILDLINE, the country's first toll-free tele-helpline for street children in distress. It was initiated in June 1996 by the department of Family and Child Welfare of the Tata Institute for Social Sciences (TISS), Mumbai as an experimental project. According to their website “As of March 2015, total of 36 Million calls since inception have been serviced by CHILDLINE service

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<sup>13</sup> <https://www.kidsintheknow.ca>

<sup>14</sup> <http://www.thedoorthatsnotlocked.ca>

<sup>15</sup> <https://www.kidpower.org/>

<sup>16</sup> <http://www.childlineindia.org.in>

and operates in 346 cities/districts in 33 States/UTs through its network of over 600 partner organizations across India”.

Arpan<sup>17</sup>, a Mumbai-based NGO (in India), focuses on the issue of Child Sexual Abuse. Started in 2006, it caters to children-issues with importance to both ‘prevention and healing’. Arpan conducts training for students, teachers, parents and other individuals and also provides psychotherapeutic support to victims.

Aarambh<sup>18</sup> a non-profit charity was started as a Community Service Center in Navi Mumbai, Maharashtra (India). According to their website, their goal is to provide educational, health and vocational skills to underprivileged children and women. They have multiple centers across Mumbai and Wai Taluka of Satara District in Maharashtra (India).

Protsahan<sup>19</sup> focus on creative education for children and help them learn in a healthy environment. According to their website, their mission is “to empower every at-risk adolescent girl with Creative

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<sup>17</sup> <http://arpan.org.in/about-us/>

<sup>18</sup> <http://www.aarambh.org/>

<sup>19</sup> <http://www.protsahan.co.in/>

Education and Entrepreneurial Skills Training so that she can break the extreme cycle of poverty and abuse”.

Tulir<sup>20</sup> primarily works out of Tamil Nadu, India and focus on raising awareness on Child Sexual Abuse and provide intervention, and document the issue extensively with special focus on prevention. In their website, they call themselves, a “Centre for the Prevention and Healing of Child Sexual Abuse (CPHCSA) is a registered, non-governmental, non-profit organization committed to working against child sexual abuse in India”.

#### **ONLINE VIDEOS**

Some informational videos on CSA available online are:

- KOMAL<sup>21</sup>
- CSA in Family<sup>22</sup>
- Main Tamanna<sup>23</sup>

#### **TV SHOW**

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<sup>20</sup> <http://tulir.org/>

<sup>21</sup> <https://www.youtube.com/watch?v=VkY0xqtW6W8>

<sup>22</sup> <https://www.youtube.com/watch?v=wirOQm0MqnQ>

<sup>23</sup> <https://www.youtube.com/watch?v=7uwIMVFTwjc>

Satyameva Jayathe<sup>24</sup>, a popular TV program in India, featured CSA as a topic of discussion in one of its episodes, where statistics and information on CSA were provided. At the end of the program, the show host, Aamir Khan, conducted a workshop for children on how to protect themselves from CSA.

At the outset of this section, a brief background about CSA and the rationale for selecting storytelling as a tool for designing a solution were presented. A detailed environmental scan of organizational and online resources available globally, as well as specifically in Canada and India were reviewed. The possible fit of the planned storytelling resource in this scenario was found to be justified.

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<sup>24</sup> <https://www.youtube.com/watch?v=hY8CyTcegrM>

### **3 METHODOLOGY**

This section describes the research and design processes that were adopted for the project. Two methods were used for data collection: electronic survey and focus groups. In terms of design, wireframe prototyping was done using paper and electronic methods. These are detailed below.

#### **3.1 SURVEY**

An electronic survey was developed to gather data from adults interested in the topic living in Canada and India on cultural aspects of their approach to CSA and design elements. English-speaking adults (18 years and above) living in Canada or India were invited to participate in the research using snowballing method. Those who responded to the survey were asked (in the survey) to indicate their willingness to subsequently participate in the evaluation of the prototype design.

A copy of the survey questionnaire is given in Appendix A. The survey was kept open till November 30, 2015. Twenty-three responses were received, 9 from Canada and 14 from India. Only name and email ID were collected from participants for the purpose of contacting them

to obtain clarification about the data if necessary and to email them a copy of the research summary in case they choose to receive the same.

Participants were assigned a participant code, C01, C02, etc. for participants from Canada and I01, I02, etc. . for participants from India, to ensure confidentiality and privacy. A code sheet was created connecting these codes with the email ID of each participant. This sheet was stored separately from the data. All data were marked only with the corresponding participant code and no other identifying information. Data confidentiality was thus maintained throughout the analysis. All original data sources and extracted data during processing were stored securely as described below.

Data from the online survey responses were extracted and stored as a password protected excel sheet in the laptop of the researcher. Participant code sheet file was stored in a separate folder away from the data. Audio recording of focus groups was done using a digital recorder and each file was uploaded to the researcher's laptop soon after the session was over. The file was then deleted from the recorder. Data were

extracted into a password protected excel sheet from each audio file and stored in the laptop of the student researcher.

Descriptive data from the survey were analyzed using content analysis techniques, collating data from Indian and Canadian responses separately. The focus of this analysis was on identifying design criteria as well as cultural characteristics. Numeric data were analyzed using descriptive statistical methods. Results from analysis of the survey data are presented in Section 4.

### **3.2 PROTOTYPE DEVELOPMENT**

Reinforcing the insights obtained from literature review and environmental scan, the survey results also pointed to the development of a storytelling game for children. This was conceived in the form of a Children's Storytelling App, so that it could be used offline or online. A wireframe prototype of the app was developed, details of which are given in Section 5. The prototype was first devised on paper and then created electronically using Axure<sup>25</sup>. This prototype was then presented

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<sup>25</sup> <http://www.axure.com>

for evaluation in two groups, to participants from Canada and India, who agreed to participate in the evaluation phase. Based on the feedback received, the prototype was further revised.

The next two sections present the survey results and the prototype design.

## **4 SURVEY RESULTS**

Results of the survey conducted between October and December 2015 are presented in this section.

### **4.1 DEMOGRAPHICS**

Twenty-three participants responded to the call for participation in the survey of which 9 were from Canada and 14 from India. Eight of the Canadian participants were female and one was male. Eight of the Indian participants were female and six were male. All nine participants from Canada were graduates; ten of the Indian participants graduates and four were undergraduates.

Of the nine Canadian participants, three were parents. Of the 14 Indian participants, 4 were parents. Within this small sample, this possibly implies that people are concerned about children and CSA even when they do not have their own children or their children have grown.

### **4.2 AWARENESS ABOUT CSA**

The distribution of survey participants on their level of awareness about CSA spanned the entire spectrum between “Unware” and “Fully Aware”, although it was heavily skewed towards greater awareness than

lack of it. When respondents were asked to identify how much they knew about CSA five Indians and five Canadians said they were completely aware. Eight Indians and two Canadians respondents said they are mostly aware, one Canadian and one Indian said they are a little aware, one Canadian was fairly unaware, and one Indian respondent said they were not at all aware.

### **4.3 ATTITUDE TOWARDS CSA**

All 23 respondents said they were concerned about CSA, with more than 80% of them being very concerned. When asked how concerned they were about CSA, eight and eleven people from Canada and India respectively said that they were very concerned. Two Indian respondents said they were concerned and one in each of the group of respondents was moderately concerned.

### **4.4 EDUCATION**

Every participant, except one Indian participant, said they would like to educate their children or wards about CSA. When asked how they address the issue of CSA currently, while some did not respond, a majority of the participants said they talk to their children or wards.

Seven Indian respondents, and 4 Canadian respondents said they talk to their wards or children. Three respondents, two Indian and one Canadian, said they use educational videos and through school. One Indian, and one Canadian, said they use educational videos and through school. One Indian, and one Canadian, said they use educational videos and through school. One Indian, and one Canadian, said they use educational videos and through school.

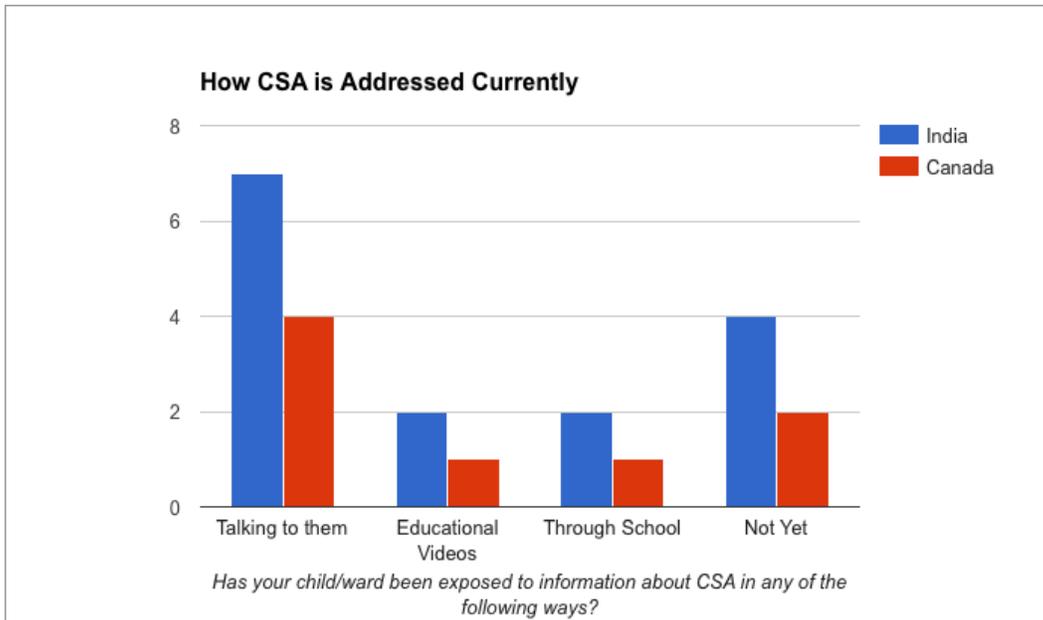
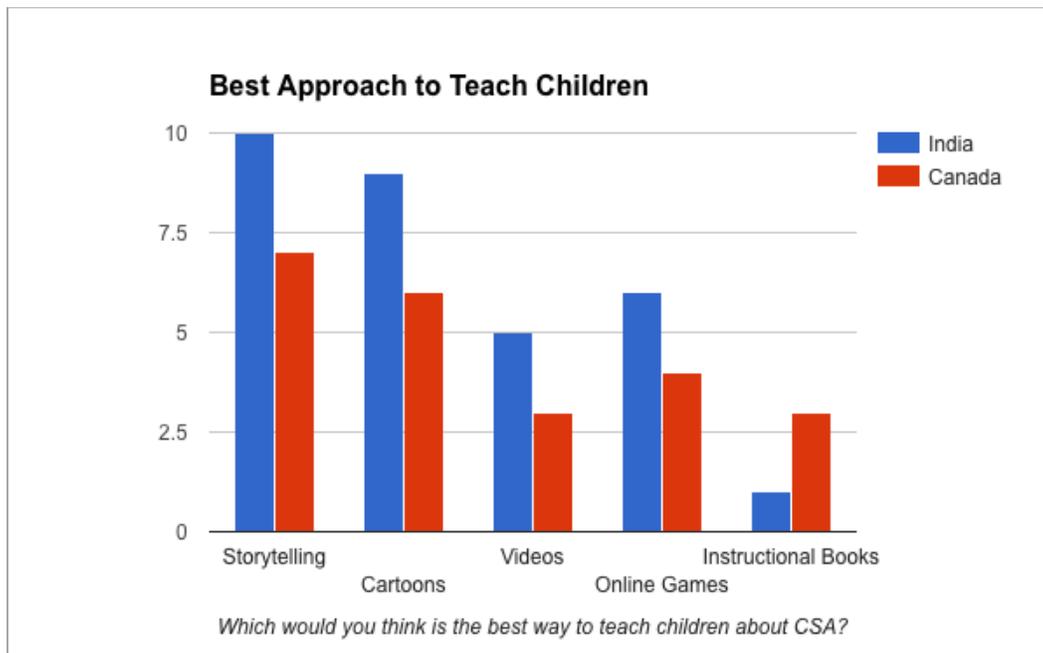


Figure 1: How CSA is addressed currently

When a question was posed about what is the best approach to teach children about what they felt was the best approach to teach children about CSA, about 10 respondents in India and seven respondents in Canada suggested storytelling as a good option, while they also suggested cartoons as the second best option, in the options provided

with nine and six respondents respectively selecting that option in India and Canada, respectively.



*Figure 2 Best way to best teach children about CSA*

To the question whether, if there was a game available that educated children about CSA, would they expose their child or ward to it, 13 of the 14 Indian respondents and six of the nine respondents said yes, while the rest said no. Some of the other suggestions from both the group of participants were - interactive storytelling, educate parents, a toy, a combination of approaches, and some kind of activity.

#### **4.5 DESIGN INPUTS**

On the question of which would be the best representation for characters if a game were available, a majority of the respondents stated that “cartoons” would be ideal with eight Indian respondents and 6 Canadian respondents picking that option. Five Indian respondents and one Canadian respondent picked “avatars”, and one Indian respondent picked “real-life”, while one picked “fictional characters”.

When it came to the question of what the child or ward’s favourite character was, Indian and Canadian respondents had a varied list of favourites. Their choices were based on the kind of television programs available in their region. Among the Indian respondents, Doreamon topped the list as the most favourite with five votes, Chota Bheem following with four, and Pokemon with two, amongst others. With the Canadian respondents, the list included Steve from Minecraft, beanie babies, superheroes, Sponge Bob Square Pants, and Baymax amongst.

As far as the favourite colors of their children were concerned, most participants reported bright colors. The more popular ones were

pink, green, blue, orange, purple, and red. Some, however, responded that they didn't know or were not sure.

On the question of what hobbies their child or ward enjoyed, both Indian and Canadian respondents reported sport and craft related activities. Videos games, TV, music and dance were also reported.

#### **4.6 ONLINE GAMES**

In the Indian context eight people said that their children or wards had access to online games, while four of the fourteen said they didn't have access. Among the Canadian respondents, six said they do while one said no and the other two did not answer.

When asked if they are involved while children are playing games, seven of Indian respondents said they were sometimes involved while four of them said they were mostly involved in the games. For the Canadian participants, one said always, while four of the votes were evenly split between sometimes and most times.

## **4.7 PARTICIPATION**

On being asked if they would like to be involved in a gaming platform such as this, in the Indian context two of the respondents suggested that they would not like to be involved, while all of the Canadian respondents seemed interested in getting themselves involved in the project.

## **4.8 SUMMARY**

Overall, the survey results revealed that most participants from both countries are concerned about CSA and recognize the need to educate their wards about CSA. All 23 respondents said they were concerned about CSA, with more than 80% of them being very concerned. Every participant, except one Indian participant, said they would like to educate their children or wards about CSA. Nineteen respondents (80%) said that if there were a resource available that educated children about CSA, they would expose their child or ward to it.

The children/wards of fourteen respondents (60%) had access to online games. Sixteen respondents (70%) said they involved themselves

in playing with their children/wards. Seventeen out of the 23 respondents (75%) suggested storytelling as a good option for the proposed solution. Twenty-one respondents (90%) volunteered to participate in the design of the storytelling game.

In terms of the actual design, storytelling was the most popular option to educate them and adults from both countries confirmed that bright colours, cartoons and fictional characters, and online game is a good option for kids. However, when it came to their favourite cartoons, there was clearly a cultural differences; in terms of what the children watch in both the countries.

The next section describes the participatory design of a children's storytelling app for detecting potential child sexual abuse.

## **5 STORYTELLING APP**

### **5.1 DESIGN CONSIDERATIONS FOR PROTOTYPE**

To begin with, the survey results confirmed the need for, and usefulness of, creating a game as a resource for supporting parents/wards in addressing their concerns over CSA because all respondents were concerned about CSA

From the survey results, the following design considerations were derived:

- An online/digital resource would be appropriate because 60% of the survey respondents said their children/wards had access to online games.
- The app would be useful for detection of CSA because 70% of the survey respondents said they involved themselves in playing with their children/wards, which means parents/caregivers would spend time to monitor the stories.
- The app could be about storytelling because 75% of the respondents suggested storytelling as a good option for the proposed resource.
- 90% of the respondents volunteered to participate in the design of the storytelling game.

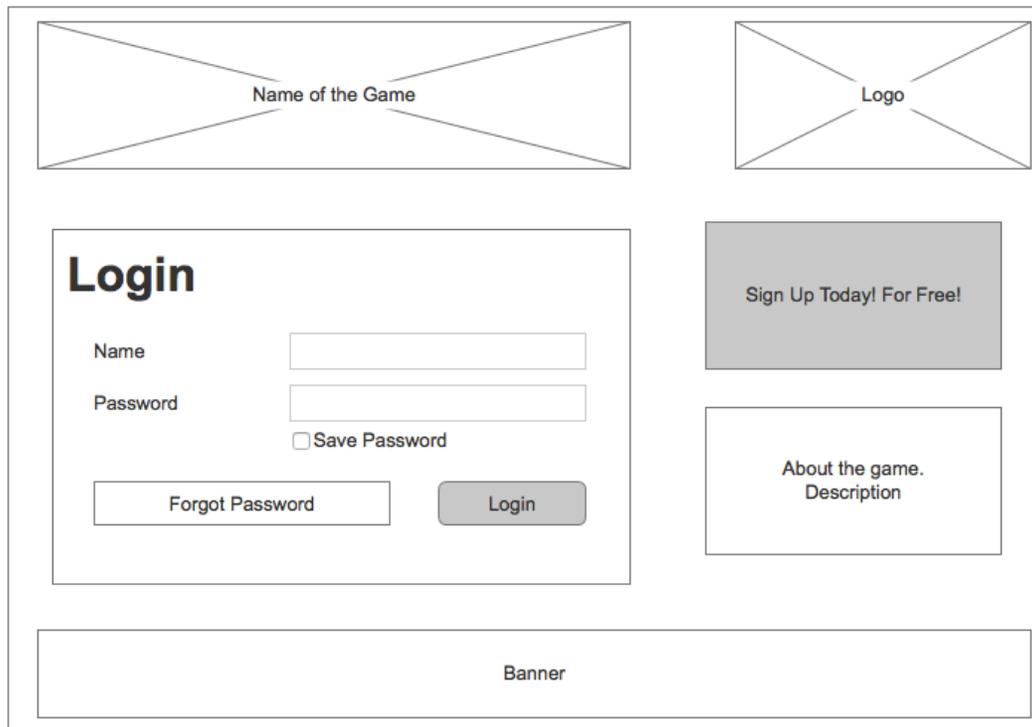
A storytelling app prototype was created, first on paper and then online using Axure. The prototype is available online at <http://rjyyfk.axshare.com/home.html>. Feedback was obtained through two focus groups, one with survey respondents from Canada and one with India. The feedback received was then used to make changes to the prototype. The updated prototype is described in the following section,

## **5.2 WIREFRAMES**

A wireframe is a visual illustration of placement of content on a screen. One of the main purposes of a wireframe is to show where each item should be placed on a screen.

### **5.2.1 SIGN UP**

The home screen (Figure 3) displays a description of the game and options to sign up or login. The sign up procedure is to help parents create accounts for their children to enable them to login and create stories. These options indicate to the parents that the system is secure and that they can login and view the stories created by their children.



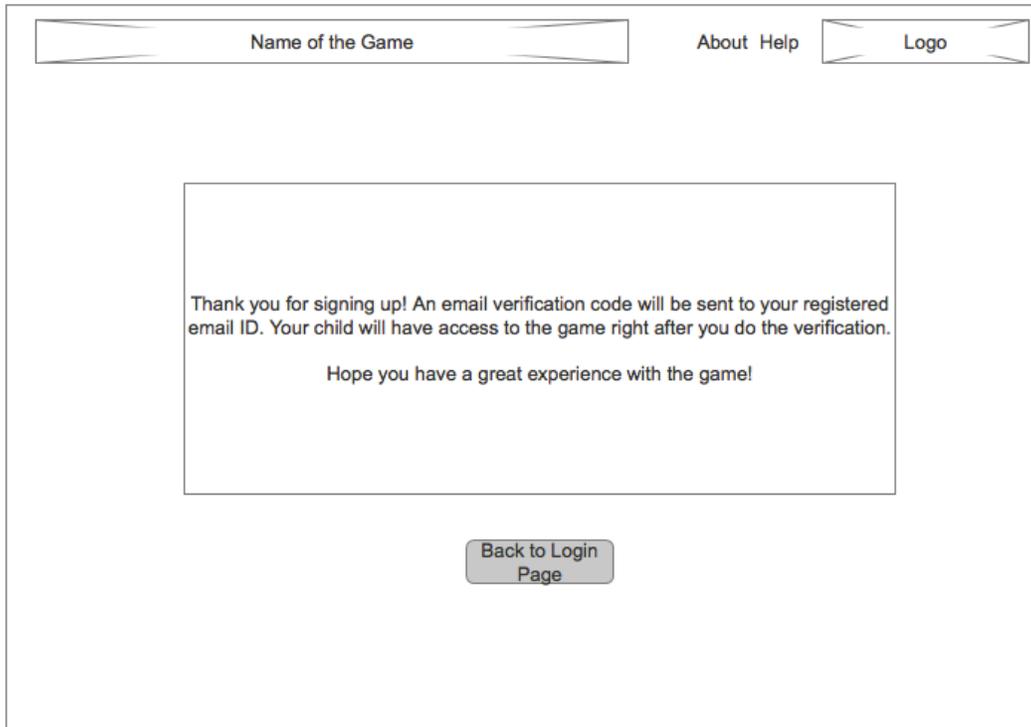
*Figure 3 Home screen of the Children's Storytelling App*

The home screen has a **Sign Up Today! For Free!** Button to also indicate to the parents that this is a free resource. On clicking that button, the users are taken to a sign up screen, which displays a list of text boxes to enter information about the parent and the child for creating a username and password for the child. This screen also has a Send Verification Mail button, upon clicking which verification mail will be sent to the parent's email ID.

The image shows a sign-up screen with a header containing 'Name of the Game' and 'Logo'. Below the header are several input fields: 'Parent's Name', 'Parent's Email ID', 'Confirm Parent's Email ID', 'Child's Name', 'Child's Age', 'Username', 'Password', and 'Confirm Password'. A note states 'Note that a verification code will be sent to this email ID.' A button labeled 'Send Verification Mail' is located at the bottom right of the form.

*Figure 4: Sign up screen.*

When the parent clicks on the **Send Verification Mail** Button, the app takes them to a Confirmation screen, and a notification of confirmation is sent to the parent's email ID. The confirmation screen has a button leading to the Login screen and a message requesting the user to go to their email and complete the verification process. After completing verification, the username and password, as entered by the parent will be the login and password for the child to use and access the app.



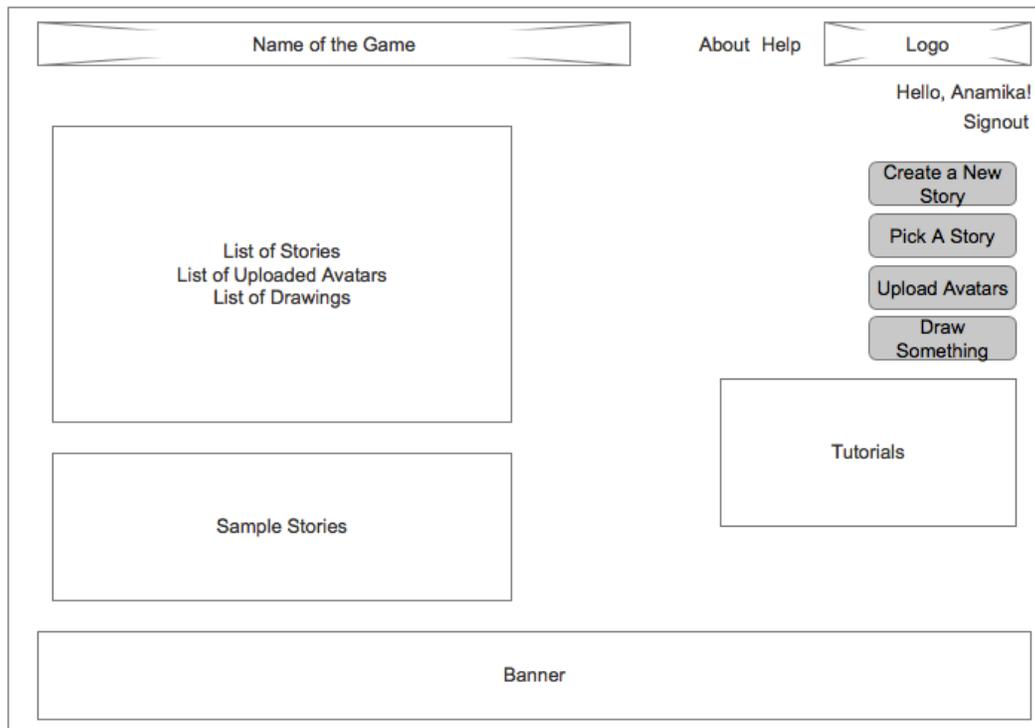
*Figure 5: Confirmation screen*

### **5.2.2 LOGIN**

To access the app, the parent or child can use the newly created username and password on the Login portion of the Home screen shown in Figure 3.

Upon successful login, they will get to the landing screen, which provides a list of stories and drawings already in the system, a sample of stories, a tutorial, and the option to create a story, pick a story from the existing options, upload an avatar or draw something new that could

later be integrated with the different stories. A Hello message with the name of the user will be displayed below the logo on the right hand top corner with an option (link) to log out.



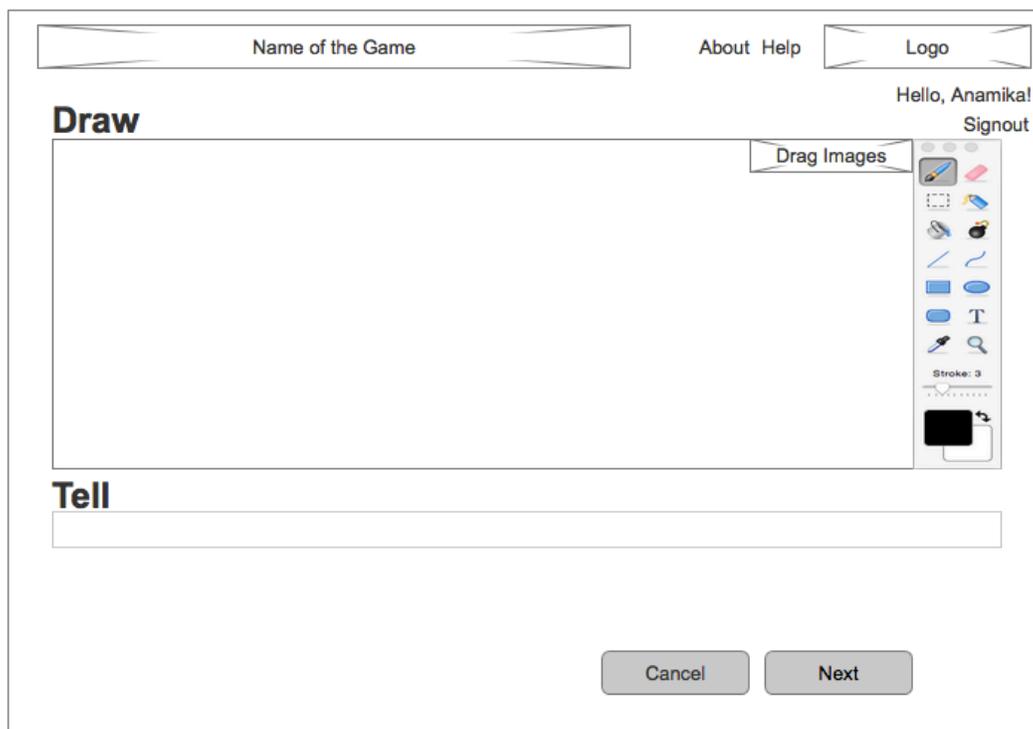
*Figure 6: Landing screen*

### **5.2.3 CREATE A NEW STORY**

Children can click on **Create a New Story** to start narrating a story in a vanilla screen. They also have the option to select existing illustrations available in the **Drag Images** option that will have a list of basic images that they can use to colour and change. The right side of

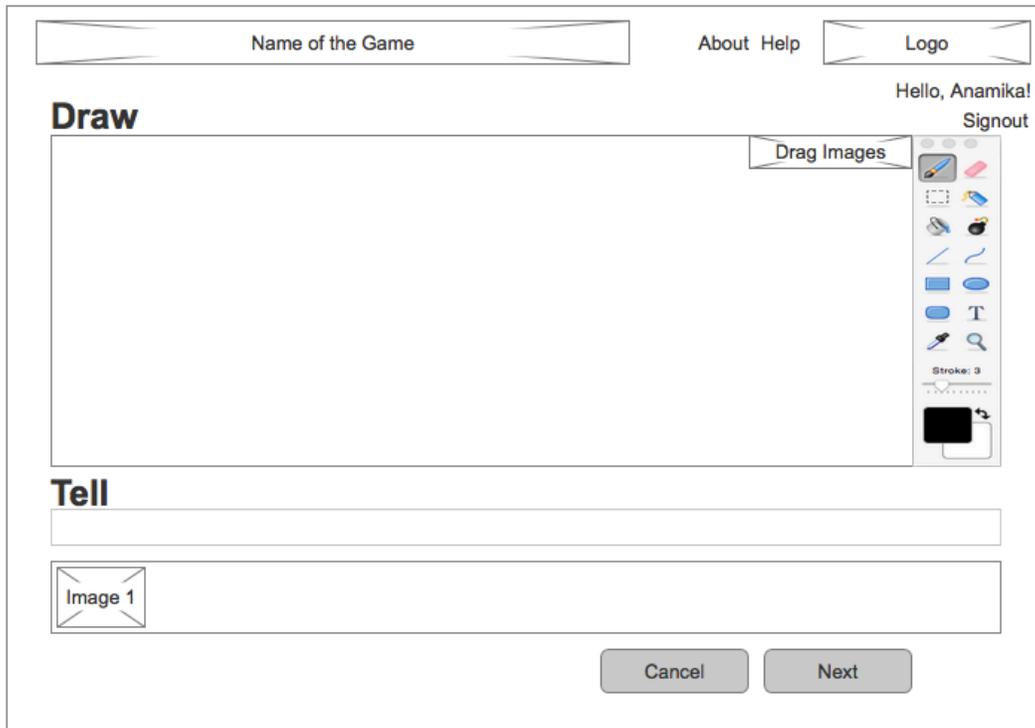
the screen also provides controls that help them create shapes, draw and colour.

The screen provides two options – **Draw** and **Tell** that will enable children to both physically draw a scenario and then further narrate it in their words. After they are comfortable to move on to the next scene of their story, they can click the **Next** button to move to the next page.



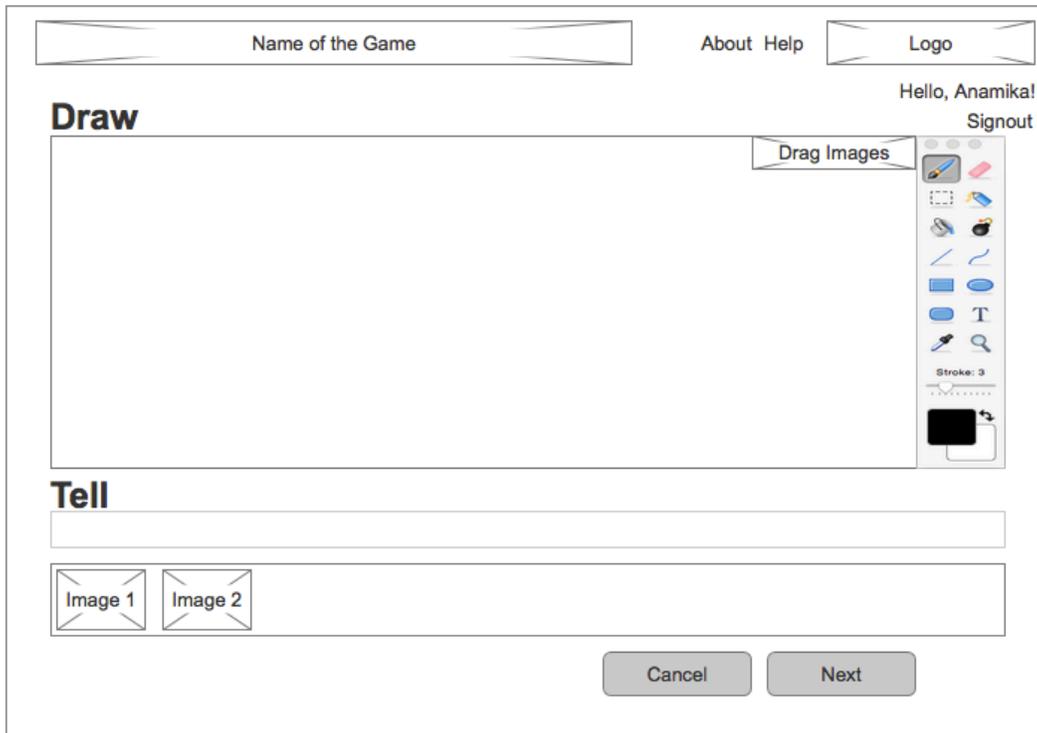
*Figure 7: Create a new story screen*

Clicking **Next** will move children to the next screen with similar options and the thumbnail image of what was drawn earlier in the bottom of the screen to enable them to see what was drawn earlier.



*Figure 8: Create a new story screen two with previous image displayed*

After the children narrate and draw, they can click **Next** to move on to the next screen. At any point, they can go back to the image drawn and edit it or to the story by clicking on the thumbnail of the image. However, if they wish to cancel the story and start over, they can by clicking on **Cancel**.



*Figure 9: Create a new story screen three with previous images displayed*

The next scene can then be drawn and narrated, and clicking **Next** will take the children to the next screen with thumbnail images of what was drawn. At any point this thumbnail can be clicked on to edit the drawing or narration.



*Figure 10: Create a new story screen four with previous images displayed*

After the updates are made, the children can continue to click **Next**. This will take them to the next screen with another vanilla screen and the option to drag set illustrations to the screen that they can further use to draw.



*Figure 11: Create a new story screen five with previous images displayed*

After adding this new drawing, children can click **Next**, to go to the next screen where they can add another scene for their story.



*Figure 12: Create a new story screen six with previous images displayed*

After all the drawings are done, and the children are satisfied with all images, they can click **Save**, to view larger views of the thumbnail and read the entire story. Here, they could add a name to their story.

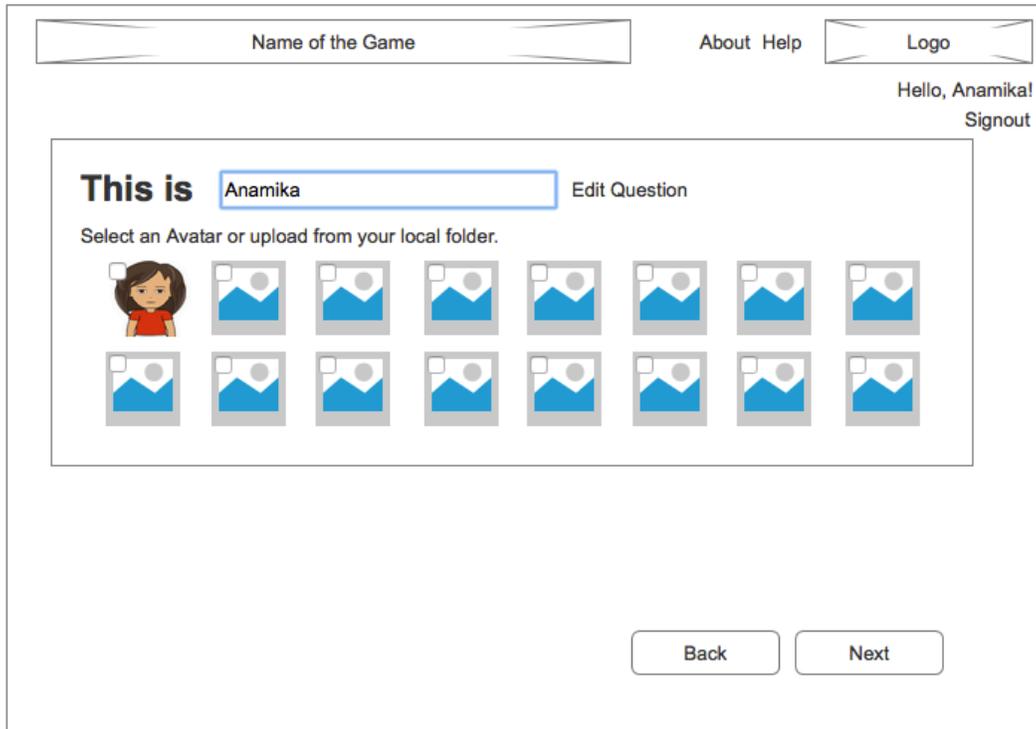


*Figure 13: Storyline screen displaying all the screens*

When the children are satisfied with the outcome they can click **Save** on this screen to save the story that can be accessed from the **Home** screen. They can then view these different stories and print or edit them based on their wish.

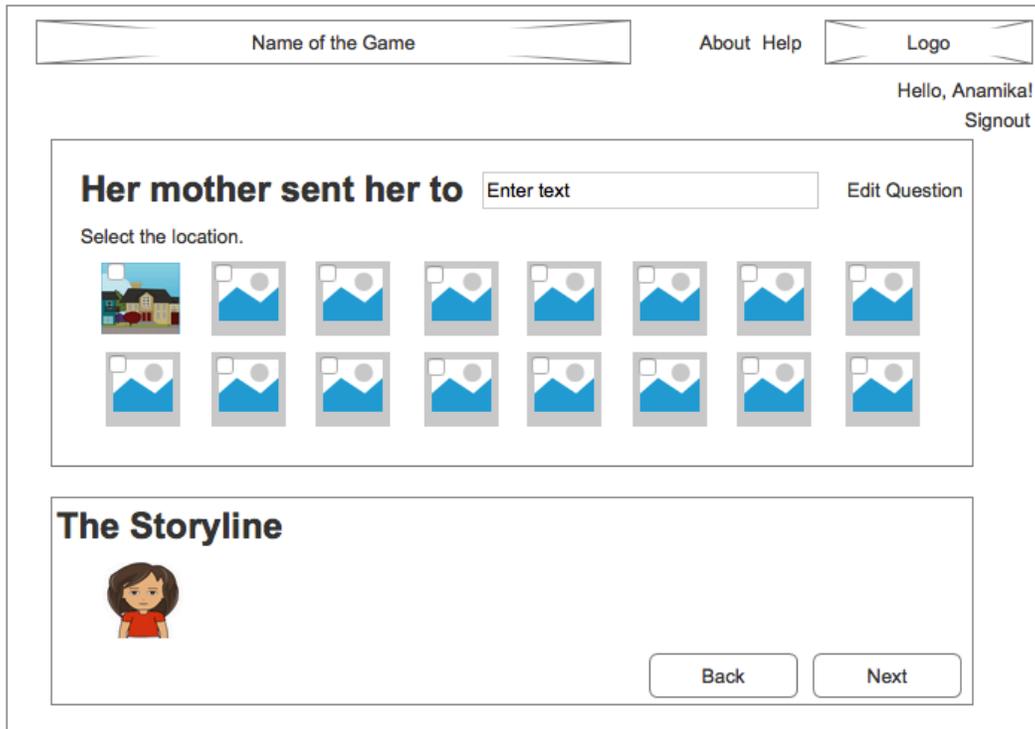
#### **5.2.4 PICK A STORY**

Alternately, children can also click on **Pick a Story** as an option, where they have the option to make selections from existing story flows with the option to add or edit information.



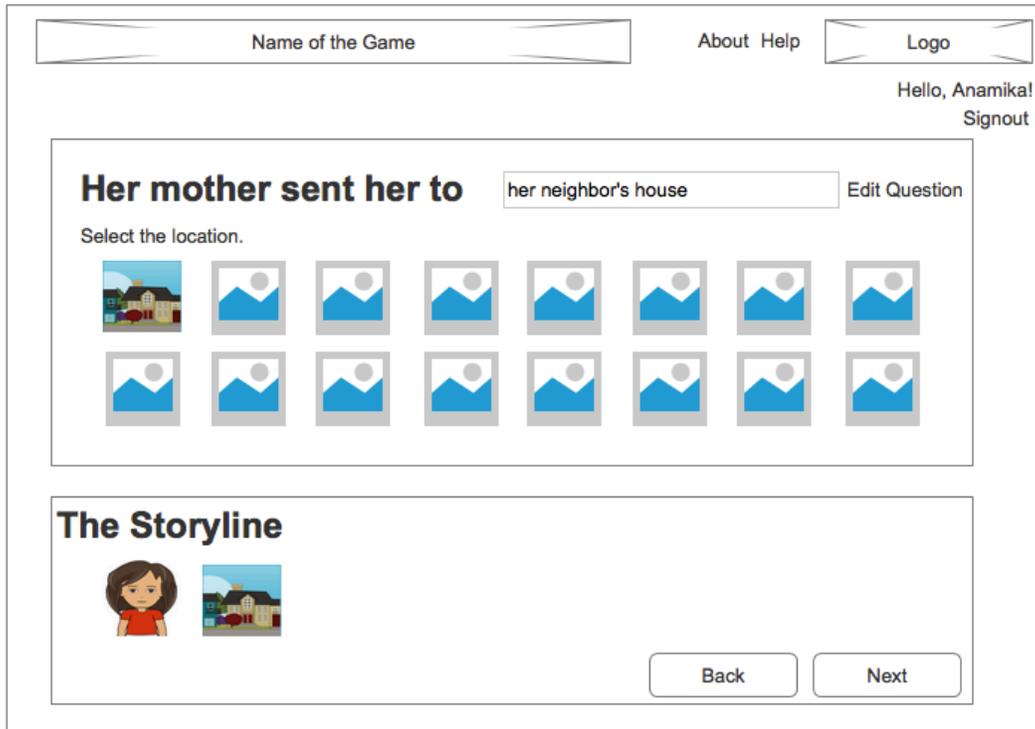
*Figure 14: Pick a story screen with multiple options to select from*

In the option Pick a Story, children can edit some aspects of the story and select from the list of options available. When they select the option and then go on to click **Next**, they see the selection in the bottom of the screen to maintain continuity. The screen will then move to the next part of the story.



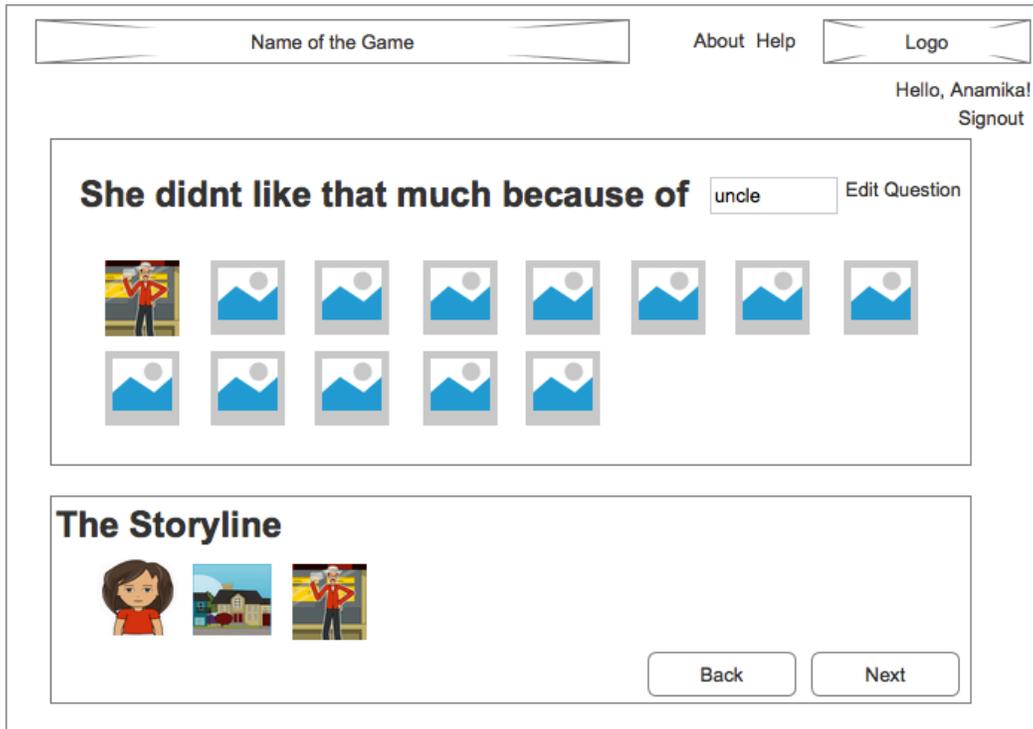
*Figure 15: Pick a story screen two with multiple options to select from*

Children can then make the selection required and write the answer or edit the question.



*Figure 16: Pick a story screen three with multiple options to select from*

Clicking on **Next** takes them to the next screen, for the next selection. After making the selection they can make the next selection and click **Next**.



*Figure 17: Pick a story screen four with multiple options to select from*

When all the selections are made, the final page will have the entire selection with its text in place.

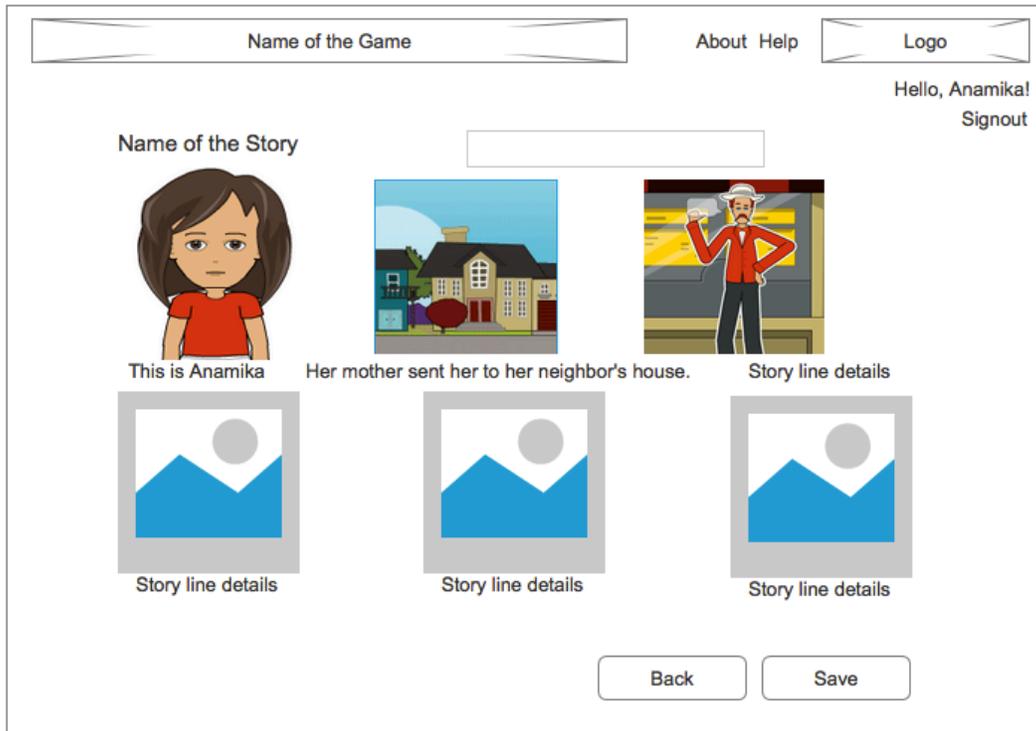


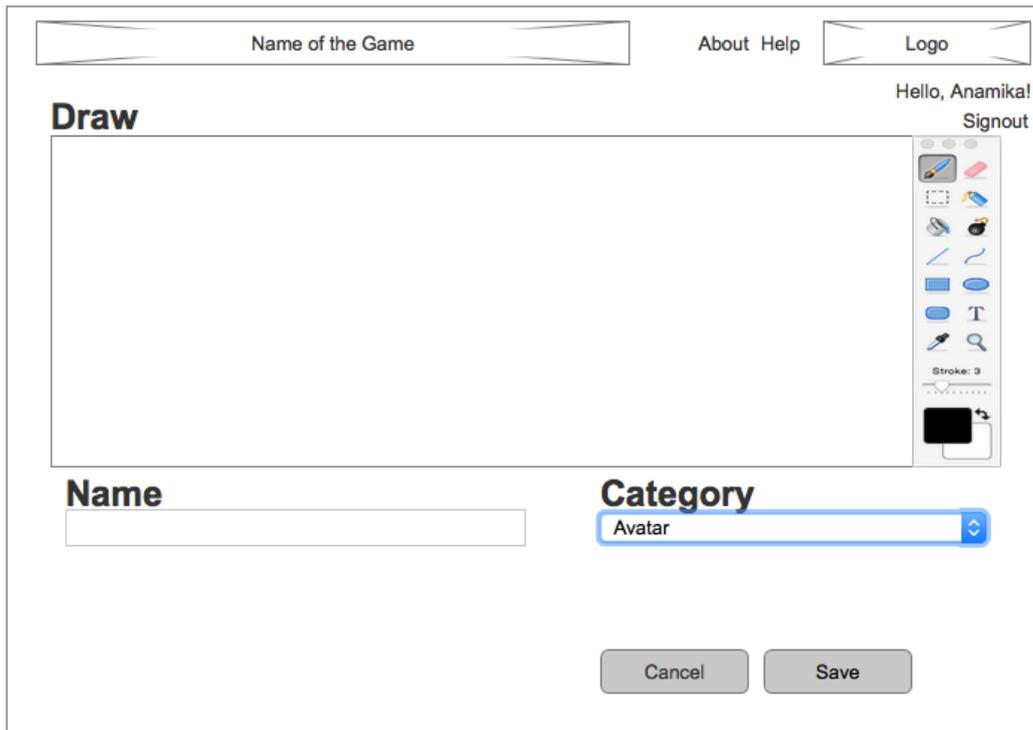
Figure 18: Storyline page that display all the selections made

From this screen, clicking on **Save** takes children to the **Home screen**, where all the stories are listed. From the **Home page**, the child could then view, print or edit the stories.

### 5.2.5 DRAW SOMETHING

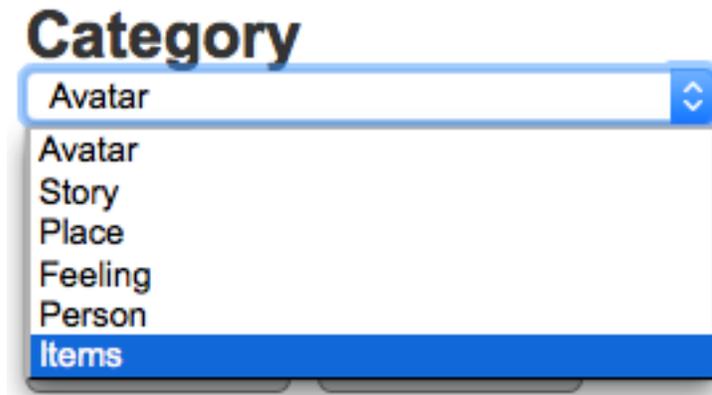
Drawing is an important motor skill that all kids are taught growing up. So, if children do not want to tell a story in text but just want to draw something, either just to experiment or to use later in their

stories, they can do that using the option **Draw Something** on the **Home screen**. This will lead them to the **Draw Something** screen.



*Figure 19: Draw something screen*

Here children could feel free to draw anything that they wish and then even categorize them based on the categories available, as listed below.



*Figure 20: Category options for storing drawings*

Based on the categories selected, the system will prepopulate these drawings in the different sections based on the selections made at this stage. After creating the drawing, children can click Save and return to the home screen, where this drawing will get appended to the list of drawings previously made.

### **5.2.6 CREATE AN AVATAR**

Children can choose to update their Avatar from their local drive or create one on their own. This helps them also to represent themselves online. There are several websites that enable users to create Avatars based on their vision of themselves<sup>26</sup>. Children can download avatars

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<sup>26</sup> <http://faceyourmanga.com/editmangatar.php>

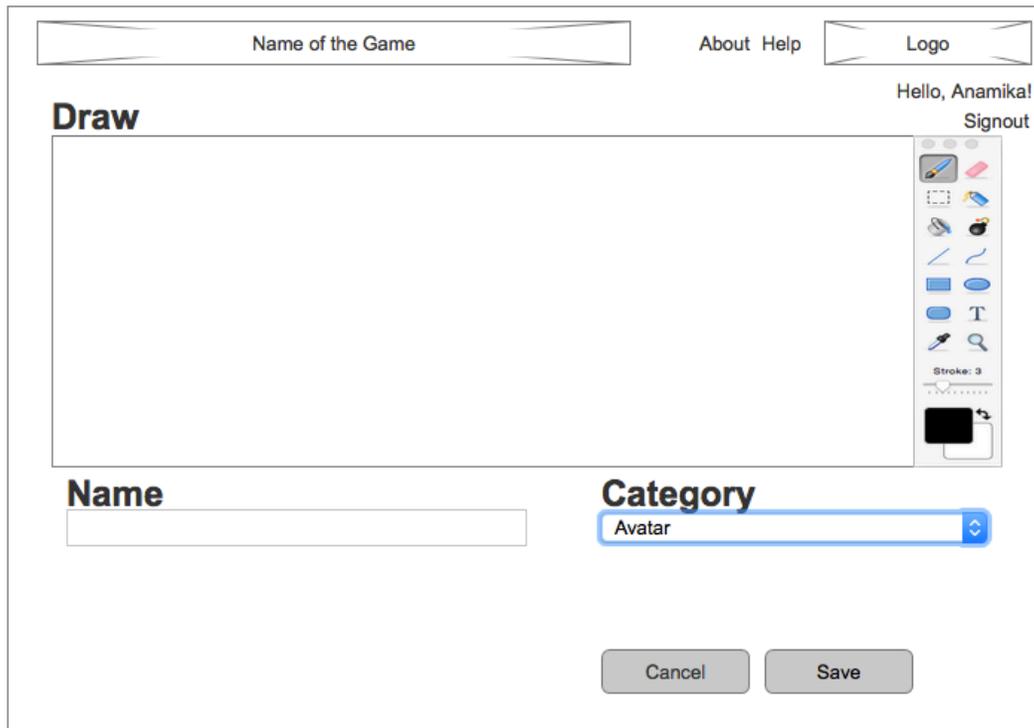
from such websites and make them their own. Alternately they could also just draw their own doodles of how they see themselves that could be used as their avatar.

The screenshot shows a web interface for creating an avatar. At the top, there is a header bar with a text input field labeled "Name of the Game", a link for "About Help", and a "Logo" placeholder. Below the header, the user is greeted with "Hello, Anamika!" and a "Signout" link. The main content area is divided into three sections: "Name of the file" with an input field, "Display name" with an input field, and "File Upload" with two buttons: "Select file" and "Draw Something". Below these buttons is a "Preview" box. At the bottom of the interface, there are two buttons: "Cancel" and "Save".

*Figure 21: Create Avatar screen*

On clicking **Select File**, the system will open up the option to browser window to select an Avatar from the local folder. Alternately, the child can click on **Draw Something** to open up the **Draw Something screen** and draw something that they wish to represent

themselves. This screen displays an area to draw and add a name to the drawing and put it under the Avatar category.



*Figure 22: Draw something screen*

After children finish the drawing, they can go to the Category screen as seen previously in Figure 21 and select the **Category** as **Avatar**, to save the drawing as his or her avatar.

### **5.3 FURTHER DEVELOPMENT**

Beyond this project, the wireframe prototype will be developed into a working app through further participatory steps. Plans for future work are described in Section 7.2.

## **6 DISCUSSION**

The project targeted the design of a storytelling app and platform for children as a safe, non-intrusive tool for parents and caregivers from India and Canada to potentially detect child abuse. It also examined cultural differences between in the context of design of this game. Children were not directly involved in the research. A participatory design approach was adopted involving parents, guardians, and other interested adults through surveys and focus group sessions with the premise that they would be the persons making the resources available to children they care about. Responses from survey respondents are discussed in Sections 6.1 and 6.2 in the context of their implications from a cultural perspective and in terms of setting up a storytelling platform for children.

### **6.1 IMPLICATIONS OF CULTURE**

Of the nine Canadian participants, three were parents. Of the 14 Indian participants, 4 were parents. This implies that, at least within the small sample, people are concerned about children and CSA even when they do not have their own children or their children have grown. Also

that CSA is a universal problem about which there is huge concern among people from different cultures.

It is fairly clear that respondents from both countries were worried about CSA. Therefore, it is evident that this problem is not specific to a particular culture or society. This also means that this issue needs to be addressed, and soon, looking at the staggering numbers already quoted in this report as provided by noted researchers and institutions.

In comparison, fewer Indians thought they knew everything about CSA. This means that awareness is certainly an issue that could have some impact in terms of the different cultures. Nonetheless, all respondents wanted to let their children know about CSA, which means that parents and caregivers, though not entirely aware of CSA, understand the need to protect their wards from it.

The fact that most talk to their children or wards means that they do have some sense of control on what is being communicated to the children. Storytelling was a popular option expressed by parents and

caregivers that participated in this research. Therefore, it seems like a good choice to allow children to express themselves.

When it comes to the question of preferences in terms of colours, participants from both nations said that their wards preferred bright colours like pinks and blues; this goes to show that mostly kids from the sampled families prefer colours that are bright, despite the cultural contexts. However, the contrast seems to be in the kind of TV time and exposure to cartoons they have. There seemed to be hardly any similarities in the kinds of cartoons they watch except when it came to animation films.

## **6.2 STORYTELLING PLATFORM**

The storytelling app will be hosted on the project website <http://no2csa.wordpress.com>, which will be expanded to create a platform for parents to have conversations around their experiences with their children's stories. Children and their parents/caregivers will have secure spaces on the platform to create/view stories when they want to use the app online. Each child's stories could be transformed into entries in their personal diary where they could save the information and then

illustrate/colour them at their own pace to expand their creativity and imagination.

The fact that children in both the countries mostly have access to gadgets makes it clear that an app would be something they could use; as well, an online platform would be a viable option to create in future as a space for children and parents to form a community. Additionally, the fact that the web today is becoming more accessible makes it easier to cover children across the spectrum and include them in the sharing and give them space to emote and get educated.

The fact that they wanted to engage in the participatory design of the app is also a positive sign that there is awareness that is spreading and adults want to get involved in solving the problem.

## **7 CONCLUSION**

### **7.1 CONTRIBUTION**

“It takes a village to raise a child” is an old proverb. However, it takes one incident of Child Sexual Abuse (CSA) to destroy a childhood and ruin a life. CSA is a problem worldwide. Irrespective of caste, creed, religion or nationality, innumerable children across the world face the risk of CSA. This project, therefore, worked on designing a storytelling game that could be used by children and adults together, where children express events and feelings in their life in creative ways through a storytelling app and parents/caregivers and other concerned adults monitor the stories to detect potential situations of CSA.

In the digitally transformed and increasingly connected society that we are living in, inclusive design can be relative to the individual, the goal and the context (Treviranus, 2014). The malleability of digital content also offers design possibilities for personalization to make one-size-fits-one solutions. With this spirit, the storytelling app allows children to personalize their telling process in multiple ways, and also offers many choices for creative visual expression.

Three dimensions of inclusive design have been conceptualized and applied to multiple contexts by Treviranus (2016). They are: (1) Recognizing diversity and uniqueness amongst users; (2) Using inclusive processes and tools for design; and (3) Creating a broader impact through the design. As an inclusive design exercise, this project made the following contributions to the three dimensions:

1. **Recognizing diversity and uniqueness:** This project sought to recognize the cultural diversity of children and parents/caregivers who would be potential users of the app. In that context, inputs were sought from parents/caregivers and other adults concerned about CSA from two different countries – Canada and India. Cross-cultural notions around CSA were examined. Some members from both groups of survey respondents were involved in the prototype design. The storytelling game allows children several choices to personalize their stories.
2. **Using inclusive processes and tools:** The electronic survey was designed to be accessible. The prototype app was designed through a participatory design process.
3. **Creating a broader impact:** Although the storytelling app is intended for children, therapists could use it to engage adults

undergoing therapy for emotional conditions arising out of CSA. Moreover, the app could be used as a general tool in schools for enhancing creative storytelling among children.

## **7.2 FUTURE WORK**

Through further participatory steps with parents, guardians, and other adults concerned about CSA, the prototype will be developed into an app that can be used by children both online and offline. The project website will be developed further into a platform that hosts the app and enables community activity. The app and associated website will be designed in compliance with WCAG guidelines to ensure accessibility. The platform will enable more open discussions on CSA to raise public awareness of CSA. Given that there is so much secrecy surrounding the subject, the platform will allow people to discuss the issue more in the open and remove the shame surrounding it.

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## **APPENDIX A - QUESTIONNAIRE**

### **DEMOGRAPHIC DETAILS**

1. Name:
2. Age:
3. Gender:
4. Educational Qualification:
5. Country of Origin:
6. Country of Residence:
7. No. of Years of Residence:

### **SURVEY QUESTIONS**

Tick whichever is appropriate or enter the answer in the box provided. If you wish to respond with respect to more than one child/ward, please provide the answers separated by commas.

1. Are you associated with a child or children under the age of 18 in any of the following ways:
  - Parent
  - Guardian
  - Concerned adult
2. Are you aware of Child Sexual Abuse (CSA)? Select one of the answers.

- Unaware                    1        2        3        4        5        Fully aware

3. How concerned do you feel about CSA in the context of children? Select one of the answers

- Not at all                    1        2        3        4        5        Very much

4. Do you think children should be educated about CSA?

- Yes    Not sure            No

5. At what age do you think it would be appropriate to tell children about CSA?

6. What is the age of the child/ward you are associated with?

7. Has your child/ward been exposed to information about CSA in any of the following ways?

- Talking to them
- Showing educational videos
- Through school education
- Not yet

8. If there were a game available that educates children about CSA, would you expose your child/ward to it?

- Yes    Maybe                    No

9. Which would you think is the best way to teach children about CSA?

- Storytelling
- Cartoons

- Videos
  - Online
  - Game
  - Instructional Books
  - Others – please specify.
10. What representation do you think would be most appropriate for characters in the game?
- Real life
  - Avatar
  - Fictional
  - Cartoon
  - Others – please specify.
11. What is your child/ward’s favourite cartoon character?
12. What is your child/ward’s favourite colour?
13. What are your child/ward’s hobbies?
14. What does your child/ward do in their spare time?
- (Indicate in the order of time spent in the activity. 1 being maximum time spent.)

| <b>Description</b> |  |  |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|--|--|
| Plays with gadgets |  |  |  |  |  |  |  |  |  |
| Surfs the Internet |  |  |  |  |  |  |  |  |  |
| Watches Television |  |  |  |  |  |  |  |  |  |
| Reads Books        |  |  |  |  |  |  |  |  |  |

|                           |  |  |  |  |  |  |  |  |
|---------------------------|--|--|--|--|--|--|--|--|
| Plays outdoor games       |  |  |  |  |  |  |  |  |
| Plays indoor games        |  |  |  |  |  |  |  |  |
| Does activities (drawing, |  |  |  |  |  |  |  |  |
| Others, Specify:          |  |  |  |  |  |  |  |  |

- 15. Does your child/ward have access to online games?
- Yes No
- 16. If yes, please specify the names of games played.
- 17. Do you involve yourself when your child/ward plays these games?
- Always Most times Sometimes Never
- 18. Would you be willing to review the design of a game for children?
- Yes No
- 19. Are there any thoughts you wish to share in regard to designing such a game?

Thank you for participating in the survey. Please click on the SUBMIT button when you have answered the questions to your satisfaction.