Cana: A Case Study on How UX Principles Can Be Used to Meet the Needs of Diverse Users

Overview of Cana

New York State recently passed legislation in 2021 to allow for the sale and consumption of legal cannabis.[1] Being a relatively young legal industry, users and businesses would benefit from a product and service that is designed with human-computer interaction principles. To meet the needs of a diverse group of users, it was important to focus on designing an accessible product for all users to promote equity for all who interact with Cana's products and services. As this project was for my master's capstone, I chose to focus on UX Research, Strategy, and Design with the goal of having this UX brief ready for handoff to both development and product teams with the intentions of plans for further testing.

Role and responsibilities

My role in this project is a UX Design Researcher. As I was diving deeper into this project, I had to make a choice as to the direction of importance. The fork in the road I was faced with was to develop the product facing aspects such as visual design of the iOS app; or focusing on developing the systems needed to support a beneficial user experience for customers and businesses.

The role I chose to focus on was designing the systems first, because through quantitative and ethnographic user research highlighted the importance of solving the problems of the dispensary experience and all users expressed some level of frustration of buying the products they seek.

My role as a UX Design Researcher focused on gathering mixed methods UX research from gathering quantitative data from authoritative sources from private industry groups along with governmental research. For my qualitative research methods, I focused my research in the field to gain a deeper understanding of my potential user behaviors in their intended environment along with identifying potential usability problems. Aside from my role as a researcher, I applied my findings into a testable prototype in Adobe XD to test possible solutions along with giving the product team a design to build from. As the

[1] https://cannabis.ny.gov/marihuana-regulation-and-taxation-act-mrta

project grew, there was an increased need of creating a customer experience (CX) and service design (SD) blueprint.

Problem Statement

As I began conducting generative research for market viability, I saw a user need in addressing accurate information along with reducing cognitive load for first time cannabis users from tourists to first time triers. I had two problem statements because they reflected two different approaches to the information architecture (IA).

The first problem statement took a bottom-up IA approach where the app drove the overall UX. Within this context, the app would be used to help users getting the right information about the product they want to buy. The initial problem statement was: *"How can users know they are accessing credible information when buying cannabis products?"* From learning about my users, most of them expressed frustration in navigating products and decoding information they were never exposed to. Problems were immediately highlighted with initial app sketches as features did not solve user problems. Therefore, it was necessary to conduct more research about user behaviors. I also needed to understand the grey market and how Cana can improve on those experiences from the grey market and established recreational markets.

I observed a common behavior between every user was seeing that the main frustration was getting their product of choice and the new buying experience. At this juncture, a lightbulb went off and I needed to see how this app would be applied within the context it would be intended to be used. Combining the app and dispensary experience solve problems users face at the dispensary. Treating the app as a touchpoint of a larger experience could not only solve and address user problems, but also pave the way for a unique product in a rapidly growing industry.

I hypothesized that creating a Software as a Service (SaaS) cannabis application for legal recreational cannabis users over the age of 21 will achieve an improvement in comfort, individualized recommendations based on reviews and learning user preferences, and an increased enjoyable experience for users as they engage with a dispensary.

Scope and Constraints

The scope of Cana also changed as my perception of where to place the UX of Cana. At first, I thought it lies in the usability of the application I was designing. After conducting ethnographic studies at a dispensary, I saw that the UX must lie in the system first. I took a human centered approach to solve customer problems to design the CX. In conjunction with designing the CX, I saw there needed to be SD blueprint as well. As I

took a holistic approach, I saw my role ballooning and the added complexity of navigating a politically ambiguous industry. I limited myself to creating customer and service blueprints along with a customer facing iOS application to set a manageable workload that aligns with available resources as a graduate student.

Research Methods Used & Reasoning

Choosing a legally ambiguous industry presented many challenges in convincing stakeholders the market needs for Cana. The stakeholders in this case were the panel for my capstone presentation. I focused on using 70% qualitative research methods and 30% quantitative research methods. Having a mixed research approach allows for higher confidence in design decisions. Having strong research also allowed me to truly understand the behaviors and thinking of my users. Using that data to design solutions to meet their needs and users feeling I understand their needs and having a product that they would be excited to use.

To do this, I researched quantitative data already conducted by industry experts[2] along with the U.S. House of Representatives[3] with a bill they are currently working on and the data they gathered. This data was used to learn more about the numbers in the industry along with the goal of finding correlations between recently conducted quantitative research by authoritative sources with my qualitative research.

Initially, I sent out a generative questionnaire to learn about basics about my users. From there, I interviewed different users to learn about their behaviors and how they think. I chose this method in gaining valuable data about my users on both a macro and micro level. With this data, I was able to learn about my users from knowing that they are a diverse group of people from ages, sexual orientations, professions, and personalities. I saw commonalities in challenges in navigating a legal dispensary along with gaining

[2] https://newfrontierdata.com/product/the-us-cannabis-report-2020-industry-outlook/

[3] https://www.congress.gov/bill/117th-congress/house-bill/3617/text

accurate product information and customer opinions. As researched progressed, I knew my users on a deeper personal level. I realized users in both rural "MAGA" Country faces the same problems of a liberal urbanite in the West Village. The fact that I was able to have the same conversation along with targeting the needs of both users allows for a unifying mindset of design inclusion and accessibility.

The research method that uncovered valuable information was when I conducted ethnographic research. I had to test within the intended use context from dispensaries to social settings, because environmental factors impact user behaviors and actions. Testing in the field was able to provide more qualitative data on how the app can be used and how it would fit in the ecosystem it is a part of and how it would be used.

Users and Audience

To understand my users, I first had to understand how regulators see my users. This meant researching the laws associated both on the books and possible federal legislation in Congress. Since regulators have set the minimum age at 21, this gave me a baseline to work from. My generative questionnaire showed me that my users are extremely diverse. Figure 1 shows that my users come from various backgrounds and ages.

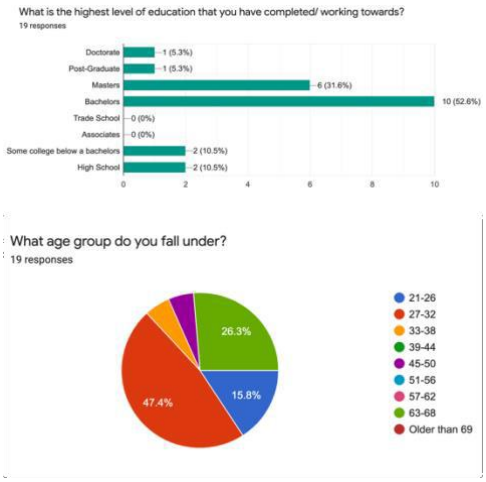

Figure 1

What was highlighted in figure 1 about my users was that this is a wide-ranging example reflects the quantitative data. Users range in age from 21-year-old Zoomers to Baby Boomers. Education ranged from high school and some college all the way up to PhD's and doctors. From retirees, students, nurses, doctors, software developers, industry/ health aids and designers were all users, and this diversity expresses the difficulty in designing an appealing product and service for my users.

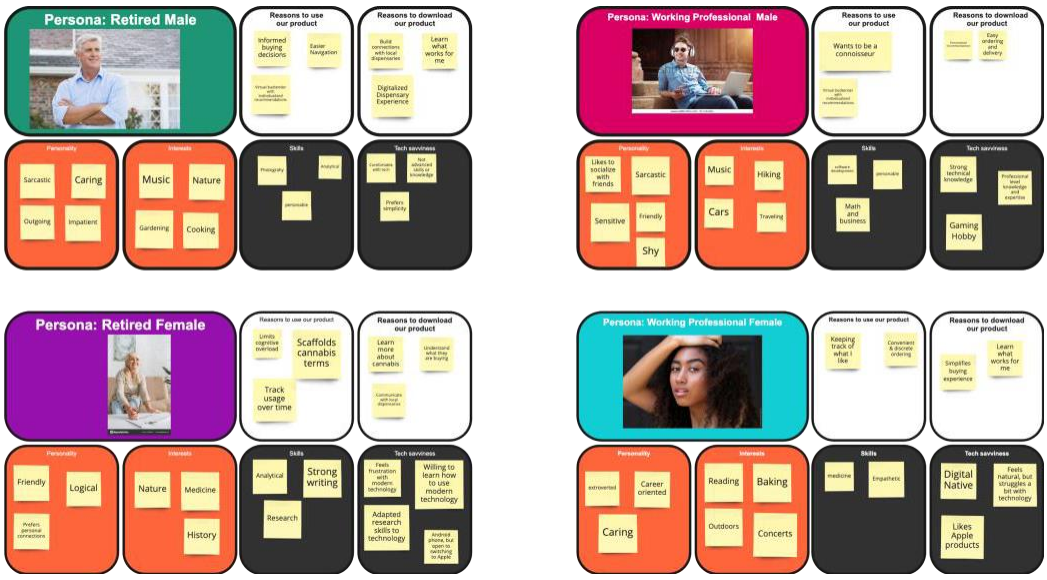

Figure 2

Figure 2 shows the complexity in designing the UX Copy along with the IA because as product accessibility is key to the success of this product. I had to design a system that was able to support the connoisseur, while giving equitable support to someone who is not a digital native, minimal knowledge about cannabis, or the growing demographic of curious first-time users.

With targeting such a diverse group of users brought challenges and benefits. Usability had to be obtainable for older users which made up close to 25% of users interviewed, while the content and benefits are engaging for the rest of the 75% of users.

Retired Empathy Map

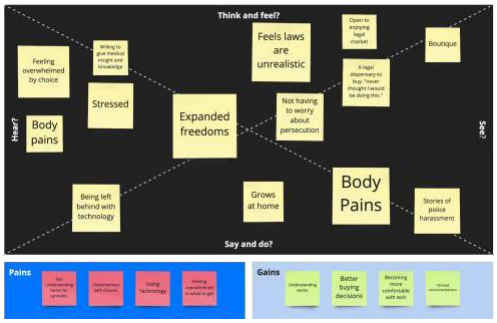

Figure 3

Working Professional Empathy Map

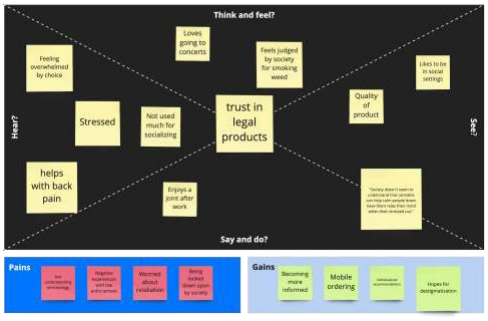

Figure 4

Figures 3 and 4 are empathy maps that allowed me to understand my two main groups of users and the different perspectives they bring. Having this empathy map

allowed me to understand the perspectives of users and building a sense of understanding in working to design solutions to meet their needs. Although there was overlap between different populations, the pains and gains for both demographics were different and allowed me to gain a better understanding of their needs.

UX Process

The first step in this project was to gather research about the topic to understand the problems on an empathetic level. Gaining this research was to check for viability to test if this idea can work along with the need for it to solve problems. This research also included competitor analysis and analyzing the problem they are trying to solve. Analyzing both competitors Leafly and WeedMaps, I saw both failed to supplement the dispensary experience along with finding accurate information about available products. With this analysis, I was able to focus on developing features to help my users. With this data, I crafted the first problem statement: *"How can users know they are accessing credible information when buying cannabis products?"*

To understand my users, I also have conducted a generative study to learn about my users. The pain points users expressed were in the laws and the accuracy of product information. What became paramount in the design was understanding the regulations and how this product would be legally classified on a probable federal level with local regulations. Researching the laws brought more complexity to the design and taking a retailer approach was best to follow. For product accuracy, I saw an IA issue that needed to be solved. This is where I use testing information already conducted to build a database and keeping things organized in a way that gives users accurate information in the products they wish to buy. To solve this problem, I used the phone's camera to scan the QR codes to not only find products, but to also index new products, strains, growers, etc. This led to the need for developing a database and AI that can work to help users needs.

The next step was to choose a platform to build on and test. Although both Android and iOS would have to eventually be built, I chose to build on iOS initially, because there is current iOS features that can benefit users' needs. From here, I researched iOS 15 extensively on a systems level to understand how the OS works. This was an important step, because I saw the opportunity to apply Near Field Communication (NFC) technology into the dispensary experience with the application of the iPhone's digital wallet. With iPhones and states allowing for digital identifications, I saw the opportunity for users needing just their phone for going into their favorite dispensary and not having to take out their wallet. This also meant going into a dispensary and identify points of interactions people have at a dispensary from showing their ID to buying their products.

I used this initial data to test a simple prototype to test feature viability and usability. *Figure 3* shows the initial concept of features and pages to build to meet users' information needs. This prototype was designed to conceptualize the IA. I wanted to test the IA first in a group setting. What the focus group highlighted was that information was repetitive between the "lifestyle" and "What's Hot" pages overlapped along with the camera feature was on an inaccessible part of the screen. This was important because my unique feature was not considered to be as important as other pages. The original layout I had to scrap because I saw my user's needs were not being properly addressed. I saw the use and function of an infinite scroll was not effective and transitioning to a card system would be better utilized in concentrating information in chunks that are easier for users to decode. This evidence was gathered through Card Sorting with a group of potential users. The Scanner was my unique feature and having that central to the navigation meant that the information architecture needed to change before any future UI will be considered.

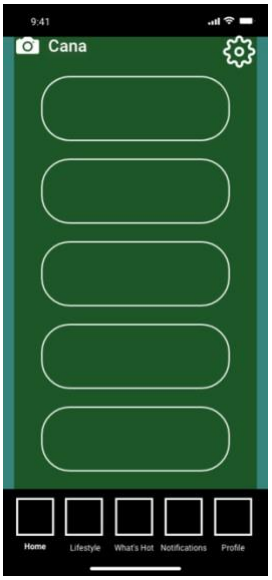

Figure 5

Doing ethnographic studies, I was able to test how those personas would be applied within their appropriate context of use. Observing customers at a dispensary, I was observing user behavior as they interacted in a dispensary. I also conducted interviews with dispensary employees about the challenges of the industry. This highlighted the need to learn more about what would be needed for an effective CX, and SD. Ethnography became the primary and most effective form of research, because I was able to test experiences with new users. To test the ID experience, it was conducted in a social setting. It was going to a bar with a group of friends and having to show our IDs to a bouncer at a bar. What users observed were the challenges in getting their IDs out of their wallets to be checked. The bouncer was using their phones to scan our IDs. From there, I had users go through the same interaction, but using their digital wallets. Users reported the ease in the process and justified need for it in a process that requires age verification.

Figure 6 was needed once the ethnographic studies were concluded. I took the advice from my mentor Jenine Lurie to consider building a CX and SD Blueprint. This plan added complexity to the design of the experience with interacting with the dispensary along with designing supports for the business to support the needs of users. What was also helpful to the UX process was analyzing the market of how it works prior to legalization, what's happening currently, and finally Cana's role in improving the experience through effective SD and CX. Figure 6 finally highlighted problems and opportunities to solve which led to more concrete ideations for product usability.

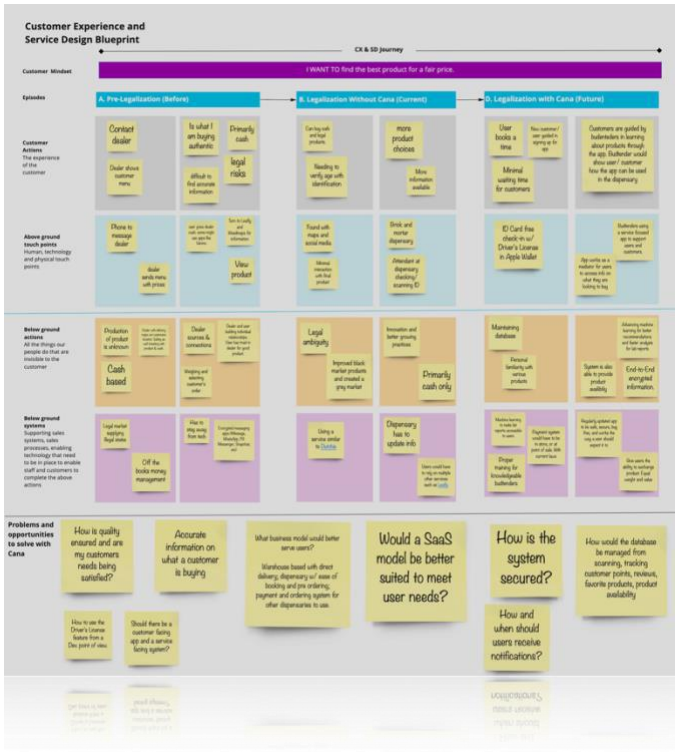

Figure 6

Outcomes, lessons, and next steps

The outcome of this project was that this project made it to a point where for to validate the product, the system and database needs to be built before being handed off to the product and visual design team. What's important now is to see whether this design and system can be programmed properly. This includes the iOS app using realistic APIs needed to make Cana perform as designed. What is just as important as the iOS app is building a database that can index, find, organize, along with recommending products and strains based on user behavior. I believe the research is at a good place and the solutions

meet the needs of users. More testing is expected to learn more about how users react to the information they are getting in real time at a dispensary.

Another lesson from this project was trusting the process and following the research. Researching iOS features and at the time ideating a better use case compared to the example Apple was advertising. I saw the feature as beneficial outside of airports and applied it to businesses that require age verification to enter and purchase goods. The intent of figure 7 is purely to test the effectiveness of features such as the scanner. User data was taken to improve the IA and having an accessible IA was needed in designing features to meet the needs of our users and stand out in the industry as a trusted and helpful source of the right information at a dispensary.

Figure 7

For example, Apple added the feature to add a driver's license or state ID to Apple Wallet.[4] In figure 7, to activate this feature, tapping on the Cana logo would open the digital ID. Figure 8 shows what the digital ID looks like along with what information is being shared. Each dispensary will have near-field communication (NFC) receivers. These receivers serve as the communication mechanism for the business to the user. With the dispensary network infrastructure highly secured and encrypted, no user's information leaves the dispensary or is sold to third parties. These same devices are also used for payment through contactless payments as well as cashing in points for products. The user's ID will still be verified by a person to keep a human element involved. It is easier for a user to take out their phone and "tap" it to show ID over finding and taking out a physical card. This is another element that needs to be tested as well and my resources limited my ability to conduct further research.

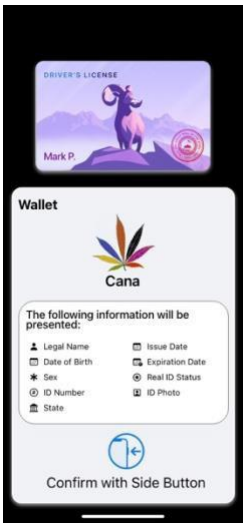

Figure 8

The biggest lesson of this project was the importance of research in the UX process. The more research that was conducted led to having stronger validation in usable features and learning about the needs of users. To better support the needs of users, it was imperative to gather data to justify design decisions and it allowed for creating a cohesive plan in creating detailed user journeys. What I learned is that this process can be messy,

[4] https://support.apple.com/en-us/HT212940

but each ideation brings more insight from users and making informed decisions that can benefit the needs of users.

If I were to return to this project, I would need to partner with a dispensary to test this product along with finding professionals to build the front-end and back-end programming needed to power this app. I would also need to start designing the CX and SD along with UI and visual designers to polish up the interface. What would also be needed is also adopting an agile framework. Each team would be working collaboratively. Research will continue with defining metrics for testing out the performance for the software along with ideating and refining current features.