

The Middle School Student's Guide to Academic Success

Final Project Report

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**Huan Fang, Sarah Hensiek,
Sachin Kumarswamy, and Brendan Strahm**

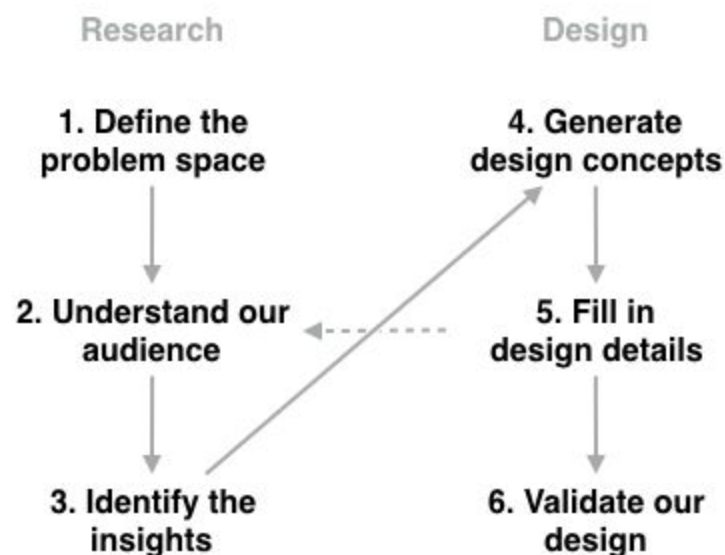
Executive Summary

Blake Nemelka and his brother Bo wrote the book, “The Middle School Student’s Guide to Academic Success: 12 Conversations for College and Career Readiness,” based on 12 conversations they had with their father as middle schoolers. Blake asked our team to develop a companion application to complement the book, and he wanted us to explore what sort of features would be beneficial.

We researched the motivations and needs of our audience, middle class middle schoolers and their parents, and found a need for digital versions of the book activities, reminders for performing college search tasks at appropriate times, and tools to help stay motivated. Based on these needs, we designed an app with distinct parent and student sections. Parents could recommend conversations to their child and give feedback on their work. Students could get badges to show their progress by completing each conversation. Both parent and student could access a shared calendar and get reminders for events. Finally, we validated our designs by having middle schoolers and their parents test out a prototype.

Our design performed well with our target audience and was well received by Blake. We have a low-fidelity phone prototype of all the functionality and high-fidelity mockups of a few main screens. Our main recommendations for next steps are to design out all of the conversations, perform another round of testing with parents and students, and then look into possible integration into school curricula.

Design Process



Define the problem space

Kickoff Meeting

A kickoff meeting was held with Blake to determine what he wanted for the app. He wanted an app that would be a companion to the book but would not replace the book. He emphasized accountability and having an app for students and their parents. He was unsure of the audience for the app.

After the end of the kickoff meeting, we made a first draft of our problem statement based on the meeting:

“To design a fun and collaborative mobile app to accompany the book”

While this draft problem statement left much to be desired, the process of its creation helped us think through the questions we still needed to answer.

Reading the book

The app acts as a companion to the book, so our first step in understanding the problem space was to read the book. It is divided up into twelve sequential main chapters called conversations. Each conversation explores a life or college preparation skill using a combination of instruction and exercises. One of our early design choices was to mirror this conversation structure in the app. At the end of each conversation, there are topics for reflection and discussion as well as activities that the students should complete to help prepare them for college. Some of these were one-time things, such as making a list of goals and mentors. Others were repetitive, such as calculating your GPA or managing your work and activities using a schedule.

Figure out the problem statement

As we researched the problem space and our users, we periodically updated the problem statement to reflect the new information. This is the statement we ended up with:

“Middle school students and their mentors in a home setting need a guide to help them complete the activities in the book, ‘The Middle School Student's Guide to Academic Success.’ This guide would help facilitate collaboration between parents and students and help prepare students for college by teaching them skills such as time-management, goal setting and being aware of importance of GPA for future college considerations.”

Understand our audience

Email interviews

To help understand the audience, we were given the contact information of various parents who had read and used the book with their middle school students. We asked them about their usage of the book and which pieces they felt were the most helpful. We asked them also about what the book was lacking and any other resources they would want.

We also gave the book to a family with a middle schooler who did not personally know Blake. We asked them the same questions.

Student notes

Blake had received many student notes from a classroom of local middle school students who had read the book with their teacher at school. This gave us an insight as to how the students viewed the books and what they liked or didn't like in their own words, unprompted.

SME interview

Even though the book was aimed at all middle schoolers and their parents, we suspected that there were differences in their attitudes and needs across socioeconomic levels. We talked to Terri Krause, who has years of experience mentoring middle and high school students who are the first in their families to go to college, to learn about those differences and to discuss which audiences align most closely to the book's content and presentation. We learned that the book fit more naturally with the attitudes and needs of upper-middle class families. After bringing this information to our client, we agreed to focus our efforts on designing for this user group.

Amazon reviews

Our previous research indicated that we should focus on parents and children as our primary audience, and we looked at Amazon reviews in order to validate that choice. We collected and coded 16 Amazon reviews of the book, and all reviewers either self-identified as parents or recommended the book for use by parents. This provided data to confirm our choice of audience.

Identify the insights

Affinity Diagramming

An affinity diagram was created based on the responses we received from people who had used the book. This allowed us to group responses and determine trends in our data in terms of how people used the book and what was useful or challenging for them.

Personas

The book and companion application are designed to be completed by parents and students together. As parents and students play different roles in this process, their needs for the application are different as well. To reflect these differences, two sets of personas for parents and children were created as part of our design document.

Scenarios

The application can be used by different families in different situations with varying levels of motivation, time, and prior experience. The scenarios we created in our design document were supposed to reflect different ways that various families could use the app in connection with the book.

Requirements

The functional and non-functional requirements are detailed in the design document. The requirements for the software were for the parents and students to be able to view all the conversations, complete the tasks associated with the conversations, view reminders and for the parents to be able to comment on student work. The design had to be able to work on a phone or possibly a tablet and be accessible to people who use these devices.

Generate design concepts

Individually, we created different sketches of possible designs for the application. Some pictures of these designs are shown below in the Design Evolution section. Some of the ideas we generated were creating a map to find colleges, adding in badges, making the app for parents or students or both, inclusion with social media, and other topics found in the brainstorming section below.

We then discussed the designs as a group and determined which pieces of each design we liked. We decided to create the app for both parents and students. The design also would include a section with all the conversations available as well as reminders for both parents and students to guide them through the app and different tasks they had entered.

We then talked to Blake who helped generate ideas for the gamification aspect as well as views for how the screen should look to guide people through the 12 conversations. He liked our ideas and provided good feedback.

Fill in design details

We then each made a paper prototype using the design ideas we had generated previously. The paper prototypes included designs for the home screen as well as two or three conversations built out to test functionality.

Validate our design

The paper prototypes were tested in class by doing some initial usability testing with our classmates. This helped us refine our ideas for the home screen and for the navigation through the 12 conversations to make the design more user-friendly.

From this, we created final paper designs and converted them into a clickable phone-based prototype using the POP (Prototyping on Paper) app. This put our paper prototype onto a mobile phone to give it more realistic interaction for usability testing.

We were then able to test this final design with four middle schoolers and their parents. The usability testing went well, with most people feeling very satisfied with the usability of the app. People made positive comments about the design and about the concept of the app. Detailed information about the usability test can be found in Appendix A.

Design Evolution

Brainstorming

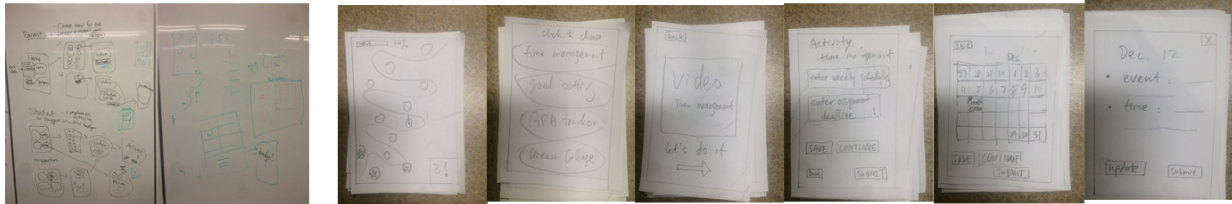
The application design started with initial brainstorming. Several potential functionalities were deliberated during the brainstorming session. Our initial functionalities included the following,

1. Ability to connect with a social media platform
2. Option for the student to list potential college in which they are interested
3. Ability to see the list of colleges made the peers
4. Gamification in the application to provide rewards
5. Time management tools within the application
6. Ability to mark flag the colleges apart from making lists
7. Ability of the mentor/parent to suggest a conversation to be finished by their child
8. Ability to see such a notification within the application by student to finish a suggested conversation

Initial Brainstorming



Iterations over time



Final Phase of design examples



Further, we used these functionalities to create more detailed design, keeping the created personas and scenarios in mind.

Conceptual Design

In this phase of design, several individual designs were created by the team and discussed as to team to choose the most appropriate design for the application. We also met with the client to discuss these designs to scope some of the requirements for application. We learned that the application need not have all the functionalities based on the book, but few to demonstrate its functionality. After the meeting, we scoped the functionalities to be designed as a part of this project. This included the following:

- Parent view
- Student view
- Mode of communication between the parent view and student view
- Screen to show conversations list
- A home screen to have some additional functionalities such as time table, note etc.
- Two tasks - Goal setting and Time management functionality
- Badge functionality - Gamification

Prototyping

We created multiple versions using whiteboard and paper-prototype. We tested the above functionality in the classroom using the created paper prototype. We identified some key issues, including:

- Participants preferred the conversations in a pathway view
- Option to save any task or interaction when close button is clicked etc.

We presented the same prototype to the client as well, to collect some feedback. We used an application called popapp to convert the paper prototype into mobile interactive mockup in preparation for usability testing. Further, to give a brief overview of how the application would like, we created a high-fidelity prototype for some screens in the application.

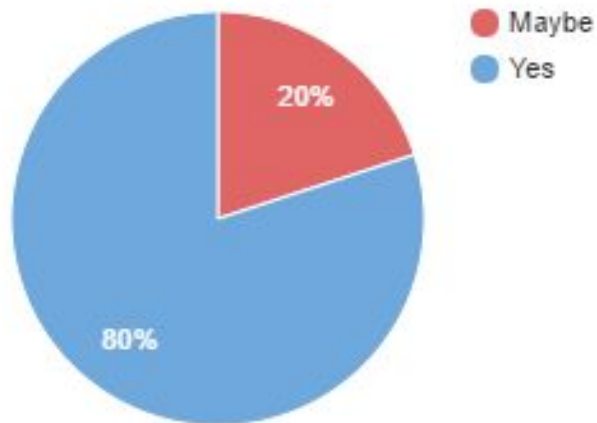


Usability Evaluation

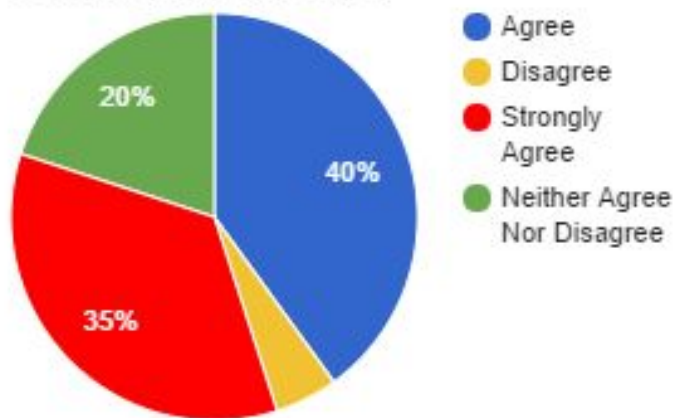
Our usability test consisted of meeting with 4 middle school students and 5 of their parents as detailed in the attached summary. Here are graphs showing their answers to four short likert scale questions that were asked after participants completed each task that we gave them.

Parent Responses:

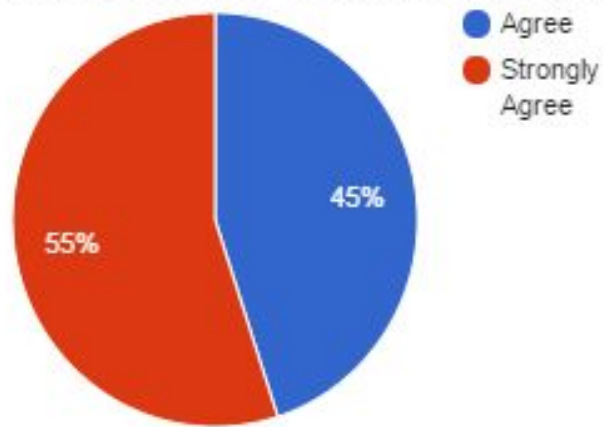
Were you able to finish the task?



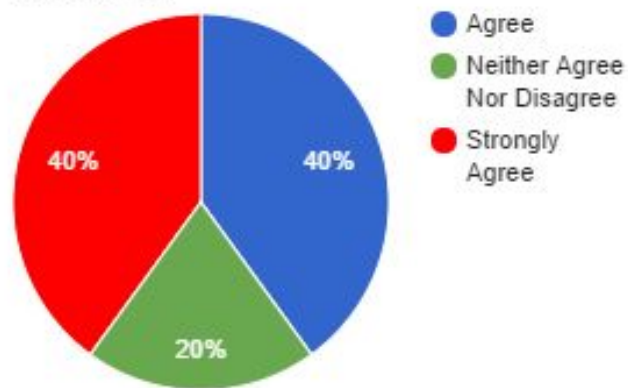
I am satisfied with the ease of completing the task



I am satisfied with the amount of time it took to complete the task

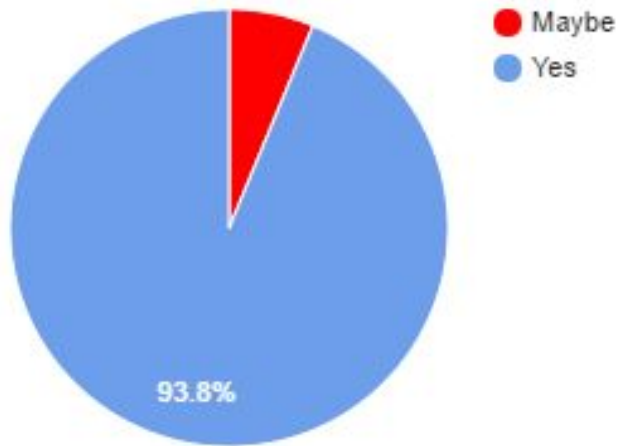


I am satisfied with the interface and flow.

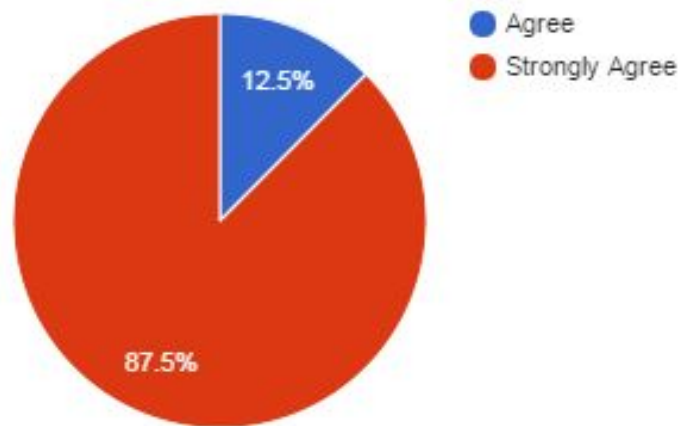


Student Responses:

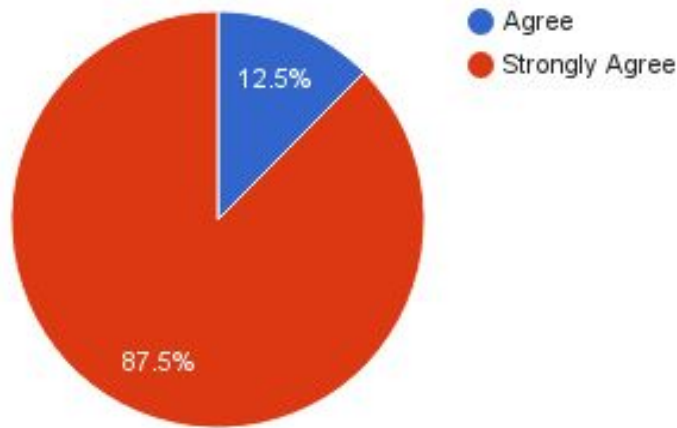
Were you able to finish the task?



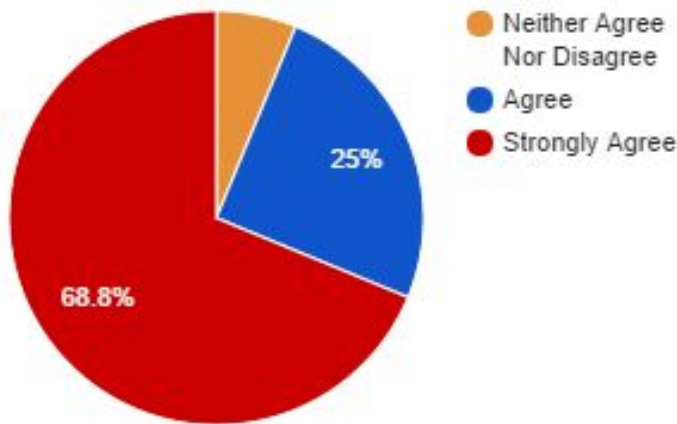
I am satisfied with the ease of completing the task



I am satisfied with the amount of time it took to complete the task



I am satisfied with the interface and flow



Changes that have been made since the last design document include:

- Streamlining the home screen to include buttons for badges, conversations, calendar, reminders, and notes
- Not building out the college finder/info section - this was not explicitly part of the activities in the book and we chose to focus on other conversations based on our interviews and what was most useful to build first.

- Focusing on the goal setting and time management conversations - we built out the time management and c
- Add notifications to student view when a parent comments on activities or suggests a conversation.

For the future of this app, our plans include:

- Make a free version of the app that is available to anyone that only has a few conversations - then encourage people to buy the book to unlock the rest of the app
- Possibly connect to universities to further motivate students and get them connected to colleges for recruiting purposes
- Making the app functional for a school setting
- Minor design changes: Making buttons more obvious, making larger notifications, changing some icons to be more user-friendly and intuitive.

Recommended development & implementation plans:

The next steps for the system are:

- Build out all conversations
- More testing with people who have the book or have read the book
- Gathering data with schools who have used the book to determine feasibility for making the app work with that population
- Support for a mentor to have multiple students.

The first users of the next version of the app would be the people that Blake knows who are currently using the book. These people can be easily attracted through their personal connections with Blake.

The next users could be people who newly buy the book. The app could be advertised with the book as a beta version of the app.

We can also target middle schools where the book is currently being used to see how the app would possibly function in a school setting.

Formative evaluation plan

The long-term goal of this project is that the app helps parents and students use the book more effectively to develop study skills and ultimately get accepted to college.

Data on how students and their parents are using the app and whether they are successfully changing their academic habits can be used to determine what additional functionality could be added to the app to help users get the most out of it that they can. Extra information or activities could be added if necessary.

For more details on the formative evaluation, Appendix B.