City University London

MSc in Human-Centred Systems

Project Report

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Finding Compatibility in Mobile Dating Apps; Bringing the In-Person Experience Online

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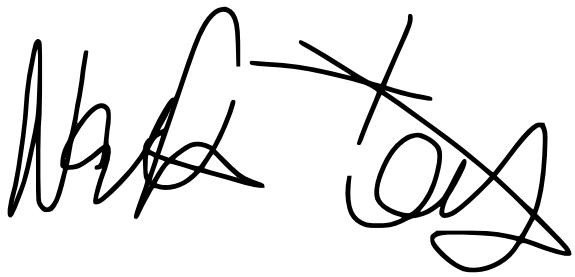

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ABSTRACT

Online dating is an ever-growing aspect of modern society. Utilising mobile dating apps is a popular aspect of accessing and assessing potential mates. Do these dating apps really help facilitate a true compatibility-finding process? Or is there a better approach that can help users find compatible what they are looking for?

Utilising surveys, interviews, observations, and remote usability testing I examined these questions to assess the current state of mobile dating apps. Focusing specifically on gay mobile dating apps, I investigated how users find compatible people in person, how they do so online today, which apps they use to do so, and explored if there is a way this experienced can be improved.

Compatibility is an ever-changing continuum involving observation and assessment. Attraction and shared interests are the basis for this compatibility and is one best assessed in person, say participants. However, utilising some enhancements of passive functionality, filters, and sorts in conjunction with the standard profile and chat functionality, users can get closer to conducting this compatibility assessment online.

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INTRODUCTION & OBJECTIVES

BACKGROUND

The usage of mobile dating apps is a rapidly growing trend as social stigmas around their utilisation continue to lift (Smith and Duggan, 2013). As more and more individuals turn to their phones to find "the one", questions arise surrounding whether or not these apps truly help their users find compatible matches.

Previous research has focused primarily on heterosexual dating apps. There is little research around homosexual dating apps, especially through the lens of compatibility. As a user of these mobile dating apps myself, I have always wondered if they truly set up their users for success. I have used these apps for years, have met amazing people through them, and have only recently been successful at finding a truly meaningful relationship from the apps. From talking to friends and acquaintances, I have observed that many people use these apps continuously, for years and years, with little to no success.

This project, then, aims to identify how people utilise the information they are presented with (via profiles and in-app interactions) to gauge whether or not the person they are interacting with is a compatible match. After identification, then, comes modification – can a better design align mobile apps and user need?

PROJECT BENEFICIARIES

The research conducted for this project can benefit four distinct groups: psychologists, developers, the HCI community, and fellow users of these apps. First, by aligning my research to and coding for psychological themes of attraction and compatibility, my work can help to gather insight into how individuals, namely homosexuals, look for compatibility. I feel my work is one of the first to explore homosexual compatibility. By focusing on in-person interaction as well as online interaction, my work is well rounded and will help provide further insight into how individuals identify and seek out attraction and compatibility.

Second, developers of such dating apps can reference my research in order to better align their designs with the needs of their users. The data received from this research – specifically that surrounding users' mental models, behaviour patterns, and expectations around current apps – can supplement any evaluation app developers might perform themselves. Further, data gathered from my design can help educate future app developers by giving them a foundation from which to build their designs.

One thing I discovered while reading about the domain of compatibility and mobile dating apps is that as a HCI community there is a bit of a knowledge gap surrounding sexuality. Kannabiran et. al (2011) state that "HCI is a scientific discipline that designs technologies to support and improve human life. To

regulate sexuality to the margins is to shirk that responsibility." My research, then, especially with the homosexual focus, will be a great addition to this emerging subject within HCI.

Lastly, I want my research to "pay it forward" to other gay mobile dating app users who might be looking for a compatible mate and are wondering if apps are truly designed to help facilitate this. My hope is that my research can bring some solace to someone who might be frustrated with these apps, showing that not only are others looking for true compatibility, but that the apps have these interests in mind. They can also reference this research in order to get a better feel for the gay mobile dating app ecosystem and possibly discover a new app that may better suit them.

OBJECTIVES

My first objective of this project was to learn more about current user behaviour within mobile dating apps. I wanted to gain insight into how users find compatibility in-person versus how they find compatibility via dating apps. I wanted users to describe, in their own words, how they view the differences between the two methods and which method they prefer. Lastly, I wanted to see if users had any ideas as to how mobile dating apps can better align to finding compatibility in person.

In order to obtain this information, I planned to conduct a formative study where I interviewed and observed users as they used their favourite mobile dating apps. The interview portion would allow me to gather insight into how they find and meeting compatible people in person, how this differs from meeting people online, and which method they prefer. The observation would allow me to gather insight into how they utilise the apps to find compatible mates and to identify user behaviour surrounding specific functionality within these apps. The session would end, then, with a question as to how (and if) mobile dating apps can be designed to better match meeting people in person.

Taking my first objective of current user behaviour into consideration, I then planned to test to see if an updated app design can better facilitate finding compatibility online. After analysing the data from the observations and interviews, I would then design either a new app or new features that can be incorporated within an app in the hopes that I could get closer to bridging the gap between online and in person. I then planned to conduct a task-based usability evaluation of my design. This evaluation would help me gather further qualitative insight into how users utilise mobile dating apps to find compatibility and if my design has helped advance the experience of meeting compatible people online.

REPORT STRUCTURE

This report will walk through the process of my project. I will first provide further context surrounding the current state of the psychology of compatibility

and how individuals attempt to find compatibility in person and online. Next, I will describe the methods and results of the steps I took to garner further insight into this topic in relation to my objectives. Finally, I will discuss my findings while reflecting on the work I have done and draw conclusions based on my reading and research.

CONTEXT

Being a user of mobile dating apps for many years, I consider myself a power user of a select suite of the apps available. Now, I consider myself to be a pretty personable, outgoing guy, yet I have not had very much luck finding compatible people (at least in the romantic sense) via these dating apps. Having had better luck meeting guys in bars, my scepticism surrounding why I wasn't finding compatible people online turned towards the apps themselves. Were they actually geared towards people like me? Those people like me who weren't looking solely for some quick "fun" and who actually wanted to a serious relationship. I had found friends aplenty online, but had yet to find a truly serious connection with someone.

While starting my research into this project, I discovered that there was not a lot of previous work surrounding gay dating apps. There were a handful of papers involving Tinder and things on the heterosexual side of things, but few (save for a paper here and there about the app Grindr) were geared towards gay people.

Then, having little luck finding previous research into gay dating apps, I found very few HCI-focused papers regarding sexuality in *any* sense. One that was pretty eye opening (and one which also gave me the wherewithal to continue down the path I'm on) was one written by Kannabiran et. al (2011). They state that "HCI is a scientific discipline that designs technologies to support and improve human life. To regulate sexuality to the margins is to shirk that responsibility." As I was formulating my objectives and questions around this project, I wondered how the HCI field felt or dealt with the idea of sexuality within interactive systems. Kannabiran et. al gave me more confidence in what I was proposing, allowing me to realise that what I was doing wasn't taboo, but necessary to the HCI discipline. Their paper also allowed me to identify a big knowledge gap in our field; one that I was more than happy to contribute to.

Before we get into the HCI side of things, however, let me first give some context around the psychology of compatibility. This will help lay the groundwork for the other elements of my project. From psychology, I will then speak to HCI and computer-aided communication and interactions, then wrap up with my contextual groundwork with the current state of the gay mobile dating app space.

THE PSYCHOLOGY OF COMPATIBILITY

PERCEIVED SIMILARITY

The first pertinent psychology paper I found involved a first year undergraduate psychology class where they themselves were participants in a study pertaining to perceptions similarity. The idea here, according to the authors Selfhout et. al (2009), was to look at three main concepts: attraction-similarity, similarity-attraction, and peer-rated similarity.

Attraction-similarity hinges on the idea that "higher attraction breeds perceptions of similarity." An interesting concept where "relationship partners may overestimate similarity to assure themselves of the correctness of their own attributes, a process that protects their self-esteem." Given the innate nature of mobile dating apps – one that hinges first and foremost on a photograph of oneself – is this attraction-similarity hypothesis something that could be deeply engrained in how we use these apps?

Similarity-attraction, then, is the inverse. "Higher actual similarity in values between participants and (sic) strangers is associated with higher attraction to these strangers." Selfhout, et. al (2009) confirm this to be true, not only in a naturalistic setting, but also with "bogus strangers," their term for the participants and their classmates. Thinking specifically about mobile dating apps where profiles are created portraying a person's interests, the concept should then hold true that "individuals tend to form intimate relationships with others who are similar to them in values, preferences, and personality traits." A point I will explore later during my user sessions.

The last piece of the similarity puzzle lies in what Selfhout et. al refer to as peer-rated similarity. Here they focus on "peer effects on individuals' thinking, in particular under conditions of uncertainty." There is uncertainty aplenty within the mind of a first year undergraduate, so this study solidly identified that "the evaluation of many skills and aptitudes can be achieved only by comparing one's own evaluation to those of peers." Now, how can a mobile dating app help facilitate this peer-related similarity evaluation? Is this something that users actually take part in? We'll find out later that, in some sense, yes they do.

While this study laid some solid groundwork on ideas around perceived similarity, it skewed more towards acquaintances rather than romantic compatibility. While it doesn't explicitly rule out romance, it also does not touch on it specifically.

Another limitation of this study is the social homogamy of its participants. The authors even concede to this stating that "one limitation of the present study is the reliance on a relatively high educated sample, consisting primarily of female students, which may have limited the choices people could make of potential friends, because similarity in demographical traits of individuals may affect friendship selection." Seeing as I'm primarily focused on homosexual men and their perceptions of similarity and compatibility, I heeded some caution in

reference to this study. However, I found the authors' findings to be relevant to the subject at hand.

It should be noted as well that these perceptions of similarity were indeed that – perceptions. The authors had the participants self-report their perceptions of similarity and, thus, these perceptions were not validated in any way. As I found out while doing further reading about compatibility within relationships, a perception of similarity is an on-going, ever-shifting thing and, also, similarity might be a good thing *or* a bad thing. Sometimes it's our non-shared interests that make us compatible with others.

One final point Selfhout, et. al (2009) reference is one that speaks volumes about the validity of chat functionality within mobile dating apps. The argument is made for "a theoretical framework that (emphasizes) the role of communication in the link between similarity and attraction. Specifically, this theory claims that when two people discover similarities between them, this will enhance communication between these persons. One way in which shared personality traits may foster communication is that similar persons can effectively use information on their own states and personality to make valid inferences about the other person." This is a concept I had assumed, given my experience chatting with people in an online space, but one that also has some psychological validity.

COMPATIBILITY

Given the broad sense of similarity I gathered from Selfhout et. al, I then explored the specifics of compatibility. Finding literature around the subject proved to be difficult. Trying to navigate the metaphysical waters of relationships and compatibility all without the proper access to psychology libraries, I was able to find three valuable resources.

Cohen (2013) states that we are truly looking for functional compatibility (as opposed to dysfunctional compatibility) and that this compatibility is a continuum. "The question addressed here," he states, "is not merely whether you are compatible but instead how compatible." He lays out, then, the seven key factors that come into play when assessing compatibility: shared basic values, whether we are ego-centred versus other-regarding, complementary intelligence, shared interests, comparable temperaments, whether or not we can relate authentically, and attraction. Figuring out whether or not you are compatible with someone, he argues, is a complex question. Ticking boxes in any of these seven facets may mean you're compatible but, again, it's a continuum and one that is up to the individual to decipher.

Firestone (2013) adds an eighth factor of compatibility: non-shared interests. She states that an important factor of a relationship involves picking "people who challenge us and help us evolve." Thinking you'll find one person who ticks all of the boxes, she argues, is setting yourself up for disaster. Instead, we should look for someone who is open to trying new things, to hearing feedback and to evolving themselves.

These eight factors appear to cover the gamut of a relationship. Thinking of relationships I have had – romantic or otherwise – and thinking back to relationships my friends and family have had, these are all elements that came into play at one time or another. How mobile dating apps portray these elements of compatibility, however, is not inherently clear from my usage. These are a few of the codes I looked at, then, while performing my thematic analysis. But more on that later.

Given what Cohen and Firestone have just told us about the factors of compatibility, then, Marano and Flora (2012) add some colour and bring us down to earth a bit. They state that "there is no such thing as a compatible couple." That, rather, "you create compatibility." Perhaps they are right, perhaps we all start with zero and compatibility comes out of what we create.

PSYCHOLOGY SUMMARY

Similarity and compatibility are two facets that I focused on going forward. Similarity, especially perceived similarity, is all in the eye of the beholder. I investigated this further while interviewing and observing participants. Did they find attraction out of this similarity? Did they perceive similarity based on their attraction? And did any of their peers play a part in assessing this similarity?

Given the eight facets of compatibility, how do these come into play when evaluating compatible mates? I focused strongly on these with users to see if certain facets carried more weight than others. And given the current state of mobile dating apps, which of these are facilitated by the apps and which ones could stand to have more explicit functionality surrounding them?

HCI AND COMPATIBILITY

ONLINE INTERACTION

Shifting now to HCI, the available resources, while few, do cover a few interesting viewpoints on the subject at hand. Thinking first as to how users interact and engage online, Zytko et. al (2015) explored the concept of users meeting and collaborating in an online arena. The meeting of potential mates is not normally the main focus, but is a by-product of the interaction and collaboration. This is particularly true when the collaboration is required in order to fulfil a goal within the online virtual world. This makes the time spent and interactions in the online space enjoyable. This is not always the case, however, for standard online dating platforms. "Online daters typically do not enjoy their time in online dating systems and their only motivation for participation is the expectant reward of a romantic relationship in the physical world." (Frost et. al, 2008) The question here, then, is how to design an app that keeps users engaged? Is gamification the only way to ensure the user has an enjoyable experience?
Anyone can text or email today, so thinking of ways that designers can utilise the digital as well as physical worlds to drive engagement and incentivise prolonged

participation is something that would be interesting to explore and talk about with users. This theme emerged across a few papers and made me contemplate how the digital and physical worlds could become better aligned in regards to online dating.

Linking back into the sentiments brought up by Zytko et. al (2014) I wondered if there is a need for a system mechanism that "delivers explicit and consistent feedback about conveyed impressions to online users." The authors found that "users largely do not want to misrepresent themselves because they want their online introductions to lead to a successful relationship in real life, whether that be platonic or romantic." So why not have an app designed to help facilitate and encourage this type of behaviour? The idea here will be to help bridge that gap of expectations when meeting someone for the first time; oftentimes this doesn't go as well as people had hoped.

ONLINE PROFILES

Fiore et. al (2008) did an amazing job extensively covering the three main components of an online dating profile: the user's photo, a fixed text section (age, height, weight, etc.), and the open text section. Their research found that the photo carried the most weight in assessing attractiveness in online profiles. The free text area of a user's profile is the second most important feature when assessing attractiveness this allows the user to get a truer representation of the person whose profile they are looking at.

Fiore et. al continued by exploring the accuracy of representing oneself online.. Stating that users "are able to tailor their self-presentation online in ways they cannot face-to- face." However, this creates competing motivations: "to present themselves as attractively as possible, in order to draw the attention of potential dates" while also trying to "present themselves accurately." Since the end goal of using these sites is to ultimately meet in person, one would deduce that individuals want to exhibit as well as receive the most accurate representation of themselves as possible. We realise, however, that this is not always the case given the number of horror stories people tell of meeting someone in person after chatting with them online. Rarely does one accurately portray themselves accurately online, try as they may.

While their data was statistically sound, I would have liked more participant diversity. Fiore et. al recruited 65 heterosexual participants where 41 (63%) were women, 23 (35%) were men, and one (2%) who preferred to not give a gender. Their study would have benefited from having more men and more diverse sexualities (e.g. homosexual, bisexual) to allow the sample to be more representative of the general population.

Taking the findings of Fiore et. al one step further, a dichotomy appears between too much versus too little information within user profiles. "User profiles on Grindr can reveal substantial information about the user before conversation even begins" (Birnholtz et. al, 2014) which can help alleviate explicit rejection. However, Norton et. al (2007) state that the more we learn about a person the

less likely we are to like that person. If we find ourselves engaged with someone whom we find highly compatible, however, the more we learn about them allows us to be more certain that we will like them upon meeting them in person.

The question, then, is how much information is too much information in order to access compatibility? And how is this information best represented when looking at an online profile where the main areas – as defined previously – are the photo, fixed text, and free text? It behoves me then, as Birnholtz et. al (2014) suggest, to "examine the features implemented across the different apps available and compare and contrast how they may affect impression formation and management."

HCI SUMMARY

How users actually utilise these mobile dating apps to find compatibility is yet to be seen. Based off of what I've read, a gamification element is one that is interesting to explore, but may not be the ultimate result. It appears that users want to get an authentic feel for the person they are interacting with, so how can the apps facilitate this? Evaluating engagement and gaps in functionality is one thing I will do while answering my primary objectives surrounding compatibility and design.

With the groundwork done on the specific elements of online user profiles and how they have tested in the past, I will observe how these come into play when participants are looking for compatibility. The photo, free text, and open text fields within the profile will do a lot of the heavy lifting, I feel. With chat being the ultimate decider if the other individual is compatible. What other functionality within apps will help support the assessment of compatibility?

GAY MOBILE DATING APPS

The ecosystem of gay mobile dating apps is an ever-changing one. Apps are popping up all the time catering to different facets of the gay community. For the sake of this study, however, I am going to focus on the four apps that are the most popular and that seem to best cater to compatibility: Scruff, Growlr, Tinder, and Grindr.

SCRUFF

Over the last three to five years, Scruff has become the most popular mobile dating app for gay men. Its popularity is partly due to a big marketing campaign, but the app also offers the most robust functionality compared to its competitors. While some of this functionality becomes limitless if you are a monthly subscriber, the main functionality is available to all, free of charge.

Scruff also enables its users to filter, sort, and search for users given a wide variety of criteria. Anything you can put into your profile can be filtered, sorted,

or searched upon. This allows users to reduce the available user base down to the subset they wish to see.

Scruff (as well as Growlr, which I will explore next) allows users to see which other users have viewed their profiles. This, coupled with the ability to send a "woof", or passive greeting, allows users to interact and show initial interest without having to strike up a conversation. This enables the ability to passively show interest which can ease the social discomfort of not getting a response in return.

While Scruff caters mostly to the "bear" community (a bear is often a larger, hairier man who projects an image of rugged masculinity), in recent years it has been a go-to for gay men of all varieties. Thus, its user base is one of the largest within the gay dating app community.

GROWLR

Growlr is the second most popular app within the bear community. It is known for having more "normal", "average Joe" type of guys and, thus, is generally more friendly and accessible than Scruff or Grindr. Growlr doesn't have the same marketing that Scruff does, and, thus, feels more like a tighter-knit, organic community than the more popular Scruff or Grindr.

What Growlr does provide, however, is a lot more functionality for free. Photos, unlimited chats, and unlimited favourites are available for all free users, thus, allowing more users to do more within the app. Growlr also has the same "viewers" and passive functionality as Scruff, enabling more passive behaviours.

TINDER

A relative newcomer to the space is Tinder. Primarily known as a heterosexual dating app, Tinder has become more and more popular with gay men. Tinder is well known for its fast "game"-based interface of swiping left (for "no, not interested") and right (for "yes, I'm interested") through profiles versus the classic grid interface of other apps. Only if two users have swiped right ("yes") are they able to chat.

Tinder is also tightly integrated with social networks, namely Facebook and Instagram. Users are only able to post photos of themselves that are pulled from their Facebook profiles. Profiles also highlight which interests users have in common, this is linked to users' "likes" on Facebook. Similarly, a user's profile can showcase their Instagram feed to other users thus showcasing a more well-rounded idea of who that person is.

GRINDR

Grindr is the grandfather of all gay mobile dating apps. Not only has it been around the longest, but it is also the most well recognised. It has edged its way into pop culture and has even been references in TV and movies. Subsequently, it is also the most written about in the literature I have found. While not intensively covered, it does appear in a few papers regarding mobile dating apps.

Grindr, however, has a bit of a stigma within the gay community. It is primarily seen as a "hook up" app and is not always associated with finding the love of one's life. That being said, its popularity does make it a common destination for gay men seeking dates. The sheer number of users who have the app make it a very busy place to browse profiles.

The profiles and functionality within the app are fairly limited. Users are allowed only one photo, a few fixed text fields, and a free text area with a short character limit. The only way to interact with someone is to chat with him.

APP SUMMARY

Which app users access comes down to the types of users it attracts. Scruff, with its large user base and mass marketing, tends to attract even more users due to the fact that there are a lot more people to choose from. Grindr falls into this pattern as well as its longevity in the app space has allowed it to attract many users. What I found from my research (which mimics what I know socially from speaking to friends) is that users don't utilise just one of these apps. Oftentimes, users will have multiple (if not *all*) of these apps installed on their mobile devices at any one time. They then utilise all of them in tandem, increasing their odds at finding matches from the various pools of users.

APPROACH

I took a two-phase approach to my research. The first phase was more formative; I wanted to gather more information surrounding users' mental models towards finding compatibility – both online and in person. I also wanted to see which apps were most popular and, thus, which specific apps I should focus on going forward. I first utilised a survey to gather the initial data. This survey also served as a recruitment screener, helping me identify participants for one-on-one conversations. I then sat down with these participants for an interview and observation session. These sessions enabled me to dive deeper into how the participants found and gauged compatibility in person and online.

Using the information I gathered in the first phase, the second phase involved me creating a design of my own and evaluating it with users. I found that users were able to do the majority of what they wanted within the current apps, so instead of designing an entirely new app, I designed a set of features which could be plugged into any app. These designs were aimed at getting users closer to that in-person experience, their preferred method of finding and meeting compatible

people. I then conducted a remote usability study with users to see if my design better fit their needs.

What I will do next, then, is take each of these phases in turn, laying out the methods and findings from each.

METHODS + RESULTS – PHASE ONE

INITIAL SURVEY

When planning out this initial phase of my project, I created a study plan to help me lay out the information I wished to gather and the methods by which I would do so (see Appendix C). This plan served as the groundwork for the survey questions and as the test plan for my interview and observation sessions.

The first thing I wanted to do was to obtain some quantitative data on users of mobile dating apps. This data would then assist in tightening up the script for the interview and observation sessions. To gather this data, I utilised SurveyMonkey's online survey functionality. Their out-of-the-box solution allowed me to create and distribute the survey easily while easing data collection. My goal here was to get as many responses as possible to provide a good breadth of data.

The survey was set up with 8 questions (see Appendix D). The first three questions were primarily demographic (How old are you? How do you identify? What is your current relationship status?). I was open to the idea of identifying usage patterns based on user age, sexual identity, and current relationship status. My experience with these apps had shown that those in an open relationship, for example, tend to use the app one way while those who are single tend to use it another with some overlap in usage between them. Also, as this was doubling as a screener for interview participants, I wanted to ensure to meet with a representative sample of users.

The next three questions pertained to mobile dating apps. I was curious to see what users' primary reasons were for using these apps, if they had ever dated someone they met off of an app, and which apps they used the most. These questions would provide more formative data around individuals' usage and their "success" of usage (success being a relationship in this case). This also helped me identify which apps were most popular and, thus, which ones I should focus on going forward.

The final two questions of the survey asked if participants wished to meet with me to further discuss their mobile dating app usage. This allowed me a group of individuals to recruit for the interview and observation sessions.

To distribute the survey, I utilised Facebook as it allowed me to distribute it to a controlled group of people. First, the subject matter can get a bit personal, so I thought I could get a more informative, honest responses from friends rather

than from strangers. Second, as I would be conducting interviews in Central London, I limited the survey to those individuals in the Greater London area. So, I set up a list in Facebook of gay men I knew in the London area. I think posted the survey to my wall and limited its visibility to only that list, a list of 125 people.

SURVEY RESULTS

Ten individuals responded with seven volunteering to meet with me and be interviewed and observed using mobile dating apps (see full results in Appendix D.2). With an average age of 33 (ranging from 24-42), participants identified 100% as gay. 5 stated they were single, 4 in an open relationship, and 1 in a relationship. While such a low response rate is to be expected in such surveys, I was pleased with this demographic as it provided a representative cross-section of the user base I had experienced within these apps.

The survey informed me that the main apps participant use were Scruff (10 out of 10 participants), Growlr (8 out of 10), Grindr (7 out of 10), and Tinder (2 out of 10). I was surprised that Tinder was on this list as it tends to be known more as a heterosexual dating app. Having had used Scruff, Growlr, and Grindr in the past, I was intrigued and delighted at the fact that I could explore an app which was new to me.

I also received a wide variety of reasons why participants use these apps – everything from "Sex" to "Meeting people for drinks to see whether we are compatible in any kind of scenario, e.g. friendship, relationship." This range of motivations coupled with the fact that the majority of participants (7 out of 10) had actually dated someone they had met off of an app gave me a solid representation of the mobile dating app population.

INTERVIEW + OBSERVATION

The interview and observation portion of my study allowed me to gather robust qualitative data surrounding my first objective: to gain insight into how users find compatibility in person versus how users find compatibility via dating apps. With seven survey participants volunteering to take part in these sessions, I was excited to dive in.

While planning the logistics of the interview and observation sessions, the subject of where these should take place was a tricky one. I first thought I would conduct them in a lab setting, utilising City University's Interaction Lab. At the time, however, I thought this would cost money. Given that I had seven sessions to conduct this was not a viable option. I then considered conducting the interviews in a café, thinking the casual environment would be a good place to have such a conversation. However, given that I would be recording both audio and video, background noise of a busy café could be cumbersome. The recording setup itself was cumbersome enough, so, ideally, I wanted to set this up in a quiet, controlled environment.

So, I conducted the sessions out of my flat in Central London. This way, I was able to set up a comfortable testing area, ensuring privacy, controlling any extraneous background noise, and ensuring the participants were comfortable (cup of tea? Beer?). As the participants were Facebook friends of mine, there was no issue of safety on my part or the part of the participants. Utilising a USB camera aimed at their mobile device, I was able to record the users' interactions on their mobile devices. Utilising the built-in camera on my MacBook Air I was able to record their facial expressions. These were all pulled together utilising QuickTime's screen and audio recording (see images of the testing setup in Appendix E.1).

With the survey data in hand I was able to make modifications to the study plan to create a personalised test script for each participant (see Appendix E.2). Leaving the interview semi-structured allowed me to sculpt the interview to the participant; taking natural divergences as the conversation flowed. First, I asked participants about their experiences meeting people in person, where they do this, the nuances of doing this, etc. I then asked participants about their experiences meeting people on mobile apps, allowing me to draw clear comparisons between the two and probe deeper into these disparate approaches.

I then asked about their app usage; utilising the data they had provided in the survey as a guideline for which apps they use the most. Without having the apps in front of them (at this point), they gave me their detailed accounts of how they use these apps to locate and validate compatibility. I wanted to get an understanding of longevity of use, frequency of use, and preferences - not only of individual apps but the functionality within each app. The goal here was to listen to what users say they do within the apps, then observe what they actually do within the apps later and compare the two. I wanted to see if there were any behavioural patterns I could identify linking compatibility to certain actions and functionality.

The observation portion, then, supplemented the interview, showing if the participants actually do what they said they do within these apps. Users say one thing, but their actions dictate something entirely. As Nielsen (2001) puts it, "pay attention to what users do, not what they say. Self-reported claims are unreliable, as are user speculations about future behavior. Users do not know what they want." This observation, then, allowed me to view their app usage. Which features are they using? Which are they not using? How do they exactly gauge compatibility within these apps? This observation was geared more towards the apps themselves and would ultimately feed into my design in future stages of this project.

Continuing the line of thought regarding mobile apps, then, we switched to the observation. I observed the participants as they used their favourite dating apps. Instructing them not to partake in any on-going conversations, I wanted to purely observe them as they browse profiles, tap into certain ones and gauge compatibility. Once they found someone they thought they were compatible

with, I would ask what their next steps would be to find out if they were truly compatible.

A secondary goal of the observations was to get an idea of functionality the participants gravitated towards, what functionality they particularly liked, what they disliked, and what functionality they wish apps had in order to make their experience a better one.

Finally, I ended the session with a bit more conversation. Here I looped back to their answers regarding meeting people in person probing a bit deeper into how this compares to meeting people online. Having just looked at the apps, I wanted to see if their perception had changed or if they had any further insight into these methods. I also used this time to ask which method for meeting compatible people they prefer (in person or via an app). I wrapped up the session asking how mobile dating apps could better align to meeting people in person. This allowed me to get some possible ideas of how to tackle the second phase of my research.

INTERVIEW + OBSERVATION RESULTS

I interviewed seven people over the span of four days in June 2015. The average age of participants was 33 (24-42), 100% identified as gay, 3 were single, 3 in an open relationship, and 1 was newly in a relationship. 4 out of 7 participants stated they had dated someone they met through an app, showing that there appears to be some sort of precedent for meeting compatible people on these apps.

The majority of participants stated that they meet compatible people in person at bars. Some stated they wished it were easier to meet people “on the street”, but that it’s just not common within the gay community. “But there's always the option that they will [assault] me [if they don’t turn out to be gay],” one participant said. It appears to be safer and easier in a public arena such as a bar or club.

For the participants, gauging compatibility first lies in initial contact. And that initial contact all comes down to body language. It starts with a glance across the room or a chance encounter at the bar. One participant summed it up nicely, “it's this on-going assessment of their body language and how they're communicating nonverbally as well as verbally… You can tell when you're losing it, you can tell when someone's bought in and is interested and all that kind of stuff. So the body language is always kind of there.”

Then it progresses to conversation. “If I can't have a conversation with someone it won't work out,” one participant said. Common interests or making someone laugh appears to be ways in which participants initially gauge compatibility.

Participants stated that they finding compatibility on mobile dating apps is a double-edged sword. On one hand you can be yourself without the fear of

rejection. You can also “screen and be screened in a way that doesn’t necessarily have that sense of rejection you get in face-to-face.” On the other hand other people might be putting their best self forward, suppressing what they might think would turn people off.

Finding this compatibility, then, tends to be a bit more difficult. Chat functionality carries a lot of the weight here as it allows individuals to chat and get a true feel for one another. Participants stated they are quick to meet people in person as to shorten the lifespan of the aforementioned app buffer.

These sentiments of meeting people compatible people online held true for those who had previously found relationships online and for those that hadn’t. They are all looking for the same thing (common interests, attraction, good conversation). There were no discernable actions that those who had found relationships took versus those that hadn’t.

The relationships started by initial attraction and finding something interesting in the other’s profile (a funny limerick, a common interest). Then they turned to interesting, quirky conversations (“we had this wonderful conversation about cake.”). Participants stated they were quick to meet – either for a date or for a coffee – in order to further gauge compatibility. Once the relationships bloomed, then, the apps were used less and less. The apps seem to facilitate the initial interest and conversation then become less relevant as the relationships go on.

When the apps are being used they are used quite a bit. “It's like, it's on. If my phone is on, it's on.” Whether it’s having it open for an extended period of time, browsing profiles and interacting with others or whether it’s just popping in to respond to a message and then popping out, users are definitely engaged. Not only had participants been using these apps very frequently, but they had also been using them for many years. Some had been using these apps for at least 2 years, some since the apps’ inception 5 or 6 years ago.

Out of all the apps, Scruff proved to be the preferred app by 5 out of 7 participants. The selection of other users appeared to be the leading reason for this. Its ease of use, features (filters/sort/search, favourites), and travel-friendly functionality were also commonly mentioned.

Overall, participants prefer meeting people in-person rather than meeting them online. The factor of body language, again, comes into play here. Compatibility and interest is easily gauged if the person is in front of you, interacting with you. The app buffer hinders this experience.

When asked, then, how apps can better match how they gauge compatibility in person a lot of them were at a loss for words. Video chat functionality was mentioned a few times, however, immediate after bring it up participants stated that they probably wouldn’t use it. It is interesting that that video face-to-face contact is desired, but not immediately enticing for them.

ANALYSIS

With roughly 7 hours of interview and observation recordings, I took to transcribing my conversations for further thematic analysis. Literature review provided the majority of the codes. The other codes emerged once the transcriptions and coding was done.

I conducted thematic analysis on my transcriptions "to provide a more detailed and nuanced account of one particular theme, or group of themes, within the data." (Braun and Clarke, 2006) Utilising a top-down approach, I did a more theoretical analysis, extrapolating more latent themes within the data. Focusing on a set of 21 codes, I was able to fully dissect the conversations and pull out pertinent information that helped add colour to my research.

I started with four main code themes: perceived similarity, personality traits, compatibility, and app features (see full breakdown in Appendix E.7.1). From my readings, I wanted to see how the ideas around perceived similarity held up against these apps and how people use them. I looked at the attraction-similarity hypothesis, the similarity-attraction hypothesis, and the social comparison theory specifically to see if these surfaced in the sessions with users.

I assumed the attraction-similarity hypothesis would surface more than the similarity-attraction hypothesis, as these apps tend to lean more on users' photos being the driving point of initial attraction and communication. Perceived similarities may surface eventually, but only after interest was shown based on the other user's photo.

I wasn't sure how the social comparison theory would come into play. In my experience, there are times when you show a friend a photo of someone you're chatting with to get his opinion. How this exactly manifested with other users, however, was yet to be seen.

Personality traits was one theme I was confident would manifest itself. When speaking to people about their significant other, things like "oh he's so nice" or "he's a good listener" or "we enjoy the same things" often come up. The plan here then was to have a collect-all code for all personality traits and if there were many occurrences where they were mentioned, I would do a secondary pass through the codes to see which of the main personality traits were mentioned specifically. In psychology, there exist the Big 5 personality traits (Denissen, et. al, 2008): openness, conscientiousness, extraversion, agreeableness, and neuroticism. If my participants mentioned personality traits often enough, then I would see which of these five traits were most prevalent.

The main theme, then, was surrounding compatibility. Within this theme I pulled eight main codes from which to map my transcriptions: shared basic values, other-regarding, complementary intelligence, shared interests, non-shared interests, comparable temperaments, the ability to relate authentically, and attraction. Per Cohen, E.D (2013), these are the eight main facets which we gauge people to determine compatibility. This is where I expected the majority of my

coding to lie. I assumed there would be a lot of interdependency between these facets and would gauge where the similarities and overlap lie.

Finally, I created a theme of app-specific codes that would help drive the design portion of my process. While I wanted to understand how people gauge compatibility via these apps, I was curious as to how this process mapped to features and functionality of the apps themselves. The idea here is that I knew I wanted to design something — be it a full functioning app or a feature that could easily plug into one of these apps. This app coding theme helped drive which path I took in the next stage of my project.

From the readings (Fiore, et. al, 2008), I knew that photo, fixed text, and open text played a role in the compatibility process. Given the nature of these apps, I knew that chat also played a vital role given that it is the primary mode of communication between users.

As the transcriptions went on, I realised that I had to add a few more codes in order to get a fully rounded picture of what was being discussed. As participants spoke of how they interacted with people in person, I knew that I had to keep track of these so I could suss out what piece of the in-person model is missing in the apps.

As individuals discussed the apps themselves, some more codes emerged. The whole nature of the apps and the buffer they provide became a main talking point, so I added the 'app buffer' code to capture this. As I observed the usage of these apps, I also realised that there was quite a bit of passive functionality ('woofing' and such), quite a bit of use of filters/sorting/searching the grid of profiles, and the users' own curated list of favourites. As a way to cross-reference how these app elements impact compatibility, I added them to my coding scheme.

As I began the coding process, the relationships between codes slowly began to surface. I found myself often ticking a few different columns as I reviewed and re-reviewed the transcribed data. For example, the intrinsic link between attraction and the photo in the profile was strong. Also, the tie between shared basic values and shared interests also manifested itself. I also found it interesting, given the weight they carry within psychology literature, that perceived similarity and personality traits played a very small role in the compatibility-finding process.

Creating two separate contingency tables allowed me to analyse the data a bit further. Not only did I want to see how often these alignments occurred (for example, how many times photos were mentioned when the participant mentioned attraction), but I also wanted to see how impactful these occurrences were to each individual coded facet. The first table (table 1) represented how often two concepts were mentioned in conjunction with each other. The second table (table 2) built upon the first; giving the percentage of how often a code was mentioned in relation to itself as a whole. For example, shared basic values and shared interests were mentioned in the same instance 53 times. Taking that one

step further, looking at the total number of times shared basic values was mentioned (63), this alignment accounted for 84% of the times that shared basic values was mentioned, showing an even tighter bond between these two coded facets.

Top Coded Relationships by count		
Attraction	Photos	55
Shared Interests	Shared Basic Values	53
Personality Traits	Other-regarding?	46
Fixed Text	Open text	46

Table 1

Out of these tables, then, came two groups of strong interdependent codes. Looking strictly at the contingency count between codes, attraction and photos, shared interests and shared basic values, personality traits and the other person being other-regarding, fixed text and open text within the profiles themselves all showed strong bonds (table 1).

Attraction and user photos are an obvious link. I knew this bond would be strong and, thus, this particular bond gave me confidence that the data was telling a fairly accurate story.

Shared interests and shared basic values also intrinsically go together. Especially given the nature of user profiles, shared interests are easily sussed out via the fixed text and open text fields. These are where users explain themselves; pick from a list what they are looking for or what their interests are. Shared basic values, then, are implied based off of these interests. Be it within the profile or via a chat conversation, shared basic values were always assessed on the heels of shared interests. And I feel that it is here where compatibility is born.

Personality traits and gauging whether or not the other person was other-regarding had a strong bond as well. Given the nature of the personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism), this link makes sense. Users often stated whether or not they felt the other person was ego-centred in conjunction with one of these traits. A common example of this lies within the user photos. As one participant put it, “I don't like that he doesn't have a face pic, so I probably wouldn't go any further with this guy…” The “headless torso” phenomenon is a big one within gay mobile dating apps. This phenomenon lies on the fact that users generally show a headless, shirtless picture in order to lure people in where really what it does is turn most people off.

Lastly, there is a strong link between the fixed text and open text fields within the user profiles. Again, as Fiore et. al (2008) stated, this is to be expected. It is here where users express themselves, show their explicit interests, and add more colour to their profile.

Top Coded Relationships by percentage						
When participants mentioned	**Shared Basic values**	,	**Shared interests**	was mentioned	**84%**	of the time
When participants mentioned	**Similarity-attraction hypothesis**	,	**Shared interests**	was mentioned	**68%**	of the time
When participants mentioned	**Personality Traits**	,	**other-regarding?**	was mentioned	**67%**	of the time
When participants mentioned	**Complementary intelligence**	,	**Shared interests**	was mentioned	**65%**	of the time
When participants mentioned	**Complementary intelligence**	,	**Relate authentically**	was mentioned	**65%**	of the time
When participants mentioned	**Non-shared interests**	,	**shared interests**	was mentioned	**62%**	of the time
When participants mentioned	**Comparable temperaments**	,	**other-regarding?**	was mentioned	**61%**	of the time

Table 2

Looking, then, at the percentage impact of these relationships (table 2), seven strong interdependent relationships emerged. These help solidify the tight relationships just explained. We see here that more of the compatibility codes come into focus, showing some of the driving and supporting facets that appear in conjunction with one another. Again, we see that shared basic values and shared interests carry a very tight bond.

Codes Ranked		
1	Shared Interests	150
2	Fixed text	143
3	Chat	140
4	Photos	137
5	Passive Functionality	127
6	Open Text	114
7	Attraction	108
8	Other-regarding?	85
9	Relate Authentically	74
10	Personality traits	69
11	Shared basic values	63
12	Filters/Sort/Search	49
13	Comparable temperaments	46
14	App buffer	40
15	Non-shared interests	37
16	Similarity-attraction hypothesis	31
17	Social comparison theory	24
18	Body language	23
19	Favourites	22
20	Complementary intelligence	17
21	Attraction-similarity hypothesis	13

Table 3

Taking a look at all of the codes ranked by occurrence (table 3) helped me identify the main concepts users spoke of when looking for compatibility within mobile dating apps. Linking these occurrences to the count and percentage tables helped me, then, identify which elements of psychology are related to functional elements within the apps. For example, shared interests, attraction, and gauging whether or not someone is other-regarding were discussed

frequently. Similarly, fixed text, chat, and photos were discussed frequently. Where there are weaker bonds (i.e. relate authentically, personality traits, shared basic values alongside passive functionality, open text, and filters/sort/search) are areas where designs appear to be able to be improved. It is here, then, where I will focus during the design phase.

PHASE ONE SUMMARY

Participants use different apps for different things (Grindr and Tinder, specifically). Grindr is geared more towards "fun", Tinder is more social, and Scruff and Growlr are used as a good mix of both. Overall, however, Scruff was the preferred app. Its functionality and mixture of clientele was preferred above all others.

When looking for compatible people online, users first find compatible people online via their photos. This initial attraction lures them in, causing them to tap into the other user's profile. Once in the profile, then, specific details (mainly fixed text data) give them a bit more information about the person. Only once interest is formed at this stage, do users either chat or send passive messages to the other person. Chat, then, is the final piece of functionality used to gauge compatibility. Also, when it comes to profiles, there is a fine line between not enough information ("what are they hiding?") and too much information ("they're coming across as a bit desperate"). This was mentioned during the interview and validated further by participants' actions. These findings fall in line with the assessment of attractiveness in online dating profiles done by Fiore, et. al (2008) mentioned earlier.

Passive functionality (showing who viewed your profile, selecting the "are you interested", sending a "woof" or other precanned message) is widely used by all users. However, this passive functionality could be improved upon - some see it as too sexually focused, too rude, or not truly aligning to how people interact in person ("you'd never WOOF at someone across the bar"). Sorting and Filtering functionality is used by 2 out of 7 participants. Making this process easier and more prevalent could be a way to better align user expectation and compatibility.

Users are definitely engaged in these dating apps. All participants stated that they use these apps daily, throughout the day ("…it's on. If my phone is on, it's on."). That being said, 6 out of 7 participants prefer meeting compatible people in person; all saying they do so in bars. Participants, then, had mixed responses to how apps could better align to in-person interaction. Video chat was mentioned a few times, otherwise no solid ideas were presented. However, it appears that the bar experience could be an interesting one to bring into the online space.

Overall, apps do as they are intended, but these summarised points reveal some pieces of functionality that apps could improve upon. There was no need for me to design an entirely new app, then. Instead, I focused on designing a small set of features that could be plugged into any app to better align the online and in-person experiences.

METHODS + RESULTS – PHASE TWO

DESIGN

The design portion of my study allowed me to explore my second objective: to see if an updated app design can better facilitate finding compatibility online. As my conversations with participants went on and on, a lot of parallels were being drawn between meeting someone at a bar and meeting someone on the apps. The idea of bringing more of the in-person experience to mobile devices was one that kept getting stronger and stronger.

As I mentioned previously, I went into this project thinking I would design a brand new app, all elements of it. As the conversations and the analysis of those conversations went on I realised that the apps do the bulk of what users want them to do: find compatible people (via the information contained within profiles), cultivate a list of the people they chat with the most (the "favourite" functionality), and interact with others (both actively – chat, and passively – "woofing"). So, instead of focusing on the app as a whole, I decided to focus on a few key pieces of functionality that were either hidden or misinterpreted in the apps.

One can draw strong parallels between meeting someone at a bar versus meeting someone on an app. Which bar to go to aligns to which app to use. Which room in that bar contains people that interest you aligns to which filters, sorting, or searching you do on the profiles available. How you make sure the person you're interested in knows you're interested aligns to views, "are you interested", "woofs", and chat functionality. It is the last two elements – choosing the right room and showing someone you're interested that I'm going to focus on.

It appears it is here that people get frustrated the most. Most participants mentioned the frustration of chatting with someone or seeing profile after profile of users whom might not be looking for the same things as them. This can be as simple as someone looking for a relationship versus just looking for some fun or more minute as someone looking for a specific ethnicity or body type. Utilising the benefit of the app buffer – the ability to not be rejected face-to-face – how can this selection and sorting and filtering be better utilised within the apps?

Thinking again of the bar experience, the passive functionality that exists within these apps doesn't quite align to real life. One participant mentioning that within the apps you lose "the thrill of the chase… the eyes across the room, connection made, the dance." How can this flirtation – a smile, a wink, or politely looking away – be brought into the apps?

Out of the interview and observation analysis emerged tight integration between the psychology of compatibility and certain UI elements. Finding someone with shared interests, someone you're attracted to, and someone who is other-

regarding (or not) mapped to fixed text, photos, and the chat functionality within the apps. The next three elements of both psychology and UI, then, were finding someone with whom you can relate authentically, personality traits, and shared basic values alongside passive functionality, open text, and filter/sort/search functionality. The literature (Fiore, et. al, 2008) spoke exhaustively of most of these UI elements, therefore I chose to narrow my scope to passive functionality and the filter/sort/search functionality.

The design itself I chose to keep very low fidelity (see full designs in Appendix F). I wasn't too concerned with user experience, I was more concerned about usability and it aligning to user expectation and mental models. I wanted to show the features integrated into a nondescript app as to not skew users' opinions by putting into a specific app. Therefore, I created a fake app called "Community" within which the features live.

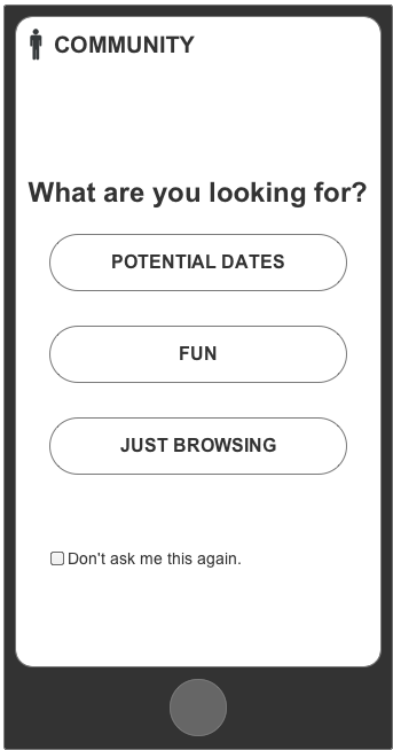

Image 1

The first screen (image 1) users are presented with allows them to select what they are looking for. The idea here is that upon first opening the app you are selecting a subset of profiles to view. "Potential Dates" will mark your profile as being interested in potential dates and will present only those profiles of others who are also looking for potential dates. Similarly, "Fun" will mark your profile as being interested in more fun activities (sex, mainly) and will present only those profiles who are looking for the same. "Just Browsing" will do the same, marking your profile as just browsing (for friends or networking, say) and will show similar profiles. Again, I wanted this to be an option from the onset, so all other interactions within the app could be focused on those who are truly looking for the same thing as you. This sort of sorting could never be done in a bar, but I think it brings lots of value to the apps.

I also provide a “Do not ask me this again” option, so those individuals who are using the apps strictly for fun, for example, can have that option be set each and every time they use the app.

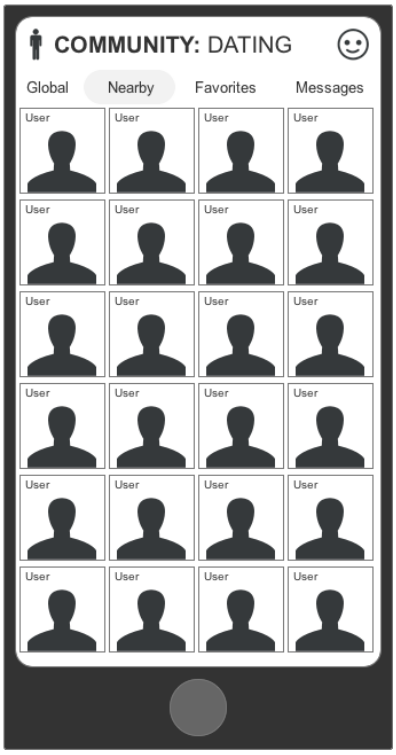

Image 2

Upon making their selection, users are presented with a grid of profiles (image 2) – something they are very familiar with. Again, this grid is filtered based upon their previous selection and their selection is shown in the header. For the sake of this test, the Global, Nearby, Favorites, and Messages options at the top are not important. These are common views of the grid that users are used to today.

Image 3

Tapping into one of the profiles, then, users are presented with a profile (image 3) that again they are familiar with. Here, however, the passive functionality lies behind a smiley icon. Also, their matched selected preference for what they are looking for is highlighted under the “Looking for” section.

If the user is interested in this particular person, they can tap the smiley icon to send a passive greeting.

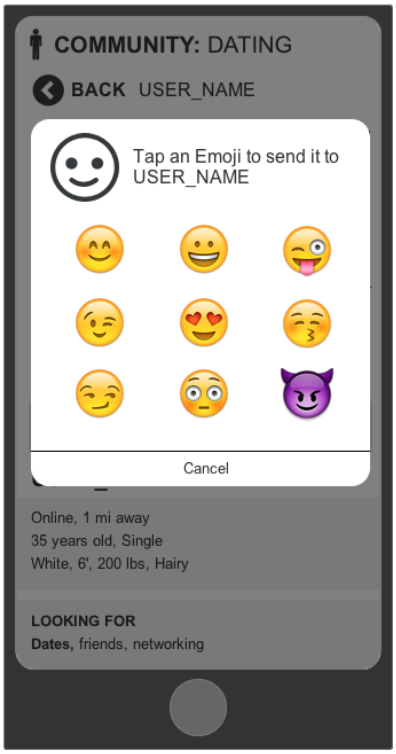

Image 4

Upon tapping the smiley face, they are presented with this screen (image 4). As users stated that the "woof" functionality was a bit too sexually driven, I wanted this functionality to closely mimic that within a bar. Emojis are quickly becoming commonplace in mobile messaging platforms, so I chose to integrate them here. These expressive faces not only span language barriers, but also carry a bit more weight and are a bit more fun than the pre-canned "woof" or other passive functionality within apps today.

Image 5

Tapping on one of the emoji sends that emoji to the other user and brings the user back to this screen (image 5). Here you can see that you have sent a passive greeting to the other person. This greeting tracking functionality today is either hidden or is a paid feature, causing people to smile too many times at people, thus causing annoyance.

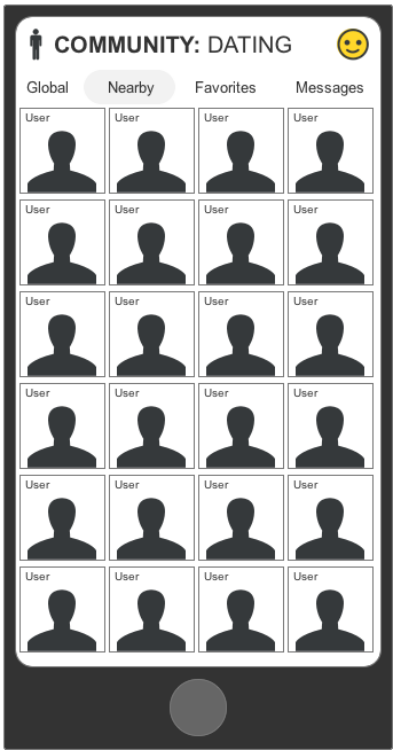

Image 6

Navigating back to the grid, then, (image 6) users see that they have received a passive greeting of their own. Tapping the yellow smiley icon takes the user to the next screen.

Image 7

Here (image 7) users are presented with a list of people whose eye they have caught. The thought here being that if I look at a profile for longer than 30 seconds, there must be something within that profile that interests me. Today, viewers are shown simply if they open your profile. What I'm trying to do here is say that yes, someone opened it, but they also spent a good amount of time reading through it and looking at different elements of my profile. Same at a bar, you can quickly catch someone's eye, but that doesn't always mean that they're interested. If you catch them looking for a longer period of time or if you look back and they're still looking at you then you know there's an interest there. To be shown here, then, the other person either looked at my profile for 30 seconds or longer and/or they sent me a passive greeting (all chat messages would show up under the Messages section of the main grid).

Users must take action on this screen in order to proceed to the list of other viewers. Just like in a bar, if you notice someone looking at your or "checking you out" you're going to react. Here, you have three options: to chat with them, to smile at them, or to politely look away. Chatting with them brings up the standard chat functionality. Smiling at them brings up the same passive emoji greetings we saw previously. Politely look away sends the other user a message stating that you have politely looked away. Again, the aim here is to mimic the bar experience as much as possible. In apps today, there is no functional way to politely look away. You either ignore the greeting/message (which users find extremely rude) or you send a quick "hey, I'm not interested" message back to

the other person. Generally, people don't ignore verbal advances in person, so to ease the abruptness of the "I'm not interested" response, I have implemented this "politely look away" feature.

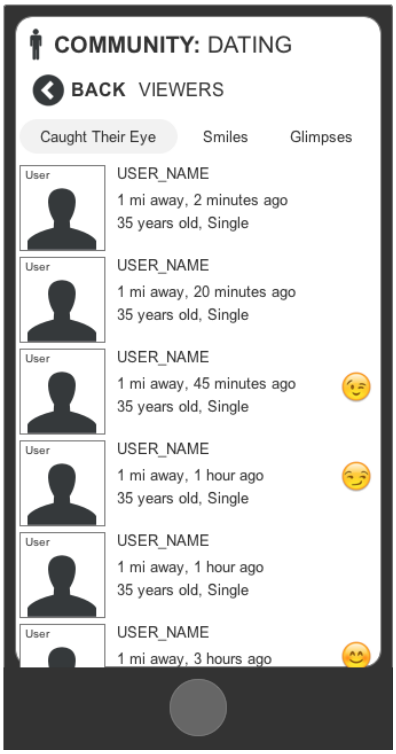

Image 8

Once the user has responded to all of their "caught their eye" profiles, they are presented with their list of viewers (image 8). Here they can review the people whose eye they have caught (along with the emoji greetings they themselves received), they can see just those who sent emoji smiles, or those that quickly glimpsed (again, less than 30 seconds) at their profiles.

Again, the idea here is to closely align the narrowing of profiles and allowing more true-to-life functionality. Being able to convey intention and inflection in an online space has always been one that causes confusion and frustration. My aim here is to help bring those online interactions closer inline with their real life counterparts.

REMOTE TESTING

When it came time to test out my design, my initial plan was to conduct in-person task based evaluations (see Appendix G.1). I also wanted it to be a paper prototype so I could utilise the Wizard of Oz technique in order to show some low fidelity interactivity. This would have allowed me to observe as users navigated around my design, allowing me to ask follow-up questions and for the users to also ask questions of the design as they went along. These, ideally, would have been with the same seven participants I met with previously. I was aiming to tie back snippets of our previous conversations into my test script so I

could bring the conversation full circle. However, logistics proved to be a big problem and I wasn't able to schedule these.

Therefore, I conducted remote, unmoderated testing online via SurveyMonkey's survey tool. This tool allowed me to create the same task-based scenario I had laid out for my in-person evaluation along with screenshots of the design. One good thing about the survey tool is that I could set it up page by page, so users couldn't see the next screen until they had answered questions about the one in front of them. This helped with keeping the user's attention on the page at hand.

While the survey tool would not give me behavioural data surrounding how users would navigate the apps or allow me to probe for more information, what it could give me is users' honest and unbiased answers. As they were given little context around what they were seeing, I could get their open and honest responses to just the design itself. The tool also allowed me to distribute the survey to a wider audience. As I was originally planning on evaluating the design with seven participants, the tool allowed me to get 25 participants. Setting up the as a survey also allowed users to participate at their leisure instead of the logistics of having to meet in person.

Again, I went to Facebook to distribute the survey. Having a wide, diverse group of gay friends from both the US and UK, I was able to get a solid sample of responses from individuals from both countries.

I concluded the remote test with a System Usability Scale (SUS) questionnaire to measure the perceived ease of use of my design. However, due to a technical glitch within the survey software, the data collected from it was untrustworthy. There were not evenly distributed responses, so the data from this was unfortunately not able to be used for this report.

REMOTE TESTING – RESULTS

For the analysis of these 25 responses (full responses in Appendix G.2), I again performed thematic coding on the open text comments. This time around, I selected a subset of codes from the previous set. As I stated previously, I was purposefully narrowing my scope in order to see how certain elements played out alongside each other. For this, the codes fell into three themes, personality traits, and UI elements (see Appendix G.3.1).

Top Coded Relationships by percentage						
When participants mentioned	**Shared Basic values**	, **Shared interests**	was mentioned	**100%**	of the time
When participants mentioned	**Personality Traits**	, **Relate authentically**	was mentioned	**100%**	of the time
When participants mentioned	**Shared Interests**	, **Filters/Sort/Search**	was mentioned	**95%**	of the time
When participants mentioned	**Passive Functionality**	, **Relate authentically**	was mentioned	**92%**	of the time
When participants mentioned	**Filters/Sort/Search**	, **Shared interests**	was mentioned	**92%**	of the time
When participants mentioned	**Other-regarding?**	, **Relate authentically**	was mentioned	**90%**	of the time
When participants mentioned	**Shared Basic values**	, **Filters/Sort/Search**	was mentioned	**83%**	of the time

Table 4

Utilising contingency tables again for this analysis helped me fully realise some tight relationships between codes (table 4, full results in Appendix G.3.3). Given the innate nature of the app – specifically, forcing people to make a choice upon loading the app of which profiles to see – some codes strengthened their bond. First, the idea of shared basic values and shared interests come to the forefront; each being mentioned in conjunction throughout. Similarly, though with a slightly lesser bond, the concept of shared interests and this filters/sort/search functionality had a tighter bond.

I was pleased to find that the passive functionality allowed users to relate authentically with other users. This was the main aim of this functionality and one that resonated with users. The weight of this bond was compounded by the fact that participants got the relation to the apps and meeting people in bars ("It's nice that it mirrors seeing someone in person more closely." "I think it funny to have a polite look away. Like you would do in a bar.").

Overall, participants liked being able to select what they were looking for as it "let's you weed out others not on the same page as you." They also stated that it "helps people identify their expectations". Some participants wanted the ability to select multiple options here, however I feel that puts us back into the issues we see today where users have to weed through profiles that don't meet their needs in order to find those that do. Breaking users of this expectation may prove difficult as it is what they are used to today.

Participants also stated that they would expect to see this *What are you looking for?* selection screen every time they opened up the app and that they would indeed change this regularly. I find this surprising as I was under the assumption users used these apps for specific reasons and that these reasons never changed. However, that does not seem to be the case with 12 out of the 25 participants stating they would change this "often" or "[depending] on [their] mood".

While the implementation might need modification, users responded well to the use of emojis ("The Emoji would grab attention and convey a slightly nuanced message that that a simple 'woof' does not."). Some found them too childish, however, but others found them to be "similar but also more expressive" than current implementations.

I was pleased that participants made explicit connections to the bar experience. One participant even went so far as to say, "so, if I met someone randomly at the bar, I'd probably catch their eye and then come in for a conversation. I think it more closely mimics this behavior than the current apps."

PHASE TWO SUMMARY

When comparing the findings of the design and remote testing to that of the current apps and interview and observation sessions, the initial selection of the type of people you are looking for caused themes to fuse together more tightly. They were better able to find users who shared interests and basic values

through this filter/sort/search mechanism. While some users would change this mechanism on a regular basis, it still allowed users to find exactly they were looking for in an efficient manner.

The passive functionality within the app was also strengthened via the implementation of emoji. It appeared that this allowed users to relate more authentically than the current passive functionality in use today.

Finally, when thinking of aligning the mobile dating app and bar experience, one participant summed it up nicely: "These apps are exactly a scaled down version of human interaction in a crowded tavern. Emoji are equivalent to body language. Profile viewing is glancing around the bar and trying to discern what you can by observation of potential people to talk to, or date. Messaging is striking up a conversation." I feel, then, that my design was successful. While not getting the in-person experience fully covered, I feel that it was a step in the right direction.

DISCUSSION

If we were to think about the entire timeline of a relationship, where do mobile dating apps come into play? Let's say that a relationship breaks into a few loose phases: initial meeting, casually dating, exclusively dating, long-term relationship. From my findings, it appears that mobile dating apps come most into play between day zero and exclusively dating. It can continue on through exclusively dating, though usage appears to drop off the longer two individuals casually date. Once exclusivity comes into play, then, app usage drops off completely. And only in the instances of open relationships, according to the participants I spoke with, do mobile apps continue being used once exclusivity occurs.

Therefore, these mobile dating apps must focus on that initial meeting first and foremost. They should do this, it appears, while closely mimicking the in-person bar experience as much as possible.

Initial attraction appears to be where compatibility starts. It is here where all other interaction hinges. This proves true in person as well as via an app. It is interesting that conventional ideas around personality traits and perceived similarity don't carry much weight when it comes to mobile dating apps; attraction and shared interests are king in this arena.

Psychological hypotheses around attraction and perceived similarity don't explicitly manifest themselves when it comes to finding compatibility. It appears this might be more focused on acquaintance interaction versus romantic compatibility. There was no evidence of explicit attraction-similarity or similarity-attraction within my discussions with users. There was evidence, however, of peer-rated similarity where users would hand their phones over to a friend to have them swipe or chat with others on behalf of them. Some users even referred to this as "a game" and spoke of lengthy conversations between

their friends and potential mates. However, the ultimate decision of compatibility and the longevity of conversation came back to the individual user themselves. Rarely did the peer-rated similarity carry much weight when it came to the ultimate decision of compatibility or continuing a relationship.

Similarly, the Big 5 personality traits didn't explicitly surface when people spoke of compatibility. Some of these traits were implied, but rarely were they explicitly mentioned.

It is within the seven facets brought to light by Cohen (2013), then, where the bulk of compatibility lies. I found that shared interests and attraction were the two frontrunners when participants spoke of compatibility, both in-person and within an app.

Fiore, et. al (2008) were right to evaluate the importance of the photo, fixed text, and open text portions of the profile. It is here where attraction is formed and shared interests are evaluated. It is here where compatibility is born.

Users use different apps for different reasons just as they go to different bars for different experiences. One might go to a sports bar to watch the game while another might go to a dance club. Mobile dating apps need to take these varying expectations and user need into consideration from the onset. Users are already engaged with the apps, they need help slicing and dicing the available dating pool into the subset of individuals they are interested in.

Utilising an initial sorting filter when pulling up the app proved to be a good way to set expectation for the user. Having conversation after conversation with individuals only to find out they are not looking for the same things you are can cause one to lose hope in finding compatible people. Being able to quickly and initially surface others looking for the same thing as you mitigates this in a big way. While interactions may not be as frequent overall, the ones that users do have will be more impactful and meaningful.

Once presented with similar individuals, users want to relate and communicate authentically. While the current functionality today allows users to show interest in a few different ways, building upon this in order to make it match true to life scenarios can only better the experience. The use of emoji is gaining traction in today's society. Online interactions last the inflection and intent that in-person interactions do. Emoji has emerged as a way for people to express themselves in a way they couldn't before. Why not include this in the mobile dating app space in order for users to show initial interest?

Overall, apps do as they are intended. However, they could use some improvements to help users navigate the busy waters of profiles to find the ones they are looking for. Once found, users need mechanisms that allow them to relate authentically and express themselves in a manner that closely mimics what they do in person.

EVALUATION + REFLECTION

I am very proud of the work I have done here. I feel that the research methods and analysis I conducted was both appropriate and sufficient.

I am glad I was able to extrapolate what people are looking for when seeking out compatible mates – both in person and online. I enjoyed observing users as they utilise the apps to locate these compatible individuals. Having used these apps myself, it was interesting to see similar and divergent usage patterns among my participants. Being able to utilise these usage patterns to create a design that better aligns to user expectation is also something I am proud of. The responses I received from my remote testing were very gratifying and I was pleased that some participants, unprompted, made the connection between the mobile app and meeting someone in a bar.

I do wish, however, that I had a better academic stronghold in the psychology research. I wasn't able to locate the more well-published articles I was hoping to find. Instead, I relied a lot on online resources that might not carry as much academic weight. I did find some solid examples, however. I just wish they were more academic in nature. Locating worthy articles surrounding the psychology of compatibility proved to be a bit of a challenge. The internet is a volatile minefield of top 10 lists and cheeky quizzes aimed at teenagers and twenty-somethings looking for love. I was able to locate a few articles, however, which helped glean some light on the subject.

For my methods and results, while I previously stated I felt they were appropriate, I could have done a few things a bit better. For starters, for my initial survey I had not limited it to just those in London. Yes, the interviews and observations I eventually conducted had to be done in London, but the general data I collected could have been from participants outside of London.

In regards to the interview and observation sessions, there are some things I would do differently in the future if I were to do this again. First, having friends as participants, while probably not the most unbiased of participants, works in my advantage given the subject area we discussed. As I am relatively new to London, I've known the participants anywhere from 2 weeks to 9 months. I feel that since we are friends they could be open and candid with me in regards to finding compatible people on mobile dating apps. Getting a broader user base of strangers might have yielded different results.

I did also consider doing another questionnaire, or, at least, re-releasing my initial questionnaire/screener to the Facebook masses to get more feedback. I chose not to do this as I wanted to tie the survey data to the participants. 10 individuals took the initial survey/screener and only 7 were interviewed, so the extra 3 data points were weighed and may be used for future analysis and insight.

During the sessions themselves, there are instances where I could have probed a bit more for information, keeping the elements of compatibility in mind as I went along. There may have been a few missed opportunities.

Two participants broke the mould a bit: one participant had recently entered a relationship (someone he had met in a bar, it turned out), so he was no longer actively using the apps. When it came time to discuss his app usage, then, it was all from memory rather than actually using the apps themselves. His interview, however, was one of the stronger ones as he was very interested in the role of mobile dating apps and their evolution.

Another participant was not able to meet in person, so he participated in the interview portion via an offline questionnaire. This participant's feedback was still extremely valid as the interview portion didn't necessarily rely on observing his usage of the apps.
When it came time to analyse the data from the interview and observation sessions I was sailing into unknown waters. I did read quite a bit about thematic analysis, but as this was my first time conducting such an analysis there were some growing pains. Case in point: my coding structure. I feel that the codes I used covered a great breadth of information surrounding psychology and technology. However, I do feel that 21 codes may have been too many. I should have narrowed the scope of these down in order to make my analysis clearer.

Overall, I found the thematic analysis to be extremely interesting. It was great for taking a breadth of ideas and trying to see if actual conversations fit into these buckets. I am very proud of the work I did during this phase of the project.

For my design, I purposefully kept it fairly lightweight. I wanted to get right to the point of what I wanted users to focus on and the codes I analysed as a part of it reflected that. I trusted that the participants were familiar with the domain enough to fill in the gaps that may have been missing from the design.

The testing of this design was not what I had originally planned for. Ideally, I wanted to conduct in-person interviews and observations much like I did for the first round. However, logistics didn't allow this to be so.

The good thing about the remote testing is that I was able to get more participants. Initially, I was aiming for the same five to seven participants who met with me previously. The remote testing allowed me to expand this to 25. The online testing tool also allowed for easier collection of data that lent to easier analysis (i.e. no transcribing conversations).

Remote unmoderated testing allowed for participants to provide succinct answers. Users only had what was in front of them and no one to probe for more information that prevented meandering conversations. Similarly, users were able to give their honest responses without having to worry about face-to-face courtesies.

There were some negatives to come from the remote testing. For starters, the succinct responses were both good and bad. I could only get these simpler responses. Without being able to probe for more insight, I was at the mercy of the participants to provide as much information as they could. I was also unable to observe any interface interactions which might have impacted future designs. Lastly, I did include a SUS at the end of my evaluation, but due to improper implantation on my part, the data I received from it was not usable.

Conducting analysis on the remote testing data was simpler, again, due to the tool collecting all of the responses. I didn't have to transcribe any of the conversations which saved me a lot of time. It was also nice to focus on a subset of codes in order to pull the tighter bonds from the data.

Overall, I am happy with how the project went. Throughout this process I was interviewing friends. On one hand this was very good because they could be more open and honest with me. On the other it would have been nice to branch out a bit more to get more strangers, thus covering a broader section of the gay community. However, Facebook served as an extremely valuable recruiting and survey disbursement tool.

CONCLUSION

Psychology says personality traits are important, but that wasn't the case with my research. It's really the interests we share (and some of those that we don't share) that bring us together.

Given the state of technology, people still prefer more "traditional" means of meeting compatible people. Meeting someone in person is still the method of choice as it is the easiest way we can effectively evaluate another person. Stigmas of online dating are lifting while stigmas of being gay are also lifting, causing people to migrate towards these traditional means. As social norms ease surrounding homosexuality, these apps might find themselves in the far corners of the community, aimed mainly at the 'hookup' culture rather than facilitating compatible matches.

It appears that mobile dating apps fall in the very early stages of the relationship process. They are truly a mechanism for narrowing your scope and finding compatible people. Future research could be done surrounding these early stages of relationships in order to bring these apps even further in line with user expectation. Compatibility is a continuum and an ever-moving target, finding a singular solution to find compatible mates may equate itself to the search for the Holy Grail.

It is my hope that this is one of many projects within HCI dealing with sexuality. We as a community of practitioners need to ensure we branch out and provide benefit to all facets of technology. I was surprised at the lack of HCI research in this area when I started this project. Given how popular online dating is it behooves us to provide support and insight into this growing area of technology.

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