

ADVENTURE CRAFT

Collaborative, Creative Writing for Kids

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Link to Prototype: <http://install.diawi.com/cYDdcT>

Problem & Solution Overview

Elementary and middle school children love to tell a story. These stories often capture the ingenuity and spontaneous creativity of children that we grown-ups sometimes wish we had. Sadly, children also often simply forget about their stories soon after expressing them verbally. Parents of these children also want their kids to capture this creativity and turn it into something concrete, usually in the form of writing that others can read. However, the current way of teaching writing in school and at home ultimately fails at teaching children to fully express and explore their creativity because they often fail at making writing “fun.” As a result, children wind up spending time on activities that fail to develop their keenly creative and explorative senses.

This is where we come in. We would like to present a tool which children can use to express their ideas, collaborate creatively, and most importantly, discover the joy of creative writing. We aim to remove the parts of writing that children enjoy least from the whole process, by giving them a chance to work with others. This will help children improve their writing skills, learn to collaborate with others and appreciate the ideas that others bring to them. We believe that a fun and engaging platform will encourage children to write, and through practice and a lot of enjoyment, these children can actually become better writers.



Fig. 1: Simple, easy to use design for children to write collaboratively

Tasks

Start writing stories. (simple)

We believe that the best way to improve writing ability is just practice, and simply getting started is the hardest part. That's why we want children to be able to start in two easy steps: just choose a title and start writing a few sentences. This process is much less daunting than having to aim to write a whole story on your own from the outset.

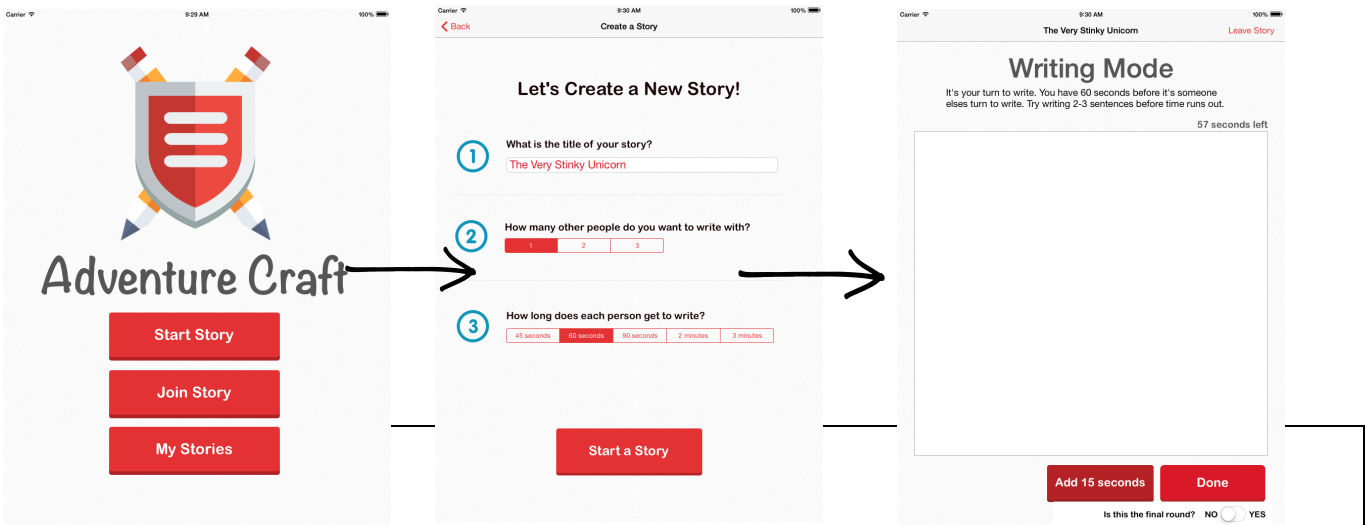


Fig. 2: Get started on writing stories

easily

Illustrate stories. (moderate)

To help make all of the breaks in the writing process (waiting their turn to write) entertaining while helping the children visualize the story that they are writing, we decided to give children a chance to illustrate their story. We believe that drawing is a key step to help get the creative juices flowing, and lot of fun!



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Fig. 3: Illustrate the story while waiting for your turn to write

Collaborate with others (complex)

To make the writing process more interactive and help foster shared ideas, our application focuses on collaborative writing. We believe that collaboration makes the writing process more enjoyable and fruitful for beginners for a number of reasons. Firstly, writing smaller amounts is a less daunting task for children, who often face writer's block mid-story. Secondly, seeing other people's contributions is interesting, as well as helpful in making the children more adaptive writers. Further, it also introduces some accountability into the story because writers know that their fellow participants are counting on them to move the story forward.

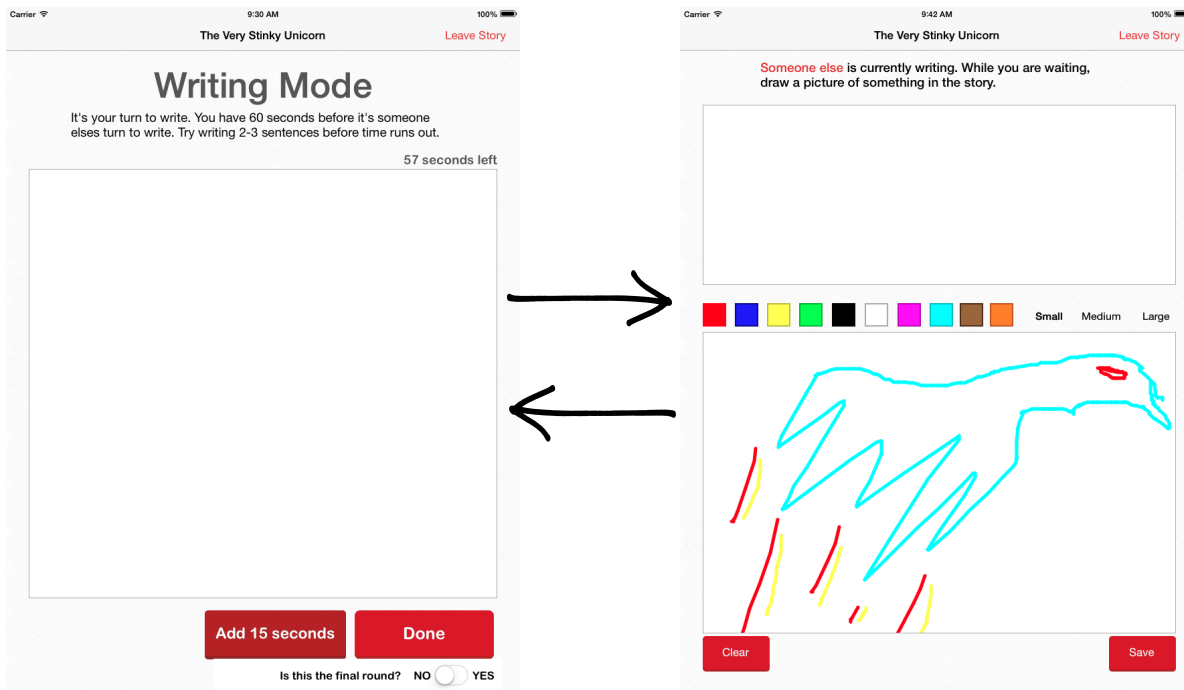


Fig. 4: To collaborate, users simply move back and forth between writing and illustration while others write.

Major Usability Problems

[H2-1: Visibility of System Status]

Join Screen: “There are no stories available for you to join”. Unclear message.

We addressed this issue by adding the message, “Searching for stories” when the user tries to join a story, to make more clear what is happening. We also made the “Join a Story” option separate from “Start a Story,” to reduce confusion about what the status of the system is, as you can see in the changes from the medium-fi prototype on the left to the hi-fi prototype on the right (Fig. 5).

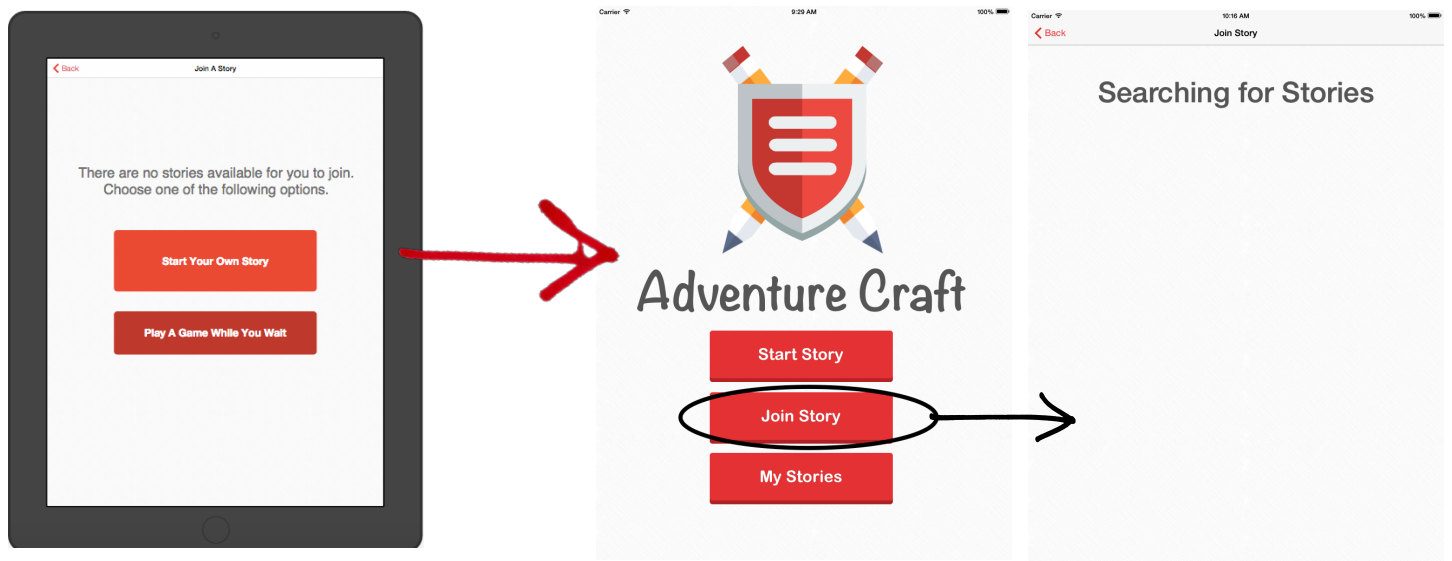


Fig. 5: Our design changed from the slightly confusing error message in the medium-fi prototype (on the left) to the much clearer separated flow with a better system status on the right.

[H2-1: Visibility of System Status]

Writing mode: An icon is being used to tell the time

This was never a real concern because we simply used the icon in the medium-fi prototype to convey that there was going to be a timer, as in the image on the left (we couldn't decrement the timer in the medium-fi). We replaced the timer icon with a counter telling the user how much time they have left to write (see the change in Fig. 6, from the medium fidelity to high fidelity prototype)

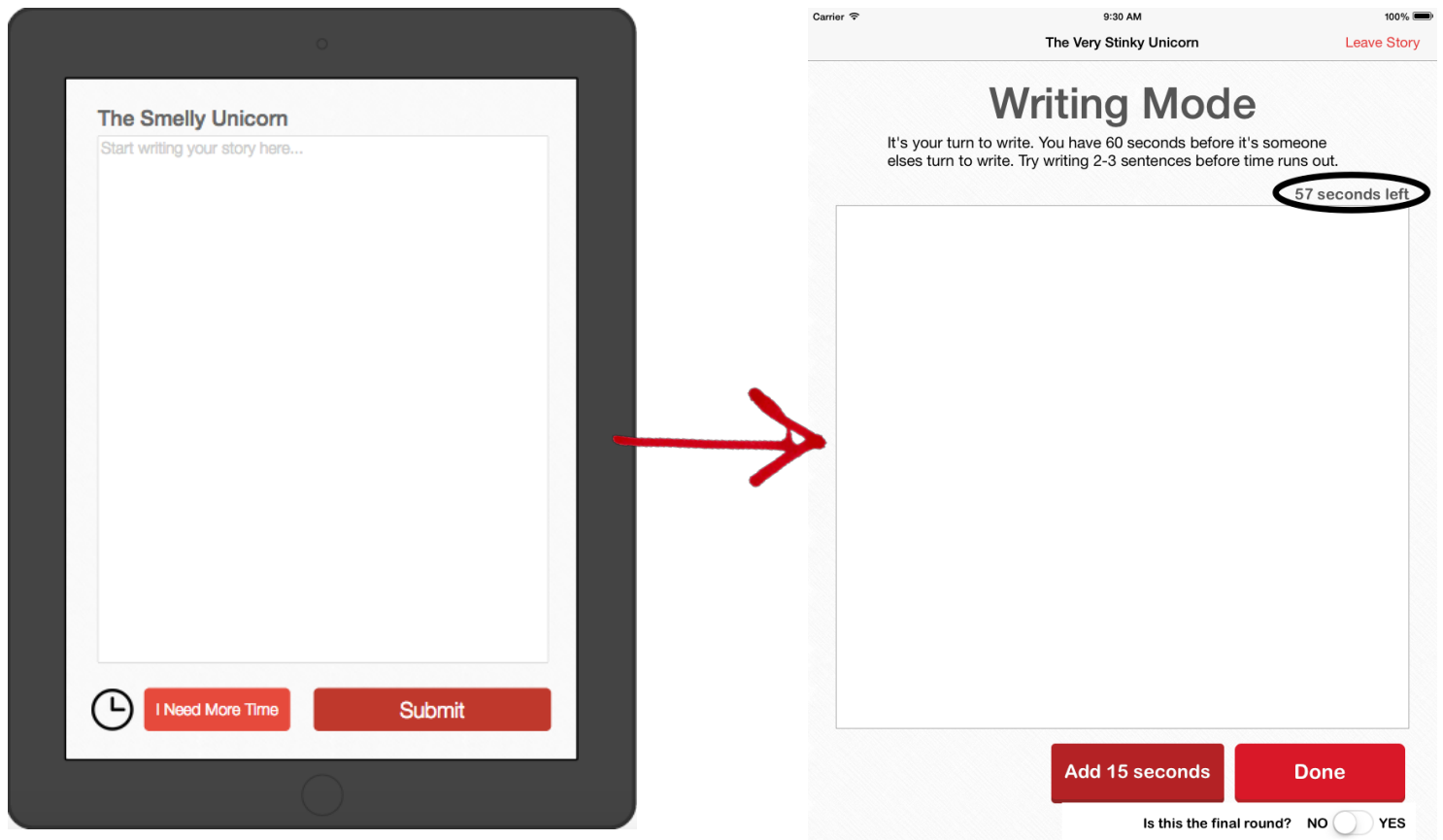


Fig. 6: Our design changed from the clock icon on the bottom-left in the medium-fi prototype (on the left) to the much more informative timer that would decrement on the right.

[H2-3: User Control and Freedom]

No way to leave a story

In the medium-fi prototype we didn't implement a way for people to exit a story once they entered it. We needed to change this to give users the "emergency exit" option in case they changed their mind about continuing in the story. To do this, we added a "Leave Story" button which exits to the home screen to help users to try to do something else with the app (See Fig. 7).

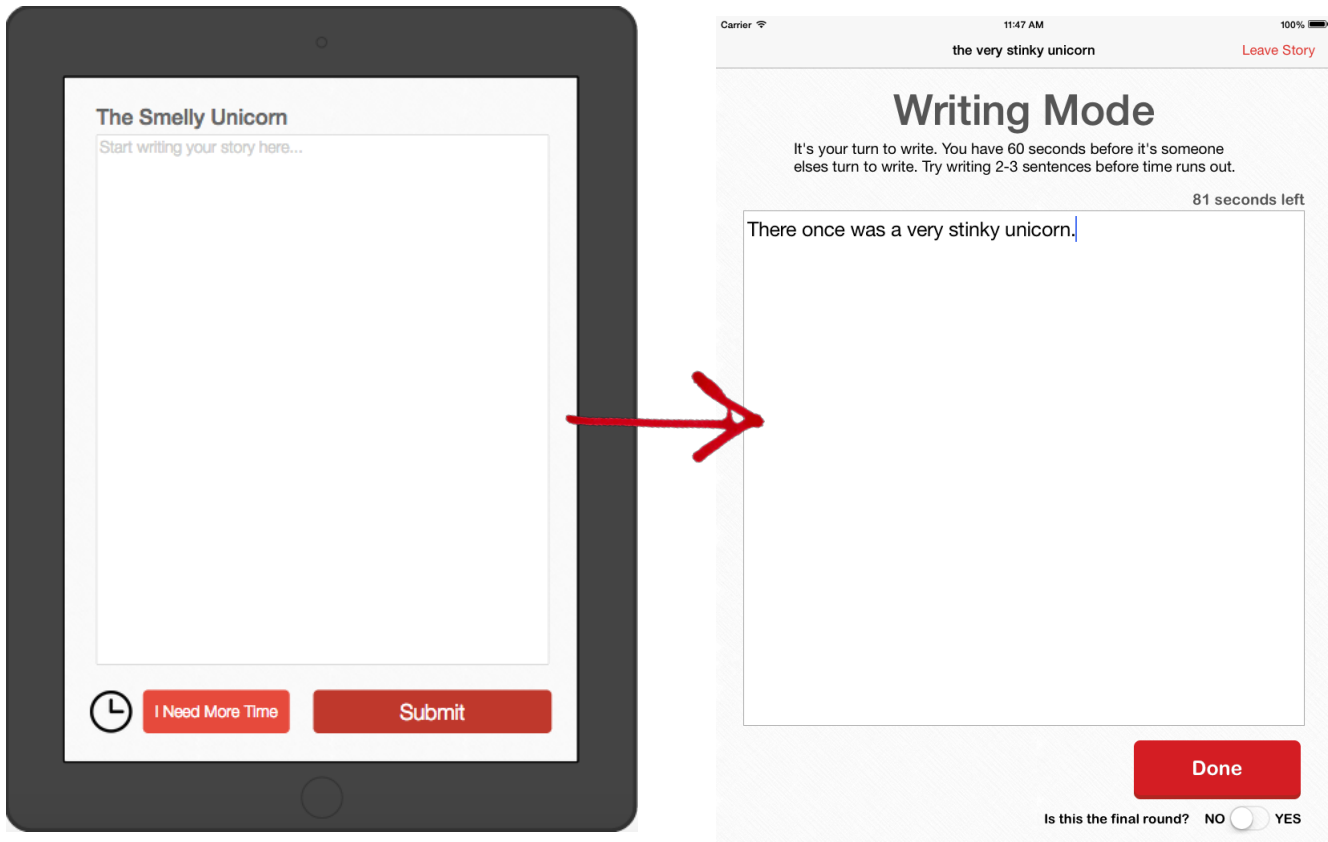


Fig. 7: We incorporated a "Leave Story" button in our hi-fi prototype for greater user control.

[H2-7: Flexibility and efficiency of use]

How does one finish a story? In the current model, people will keep contributing for a set limit of two rounds; this can be somewhat limiting. Add a complete story button.

In the medium-fi prototype we didn't implement a way for our users to decide when to end a story. We decided to implement a selection box for the user who started the story to end the story, whereby he or she could simply select "yes" and click done. They will then be directed to the story archive. (See Fig. 8).

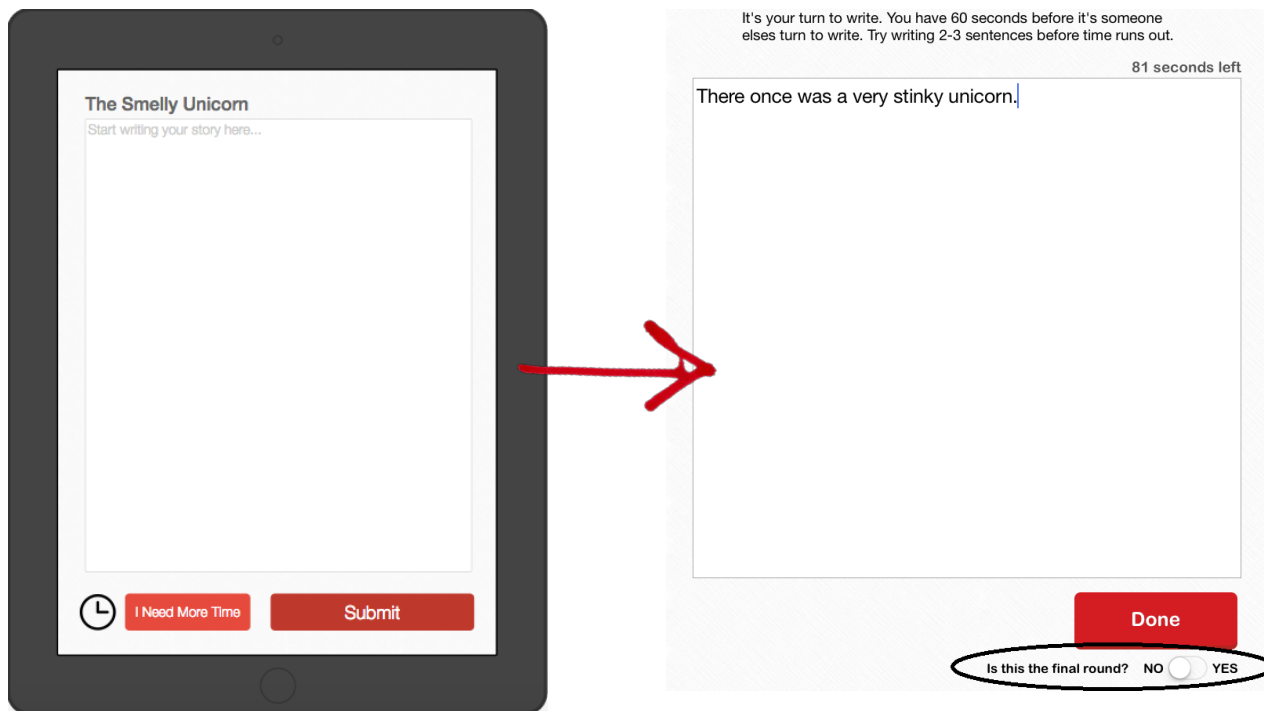


Fig. 8: The selection for ending the story. User can choose “yes” and then click done as normal to end the story right then and there.

Design Evolution

The design of our application went through several iterations of change. In the beginning we thought we wanted to create an app that would allow kids to create *Choose your Own Adventure* style of books. When we did our contextual queries however we learned that kids have very little interest in such books. They were, however, very interested in working on stories together. This was probably most emphasized in Kuan's interview that he did where he played a collaborative writing game with a group of kids. We also discovered in our other interviews that kids often had little trouble coming up with ideas but often struggled

to put down their idea on paper and illustrate in full. This is when realized that whatever we make, we had to lower the amount of work they have to do to get started and continue writing. As such, the collaborative writing process really made sense to us as it would enable each children to write small amounts and still taste the joy of creativity.

Figure 9 are our early sketches. We started laying down a structure where one children can start a story and others would join him/her in the endeavor.

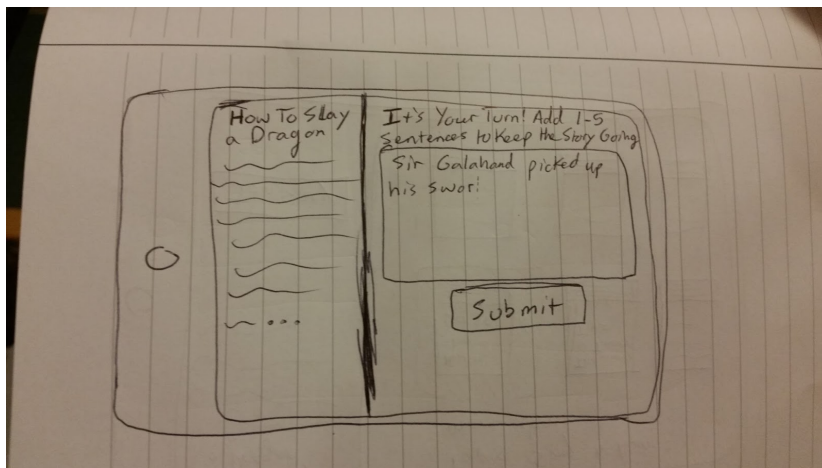
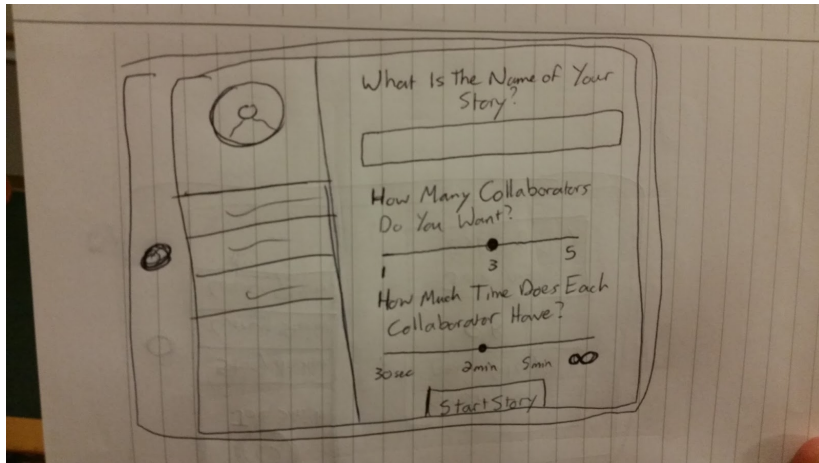


Fig. 9: Early stage sketches. Starting a story, and writing a story screen respectively.

For our Low-Fi prototype, we simplified the interface from our previous sketches in attempt to make it easier for children to understand the flow.

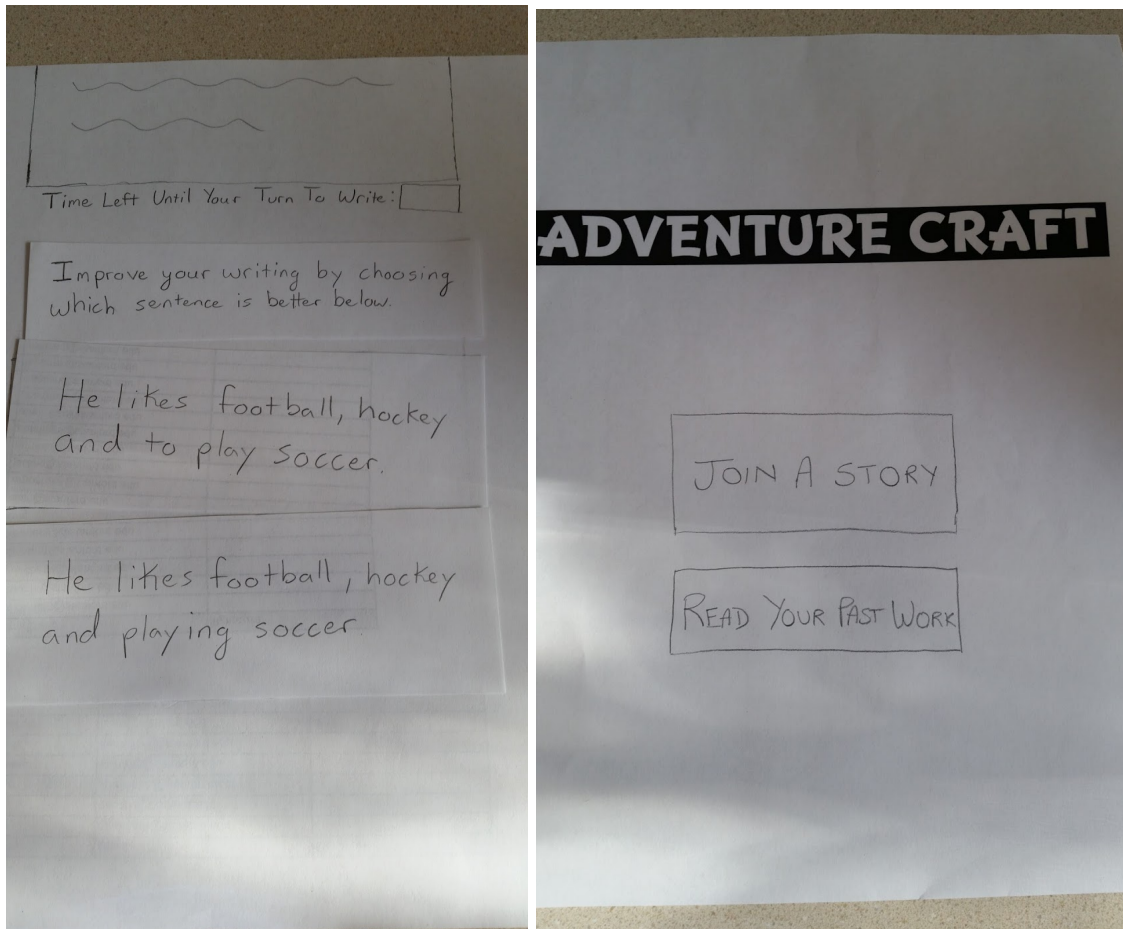


Fig. 10: Low-Fi, Paper Prototype.

Our low-fi prototype was very received. As the collaboration aspect of our app began to take shape we realized that there would be times that kids would be waiting for their turn to write. Wanting to make use of this time we came up with different ideas for what to do with that time, such as designing a grammar game to improve the kids' skillsets. However, while we were interviewing, the most requested and by far the most interesting way to do this was to enable kids to illustrate the story. As adults, we were not really thinking about mixing mediums, but for kids, writing and drawing are not only very powerful ways portraying their thoughts, but also very interchangeable. Thus, we decided to temporarily stash our other ideas for keeping the children engaged and implemented the drawing functionality for kids to take advantage of their boundless creativity. Figure 11 and 12 illustrates this transformation.

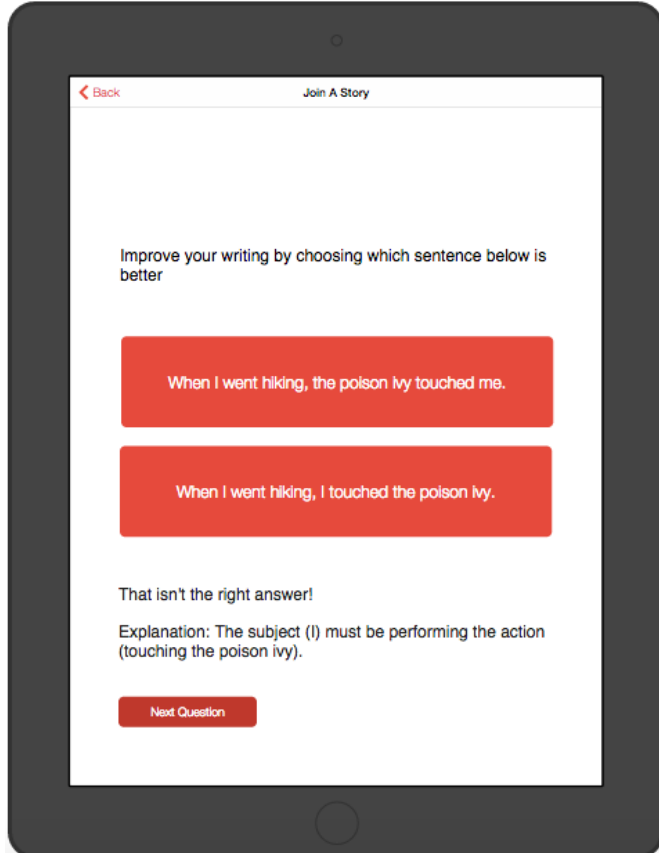
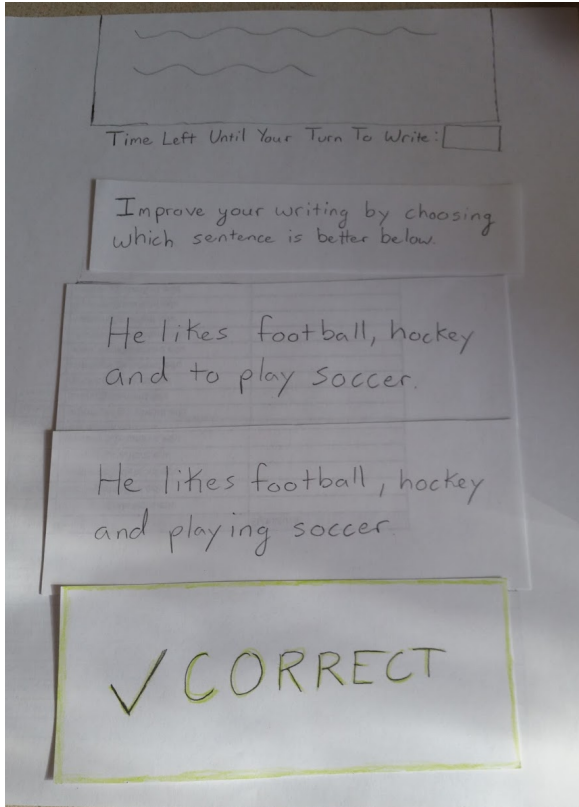


Fig. 11: Low-Fi Grammar Game, on the left, Med-Fi on the right.

Fig. 12: High-Fi Prototype, "Illustrate your story".



Prototype and Implementation

Real-time collaboration is key to our app and we really wanted to make a prototype where collaboration wasn't simply a Wizard of Oz technique that we faked in the background. We had to do this with earlier prototypes and felt like we never really got a good understanding of how the Wizard of Oz techniques were supposed to work.

We decided to build our prototype as a native iOS app using Swift. To handle the real time collaboration we used a platform called Firebase. Firebase is a backend platform that allows you to easily store JSON data and receive notifications whenever that data changes. Firebase also already has an iOS framework which helped speed up development. One of the real shortcomings of Firebase, however, is that it doesn't allow you to execute any code on the server. Due to this issue, if we wanted to make our prototype production ready we would have to build our own server. For the High-Fi prototype, though, we were able to simplify interaction with the server using some hard-coded assumptions.

We really don't have any Wizard of Oz techniques going on with the actual app. We did restart the app after the completion of every story because we found this reduced the number of random server errors we encountered. On the server, we manually deleted some data whenever our app encountered an error. Also, when you join a story, the story you join is randomly selected from all stories currently being worked on. We ensured our demo worked by only having one active story at a time.

As far as hard coded data goes, everything was pretty dynamic and generated in realtime. We didn't actually allow the users to specify their own usernames, though. To simplify this process we simply had a list of adjectives and a list of animals that we would randomly combine to form their username. This resulted in usernames like "Brave Penguin" or "Relaxed Kangaroo".

Going forward, there are lots of improvements that could be made with the app. People loved being able to illustrate their stories, but we need a way of allowing them to create multiple images. People also requested the ability to see their drawings as the story progresses rather than just at the end. The app as a whole needs to become far more robust. This would mostly involve writing our own server.

We would also like to add a lot more sharing features which would allow users to share their completed stories via social media and email. In similar fashion, we would like to allow users to invite specific people to collaborate on their stories rather than simply being grouped with random users.

Lastly, we would like to allow users to continue writing on stories that they completed earlier. We provide a story archive that allows users to read their previous stories, but we would like to add the functionality to let them to further edit and advance a story.