UCD 3.3 Professional Practise Case Study

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"They Know More Than We Think They Do": Key Considerations When Creating Applications Targeted Towards Children

Introduction

We were given the task of designing a mobile application that would determine the market plausibility and opportunity for an e-reader aimed specifically towards young children. We were asked to examine the use case of a caregiver reading a picture book to a child, be it physical or digital, and uncover pain points and opportunities in this process. Using user interviews as our primary research method, we were able to uncover vital insights regarding the story-time process. A large amount of the nuances to this were unexpected and lead us to changing our outlook to the problem statement altogether. In conducting user interviews, we were able to empathise with our users and get a real perspective on the way they currently engage with e-readers, children, and story-time. This unique insight will allow us to create an application that will remedy actual pain-points experienced by users, rather than creating a project that misunderstands the user's needs and is ultimately ineffective in providing solutions.

Problem Statement

Reading books to children under six is an essential part of early childhood development. Libraries and physical bookstores are great resources for this – but there are also many free digital picture books available online. However, the experience of finding, selecting, and downloading the e-books can be cumbersome. Additionally, the reader applications are generally designed for older individuals reading alone; not parents reading books to their children. This may lead to accidental page turns, unintended downloads, or children wanting to read books that aren't available.

In this case study, we will address the problems prevalent in the existing methods of reading e-books to children and discuss and illustrate improvements to these methods, resulting in an improved design.

In summary, we will design a way for caregivers to read digital picture books to small children.

Process Overview

An integral part of the research for this brief is finding and interviewing participants within our target market. Namely: "Adults that are somehow actively involved in the raising of a young child, who have read a book (either hardcopy or digital) to the child in the past."

We are wanting to gather results from people who actively participate in reading story books to their children so we can gain insight into existing pain points so that we may develop a solution that accurately remedies these pain points. The process will continue as follows:

i. User interviews
    a. Interviews with users within our target market will help us determine the scope for our product, as well as desired features and capabilities that were not captured in the original brief.
ii. Thematic Analysis
    a. Once the interviews were conducted, we sorted through the data to uncover recurring themes and experiences from each user interview.
iii. Empathy Map
    a. A short summary detailing an overview of the user experience of the current reading experience.

iv. Discussion & Recommendations
    a. Summarising and analysing key insights and considerations and creating a list of feature recommendations for a design solution.

Research Process

Our research consisted of interviewing caregivers on their current experience reading books to young children. The main goals for these interviews were the following:

- What the "reading routine" currently looks like,
- If tablets/phones ever involved in the reading process,
- Users' feelings towards digital picture books for small children, and
- Desired features for hypothetical children's e-reader,

In conducting these interviews, we were able to discover the attitudes of caregivers towards digital e-readers. Additionally, we were given insight regarding the children's perspective on e-readers, giving us a unique perspective into what features are desired by children and how they are likely to make use of the application.

We interviewed five participants:

1. Mother: Son 9, Daughter 6
2. Mother: Son 7
3. Mother: Son 7, Daughter 4
4. Mother: Son 3, Stepdaughter 7
5. Au Pair: Two 10s, one 11

Research Results and Discussion

Up until the point of the interview, we had largely been focused on how a children's e-reader would function with an adult as a handler. However, a vital aspect of this product is how it is received by the child. Although we have placed heavy importance on how it would be utilised by a caregiver, if it is not enjoyed by the child, the application would not be used. A full thematic analysis of insights can be found in the appendix.

This was bought up in our user interviews. Many caregivers said that their children often read by themselves or had dedicated e-book readings given to them by teachers. This was a dynamic we weren't expecting. We had initially thought that parents read to children in highly controlled environments in which the caregivers had control over the reading device. In fact, many of the children owned their own smart devices which they use for school as well as recreation.

With this new information regarding the rapidly growing tech-savviness of children, we still have our initial use case to discuss: that of a caregiver reading an e-book to a child. When asked about accidental page turns, we were expecting this to be a commonly experienced issue – we had thought that children would get excited about the technology, and poke at the screen, causing undesired actions.

Conversely, this is a seldom experienced problem. All caregivers that made use of digital e-readers agreed that if a child touched the screen and performed an undesired action, they quickly understood

that doing that particular action did not yield a result that they wanted. The children would therefore not perform that action again, thereby learning the fundamentals of the application very quickly.

This took us by complete surprise: we were expecting children's' curiosity to make the e-reading process cumbersome, whereas this was not the case at all. Even the younger of the children understood which actions aided their experience and which actions hindered their experience.

This insight was paramount to our design process. **Children know more about technology than we think they do and can use most applications without supervision.** This means that we also need to consider the possibility of having a child as a primary user. Additionally, we needn't consider as many access-restricting functions as initially planned. such as accidental:

- Page turns,
- Downloads,
- Minimisations, and
- Desiring unavailable content.

This updated onlook raises several considerations – namely the app must be:

1. Functional,
2. Efficient,
3. Sophisticated
4. Convenient, and
5. Controlled

for the **caregiver** as well as:

6. Attention-grabbing,
7. Attention-maintaining,
8. Exciting,
9. Simple, and
10. Conducive to learning

for the **child**.

In designing this application, and other applications aimed towards children but overviewed by caretakers, we need to consider the two vastly different target audiences one must appeal to at the same time. This means that the e-reader would have two different types of user groups: a child and a supervisor.

This then presented us with a new dynamic to our problem: **How does one design an application that is appealing to a child, but useful for a caregiver?**

The initial problem statement mentions the inclusion of an online bookstore. As one can imagine, this may pose several concerns when placed in the hands of a child. No caregiver wants a child accidentally buying bucketloads of e-books, unbeknownst to the consequences. A similar problem can be seen with online review systems – one would expect cohesive reviews from caregivers, not the children themselves.

It therefore makes sense to restrict certain functions. Clearly one must allow for administrative privileges for care givers – however, we must consider the case of a child reading by themselves. If a child is presented with an access-denied wall every time they wish to conduct a disallowed action, they will grow frustrated with the little freedom they have within the application. We must therefore create a solution that allows a caregiver to have control, without making the app seem inaccessible (or exclusive) to the child.

Additionally, many caregivers stressed **privacy and safety concerns of the children when being exposed to the internet through entertainment and education applications**. Caregivers mentioned that they are more concerned about children's identity and safety in the digital realm than accidental purchases or button clicks.

Constraints

With an updated perspective on the problem domain; we must consider potential obstacles that may interfere with the design process. Our main constraints that we have identified are as follows:

- Hardware & software capabilities
    - There is only so much an application is capable of. Although caregivers expressed desires to have the application prevent minimisation to ensure children are using their "reading time" appropriately, this may not be a plausible solution.
- Privacy concerns
    - Although caregivers expressed desire to be able to track what the children are doing on the device, this may pose threats to the child's privacy. There is only a certain amount of activity detail that should be accessible to third parties regarding the child's activities.
- Transition from physical book to e-books
    - Engagement through a digital landscape can only be achieved through movement, sounds and colours. Hard-copy books have the advantage of texture, smell and experience which are difficult to incorporate digitally.
- Safety considerations
    - As mentioned above, applications provide a gateway to the internet. Given that many free-to-use applications make use of paid advertising may pose a risk to a child's digital experience. This is an issue with both the online capabilities of the e-reader itself, as well as advertisements that may act as a gateway to other sites.

Findings

We quickly realised that we were approaching this problem from a narrowed perspective. Previously, we were expecting to design an application catered towards a caregiver reading to a child. We were prepared to incorporate mechanisms preventing the child from intervening, with designated interaction features (e.g., buttons, pictures, etc.). However, after conducting interviews, we realised that this would not suit the needs of our prospective users.

We realised that a large amount of the enjoyment came from having children interacting with and learning from the technology. Additionally, we didn't expect children to have digital school assignments at such a young age, meaning there is equal need for an interface that is both adult- and child- friendly.

We also learned that caregivers are more concerned about privacy, safety, and efficiency during a child's time on a tablet rather than making mis clicks and performing actions they shouldn't be able to. Therefore, caregivers are **confident in their children's technical competency, but are worried about their overall development and wellbeing whilst utilising digital media.**

Additionally, we learned that caregivers have many desired features in common, namely features that:

- informs the caregiver of how much time was spent reading vs slacking off
- prevents children from making payments,
- prevents children from accessing the internet,
- engages multiple senses and encourages interactive learning,
- allows for multiple bookmarks for different children reading the same book,
- allows old, traditional books to be converted into e-book format
- rating, review, and online shopping capabilities

Next Steps

Now that adequate user testing and research as been performed, the next step would be to develop an application that addresses all concerns and desired features listed in this case study. Additionally, a beneficial next step would be getting the child user group involved in user testing and user interviews, as they have been identified as a crucial component of the development of this application.

When this research was planned and conducted, we did not consider how heavily involved children would be with technology. We were also not expecting children to be as tech savvy as they are and planned to implement more contingency plans than was thought to be necessary. To properly test this theory, as well as the features of the application, it is essential to interview children who would be using the app in the future. Although caregivers may have an accurate depiction of what children currently enjoy about e-books, there may exist opportunity to do something new with the convention. This may come from the previously ignored but highly valued user group, the ones getting benefit from the application, the children themselves.

Appendix

Hesitance to let technology replace tradition

Hard-Copy Benefits, as well as die-hard book lovers:

There's a place for both, each with their own benefits:

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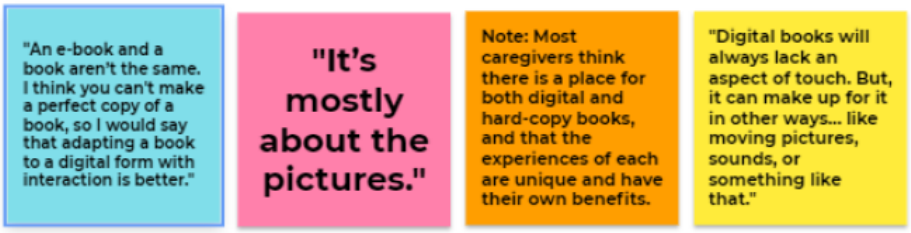
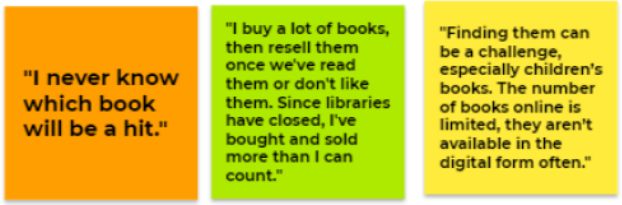
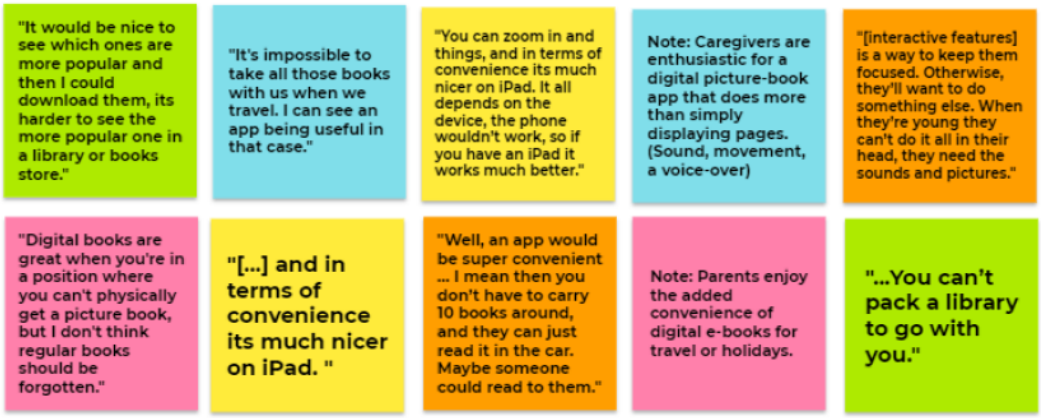


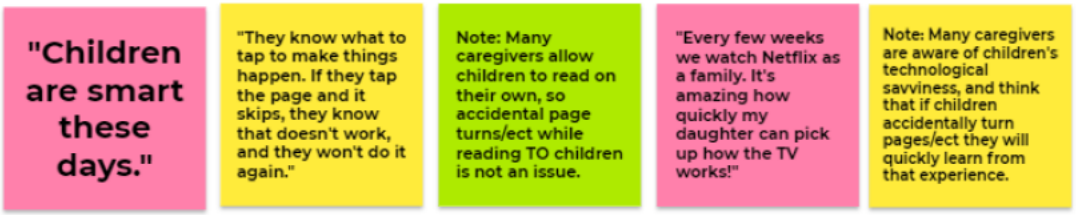
Troubles with finding picture books, both Digital and Hard-Copy



Convenience of digital picture books over hardcopy



Children's electronic savviness and ability to navigate apps themselves:



Desirable features for a e-picturebook application: