Design Prototype Documentation

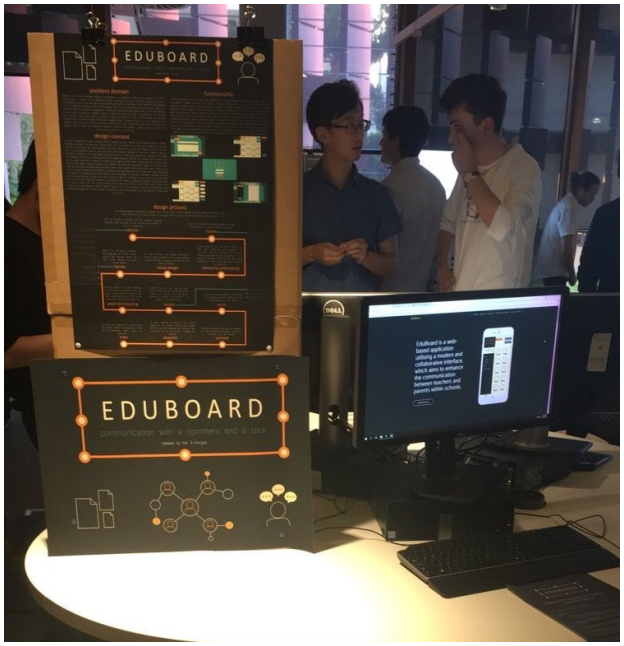
DECO3500 - Social Mobile Computing

Prepared by: 3 Amigos

Prepared for: Workshop W02

GitHub Repository: https://github.com/deco3500-2017/3-Amigos

Google Drive: https://drive.google.com/open?id=0B3RGdds1QR1lRVAyRkd6MHVTR1k



Introduction

Throughout this semester, the 3-Amigos team has exploited digital, social and mobile computing in order to engage in the design process to create a design prototype under a chosen problem domain. The initial project proposal presented the community problem of a lack of effective communication between school teachers and young parents, to which a communication opportunity referred to as EduBoard was proposed. The proposal also described the team who created EduBoard, their communication methods throughout the duration of the project and the overall project plan. Whereas, this document describes in detail the process involved in designing and developing the prototype, to which the final prototype is linked. Moreover, promotional material for the prototype is included as well as task allocation throughout the project period.

Problem

Effective communication between teachers and parents is a necessity to ensure the success of a school. Communication in schools can be classified as either one-way or two-way. One-way communication occurs when teachers aim to inform the parents about learning activities and resources, school events and the progress of a child. Whereas, two-way communication between both parents and teachers endorses positive relations, is the key to effective and efficient engagement in schools and ensures the best outcome for a child. Nevertheless, a recent survey performed by research institution, *Gallup,* found that only 20% of parents feel “fully engaged and involved” in their child’s learning signalling a community issue of a lack in both one-way and two-way communication. Academic, Susan Graham-Clay suggests that, in changing times, this is not sustainable and teachers must continue to develop and expand their skills in order to maximise effective communication with parents.

Solution

In order to address the problem described above, a design prototype referred to as EduBoard has been created. EduBoard addresses the community problem domain with an education focus. The concept effectively combines multiple communication and sharing platforms like Trello, Google Drive, Slack and Padlet to create a real-time and virtual collaboration tool to improve

school communication networks and enhance children's learning. Specifically, EduBoard is a web-based application utilising a modern and collaborative dashboard and padlet like interface, which aims to enhance the communication between teachers and parents within schools. The primary target audience is parents of primary school aged children where fundamental learning and school activities are present. Hence, Eduboard is a platform for sharing this educational content via a simple post. Learning resources encompass classroom goals, lesson plans, reading material that informs lesson plans, tutorial videos, homework materials and homework assistance resources. Moreover, school resources include attendance and behavioural records, regular event updates, school newsletters and academic calendars. Ultimately what the teacher shares depends on what they deem to be most useful to the parents. Thus, the purpose of EduBoard is to be a sharing format that is flexible to the needs of the teacher. EduBoard's application nature also allows for users to easily view and upload content from the ease and comfort of their mobile phone. Hence, using modern technology, EduBoard has the intent to foster an environment whereby young, busy and working parents feel more engaged and involved in their child's learning, which will ultimately motivate and encourage parents to further assist their children.

In terms of usability, each teacher and or class possesses a dashboard and each parent is encouraged to create an account. The teacher invites a particular parent to join the dashboard with the classroom password. Utilising their account and classroom password, a parent has access to the teacher's dashboard. When a teacher uploads content, each resource is tagged and filtered into a category. Tagged items can be viewed in each category on the left hand side of the dashboard. This effectively allows for ease of filtering results and locating content. Comment capabilities on posts and online messaging is also available in EduBoard whereby there is a general chat channel between all users of that particular dashboard. Further, there is the option to privately message the teacher. However, to avoid constant messaging, the left hand side of the dashboard also showcases a frequently asked questions section with appropriate answers.

Prototype Link

The EduBoard electronic prototype can be seen here. In the event of the prototype not properly loading, please follow the instructions detailed here.

User tasks for usage of the prototype can be accessed here.

Showcase Material

Conference Poster

The conference poster can be seen here.

Banner

The EduBoard showcase banner can be viewed here.

Website/Interactive Functional Component

A zipped promotional product website to house EduBoard material and content can be viewed here. The interactive functional component (chat functionality) is embedded within the website.

Design Process

The following section documents the process involved in creating the optimal design for EduBoard. User research in the form of a survey and generation of personas as well as the development of a low-fidelity sitemap and paper prototype are included. Moreover, the user testing process and results from this testing are included. Following iteration after paper prototyping, a preliminary and low-fidelity electronic prototype was created, to which test plans and user testing results are also documented.

User Research

Survey

In order to complete comprehensive and accurate user research, the group developed a separate survey for both the parent and teacher user group. The teacher survey was given to primary school teachers and the parent survey was sent to parents of primary school aged children. Questions were of a similar format to ensure a controlled experiment and easy analysis of results. Further, a few small and informal interviews were conducted with parents of primary school aged children, particularly households of dual working parents. Interviewees were asked similar questions to that in the parent survey as well as encouraged to suggest further features.

- Link to the parent user survey: https://goo.gl/forms/jtDF9YvNEvz2zK813
- Link to the teacher user survey: https://goo.gl/forms/HKX1AxubLXciOebe2

Survey Results

These initial survey results will effectively form a set of requirements or goals for our team to achieve as many of the survey questions involved asking the user what they wished to be apparent in the prototype. Through prototyping and testing these different features, our team will be able to create the optimal product for our users.

- Currently parents and teachers communicate via the occasional phone call, email and formal/informal meetings like parent teacher interviews and classroom catch-ups. The issue with email is there is no way to confirm whether an email has been received. Moreover, this form of communication is one-directional, not collaborative and there is no simple thread of correspondence. Whereas, the main issue with meetings is both teacher and parent availability.
- Most primary schools do not utilise any form of educational based application.
- Feedback surrounding the implementation of Eduboard is positive as both teachers and parents believe it will enhance communication. More specifically, a family of dual working parents explained that as they do not collect their children from school, they are not regularly updated on their child's progress so a simple application containing lesson plans and homework materials would be very helpful.

- Learning resources should include tutorial videos, homework materials, lesson plans and resources, presentations and extra learning resources. However, the volume of these items needs to be monitored as it could become overwhelming for users.
- School resources should encompass school newsletters, social and academic calendars, sporting results and personal letters to parents.
- Many children also attend After School Care so a page for supervisors to upload content could be an additional feature as many parents also like to see what happens there.
- Eduboard should include a chat feature whereby parents can individually message a teacher.
- Many feel that a general chat section amongst the cohort could get abused and be annoying with the constant notifications.
- Teachers report that a frequently asked questions page is definitely needed and it may reduce constant messaging.

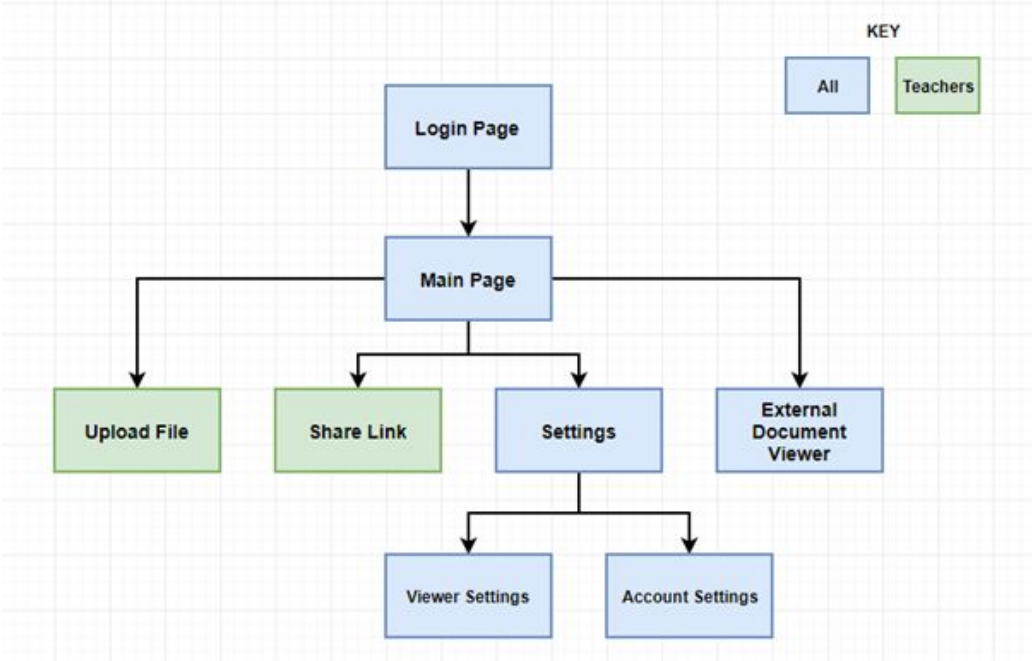
Personas

Following user surveys, personas were able to be more comprehensively developed. Personas are fictional characters constructed in order to characterise and symbolise different user types that are related to the field of design. The group has utilised personas in the project to develop a personal figure that can relate to all, thus the group shares a common connection to the figure and it gives the team motivation to satisfy the figure's needs and wants. By considering the needs and wants developed, the group then has the ability to construct possible solutions. Evidently, parent and teacher personas have been constructed in order to understand and develop concepts to suit their interactions with the project prototype.

The six personas can be seen here.

Site Map

The following image depicts a basic site map for EduBoard.



- *Login Page*

The login page will appear the same for both teachers and parents, however dependent on the user type, the user will be directed to a main page applicable to either teachers or parents.

- *Main Page*

The main page is the primary dashboard. This is where the uploaded content is located.

- *Upload File*

The upload file link is applicable only for teachers. This is where PDF documents can be uploaded to the dashboard with a comment.

- *Share Link*

The share link function is applicable only for teachers. This is where web addresses to can be uploaded to the dashboard with a comment.

- *Settings*

The settings page will appear the same for both teachers and parents. There are two functions in this page including viewer settings and account settings. Viewer settings allows users to alter the visual appearance of their dashboard by changing font type and size and adding a theme. Alternatively, account settings allows users to alter personal details like name, username, password and email as well as changing notification settings.

- *External Document Viewer*

The external document viewer allows users to expand uploaded content on the main dashboard. Users can then more thoroughly read, download and print content as well as view document details.

Paper Prototype

Based on results from initial user research and the site map design, a low-fidelity paper prototype was developed, which is accessed by following the link below. The paper prototype is the first user test of the Eduboard concept, to which the group will test initial user reactions to the concept design. The main goal in conducting this user test is to determine whether the concept is effectively reflected in the interface design, whether users feel confident in being able to use this prototype and whether teachers and parents feel that this design will improve teacher/parent communication. The following test plans highlight that user test groups will consist of parents and teachers, however both will be tested separately. A Google Forms survey will be completed by parents and teachers on completion of the testing tasks.
Two versions of the paper prototype were created, however the final paper prototype can be seen here.

Paper Prototype Proforma Test Plans

In order to ensure a controlled and efficient testing session, paper prototype proforma test plans for both teachers and parents were generated and can be viewed here.

Paper Prototype Google Forms Survey Links

Following paper prototype testing using the test plans, parents and teachers were required to complete a survey, which are linked below.

- Link to the parent paper prototype test: https://goo.gl/forms/TvBd3CFu2xkGL9rr2
- Link to the teacher paper prototype test: https://goo.gl/forms/oNBy3rYlV66ClMMa2

Paper Prototype Observations

To fully comprehend troublesome areas, an observational study was also performed during paper prototype testing. Results include:

- Paper prototype caused confusion by not having fake names, topics and comments completed.
- Share link was not well worded and caused confusion for users.
- Hierarchy system to illustrate the difference between topics and board could be better designed.

Paper Prototype Survey Conclusions

- All users (both parents and teachers) had a good understanding of the concept of EduBoard. The vast majority understood the key buzzwords such as communication, sharing and resources.
- 30% of users (both teachers and parents) found the main page layout to be slightly confusing, to which all users commented at the conclusion of testing that the layout needs to be simple to cater for those who are not as technologically capable.
- In more detail, teachers considered all tasks easy to complete, however suggested that task four (adding an article) was probably the most difficult.
    - This can be attributed to the share article link wording being unclear.
- All teachers suggested that they wanted to use EduBoard but did not want it to send them lots of messages.
- Alternatively, parents considered task two (defining a topic/board) to be the most difficult.
    - This can in part be attributed to the paper prototype not having placeholder text, making understanding of functionality more difficult.
- All parent users fully support EduBoard.
- All parents thought EduBoard was easy to use, despite the fact multiple teacher users objectively struggled at completing certain task objectives.

A more detailed graphical representation of responses can be viewed here.

Changes to Be Made Based on Paper Prototype User Feedback Results

- Add placeholder information in the electronic prototype.
- Change the share link text to “share article.”
- Hierarchy with boards and topics will need to be redesigned slightly (different colours, fonts etc) to make distinction clearer.

Electronic Prototype

Visual Design

Prior to the creation of the electronic prototype and functional component, it was necessary to develop visual components of the concept, including colour scheme, typography, logo and the visual layout composition. This allows EduBoard to be effectively branded and recognised.

- Numerous draft logo designs were developed. These can be seen here. Evidently, the final square-based logo was chosen.
- It was necessary that typography was simple and modern, yet easy to read. The group discussed various well-known fonts, however agreed that Calibri (light) and Microsoft Yi Baiti were ideal.
- Colour scheme options were selected, which can be viewed here. Each scheme was rated by group members and the colour scheme below was ultimately chosen. This is because these colours are inviting and contemporary and there is a blend of dark and light colours to allow for effective readability.

Electronic Prototype Version One

Electronic Prototype One Proforma Test Plans

Results from paper prototype testing suggested that further concept iteration was required. With these changes in mind, the electronic prototype was created. The electronic prototype can be accessed here. To ensure an efficient and successful testing session, proforma test plans were once again generated for both parent and teacher user groups. These can be viewed here.

Electronic Prototype One Google Forms Survey Links

Following electronic prototype testing using the test plans, parents and teachers were required to complete a survey, which are linked below.

- Link to the parent electronic prototype test: https://goo.gl/forms/WE0tQqcard1HSwy23

- Link to the teacher electronic prototype test: https://goo.gl/forms/7mKUEhCZgR6b7daX2

Electronic Prototype One Observations

To fully comprehend troublesome areas, an observational study was also performed during electronic prototype testing. Two main issues were identified with the execution of the first electronic prototype. Both issues were not necessarily problems with the concept, but were limitations of the use of Mockplus as a prototyping software. More specifically,

- Background image text was sometimes hard to read, especially comments.
- Inputting text into the comment and URL text fields was often difficult.

Electronic Prototype Version Two

Observational studies during electronic prototype version one testing indicated that there were serious issues with the prototyping software. There were major visual issues for users including text being hard to visualise and distinguish as well as it being difficult to comment on boards and add URL text fields, which are important features in EduBoard. These issues and discussion with tutors during the Week 12 stand-up prompted our group to select a new electronic prototyping software and perform further user tests. An updated electronic prototype can be accessed here. The same proforma test plans from above were utilised, however a new testing survey was generated, which can be accessed here.

Electronic Prototype Two Observations

A second observational study was undertaken to establish if there were any outstanding and troublesome issues with the second electronic prototype.

- All users were capable of interacting with the prototype and liked the simple design.
- There were no visual issues.
- However, some users did detail alternatives methods of interaction, which are described in the conclusions section below.

Electronic Prototype Two Survey Conclusions

- Feedback from the second electronic prototype user testing was mostly positive. Users complimented the simple layout and design. They believed that the colour scheme and typography allowed for efficient readability and was appealing.

- However some users did suggest alternative interactions. An alternative method to add parents to a board was necessary. This either needs to be a way to inform new users to go to settings to access the add parent functionality or to add a new button to add parents to the board.
- Users also suggested that they would prefer to add parents to the board via name rather than email as name is quicker to insert and easier to remember resulting in minimal adding errors.
    - Allowing parents to be added via name could be perhaps synced to the school database to allow teachers to easily added parent users via their details in the database. Hence, it is up to the teacher to add the necessary parents.
- Some users also made note that an After School Care Board would be effective for families with children involved in after school care activities.
- Finally, incorporating statistical reporting for individual children would be efficient in demonstrating the progress of a child and telling their “learning story.”

Interactive Functional Component

To demonstrate a core aspect of functionality within the EduBoard concept, an electronic interactive functional component was developed. The ability for parents and teachers to comment on uploads with criticisms, suggestions and other opinions is a highly important feature within EduBoard. This real-time interaction allows both parent and teacher users to learn from each other and gain knowledge through active communication.

The interactive component can be accessed within the concept website here.

The Learning Curve

As the aim of this design prototype was to test the idea for the purpose of learning something, our team thought it was necessary to document the conclusion of our learning curve from engaging in this design process. Three key messages become apparent to us at the conclusion of this project:

1. Iterate, iterate, iterate and iterate some more,
2. Divide and conquer, but always confer and finally,
3. No matter how much it might hurt, criticism can ensure success.

Task Allocation

The following table outlines all tasks completed by individual team members.

Name	Tasks Completed
Abigail Hume *Team Leader* *User Interface Design and Marketing*	● Active participation in stand-ups. ● Introduction and concept description in proposal. ● User research - creation of surveys, collation of results, UI decision-making, two personas and sitemap. ● Colour scheme and typography. ● Showcase A2 poster and banner. ● Organisation and collation of documentation.
Alison Collins *Task Flow Manager* *Research and User Experience Design*	● Active participation in stand-ups. ● Team description and tags in proposal. ● User research - two personas. ● Creation of paper prototype, pro-forma tests and testing surveys. ● Collation of paper prototype test results. ● Development and iteration of electronic prototype, pro-forma tests and testing surveys. ● Collation of electronic prototype test results.
Gabby Mendoza *Logistics Manager* *Design and Development*	● Active participation in stand-ups. ● Communication methods and project plan in proposal. ● User research - two personas. ● Design and development of logo. ● Development of functional component. ● Development of website to house material.