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DSGN 1 - Design of Everyday Things

FA24 - Wednesday 3:00 PM

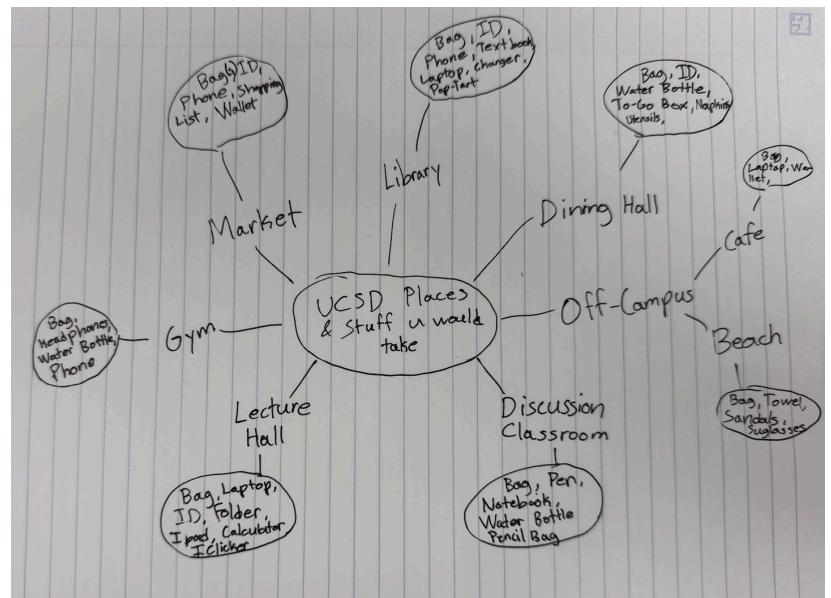
## Project 2

Identify Problems with Using a Common Object and Frame Design Ideas

### Interviews and Observations

#### Brainstorming

When creating our **mind map**, as shown in Image #1, we first thought about which general places on UCSD campus we go to the most. Starting from the middle, we tried brainstorming around it—thinking about what kinds of items UCSD students would bring with them to specific on-campus places. This includes: markets, libraries, gyms, lecture halls, discussion classrooms, and dining halls. Additionally, we tried to think about what places students would visit off-campus as well—including places like cafes and beaches. Through the **mind map**, we discovered that students will always be bringing some form of bag (whether it would be a backpack, a tote bag, or a shopping bag) with them to carry the other items they have with them. Therefore, we decided that we will be examining students' use of personal tote bags, since tote bags are also found more commonly in other non-academic places including the gym, the market; and at off-campus cafes and beaches.



**Image #1. Mind map to determine an object commonly among UCSD students**

## Methodology

Our goal for this project was to find out how UCSD students or other people around the campus use tote bags in different situations so that we could see both their strengths and weaknesses. To do this, we came up with a structured way to talk to and watch our friends/students, based on ideas from the course like **affordances**, **signifiers**, and **mental models**.

### **Demographic Questions:**

- name, pronouns, school year, major
- place they're being interviewed, what they're using the tote bag for
- take a picture of their tote bag

### **Ice-Breaker Questions:**

- Where did you get the tote bag/who gave it to you?
- How long have you had this tote bag for?
- What are your favorite things about your tote bag?
  - focus on what they say first: is it the convenience? reliability/sturdiness? design/graphics/color?

These initial questions are meant to give us a general idea of why someone uses their tote bag, and should reveal some trends in what they like or dislike about it.

### **Main Interview Questions:**

#### **1. How often do you use your tote bag?**

The purpose of this question is to get a numerical idea of how useful a person finds the tote bag, the logic being that the more they use it, the more helpful the tote bag is to them, possibly revealing multiple **affordances** of the design.

#### **2. Have you ever chosen a different kind of bag over a tote bag?**

- a. **Do you prefer using tote bags? What makes you decide upon using different bags (size, color/fashion/trends, sturdiness, etc.)?**
- b. **If you were given an option between [bag interviewee mentions or if they don't mention anything say backpack] vs. your tote bag, which would lean more towards choosing?**

The purpose of this question is to see if the interviewee chooses anything different from a tote bag, and if they do, give the reason as to why. This should allow us to glean any positive and/or negative features users find in tote bags in certain situations, giving us insight into some of the design's **trade-offs**.

3. Would you change anything about this tote bag? If you wanted to change or add something to your tote, what would you change or add?
4. Are there any issues you notice about using tote bags vs. other kinds of bags?
  - a. Overall, what would you rate your tote bag on a scale of 1-5?  
(1=Poorly designed bag, 5=Well designed bag)

These are follow-up questions to question #2 that will get some more specific details on elements of the design that the user may have problems with. For example, some users may think other bags **afford** more things that may be better suited for their purpose (e.g. some bags may afford closing or holding more objects) or they may think the tote bag **affords** more than other bags. This will help give some initial ideas on how the user may cross the **gulf of execution**, and how easy it may be for them. The rating is meant to synthesize the user's thoughts on how well their tote bag accomplishes its purpose for the user in the form of numerical data.

5. Where do you usually take your tote bag and what do you keep in it?

This is meant to give more context to the first question, asking the user what specific purpose(s) their tote bag serves, and what it **affords** carrying and where. It will also give insight into the user's **mental model** of the tote bag, and what they see its function and purpose as.

6. Place your tote bag down (if they don't have it placed down), place stuff in the tote bag or take something out, then pick up your tote bag and hold it how you normally would if you were to leave this area

- a. note where they grab first, is it heavy, how do they place it on their shoulders (if they do), if they are struggling at all, ask them about it

The purpose of this question is to get the user to display how they use the tote using the **master-apprentice model**, by having them teach us how they would typically use their tote, and asking them about why they are doing certain actions. This will allow us to notice what **affordances** people have **discovered** in their tote bags (and the corresponding **signifiers**), as well as allowing us to gauge how much effort they use in crossing the **gulfs of execution and evaluation**.

## Proof of Data

Please view our spreadsheet at this link [HERE](#) for the data we collected based on our interview questions.

## Contributions

**Varun**

Interview #'s: 1, 2, 3

Interview Place: Store/Market

Writing Contributions: Brainstorming for Mindmap, Brainstorming Questions, Question Methodology Reasoning, Problems Numerical Data Charts, Describing Trends/Patterns for Own Personal Interviews, Main Trade-Offs Writing, Design Space Topics & Descriptions, Project 2 Studio Section Critiques

**Layn**

Interview #'s: 4, 5, 6

Interview Place: Geisel Library

Writing Contributions: Brainstorming Writing for Mindmap, Creating Questions, Interview Techniques, Creating Trends/Patterns Topics, Describing Trends/Patterns for Own Personal Interviews & Images with Captions, Trade-Off Ideas, Design Space Topics, Design Space for Personal Interviews

**Ava**

Interview #'s: 7, 8, 9

Interview Place: Off campus/Around Campus

Writing Contributions: Brainstorming for Mindmap, Main Methodology Description, Describing Trends/Patterns for Own Personal Interviews, Trade-Offs, Design Space for Personal Interviews

## Interview Techniques

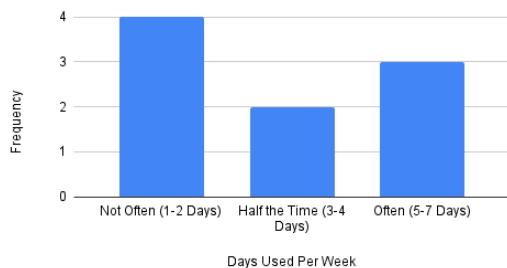
Using the **master-apprentice model**, we focused on having our interviewees being the ones leading the conversation. We focused on the opinions our interviewees leaned more towards, and generalized our questions to accommodate for whether they liked or disliked their tote bag. We made sure that they demonstrated how they use a tote bag in order to see if there are issues they run into, and to see if/how they cross the **gulfs of execution and evaluation.**

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## Problems

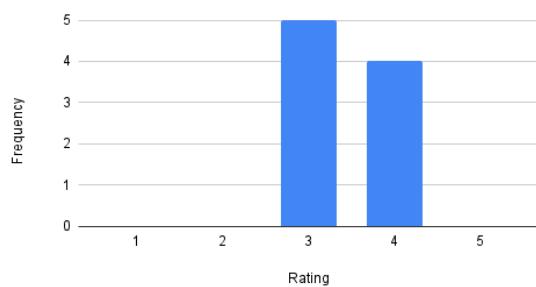
### Numerical Data

How many days per week a tote bag was used



**Figure 1. Histogram of Weekly Tote Bag Usage**

Distribution of quality ratings of tote bags



**Figure 2. Histogram of Tote Bag Ratings**

Based on the numerical data, most people seem to think their tote is either decent or good in terms of overall quality (Figure 2). In terms of tote usage over the course of a typical week (Figure 1), the interviewers from our pool are somewhat diverse, with slightly more people at either extreme (either rarely using their tote bag or using it often).

## Trends/Patterns

### Trend #1: Amount of Storage

Pro Interviews: #4, #5, #6

- Interviewee #4 mentioned that she appreciates the amount of storage that is given with the tote and describes its “big gusset bottom,” (flat, stable bottom to the tote bag). Mentions how this is different from other tote bags she typically finds.



**Image #2. “Big gusset bottom” of Interviewee #4’s tote bag.**

- Interviewee #5 specifically compared their tote bag to a small crossbody bag and a large backpack, and stated how the tote bag offers a good inbetween of the two when wanting to store just what she needs for work.
- Interviewee #6 accommodates for the size needed for stuff by switching with the bags and mentions that she will switch to a backpack only if she needs to

carry more things. She likes the size of this tote bag and thinks it carries her stuff for the things she prefers to use it for (i.e. going out with friends)

#### Con Interviews: #2, #3, #4

- Interviewee #2 mentioned sometimes choosing a larger utility bag over a tote as it has more storage, and the tote does not **afford** holding larger objects such as a laptop.
- Interviewee #3 talked about how his tote bag isn't always able to hold enough items, and that he needs to get extra bags if he doesn't realize it can't handle all his items. The bag may not adequately **signify** how many items it can hold, which for this interviewee, can lead to trouble crossing the **gulf of execution**, as they are not always able to store everything they need when shopping.
- Interviewee #4 also described that while their tote may be larger because of its gusset bottom, it cannot **afford** to hold larger amounts of items if she uses the tote bag for more than just a simple study session.

#### Trend #2: Zippers & Pockets (Organization)

##### Pro Interviews: #4

- Interviewee #4 talked about how they liked the smaller pocket that sat in front of the tote bag, and that this tote bag **afforded** extra storage of smaller items. Also appreciated the **signifier** on this tote bag that had an additional flap on the opening of this smaller pocket to indicate that it was there.



**Image #3.** Front of Interviewee #4's tote bag, showing the main opening & smaller pocket opening.



**Image #4.** Smaller pocket & flap of Interviewee #4's tote bag

#### Con Interviews: #2, #5, #6, #7, #8, #9

- These interviewees mentioned that their ideal tote would have pockets for better organization of stored items, as pockets **afford** separating items and preventing them from getting mixed up, and zippers **signify** the locations of these pockets as well as prevent items from falling out of the pockets.
  - Interviewee #2 mentioned often choosing a different bag that is similar to a tote because it has these features.
  - Interviewee #5 specifically talked about wanting to add both pockets and zippers to her tote because she finds that her items will often fall out of her tote when transporting it in the back of her car.
  - Interviewee #6 says that he would add a zipper instead because it is difficult to use the single clasp because it cannot always be used to close the bag if there are things sticking out.

- interviewee #7 like to have more pockets and zippers to be able to organize better. Her tote bag has a small outside pocket. She mentioned that she would have loved it if it was bigger for her water bottle.
- Interviewees #8,9: they both mentioned that they would have added zippers and pockets to their tote bag to improve the design and usage of the bag.

### **Trend #3: Type of Material (Weight Capability and Durability of Tote)**

**Pro Interviews:** #1 & #5

- Interviewee #1 liked the waterproof material that his tote is made of.
- Interviewee #5 bought the tote bag not just for its looks, but the bag's high quality and durability. She described that the tote bag was not something she was worried about breaking in terms of reliability with the straps it had. She thinks highly of the bag's capabilities to hold larger items as well.

**Con Interviews:** #3 & #4

- Interviewee #3, although liking that the cloth material his tote was made of **affording** it the ability to hold and support decorative pins, disliked that the cloth got wet easily and did not feel durable enough to carry large amounts of weight.
- Interviewee #4 brought up preferring a material that often comes with more expensive and durable totes (i.e. a Trader Joe's tote bag material). She stated that she expected that the material of this tote would be higher quality as it signals from its outer looks, but still continues to use the tote because of these looks and because it's just what she has. Due to this, she chooses to be careful with the tote when she uses it, but still often fears that she might break it by accident.

### **Trend #4: Shoulders & Backs (Weight Capability of User)**

**Pro Interviews:** #1, #2, #3

- Interviewees #1, #2 and #3 mentioned that the smaller size of their totes meant that they are often lighter when they go shopping as they don't carry much, making it less strenuous to carry.

#### Con Interviews: #4, #5, #6

- Interviewee #4 briefly mentioned how she does not prefer to hold larger items because of the lack of support she gets from using a tote bag just on a single shoulder, and shows this accurately through gesturing how she prepares to wear a tote bag on her right shoulder:
  - She tested the weight of the tote bag before picking it up; both to test the durability of the tote bag itself (thinking about whether the straps might break) and whether she can truly hold all that weight on one shoulder.
  - She additionally shifted the strap of the bag to make sure she was able to keep the tote bag on that shoulder with the amount of weight it had.
- Interviewee #5 talked about how while the tote bag can afford to hold more/larger items, it may be an issue in terms of how much weight she, herself can hold, and specifically weight distribution with the tote bag on a singular shoulder.
  - She also had to be careful about weight and was careful when letting the tote bag down to be carried on her shoulder.
  - Interviewee #8 mentioned how she sometimes prefers other bags, like her backpack over tote bags. She said it can hurt her shoulder and she usually uses her tote bag when she knows she does not have to carry it around for a long period of time.
- Interviewee #6 briefly mentions that it is hard to keep the bag on only one shoulder, even with the crossbody strap, she talks about her back hurting and how this is not really good for it.

## Trade-offs

- One of the trade-offs of the tote bag is the relationship between how much weight it can carry and how much stress it puts on the user. Interviewee #4 talks about how her tote lacks shoulder support, so even if it can afford to

contain larger, heavier items, it puts more weight on the shoulder and causes more physical stress. Interviewee #5 also mentioned that tote bags that can afford to carry more weight don't have an ideal weight distribution, making the users pain tolerance a constraint of the design.

- Another one of the main trade-offs mentioned was between the size of the tote and how easy/convenient it is to carry around. Interviewees #2 and #3 mentioned that they wanted their bags to be larger, but said that the smaller size made it so that their bag was less of a hassle to carry around as it was lighter and did not get in the way when performing other tasks such as grabbing and storing items.

Based on these findings, we can see that the tote bag is designed with these trade offs in mind. A tote bag is designed to be smaller so that while it cannot afford to carry as much weight or as many items, it is easier and less strenuous to carry and as such can be used more often and for longer. The opposite is also true, where a bag that is bigger may be harder to carry, but it will afford holding more items. The user will be able to deduce the storage capacity by looking at it, as because the inner area of the tote is as big as the outer (Image 5), it can properly signify the amount and size of the items it can carry. The user then receives feedback from the bag in the form of tension in the handle that lets them know how much weight they are carrying, so they can gauge how much is too strenuous for them to carry.

**Image 5. Inside of Tote**

For interviewees #7, #8, and #9, the biggest trade-offs were finding the right mix between how things look, how well they work, and how comfortable they are. Interviewee #7 likes her tote bag because it looks good with most of her clothes and has enough space to carry the things she needs. She did say, though, that the lack of organization within makes it hard to find things, which makes her wish there were more pockets and sections. Interviewee #8 also likes the tote's strong and water-resistant material, which works for her daily needs. However, she doesn't like that it doesn't have a zipper because it makes her things less safe and organized. She often moves to a crossbody bag , so she can carry it without her hands

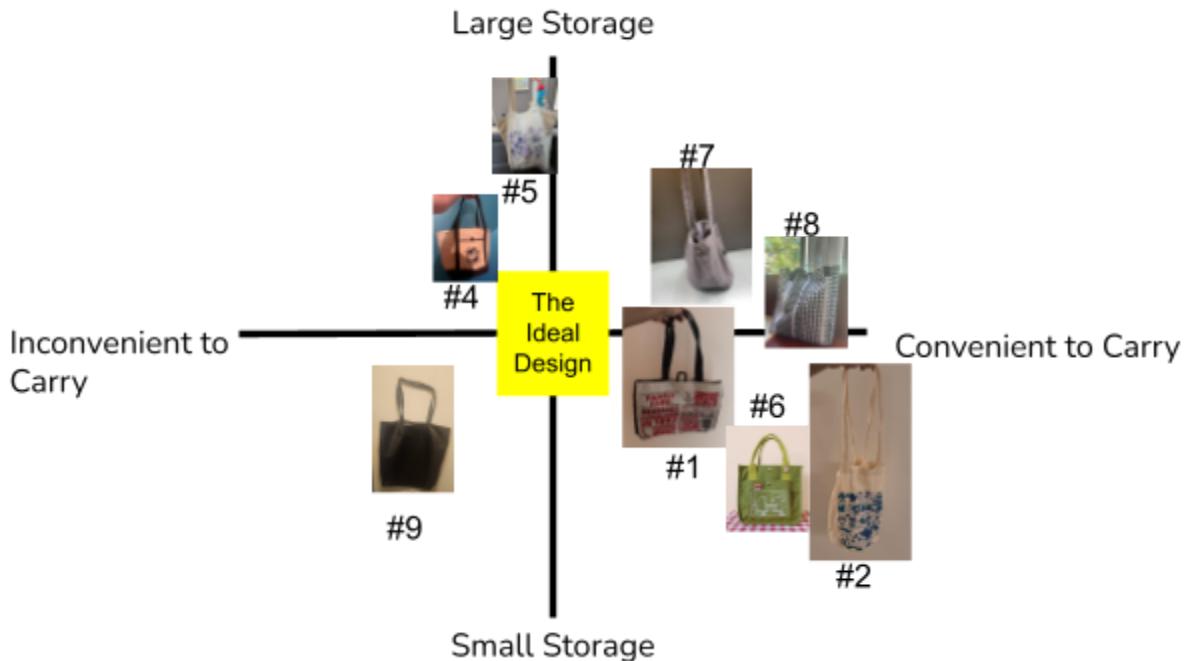


and feel more comfortable and sometimes even safer for her small stuff . Respondent #9, on the other hand, only brings her tote with her on casual outings and doesn't bring it to school or work because she thinks her bag is better for bringing heavier things and keeping things organized. These ideas bring up a common trade-off: totes are stylish and can be used in many ways, but they don't always have the functional and storage features that would make them better for longer or safer and long term comfortable use.

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## Design Space





For this second Design Space graph, we show that the amount of storage a bag has corresponds with how much weight it can carry. This is why small tote bags such as those from interviews 1 and 2 are in their respective quadrants. However, this makes them less cumbersome when carrying and placing items in them, as observed in interviews 1 and 2, where the interviewees showed minimal struggle when supporting and carrying their bags, placing them in the “Convenient to Carry” and “Low Physical Stress” quadrants. Bags #4 and #5 have opposite qualities, where they are slightly larger and as such able to carry more weight, but the greater weight they can store puts more strain on the user, putting them in the opposite quadrants as #1 and #2. An ideal design would realistically be somewhere in the middle, where it is large enough to carry a sizable amount of items but not so large that it becomes cumbersome or strenuous to carry. Additionally, if its size and shape was in between the two extremes of tote bag design, it would still fit within the average user’s **system image** of a tote bag, making the user already familiar with its **affordances**, **signifiers**, and how they can use those to cross the **gulfs of execution and evaluation**.

### Project 2 Critiques:

We were advised that for question 4, we should preface it by saying “if you wanted to change or add something to your tote bag”, as just asking them what they would change might be a **leading question** and sway them into making up a change just to answer the question. We were also given critiques on our design space charts, specifically that we should have one comparing storage space and “ease of carrying”.