

Appendix A: Need Finding Research Summary

Introduction:

In the White Space Project, we were asked to identify a problem that has not been fully solved and to design a solution that improves the user experience. This report outlines the rationale and procedural steps our team took to narrow down our need/problem into a clear and focused final problem statement. We had over 100 needs brainstormed at the start, and the best potential needs were kept by elimination of the others. This wide breadth of initial ideas ensured that we explored diverse problem spaces and the possibility of identifying a meaningful and impactful opportunity for innovation. We then conducted various research methods and further narrowed down our topic to one main problem.

Methodology:

We mainly used three different methods to gather a wide variety of ideas: verbal interviews, brainstorming, and a survey.

Verbal interview

Verbal interviews were conducted to gather opinions from friends and family about potential problems that they found annoying and had not yet been solved. The interview allowed us to gather a plethora of ideas as different family and friends have multiple opinions regarding different backgrounds. This allowed us to identify problems related to culinary, education, commuting, dorm life, and more. This method also enabled us to obtain different information quickly through direct communication. At the end, we were able to gather more than 100 opinions as a group.

Brainstorming

We conducted brainstorming as a whole class. Through voting and ranking all the options, we narrowed all the ideas down to a few that each individual liked. Some of our selection criteria include feasibility of the idea, potential space for a creative solution, and the impact of the solution. Through further brainstorming and match-making of students' interests, we formed our groups. Our group members prioritized enhancing human safety through self-defense tools as our problem area.

Survey

The survey was another measure that we used after narrowing down our specific problem scope. We were able to send out surveys through social media and receive over 100 (a statistically significant number) responses. The survey aimed to further understand the specific context in which people found themselves most unsafe and gather evaluations of the current limitations of self-defense tools. Some of the sample questions include "How prepared/confident would you feel if you had to defend yourself?" "Which situations would you feel the most unsafe in or have

felt unsafe in before?” “What types of safety concerns, if any, have you worried about in your daily life?”. Most of our questions were multiple-choice questions, allowing participants to fill out the survey quickly so that people do not get bored.

The result of the survey includes:

- Most people feel unprepared for self-defense
- Most people don't have a self-defense tool
- Situations such as unsafe public transportation, robbery are of concern for most people
- People are also scared to walk alone
- Solutions to the problem may be to increase police presence/protection, education on self-defense

Narrowing down through data analysis:

After the survey results, our group conducted a statistical analysis of the data we gathered. We tested correlations between confidence levels of people who own a self-defense tool to those who do not, using a 1-sample t-test, and the results were not statistically significant. Further analysis of participants' written responses revealed that low confidence levels stem from a lack of effective self-defense tools and insufficient education on how to use them. As a result, our team decided to shift our focus toward designing a self-defense tool that also serves an educational purpose.