Drive-In Movies
DePaul University
College of Computing and Digital Media
243 S. Wabash
Chicago, IL, 60604

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We are submitting our report entitled Understanding the Customer Experience at Drive-In Movies. This report describes our observation and interview methods, survey findings, and implications for technology designed to improve the drive-in movie theater customer experience. We are tentatively calling this "Online technology improvement of drive-in movie theaters." We also described our interviewees' behaviors and perceptions on spectrums in relation to their experience with drive-in movies. We used these spectrums to develop our persons and scenarios that are displayed in the attached report.

Major implications for the design and findings of our technology are as follows:
- Research - allowing customers of theaters to quickly find information about a local drive-in movie theater, providing up-to-date information on features and amenities provided.
- Selection of movies - implementing movie details with a description and trailer on drive-in movie theater websites and display a similar back-to-back movie within the genre.
- Confirmation - allowing different online purchasing methods for drive-in movie tickets and allowing customers to reserve tickets rather than first-come, first-serve parking.

Our five behavior and perception spectrums in relationship to the online improvement of drive-in movie theaters:
- Distance from a drive-in movie theater if it affects customers decision in selecting a theater
- Interest in a selected movie and having to watch through a single or a "back to back" movie
- Parking preference of first-come, first-serve parking or online reserved parking
- Amount of research time a customer takes to find and attend the selected drive-in theater
- Size of customer's vehicle to see how this affects customer experience and selection

Thank you. If you have questions about this report, please contact us at:

Diana Vinihakis – dvinihak@depaul.edu
Jaqueline Brandao - jlopezbo@depaul.edu
Tim Lattimer – tim.lattimer@alumni.depaul.edu
Quinn Zhang – qzhang50@depaul.edu

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Executive Summary

Attending drive-in movie theaters is increasing in popularity due to the COVID-19 pandemic. Drive-in movies used to be a recreational event in the 1950s but soon died out due to not fulfilling customer needs and competing for indoor movie theaters. However, drive-in theaters are becoming popular again because customers feel much safer and comfortable within their vehicle during the COVID-19 pandemic. However, improvements still need to be made on outdated drive-in movie theaters, prompting our main research question: "How can technology improve drive-in movie theater customer experience?"

To understand the experience, we conducted ten observations with previous drive-in movie customers in late September-early October. During the observations, participants completed an activity displaying their research process, selecting a drive-in theater, selecting a movie to attend, and going through the ticket purchasing process. The observations helped us identify primary themes in the preparation process of attending a drive-in movie.

Next, we interviewed nine previous drive-in movie customers in mid-October to understand the customer drive-in experience. The interview included questions about exploring previous experiences, researching and selecting a theater, evaluating features, and purchasing tickets. Our interviews were recorded, transcribed, and shared with structural and attribute coding to find similarities between each participant's experience and needs.

With the observations, interviews, and surveys, five common themes contributed to the drive-in movie customer experience:
- Distance from a drive-in movie theater - participants chose theaters that were less than one hour away, and decisions would differ in features and online presence of the drive-in
- Interest in Selected Movie - there was a varied interest in selecting a movie due to some participants wanting to go solely for the drive-in experience. In contrast, others only went to watch a particular movie.
- Parking preference - parking preference varied in concern due to online reserved parking or first-come, first-serve parking, as this gives more selection to different types of customers.
- Research time - the amount of time a customer would plan on attending a drive-in movie.
- Size of a vehicle affecting customer's decision - customer's vehicle ranged from small to large and had direct correlation if parking preference was a concern or not.

Additionally, we surveyed 21 customers who have attended a drive-in movie theater in the last three years. We tested our hypotheses that:
- Infrequent drive-in movie customers will prioritize the theater's distance from home when selecting a theater more so than frequent drive-in movie customers.

- Infrequent drive-in movie customers will mainly prioritize finding the best drive-in theater experience, while frequent drive-in movie customers will prioritize finding the experience and best movie options equally.

These findings helped our team understand the most important features to improve the out-dated drive-in movie customer experience and compete with indoor movie theaters.

Introduction

Drive-In Movies are a new form of entertainment due to the COVID-19 global pandemic. The re-emerging 1950's entertainment has flaws in how a customer's decision can be affected by different variables in purchasing a drive-in ticket. There is a small selection of parking spots to choose from as it tends to be a first-come and first-serve parking spot (Tjhin et al. 2016), which causes uncontrollable traffic (Qian et al. 2012) and does not allow a consumer to park in a spot for a preferred view. Other variables that can affect the decision to purchase a drive-in movie ticket are the radio sound system (Fox, 2018) and only a specific selection of movies would screen. (Fox, 2017).

Research Questions:
- How can technology improve the drive-in movie theater customer experience?
- How can outdoor theaters attract customers to attend a drive-in movie with ease?
- What features are needed for a customer to have the best experience in attending a drive-in movie?

During the COVID-19 pandemic, outdoor drive-in theaters and indoor movie theaters compete for customers (Archit et al. 2019). To be competitive, drive-in movies need updates such as a quality sound system for the movie, various parking spots to view for a particular vehicle, and increased movie selection for customers. Indoor theaters provide these features with high quality. However, sanitation and feeling comfortable are what customers currently want during this time, making drive-in movie theaters more attractive to customers.

Methods

A. Observation

We will present our participants, data collection, and data analysis methods for our observations in the following sections.

Participants

We observed ten drive-in movie customers as participants of this study: five males and five females. The recruitment methods were through a combination of the DePaul CDM Participant Pool, friends, family, and Facebook. Eight of the 10 participants were in their 20s, and our recruitment method provided us with participants from various backgrounds and locations. All of the participants attended at least one drive-in movie in the past.

Table 1: Observation Participant Summary

No.	Pseudonym	Age	Sex	Location	Race	Occupation
1	Susan	24	F	Illinois	Caucasian	Graduate Student
2	David	24	M	Illinois	Caucasian	Entrepreneur
3	Joshua	23	M	Washington	Caucasian	Undergraduate Student
4	Tom	33	M	Washington	Asian	Business Owner
5	Michael	24	M	Oklahoma	Asian	Exchange Student
6	Denise	19	F	Illinois	Asian	Undergraduate Student
7	Megan	23	F	Australia	Caucasian	Graduate Student
8	Taylor	25	F	Missouri	African American	Teacher
9	Sean	24	M	Washington	Caucasian	Air Force
10	Erin	26	F	West Virginia	Caucasian	Social Worker

Data Collection

We conducted all observations online via Zoom, and each lasted around 30 minutes. At the beginning of each session, observers introduced themselves and explained the purpose of the project. We asked participants to read and sign a consent form (see Appendix A: Observation Informed Consent Form). Once we received written and verbal consent, we began the recordings and proceeded with the session (see Appendix C: Observation Protocol).

The sessions began with warm-up questions to establish a rapport with the participant. Then, we asked the participant to complete the following activity: research local drive-in movie theaters and decide when, where, and what movie to attend. We did not require participants to purchase any tickets and ended the activity at the checkout phase. We asked participants to share their screen as they completed the activity.

Following the activity, we asked participants wrap-up questions to gather more information about their experience. Finally, if the participant had no further questions for us, we thanked them for their time.

Data Analysis

We analyzed our data using the AEIOU framework, which notes activities (A), environments (E), interactions (I), objects (O), and users (U) that we observed during the sessions. Following the observations, we combined our findings into Stormboard, an online whiteboard, and a sticky note brainstorming tool. We combined similar findings and created themes (see Appendix D: AEIOU Framework).

B. Interview

We will present our participants, data collection, and data analysis methods for our interviews in the following sections.

Participants

We interviewed nine drive-in movie customers as participants of this study: eight females and one male. The recruitment methods were through a combination of the DePaul CDM Participant Pool, friends, family, and Facebook. Eight of the nine participants were in their 20s, with seven of the eight ranging between ages 25 and 27. Our recruitment method provided us with participants from various locations across the United States, and seven were Caucasian. All of the interviewed participants attended at least one drive-in movie in the past.

Table 2: Interview Participant Summary

No.	Pseudonym	Age	Sex	Location	Race
1	Hannah	25	F	Even City, VA	Caucasian
2	Morgan	27	F	Charleston, SC	Caucasian
3	John	25	M	Dallas, TX	Caucasian
4	Anna	26	F	Arlington, VA	Caucasian
5	Regan	25	F	Indianapolis, IN	Caucasian
6	Jennifer	25	F	Tyson's Corner, VA	Caucasian
7	Madison	21	F	Chicago, IL	Caucasian
8	Cindy	19	F	Garland, TX	Asian
9	Rachael	26	F	Houston, TX	Asian

Data Collection

We conducted all interviews online via Zoom, and each lasted around 30 minutes. At the beginning of each session, interviewers introduced themselves and explained the purpose of the project. We asked interviewees to read and sign a consent form (see Appendix B: Interview Informed Consent Form). Once we received written and verbal consent, we began the recordings and proceeded with the session (see Appendix G: Interview Protocol).

The sessions began with a few warm-up interview questions to establish a rapport with the interviewee. Following those questions, we asked deep focus questions separated into four categories: Exploring Previous Experiences, Researching and Selecting a Theater, Evaluating Features, and Purchasing Tickets.

Following the deep focus questions, we asked participants wrap-up questions, including their overall drive-in experience and demographic questions. Finally, if they had no further questions for us, we thanked them for their time.

Data Analysis

We transcribed the nine interviews, imported them into Atlas.ti, and implemented structural and attribute coding by each team member. After coding, we discussed the most common codes and organized them into themes. Additionally, we organized interview answers into characteristic spectrums to build our personas (see Appendix I: Persona Spectrums).
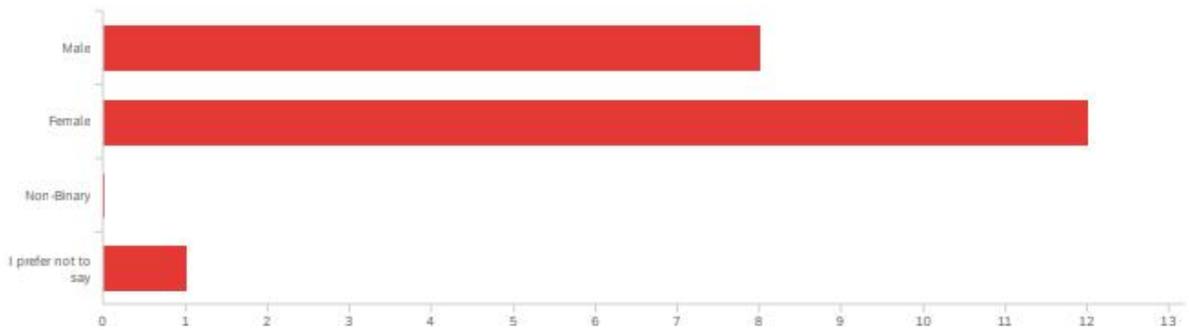
C. Survey

We will present our participants, data collection, and data analysis methods for our survey in the following sections.

Participants

We recruited participants through the DePaul CDM Participant Pool. Participants had to be at least 18 years old and attended a drive-in movie within the past three years to participate in the study. A total of 21 participants responded between the ages of 20 and 30, with an average age of 25.5 years. Over half (57%) of participants were female, 38% were male, while one preferred not to say (see Figure 1 below).

Figure 1: Distribution of the participant's gender

Although 14 of 21 participants are from the Chicago, Illinois area, this recruitment method allowed us to survey participants from different ethnic backgrounds (see Figure 2 below).
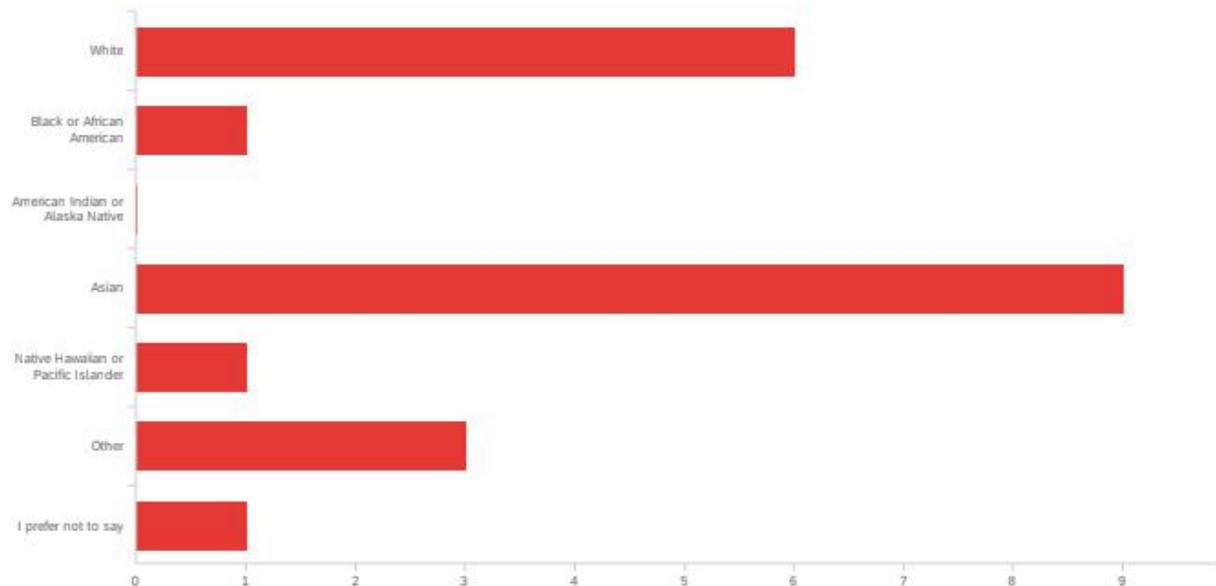
Q29 - What is your ethnicity?

Figure 2: Distribution of participant's ethnicity

Data Collection

We developed the survey with Qualtrics. Our team collected responses between November 9, 2020 and November 15, 2020 and organized the responses into seven parts (see Appendix H: Survey Protocol and Consent).

Part 1 - Warmup: We asked general questions about the frequency participants attend drive-in movies and how comfortable they are attending movies (drive-in and indoor) during the current pandemic.

Part 2 - Exploring Most Recent Experience: We asked questions about the participants' most recent drive-in movie experience.

Part 3 - Researching and Selecting a Theater: We asked questions about how participants research and select a theater to determine which features are essential.

Part 4 - Evaluating Attributes, Details, and Qualities: We asked about various topics, such as preferences on the movie options, weather, and traffic at drive-in theaters.

Part 5 - Purchasing Tickets: We asked about the participants' ticket purchasing methods and the level of difficulty purchasing tickets.

Part 6 - Wrap-Up: We asked questions about how participants' drive-in movie experience could improve overall.

Part 7 - Demographics: We asked standard demographic questions, such as age, ethnicity, gender, and the city and state where the participant lives.

Data Analysis

We analyzed the survey data through the Qualtrics Report feature and Excel. Next, we used SPSS for further analysis that tested our hypotheses. Based on our observation and interview data, the two developed hypotheses were:

1. Infrequent drive-in movie customers will prioritize the theater's distance from home when selecting a theater more so than frequent drive-in movie customers.
2. Infrequent drive-in movie customers will mainly prioritize finding the best drive-in theater experience, while frequent drive-in movie customers will prioritize finding the experience and best movie options equally.

We conducted non-parametric tests using Mann-Whitney U to determine if the hypotheses were supported.

Findings

In this section, we present our findings based on observations, interviews, and survey results. For the observations, we accumulated a sample size of ten participants ($N = 10$). During the interviews, we accumulated a sample size of nine participants ($N = 9$). For the survey responses, we accumulated a sample size of twenty-one participants ($N = 21$). Based on the results, we identified a common process and three major themes. The common process we identified was:

1. Researching and selecting a theater
2. Evaluating amenities and features
3. Ticket purchasing process

The major themes with the further discussed subthemes we identified included:

1. Research and Theater Selection
   a. Interest in movie selection options
   b. Distance from a drive-in movie theater
2. Evaluating Amenities and Features
   a. Parking preference
   b. Concessions
3. Ticket Purchasing
   a. Online vs. In-Person

We discussed and examined the identified common process and major themes in the following sections.

Research and Theater Selection

In most observations, participants ($N = 8$) used search engines to locate the nearest drive-in movie theater as their only research source. Those participants continued their research using the search engine map feature to find the nearest drive-in movie theaters. Some participants ($N = 2$) used other websites to locate the nearest theater, including Facebook, online articles, and the state's drive-in movie theaters website information. Sean used Facebook to search for his Air Force base's group events to research the nearest drive-in movie theater to him, which happened to be on his base.

The research was an ongoing task for some participants. During his interview, Tom went back to his state's drive-in movie theaters website to identify other nearby options after selecting an initial theater to "check out" competing features. During our wrap-up questions, Sean stated he would use a search engine and its map to locate other nearby options. During the interview wrap-up process, most participants mentioned the importance of the drive-in movie theater proximity, prioritizing distance over other factors.

During the interviews, some participants (*N* = 5) expressed that the theater's proximity affected their decision. However, several participants (*N* = 3) mentioned selecting a theater based on previously attending a theater. Other participants (*N* = 3) also mentioned the importance of the available movie options when selecting a theater. One participant stated, "... if it's [the movie] something that I'm not interested in, I will not attend." Participants (*N* = 6) mentioned the available movie choices being "limited" or "not brand new releases".

Based on survey responses, the participants reported using Google/Bing (*N* = 19), Google Maps (*N* = 13), Facebook (*N* = 6), and/or other (*N* = 2), with both "other" responses being Instagram, as resources to learn more about theater options. Participants also responded that the commute to the drive-in movie theater was 0-15 min (*N* = 4), 16-30 min (*N* = 11), 31-45 min (*N* = 3), 46-60 min (*N* = 1), and 6-+ min (*N* = 2).

Evaluating Amenities and Features

In all observations, the participants checked to see the available movies, dates, and start times and identified associated features. Most participants (*N* = 9) mentioned the importance of specific features in their selection, including double features, concessions, project quality, sound quality, and parking quality (E.G., tiered parking, distance from the screen, etc.).

During the observation wrap-up process, most participants (*N* = 7) found that theaters offered only one available showing time with various date options. Some participants (*N* = 3) mentioned the timing being obscure, such as "dusk". Overall, the options for selecting a movie, date, and time varied among all participants.

During the interviews, most participants (*N* = 7) mentioned the various parking layouts and selection options, including the challenges associated with "first-come, first-serve" parking. Some participants (*N* = 3) mentioned some of the difficulties that would occur while parked, including extraneous noises, headlights, and sanitation issues. A few participants (*N* = 3) also mentioned the sizing of the cars in attendance being important. One participant stated, "We get like the big pickup truck, and we'll get blankets, and everybody sits in the back of the truck or have their little like outdoor seating, take our chairs and everything". In contrast, another participant stated, "Me and my girlfriend watched from the trunk of our car, and then the two boys brought lawn chairs, and they sat right outside the trunk." Another participant mentioned how the size of the cars around them also affects their experience, noting that those around them "just blowing their lights [car headlights] and it's just like you can't see."

Participants (*N* = 4) also mentioned the unimportance surrounding concessions. One participant even stated, "... who goes there with the intent of buying concessions, like the whole point is you can bring your own snacks".

Additionally, a few participants (*N* = 4) mentioned items that would have improved their experience, including "rewards program", "mobile applications", and directions revolving around audio options and basic instructions. One participant stated, "If there was just like a

way to easily see the price when it's showing, just basic instructions about what to expect, going into a drive-in, including the setup for audio, you know, lights and all that I feel will make it easier."

Based on survey responses, participants reported that they were extremely satisfied (*N* = 2), somewhat satisfied (*N* = 6), neither satisfied nor dissatisfied (*N* = 6), somewhat dissatisfied (*N* = 5) and extremely dissatisfied (*N* = 2) with the selection of movies offered by drive-in movie theaters. Participants also reported that weather was not at all important (*N* = 1), slightly important (*N* = 3), moderately important (*N* = 7), very important (*N* = 3), and extremely important (*N* = 7) in regards to the decision before purchasing tickets. Participants also stated that "better options at concession stands" would improve their overall experience when attending drive-in movies, as well as "having more movie options" and "facilitating preferred parking spots".

Ticket Purchasing

During the observations, all participants reached the end of the checkout process after confirming the number of tickets they wanted. In a few observations, participants noted various payment methods, including credit card, Apple Pay, Google Pay, and paying in-person. Some participants (*N* = 4) were also confused about what tickets were for (E.G., number of vehicle passengers or vehicles).

Although all participants during the interviews stated that the ticket purchasing process was easy, more than half of participants (*N* = 5) still mentioned various challenges associated with the process. These challenges applied for both in-person and online purchases. Some of the mentioned challenges include in-person ticket sales causing traffic before the showing, insufficient in-person attendant booths at the entrance, miscommunication when online ticket sales would go live, and not having online ticket purchases available. One participant stated, "I did think it was kind of weird that you know, they have all their information online, all of their concession information and movie information and location. "Everything's online, but you can't purchase a ticket online." Another participant also said, "... if they just had more... it's just like one little booth with one person in it, especially like for the hour before the movies when everyone's waiting to get in just like another one to help alleviate the congestion."

Based on survey responses, participants reported purchasing tickets online (*N* = 15), in-person (*N* = 9), and other (*N* = 1) when attending a drive-in movie theater. Participants also reported preferring to purchase drive-in movie theater tickets online (*N* = 17), in-person (*N* = 3), and no opinion (*N* = 1). Participants also reported the types of tickets they have purchased previously were general admission (*N* = 19), preferred parking (*N* = 5), and reserved parking (*N* = 4).

Participant Reflections

At the end of each interview, we asked all participants about their reflections on the drive-in movie experience. One participant stated, "just better ways of relaying key information to customers", emphasizing a desire for information to be "more clear". Another participant said that "it could be obviously a lot more streamlined [with] online purchases and things like that" and suggesting a mobile application or improved website. Other participants (*N* = 2) reflections focused on discussing the traffic, stating "that the traffic jam situation can be improved".

At the end of each survey, we asked participants to reflect on their overall experience when attending drive-in movies and any recommendations for improvements. One participant stated, "The sound was my biggest problem… Secondary would be getting comfortable either in the car or outside of the car…" Another participant said, "larger space and screen, better spot and audio. Dark environment".

Data Analysis and Hypothesis

In our surveys, we collected a total of 21 participants' (*N* = 21) data on the feelings and habits of drive-in movies. We used Excel and SPSS to aggregate and analyze the data we collected. Based on our observations and interview results, we once put forward two hypotheses about improving the driving movie experience.

Hypothesis 1: Infrequent drive-in movie customers will prioritize the theater's distance from home when selecting a theater more so than frequent drive-in movie customers.

Hypothesis 2: Infrequent drive-in movie customers will mainly prioritize finding the best drive-in theater experience, while frequent drive-in movie customers will prioritize finding the experience and best movie options equally.

(For further information, see Appendix H: Survey Protocol and Consent)

To determine if our collected data will support our hypothesis, we analyzed the information and data using Mann Whitney U tests.

Hypothesis 1 Summary Finding: We found no significant differences between the groups and were unable to support our hypothesis.

We divide participants' data into two groups, frequent moviegoers (more than one visit in the previous year) and infrequent moviegoers (one or fewer visits in the previous year). After analyzing the data, we found that there was no significant difference of the medians between the distance from home at alpha level .05 ($U_{(19)}$ = 55.500, Z = .111, p = .917 > .05). The mean ranks of frequent and infrequent moviegoers were 11.17 and 10.88 respectively.

Categorical Field Information Frequency

Total N = 21

Independent-Samples Mann-Whitney U Test

Frequency

Frequent Movie-Goers   Infrequent Movie-Goers

N = 9
Mean Rank = 11.17

N = 12
Mean Rank = 10.88
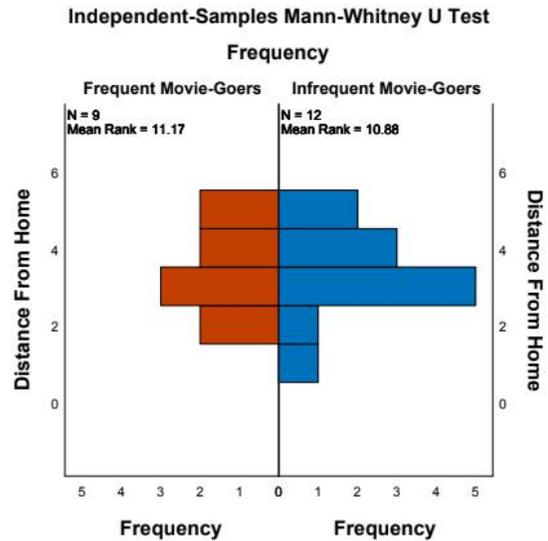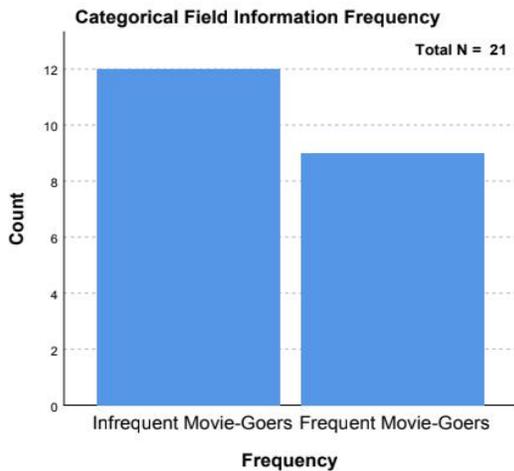
Independent-Samples Mann-Whitney U Test Summary

Total N	21
Mann-Whitney U	55.500
Wilcoxon W	100.500
Test Statistic	55.500
Standard Error	13.521
Standardized Test Statistic	.111
Asymptotic Sig.(2-sided test)	.912
Exact Sig.(2-sided test)	.917

Hypothesis 2 Summary Finding: We found no significant differences between the groups and were unable to support our hypothesis.

Once again, we divide participants' data into two groups, frequent moviegoers (more than one visit in the previous year), 10-minute and infrequent moviegoers (one or fewer visits in the previous year). After analyzing the data, we found that there was no significant difference of the medians between the importance of comparing drive-in theaters at alpha level .05 ($U_{(19)}$ = 45.500, Z = -.638, p = .554 > .05). The mean ranks of frequent and infrequent moviegoers were 10.06 and 11.71 respectively.

Categorical Field Information Frequency

Total N = 21

Independent-Samples Mann-Whitney U Test
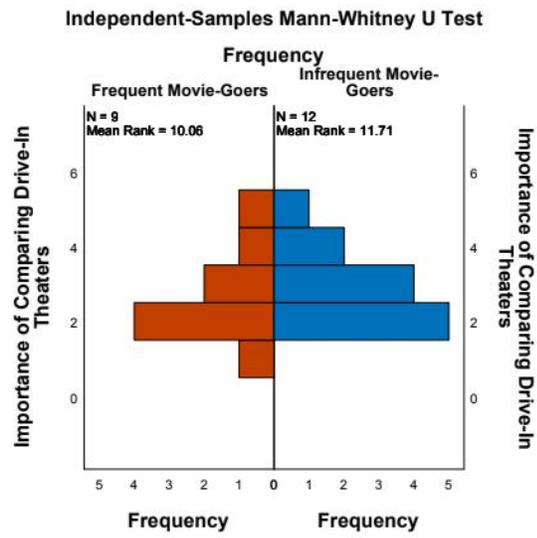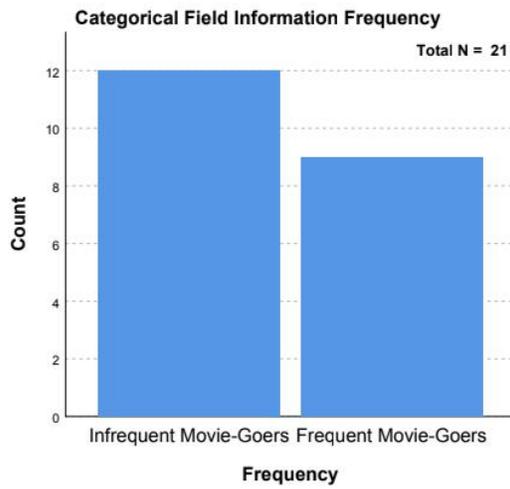
Independent-Samples Mann-Whitney U Test Summary

Total N	21
Mann-Whitney U	45.500
Wilcoxon W	90.500
Test Statistic	45.500
Standard Error	13.320
Standardized Test Statistic	-.638
Asymptotic Sig.(2-sided test)	.523
Exact Sig.(2-sided test)	.554

Personas

Alex - Casual Moviegoer

Carefree   Busy   Social

"I just want to find the nearest drive-in theater to me."

Age: 21
Work: College Student
Family: Single, no kids
Location: Chicago, IL
Car: Jeep Cherokee

Goals
- Attend the nearest drive-in theater to home
- More interested in the experience rather than the movies
- As long as there's an open parking spot, he's happy

Frustrations
- Doesn't know of many drive-in theaters in the city
- Outdated theater information online
- Has to purchase tickets in person, which is frustrating with further theaters

Bio
Alex is a college student living in Chicago, IL. He is often busy with his coursework, so he doesn't spend much time researching local drive-in theaters. It's common for him to just decide to attend with friends a few hours before the movies begin. He simply loves attending for the experience rather than for the actual movie selections. Alex doesn't have a lot of extra time in his schedule, so he just arrives right when movies begin.
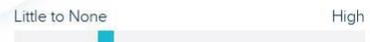
Spectrums

Research Time
10 mins ———————————— 1 hour

Distance From Selected Theater
10 mins ———————————— 1 hour

Parking Preference
Little to None ———————————— High

Interest in Selected Movies
Little to None ———————————— High

Taylor - Heavy Moviegoer

Organized   Passionate   Movie-Lover

"I always look for the best drive-in movie experience, even if not the closest drive."

Age: 33
Work: Teacher
Family: Married, no kids
Location: Denver, CO
Car: Honda Odyssey

Goals
- Compares multiple drive-in theaters and is willing to travel a little further for a better experience
- Find the theaters with the best movie selections
- Wants to find the best parking spot with no blocked views

Frustrations
- Researching and comparing drive-in theaters can be time-consuming
- Theater audio can be poor at older theaters
- Finding a drive-in theater without noise/light pollution
- Has to arrive really early to find good parking

Bio
Taylor is a teacher in Denver, CO who is passionate about movies, old and new. She usually spends around 30 minutes researching the best drive-in theater and movie options. While she prefers closer theaters, driving to the suburbs (30-40 minutes) often gets her away from the noise and light pollution of the city. Whenever possible, Taylor arrives early to movies to get the best parking spot. Even though that can be frustrating, it allows her to grab snacks and set up in the back of her minivan.

Spectrums

Research Time
10 mins ———————————— 1 hour
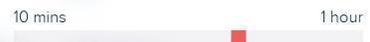
Distance From Selected Theater
10 mins ———————————— 1 hour

Parking Preference
Little to None ———————————— High

Interest in Selected Movies
Little to None ———————————— High

Scenarios

Alex

Alex is a 21-year-old college student living in Chicago, IL. He is often busy with his coursework, but he likes to attend fun activities around the city. During the COVID pandemic, there are limited entertainment opportunities. Although, drive-in movie theaters have become more popular among his college friends during this time. Alex has only been to a few drive-in movies in the past couple of years because there aren't too many locations around the city, preventing him from attending more often. Even if it means compromising on the movie selection, Alex would much instead attend a theater near his neighborhood. He only wants to be there for the experience. Part of the experience Alex loves is purchasing food at the drive-in concessions and bringing his own meals to have picnics in his car. Unfortunately, there are quite a few frustrations for Alex that also hurt his drive-in experience, including that many theaters have outdated information online and don't allow online ticket purchasing. Since he needs to drive to the suburbs to attend a movie, he wants the comfort of knowing he has a ticket before arriving, as many drive-in theaters sell out during the pandemic. Alex is simply looking for a tool that provides him with a nearby theater option, more up-to-date information, and online ticket purchasing options.

A friend of Alex, who passionately attends movies, has been obsessed with drive-in movies during the pandemic. His friend told him about a new app called Drive-In Tracker. After downloading the app on his phone, Alex immediately sees the "Find Drive-Ins Near Me" button and clicks on it. After sharing his location with the app, Alex notices on the map that a brand new drive-in theater has just opened up in the Lincoln Park neighborhood. Fortunately, it's only about a 10-minute drive from his apartment. He clicks on the location. The following screen displays information about the new theater, including location, parking information, ticketing information, movie showings, etc., with up-to-date information he has always wanted.

After deciding to attend a movie with a friend during the upcoming weekend, Alex clicks on the "Reserve Tickets" button. He was so excited to see the ability to purchase tickets online. Not only could he buy his ticket online, but he could reserve a specific parking spot. Now Alex doesn't even have to worry about showing up early to the showing, which is very helpful with his busy schedule. He's delighted with the results of Drive-In Tracker and thanks his friend for sharing the app with him.

Taylor

Taylor is a 33-year-old elementary school teacher living in Denver, CO. She is very passionate about movies and has become a heavy drive-in moviegoer during the current pandemic. Even though she often has a busy schedule, she tries to attend drive-in movies once a month. Therefore, Taylor gets frustrated that she has to arrive early to find parking every time because she's not necessarily there for the drive-in experience. Since Taylor attends so many drive-in movies, she also usually prioritizes movie selection over distance to the theater. While she would still usually like to stay close to home, she's not bothered by driving to the suburbs to see a movie she enjoys. Sometimes Taylor even prefers traveling further away because light and noise pollution from the city can be frustrating. Also, because she's visited so many drive-in theaters, Taylor has encountered low-quality audio systems. She tries to avoid those older theaters when she can. Taylor is looking for a tool that provides her with online ticket purchasing options and extensive theater information, such as the audio system used, the theater's age, and the surrounding environment.

Taylor's husband heard about a new app called Drive-In Tracker. After he shared it with Taylor, she quickly downloaded the app on her phone. Taylor notices a "Find Drive-Ins Near Me" button on the home page and clicks on it. She shares her location with the app and recognizes the list of all the drive-in theaters around her. Taylor clicks on one of the locations near her. The next screen displays all of the information she previously prioritized. There's even advanced theater information that is always difficult for her to find on many theaters' websites. Often, she has to call theaters to find out that information.

Since it's been a few weeks since she attended a drive-in movie, she decided to buy tickets for her and her husband. She clicks on the "Reserve Tickets" button. Taylor was relieved to see the ability to purchase her tickets online. During the checkout process, she reserves a specific parking spot toward the middle of the theater, her favorite. She's excited to get the best parking spot in the theater without having to show up early. Taylor is ecstatic that her husband found this app. She can't wait to attend her next drive-in movie.

Priority Matrix

From the collected data in the observation, interviews, and surveys, we were able to identify the different evaluative features a customer can have. There are two personas/user types created based on the interviews on searching, selecting, and attending a drive-in movie theater.

User Types

Alex: this user group will attend a drive-in movie for the experience regardless of movie showing, purchase tickets early, and drive to the nearest theater.

Taylor: this user group will attend a drive-in movie with their preferred movie selection, takes time to look up information on different drive-in movies, and wants a parking spot with a great view.

No.	Feature	Priority	Impact	Feasibility	User Type
1	Using location to see how far a drive-in theater is	High	High	High	All
2	Selection of different movies	High	High	High	Taylor
3	Audio quality within watching a movie	High	High	High	All
4	Up-to-date information on features provided at a drive-in	Medium	High	Medium	Taylor
5	Reserving a ticket before attending a drive-in movie	High	High	High	All
6	Safety during COVID-19 pandemic	High	High	High	All
7	Cost to attend drive-in movies	Medium	Medium	Medium	Alex
8	Quality parking to view movie screen	High	High	Low	Taylor
9	Food availability at a drive-in theater	Low	Medium	Medium	Alex
10	Bathroom services at a drive-in	Medium	Medium	Medium	All

Experience/Journey Maps

Alex's Journey Map

1 Location
Searching for the nearest drive-in location near-by

2 Concessions
Will check to see if there are food concession features at the drive-in theater location

3 Online-Ticket
Purchases an online ticket that guarantees a spot to view movie showing

4 Close-Drive
Drive to the nearest drive-in movie theater selected

5 General Admission Parking
Arrives close to the time that the drive-in movie is about to begin. Next is guided to the last parking spot available

Taylor's Journey Map

Movie Selection
1

Searches for different types of movies being shown by different drive-in movie theaters

Audio Information
2

Searches audio information on different drive-in movie theaters to receive the best selection

Further Drive
4

Drives to a further location due to wanting to see a specifc movie

Online-Ticket
3

Purchases an online ticket that was selected by user of which spot they would like to have

Reserved Parking
5

Arrives early at the drive-in theater to ensure the parking they have received is still there's to park in so they can have the best movie view

Discussion

In our research, we used observations, interviews, and a survey to explore the drive-in movie customer experience more in-depth, with the ultimate goal of finding solutions to improve their experience. To achieve this goal, we analyzed and aggregated all participant data and feedback collected in three research rounds. In our research, we accumulated a total of 40 participants (N = 40), which included ten participants (N = 10) for our observations, nine participants (N = 9) for our interviews, and twenty-one participants (N = 21) for our survey. Based on the collected data and feedback from participants, we recognized several vital factors that affect the drive-in movie customer experience: choice of drive-in movie theaters, drive-in movie information retrieval, evaluating amenities and features, parking options, and the ticket purchasing process.

Key Factors That Affect Customer Experience

1. Choice of drive-in movie theaters: Although the nearest theater is the preferred choice for most participants (in the survey, 67% of the participants will consider the distance factor), some participants still believe that the available movie options are also critical in choosing a theater. Other factors depend on the weather, traffic, and the content of the movie.

2. Effective information searched online: According to our observation, interview, and survey results, we found that although most of the participants use the Google search engine (N=32, 80% of the participants use Google search or Google Maps to find drive-in movie theaters). But it does not rule out that some respondents will use Facebook or other social media to obtain information about outdoor theaters, including film reviews, feedback, etc.

3. Evaluating amenities and features: Many interviewees and questionnaire participants were very concerned about the environment and facilities that may affect their viewing experience. The features include weather, audio equipment, concession options, parking options, ticket purchasing options, and so on.

4. Parking options: At most drive-in theaters, the parking options are still on a first-come, first-served basis. Although some parking lots divide the front and rear parking spaces depending on a vehicle's size, customers who arrive first will get their preferred parking spaces.

5. Ticket purchasing process: Whether buying tickets online or in-person, some participants encountered challenges in the ticket purchasing process. Complaints included no confirmation message on the online ticket purchasing interface and even no way to purchase a ticket online at all. On the other hand, in-person ticket purchases cause traffic jams at the entrance of the parking lot.

Implications for Design

1. Comprehensive movie information and complete navigation information

According to participants' problems, designers should provide a full movie screening schedule and a brief introduction to the movie on drive-in movie websites in future designs. We found that all participants used their location to find local theater options, meaning location-based search and interactive map functions are features to include in any future product design. For example, by entering the zip code, the website can return the nearest theaters, relevant traffic information, and movie screening times, helping users with their theater and movie decisions, as well as travel plans.

2. Integrate information and film reviews from different channels

To provide customers with the convenience of finding information and increasing ticket revenue for theaters, integrating multiple channels of information on the same page should be a trend in future design. When users do not need to search for relevant information on different social media, this will significantly improve the user's ease of operation and information transparency.

3. Provide users with more detailed information about the venue

In addition to the ticket booking process and movie schedule, the applications for drive-in movie theaters should reflect more detailed information about the venue and environment. This includes food availability, film reviews or customer feedback, sound and lighting information, and parking information. This argument supports Archit (2019) research. His research mentioned: "Add some new features to movie reservations, such as showing the view of the screen from different orientations of screen and add some trustworthy comments" (2019). Consumers would choose their favorite platform due to speed, reliability, and ease of use.

4. Select parking spaces online

Due to traveling distances, weather, traffic jams, etc., the first-come, first-served parking rule is often inconvenient to customers. We suggest adding parking spot reservation options in future designs. When the customer chooses a movie, they should be able to reserve their exact parking space. For example, the theater could divide the parking area based on vehicle type. Users would then confirm their vehicle type and select a parking space in the corresponding parking area. This solution would help customers with tight schedules from missing out on their favorite parking spots.

5. Optimize the ticket purchasing process online/via phone

The online process to enhance users' ticket purchasing experience should be simplified. After users provide relevant information (movie time, session, car model, number of people), they

should jump directly to a payment link. Additionally, to alleviate traffic congestion, theaters should allow customers to purchase tickets over the phone. Overall, this will reduce traffic congestion at the theater, making it more convenient for people who do not buy tickets online or through the phone.

Limitations and Future Work

For our overall research, our number of participants is still insufficient. In future research, we will interview more participants to learn more about drive-in movie experiences. In our interview sessions, only one of our nine participants was male, and the remaining eight were all female. In our survey, Asian participants accounted for a large proportion of the total population. This reflects a lack of diversity in our participant pool. We will pay attention to the gender and ethnicity ratio of participants in future research. Lastly, we noticed that some participants experienced a drive-in movie for the first time because of the pandemic, so they could not compare drive-in movies to an experience before the pandemic. In future research, we will interview participants with a more diverse viewing experience.

We have also noticed that the site survey will produce many positive results for the research. Due to the pandemic's impact, we are unable to conduct more field investigations and real-time interviews under the current conditions. As an outdoor activity, we hope that we can join more moviegoers to understand their actual feelings and experiences in the future.

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Appendix

A. Observation Informed Consent Form

ADULT CONSENT TO PARTICIPATE IN RESEARCH

Understanding the Drive-In Movie Theater Customer Experience

Principal Investigators: Jaqueline Brandao, Tim Lattimer, Diana Vinihakis, Quinn Zhang (graduate students)

Institution: DePaul University, Chicago, Illinois, USA

[Department, School, College: College of Computing and Digital Media

Faculty Advisor: Andrea Sanders, College of Computing and Digital Media, DePaul University

Key Information:

What is the purpose of this research?
We are asking you to be in a research study because we are trying to learn more about drive-in movie theater customer experience. This study is being conducted by Jaqueline Brandao, Tim Lattimer, Diana Vinihakis, and Quinn Zhang, graduate students at DePaul University, as a requirement to obtain their master's degrees. This research is being supervised by their faculty advisor, Andrea Sanders.

We hope to include about 8 people in the research.

Why are you being asked to be in the research?
You are invited to participate in this study because you are someone who's previously attended drive-in movies. You must be age 18 or older to be in this study. This study is not approved for the enrollment of people under the age of 18.

What is involved in being in the research study?
If you agree to be in this study, being in the research involves an activity where you will go through the process of trying to buy a ticket for a local drive-in movie. As you perform the activity, your actions and comments will be noted, and your voice will be recorded. You may ask questions before, during, and after performing the activity.

The interview will be audio recorded and transcribed into written notes later in order to get an accurate record of what you said.

Are there any risks involved in participating in this study?
Being in this study does not involve any risks other than what you would encounter in daily life. You may feel uncomfortable or embarrassed about answering certain questions. You do not have to answer any questions you do not want to.

Are there any benefits to participating in this study?
You will not personally benefit from being in this study.

How much time will this take?
This study will take about 30 minutes of your time. The warm-up and wrap-up questions will take about 10 minutes total to complete, while the activity should take about 20 minutes.

Other Important Information about Research Participation

Can you decide not to participate?
Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences, penalties, or loss of benefits if you decide not to participate or change your mind later and withdraw from the research after you begin participating.

Who will see my study information and how will the confidentiality of the information collected for the research be protected?
The research records will be kept and stored securely. Your information will be combined with information from other people taking part in the study. When we write about the study or publish a paper to share the research with other researchers, we will write about the combined information we have gathered. We will not include your name or any information that will directly identify you. Some people might review or copy our records that may identify you in order to make sure we are following the required rules, laws, and regulations. For example, the DePaul University Institutional Review Board may review your information. If they look at our records, they will keep your information confidential.

The audio recordings will be kept until accurate written notes have been made, then they will be destroyed.

Who should be contacted for more information about the research?
Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study or you want to get additional information or provide input about this research, you can contact the researchers at the following email addresses:

Jaqueline Brandao: jlopezbo@depaul.edu
Tim Lattimer: tim.lattimer@alumni.depaul.edu
Diana Vinihakis: dvinihak@depaul.edu
Quinn Zhang: qzhang50@depaul.edu

You can also contact the faculty advisor:
Andrea Sanders: asande32@depaul.edu

This research has been reviewed and approved by the DePaul Institutional Review Board (IRB). If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu.

You may also contact DePaul's Office of Research Services if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You will be given a copy [can print a copy] of this information to keep for your records.

Statement of Consent from the Subject:

I have read the above information. I have had all my questions and concerns answered. By signing below, I indicate my consent to be in the research.

Signature:_____

Printed name: _____

Date: _____

B. Interview Informed Consent Form

ADULT CONSENT TO PARTICIPATE IN RESEARCH

Understanding the Drive-In Movie Theater Customer Experience

Principal Investigators: Jaqueline Brandao, Tim Lattimer, Diana Vinihakis, Quinn Zhang (graduate students)

Institution: DePaul University, Chicago, Illinois, USA

[Department, School, College: College of Computing and Digital Media

Faculty Advisor: Andrea Sanders, College of Computing and Digital Media, DePaul University

Key Information:

What is the purpose of this research?
We are asking you to be in a research study because we are trying to learn more about drive-in movie theater customer experience. This study is being conducted by Jaqueline Brandao, Tim Lattimer, Diana Vinihakis, and Quinn Zhang, graduate students at DePaul University, as a requirement to obtain their master's degrees. This research is being supervised by their faculty advisor, Andrea Sanders.

We hope to include about 8 people in the research.

Why are you being asked to be in the research?
You are invited to participate in this study because you are someone who's previously attended drive-in movies. You must be age 18 or older to be in this study. This study is not approved for the enrollment of people under the age of 18.

What is involved in being in the research study?
If you agree to be in this study, being in the research involves being asked a list of interview questions about your experience with drive-in movies. The interview will be audio recorded and transcribed into written notes later in order to get an accurate record of what you said.

Are there any risks involved in participating in this study?
Being in this study does not involve any risks other than what you would encounter in daily life. You may feel uncomfortable or embarrassed about answering certain questions. You do not have to answer any questions you do not want to.

Are there any benefits to participating in this study?
You will not personally benefit from being in this study.

How much time will this take?

This study will take about 30 minutes of your time. The warm-up, deep focus, and wrap-up questions will take about 10 minutes each to complete.

Other Important Information about Research Participation

Can you decide not to participate?

Your participation is voluntary, which means you can choose not to participate. There will be no negative consequences, penalties, or loss of benefits if you decide not to participate or change your mind later and withdraw from the research after you begin participating.

Who will see my study information and how will the confidentiality of the information collected for the research be protected?

The research records will be kept and stored securely. Your information will be combined with information from other people taking part in the study. When we write about the study or publish a paper to share the research with other researchers, we will write about the combined information we have gathered. We will not include your name or any information that will directly identify you. Some people might review or copy our records that may identify you in order to make sure we are following the required rules, laws, and regulations. For example, the DePaul University Institutional Review Board may review your information. If they look at our records, they will keep your information confidential.

The audio recordings will be kept until accurate written notes have been made, then they will be destroyed.

Who should be contacted for more information about the research?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study or you want to get additional information or provide input about this research, you can contact the researchers at the following email addresses:

Jaqueline Brandao: jlopezbo@depaul.edu
Tim Lattimer: tim.lattimer@alumni.depaul.edu
Diana Vinihakis: dvinihak@depaul.edu
Quinn Zhang: qzhang50@depaul.edu

You can also contact the faculty advisor:
Andrea Sanders: asande32@depaul.edu

This research has been reviewed and approved by the DePaul Institutional Review Board (IRB). If you have questions about your rights as a research subject, you may contact Susan Loess-Perez, DePaul University's Director of Research Compliance, in the Office of Research Services at 312-362-7593 or by email at sloesspe@depaul.edu.

You may also contact DePaul's Office of Research Services if:
- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.

You will be given a copy [can print a copy] of this information to keep for your records.

<u>Statement of Consent from the Subject:</u>

I have read the above information. I have had all my questions and concerns answered. By signing below, I indicate my consent to be in the research.

Signature:_____

Printed name: _____

Date: _____

C. Observation Protocol

STEP 1: INTRODUCTION
Introduce yourself and the project
My name is _____. Thank you for meeting with me today. My team and I are working on a research project where we are interested in learning more about the drive-in movie theater customer experience. I would like to know more about how you search, find, select a drive-in movie, and the process of purchasing a ticket.

Explain the purpose of the project
The research conducted today will be used for our school project and only our team will know your identity. Outside of our team, your identity will remain confidential. The purpose of this study is we are trying to learn how to improve customers' drive-in movie viewing experience. We are interested in observing the process of how customers search, find, and purchase drive-in movie tickets. The observations we gather from this study will be used to support our larger research question: How can customers have the best experience in attending a drive-in movie?

Explain what will happen
There are no right or wrong ways for this activity or my questions. I just want to observe what you do and listen to what you have to say. As you perform the activity, your actions and comments will be noted and you will be asked to describe what you are doing. You may be asked questions before, during, or after performing the activity. This meeting should last about 30 minutes.

Informed consent
This activity is voluntary. You have the right not to participate in any activity or answer any questions, and to stop the inquiry at any time or for any reason. Your actions and responses will be confidential and used only in connection with this class assignment. Only your first name will be used to identify you. If you wish, you can use a pseudonym rather than your real name.

(Give participant(s) the informed consent form.)
Please read over the informed consent form and ask me any questions.

STEP 2: WARM-UP
Establish a rapport with the participant
(To make the participant feel more comfortable during the activity, start by having a small discussion about drive-in movies. Feel free to go off-script depending on the answers to these questions or the comfort level of the participant.)

I would just like to ask you a couple of questions before we get started on the observation.

Question 1: What's the name of the most recent drive-in movie you've seen?

Question 2: Tell me about your favorite movie and why it's your favorite.

Question 3: Are movies your favorite form of entertainment? Why or why not?

STEP 3: OBSERVATION
Let's move on to an activity. In the next 15-20 minutes, we'd like to observe your process about how you would research local drive-in movies. Please show me how you would make a decision on which theater to attend, which movie you'd see, and when you would attend. You don't need to purchase a ticket, but please take me to where you would go to do so. Please share your screen before you begin and speak out loud as you perform the activity. I will be observing and taking notes as you work. Do you have any questions before we get started?

(Observe the participant
Let the participant perform the activity. Only interrupt if absolutely necessary. Take note of your questions and save them for the wrap-up.)

STEP 4: WRAP-UP
Follow-up Questions (if applicable)
I have some follow-up questions I'd like to ask:

Main question
1.   What are the most important features to compare when selecting a drive-in movie theater (e.g., movie options, sound quality, parking options, current social distancing practices, other amenities, etc).
2.   How do you find the best place to watch drive-in movies near your home?

The problem of the whole activity process:
1.   How do you buy tickets for drive-in movies?/Which website do you often book tickets?
2.   How long do you usually need to drive to your movie viewing location?
3.   Will traffic congestion affect your schedule?

The problem of viewing experience:
1.   What are the factors that most affect your experience of watching a drive-in movie?
2.   Due to the COVID-19 global pandemic, would you feel comfortable attending a drive-in movie? What about an indoor movie theater?
3.   Does the first-come, first-served parking policy affect your viewing experience?
4.   What kind of movies do you like to see?/Will the latest movies inspire your desire to buy?

Ask any specific questions you wrote down during observation. Examples below:
Can you clarify why you do this?
I noticed you initially selected [blank], why is that?
Participant's questions
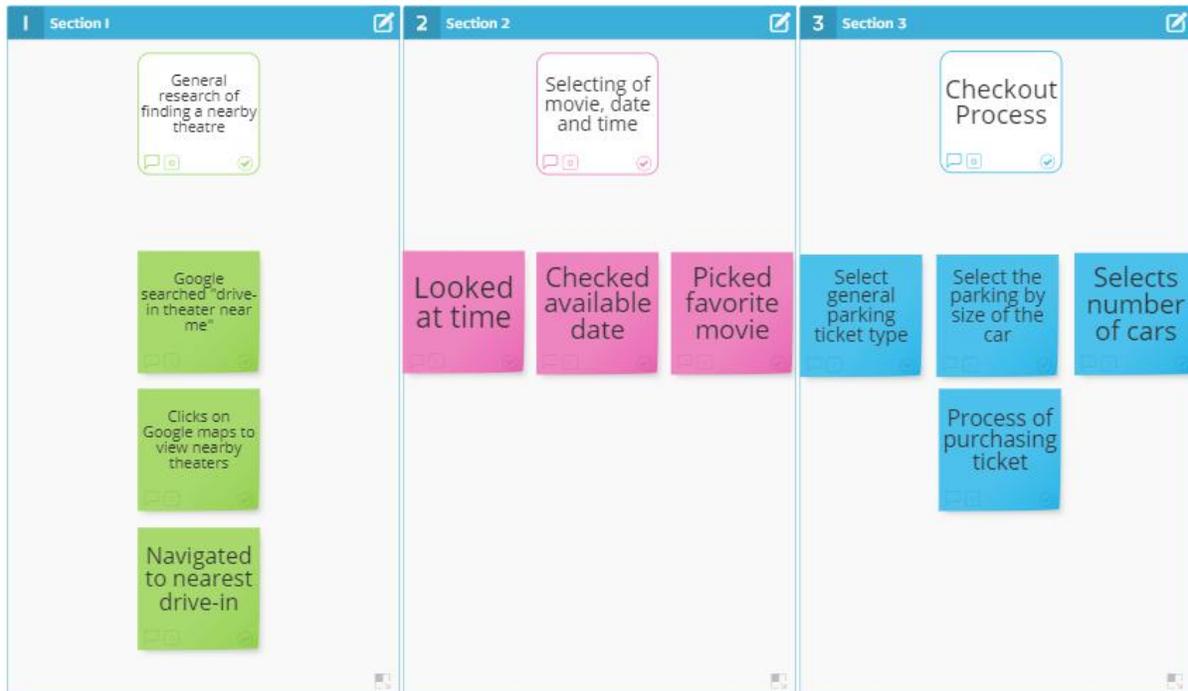Do you have any questions for me at this time?

Thank you

That concludes the activity. Thank you for your time and for meeting with me. Would it be okay to reach out to you for a follow up sometime in the next few weeks?

D. *AEIOU Framework (Observation)*

A | E | I | O | U

Drive-In Movie Theater Research - AEIOU

Section 1

General Research of finding a near by theatre

in room on computer/laptop

on her laptop at campus

in room on smartphone

Selecting movie date and time

Checkout Process

Section 2

in her classroom using laptop

searched on Yelp

searched on google chrome using google.com

searched on Facebook

searched on Google from Firefox search bar

Looked at online articles for best nearby drive-in theaters

Section 3

computer/laptop

Smartphone

Female 24 Chicago, IL Caucasian Graduate Student

Male 24 Chicago, IL Caucasian Entrepreneur

Caucasian Male 23 Washington Student

Asian Male 33 Washington Business owner

David, Asian 24 male, Oklahoma City, exchange student

Joann, Asian,19, female, Chicago Loop, student

Female 23 Sydney, Australia Graduate Student

Female African American Teacher Columbia, MO

Caucasian Male 24 Washington Air Force

Female Caucasian 26 Social Worker West Virginia

https://stormboard.com/storm/1266371/Drive-In_Movie_Theater_Research_-_AEIOU

E. *Flow Chart (Observation)*

Drive-In Movie Theater - UX Research

https://stormboard.com/storm/1266310/Drive-In_Movie_Theater_-_UX_Research

- We used this flowchart to create the affinity diagram -- same link.

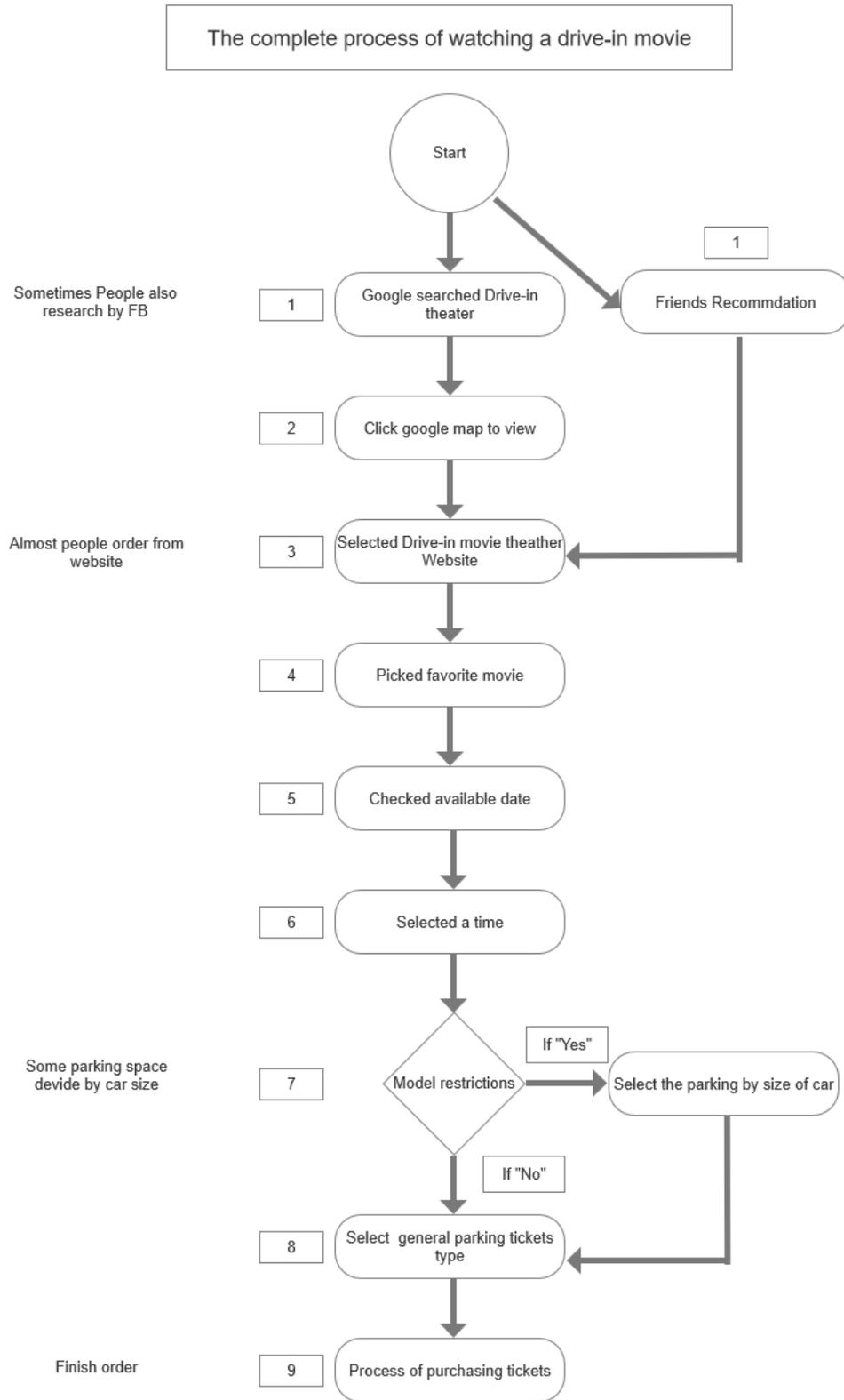## F. Affinity Diagram

i. Draft

Drive-In Movie Theater - UX Research

ii. Revised

The complete process of watching a drive-in movie

Start

Sometimes People also research by FB | 1 | Google searched Drive-in theater

1 | Friends Recommdation

2 | Click google map to view

Almost people order from website | 3 | Selected Drive-in movie theather Website

4 | Picked favorite movie

5 | Checked available date

6 | Selected a time

Some parking space devide by car size | 7 | Model restrictions

If "Yes" → Select the parking by size of car

If "No"

8 | Select general parking tickets type

Finish order | 9 | Process of purchasing tickets

G. Interview Protocol

Introduction

Hello, my name is [____], and I am a graduate student at DePaul University. Thank you for agreeing to participate in this interview. I am working in a group to learn about the drive-in movie theater customer experience. I would like to know more about how you search, find, select a drive-in movie, and the process of purchasing a ticket.

There are no right or wrong answers, and your answers will be kept confidential. Today's interview session should take approximately 30 minutes. I saw you sent back the informed consent form, so thank you for reading and signing that prior to this call. Do you have any questions before we begin?

Interview Questions

STEP 1: WARM-UP

1. How often do you go to see drive-in movies?
2. Why do you choose to attend drive-in movies versus movies at indoor theaters?
   a. Has the frequency of your visits to drive-in movies changed since the covid pandemic?
   b. How comfortable are you attending drive-in movies now given the current pandemic?
   c. How comfortable are you with attending movies at an indoor theater?

STEP 2: DEEP FOCUS

Exploring Previous Experiences

1. When was the last time you planned an outing to go see a drive-in movie? Can you describe the experience for me?
   a. [if they don't mention it in the answer to the question above, ask]:
      i. What was the movie or movies?
      ii. How far away was the movie from your home?
      iii. Who did you go to the movie with?
      iv. Where did you watch the movie (front seat, trunk, roof top, outside the car, etc.)?
      v. Can you describe how the parking was set up? (i.e., first come, first serve, assigned spots, etc.)
   b. Thinking about the last time you went to go see a drive-in movie, what was the best part of the experience?
   c. Was there anything frustrating or challenging about your experience?
   d. Was there any information you wish you had known prior to attending the drive-in movie?

Researching and Selecting a Theater

1. How do you decide which drive-in movie theater to go to?
    a. How often do you research multiple theater options before deciding on your final option?
2. What resources do you use to learn more about your theater options?
3. In your opinion, what are the most important features to compare when selecting a drive-in movie theater (e.g., theater location, movie options, sound quality, parking options, current social distancing practices, other amenities, etc.)?
4. Which features do you care less about?
5. How easy or difficult is it for you to find information online about the features you care about?
6. What would make the process of selecting a drive-in theater easier for you?

Evaluating Features

1. Based on your previous experiences attending drive-in movies, how do you feel about the selection of movies offered by drive-in movie theaters?
    a. How, if at all, does the selection of movies affects your decision to attend a drive-in theater?
2. How do you feel about the range of movie screening times offered by drive-in theaters?
    a. How do you decide which showing of a movie to attend?
    b. What factors are most important in your selection of showtime?
3. What types of parking situations have been offered at the drive-in movies you have attended previously? (i.e., first-come, first-serve, designated spots, etc.).
    a. How, if at all, has the parking situation affected your drive-in movie experience?
4. What is the traffic usually like as you arrive and leave from drive-in movies?
5. What role, if any, does weather play in your decision prior to purchase tickets?
    a. Is this something you check?

Purchasing Tickets

1. How do you purchase your ticket(s) when attending a drive-in movie theater?
2. What kind of ticket do you typically purchase (general admission, preferred parking, etc.)?
3. Overall, how easy or difficult is the typical process for purchasing tickets?
4. What, if anything, could improve your experience of purchasing drive-in movie tickets?

STEP 3: WRAP-UP

Overall Experience
1. In a perfect world, how could your overall experience of attending drive-in movies be improved?
2. Is there anything else you think I should know about your experience of attending drive-in movies?

Demographics
1. How old are you?
2. What city and state do you live in?
3. What is your ethnicity?
4. What gender do you identify with?

STEP 4: THANK PARTICIPANTS

Thank you for your time to be a participant in our group case study at DePaul University. Do you have any questions for us?

If you have any additional questions or concerns, please do not hesitate to contact us after this interview. Our emails are located in the consent form. Thanks again for your time!

H. Survey Protocol and Consent

Research Questions
- How can technology improve the drive-in movie theater customer experience?
- How can outdoor theaters attract customers to attend a drive-in movie with ease?
- What features are needed for a customer to have the best experience in attending a drive-in movie?

Hypotheses
1. Infrequent drive-in movie customers will prioritize the theater's distance from home when selecting a theater more so than frequent drive-in movie customers.
   - Statistical Test: Mann Whitney U Test (two independent variable conditions (drive-in movie customers: infrequent vs. frequent due to commute)
   - Dependent Variable: theater distance from home
   - Independent Variable: frequency of movie customers
   - Type of Data: Interval (i.e., length of commute, prioritize location)
   - Questions are highlighted in blue below.

2. Infrequent drive-in movie customers will mainly prioritize finding the best drive-in theater experience, while frequent drive-in movie customers will prioritize finding the experience and best movie options equally.
   - Statistical Test: Mann Whitney U Test (two independent variable conditions (drive-in movie customers: infrequent vs. frequent due to movie options)
   - Dependent Variable: frequency of movie customers
   - Independent Variable: prioritization of movie options
   - Type of Data: Ordinal (i.e., prioritizes experience, prioritizes movie options, prioritizes both equally)
   - Questions are highlighted in red below.

(Questions highlighted in green below apply to both hypotheses)

Introduction/Informed Consent

We are asking you to participate in this survey because we would like to better understand the drive-in movie theater customer experience. This study is being conducted by Diana Vinihakis, Jaqueline Brandao, Tim Lattimer, and Quinn Zhang. Our faculty advisor, Andrea Sanders, is supervising this research.

The survey will take about 20 minutes of your time. All of your responses will be confidential, and no personal information will be collected that can identify you. Participation in this survey is voluntary. You may discontinue the survey at any time by closing your browser.

If you have any further questions, please contact:
- Diana Vinihakis - dvinihak@depaul.edu
- Jaqueline Brandao - jlopezbo@depaul.edu
- Tim Lattimer - tim.lattimer@alumni.depaul.edu
- Quinn Zhang - QZHANG50@depaul.edu

You may also contact the faculty advisor:
- Andrea Sanders - ASANDE32@depaul.edu

To participate in this survey, you must meet the following criteria:

Screener			
Question	**Instructions**	**Answers**	**Rationale**
Have you been to a drive-in movie theater in the past 3 years?	Select One	a. Yes b. No	If no, then decline - We are recruiting most recent customers of drive-in movie theaters.
Are you 18 years old or older?	Select One	a. Yes b. No	If no, then decline - Participant is not eligible due to age.

By clicking next, you are agreeing to the requirements for this survey and providing accurate responses.

Survey Questions

Warm-Up			
Question	**Instructions**	**Answers**	**Rationale**
How often do you attend drive-in movies per year?	Type in a number (e.g. X)	Text Entry (Numbers required)	To determine baseline customer attendance
How has the frequency of your visits to drive-in movies changed since the pandemic?	Select One (Likert)	a. Greatly Decreased b. Slightly Decreased c. No change d. Slightly Increased e. Greatly Increased	To determine baseline customer attendance changes due to COVID
How comfortable are you attending *drive-in movies* given the current pandemic?	Select One (Likert)	1 - Not comfortable at all 2 3 - Somewhat comfortable 4 5 - Very comfortable No opinion	To understand how COVID has affected comfort of attendance
How comfortable are you with attending movies at an *indoor theater* given the current pandemic?	Select One (Likert)	1 - very uncomfortable 2 - somewhat uncomfortable 3 - neither comfortable nor uncomfortable 4 - somewhat comfortable 5 - very comfortable	To understand how COVID has affected comfort of attendance

Exploring Most Recent Experience			
Question	**Instructions**	**Answers**	**Rationale**
Briefly describe your last drive-in movie experience. What did you like about it? What could have made your experience better?	Open-Ended	Text Entry	To understand previous experience and how to improve their experience
How long was your commute to the drive-in movie theater?	Select One	a. 0 - 15 min b. 16 - 30 min c. 31 - 45 min d. 46 - 60 min	To determine the time spent on the road

		e. Over 60 min	
Where did you watch the movie?	Select All that apply	a. Front seat b. Trunk c. Rooftop d. Outside car e. Other (with text input)	To determine user's preferred location for watching movies
What types of parking situations were offered at the drive-in theater?	Select All That Apply	a. First come, first serve b. Assigned spots c. Other (with text input)	In order to understand the parking method of drive-in movies
Did the parking situation affect your drive-in movie experience? If so, how?	Open-Ended	Text Entry	To understand how the parking situation has affected people's drive-in movie experience.

Researching and Selecting a Theater			
Question	**Instructions**	**Answers**	**Rationale**
How important or unimportant are the following features in determining which drive-in movie theater you attend? Matrix Options: - Theater's location/distance from home - Movie selection - Available showtimes - Quality of the audio - Level of light or noise pollution around the theater - Ability to pre-purchase tickets online - Available types of parking options - Ability to reserve parking online - Cost to attend - Concessions options	Select One (Likert)	1 - Very unimportant 2 3 - Neither important nor unimportant 4 5 - Very important Non-applicable/No opinion	To understand what factors affect people's choice of drive-in movie theater

- Current social distance practices			
How easy or difficult is it for you to find information online about the features you care about?	Select One (Likert)	1 - Very easy 2 - Somewhat easy 3 - Neither easy nor difficult 4 - Somewhat difficult 5 - Very difficult Non-applicable	To understand how easy it is for people to search for movie theater features online
What resources do you use to learn more about your theater options?	Select All That Apply	a. Google Search/Bing b. Google Maps c. Facebook d. Other	To understand how people search for drive-in movie theaters

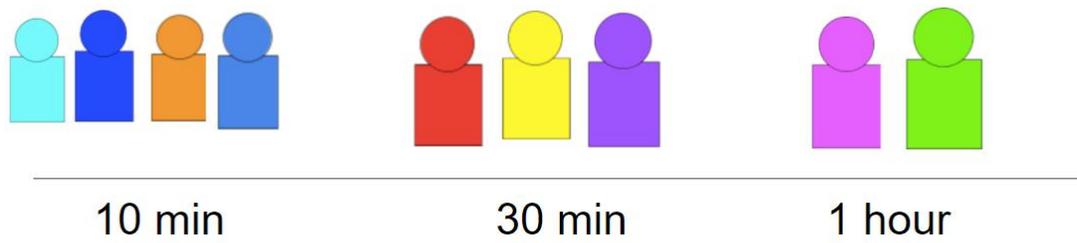| Evaluating Attributes, Details, and Qualities			
Question	**Instructions**	**Answers**	**Rationale**
Based on your previous experiences attending drive-in movies, how do you feel about the selection of movies offered by drive-in movie theaters?	Select One (Likert)	1 - Very poor quality 2 3 - Average quality 4 5 - Very good quality No opinion	To determine the level of movie interest
How congested is traffic when you usually *arrive* at drive-in movies?	Select One (Likert)	1 - Little/no traffic 2 3 - Some traffic 4 5 - Lots of traffic	To determine the traffic levels as customers arrive
How congested is traffic when you usually *leave* drive-in movies?	Select One (Likert)	1 - Little/no traffic 2 3 - Some traffic 4 5 - Lots of traffic	To determine the traffic levels as customers leave
What role does weather play in your decision prior to purchase tickets?	Select One (Likert)	1 - Little/no effect 2 3 - Some effect 4 5 - High effect	To determine whether customers focus on weather prior to purchasing tickets

Purchasing Tickets			
Question	**Instructions**	**Answers**	**Rationale**
How do you usually purchase your ticket(s) when attending a drive-in movie theater?	Select One	a. Online b. In-person c. Other (with text input)	To determine how customers purchase tickets
How would you prefer purchasing a drive-in ticket?	Select One	a. Online b. In-person c. Other (with text input) d. Indifferent	To determine how customers would like to purchase tickets
What kind of ticket have you purchased in the past? Check all that apply.	Select All That Apply	a. General admission b. Preferred parking c. Reserved parking space d. Other (with text input)	To determine what kind of tickets customers can purchase
Overall, how easy or difficult is the typical ticket purchasing process for the following methods? Matrix Options: - Online - In-Person - Other (with text input)	Select One (Likert Matrix)	1 - Very easy 2 - Somewhat easy 3 - Neither easy nor difficult 4 - Somewhat difficult 5 - Very difficult Non-applicable	To determine the difficulty of purchasing tickets by a the method

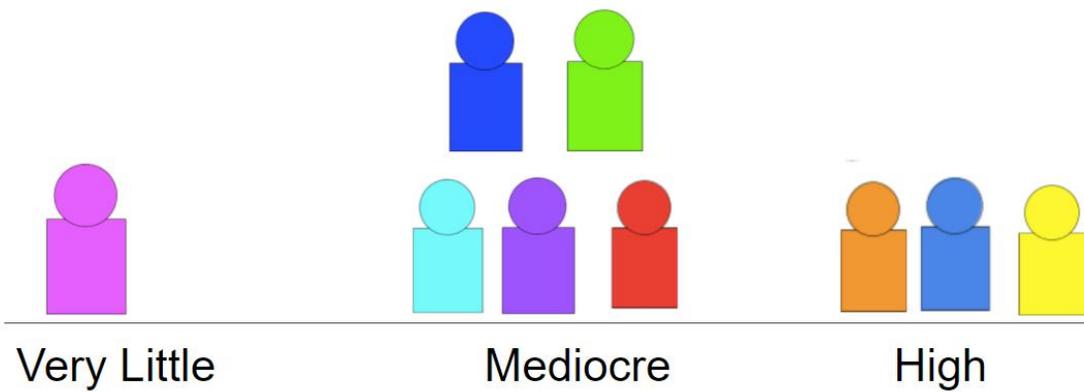| Wrap-Up / Demographics			
Question	**Instructions**	**Answers**	**Rationale**
How important is it for you to compare drive-in theaters in order to find the best overall theater experience?	Select One (Likert)	1 - Not at all important 2 - 3 - Somewhat important 4 - 5 - Very important No opinion	To understand if the customer compares drive-in theater experience

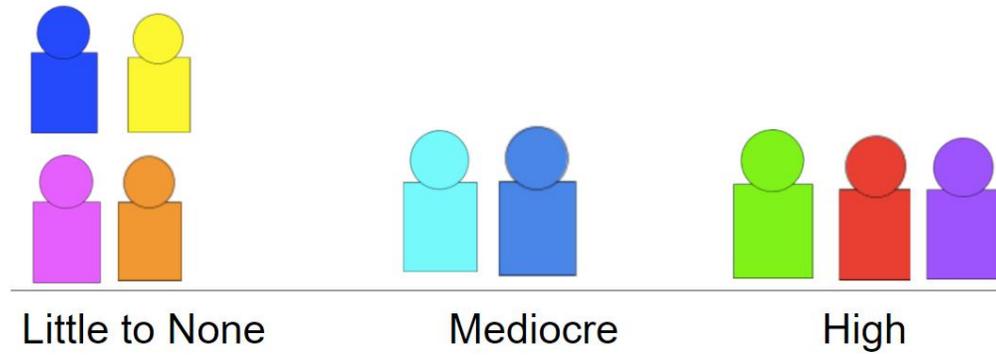|			
In a perfect world, how could your overall experience of attending drive-in movies be improved?	Open-Ended	Text Entry	To understand what tools or features would be wanted/desired
How old are you?	Open-Ended	Text Entry	To determine if age affects the response
What city and state do you live in?	Open-Ended	Text Entry	To determine if location affects the response
What is your ethnicity?	Select One	a. White/Caucasian b. Hispanic, Latino, or Spanish origin c. Black or African American d. Asian or Asian American e. American Indian or Alaska Native f. Native Hawaiian or Other Pacific Island g. Two or More race h. I prefer not to say	To determine if ethnicity affects response
What gender do you identify with?	Select One	a. Male b. Female c. Non-Binary d. I prefer not to say	To determine if gender affects response

I. *Persona Spectrums*
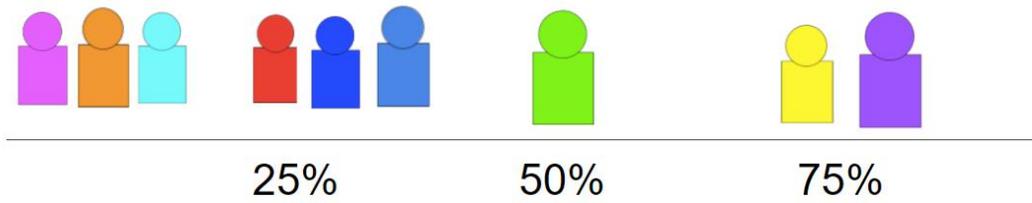
Distance from Selected Theatre

10 min   30 min   1 hour

Interest in Selected Movies

Very Little   Mediocre   High

Parking Preference

Little to None   Mediocre   High

Research Time

25%   50%   75%

Vehicle

Small   Medium   Large