Love on the Run: An Analysis of User Behaviour in Online Dating

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Abstract— Online dating has transformed the way people date. From a wide range of suggestions to optimizing suggestions to suit your needs, online dating offers it all. In this article, we present a critical analysis of the behavior of people who use online dating. We study how a user searches for a potential date online and what attributes interests him in clicking on the potential date's profile. We consider how online dating differs from conventional dating and how users accept the transition from dating in real life to dating in digital life. Since there is little or no verbal and face to face interaction, authenticity becomes an issue in online dating. Aware of this fact, men and women react differently to deception online. We study how men and women differ in their online behavior.

Keywords— Online dating, user behaviour, matchmaking sites, dissonance, machine learning

I. INTRODUCTION

For as long as humans have known the urge to form romantic relationships, they have also known that finding an appropriate partner can be challenging and it might be useful to get some help. As evident from the success of arranged marriages, a third party intervention, which contributes to a broad social network with strong opinions has been proven helpful [5].

In the modern era, the desire to form a romantic partner prevails but it becomes more challenging to do so. Limited social circle, field of eligible or dependence on the geographical location are some of the reasons why people are deviating from the traditional ways of finding a romantic partner. Research suggests the presence of a romantic relationship plays a crucial role in a person's physical and emotional well being. In fact, a satisfying romantic relationship is one of the strongest predictors of human happiness and emotional well being. Since online dating has been gaining popularity, more and more people are using online dating as compared to the conventional means of finding a romantic partner. Hence, it becomes important to understand how they work and analyze the behavior of people on these sites. If users claim to be more satisfied with the experience of online dating rather than the more conventional ways, we can say online dating has the potential to boost people's happiness.

We study how men and women integrate different behavior in self presentation online. We analyze user behavior, acceptance and inhibitions to answer a few major concerns: a) How is online dating different from offline dating and whether it encourages better romantic outcomes? b) Is online dating permanent and how has it altered the prejudiced opinion of people? c) How has online dating evolved? d) How do users deviate from their stated preferences? [3] (Also known as dissonance) e) How is deception prevalent in online dating? How do men and women use deception to enhance different traits? [4]

II. DISCUSSION

A. *How is online Dating different from offline dating and whether it encourages romantic outcomes?*

Finding a romantic partner has always been a challenging task. Since people have a limited social circle, a third party intervention, usually from priests, rabbis or older people in the family, is insightful. The most common ways in which a person can meet a potential date offline are [2]:

- By approaching a stranger directly in person
- By having a member of their social network introduce them in person
- By having a member of their social network set them up on a blind date

The common object in all the ways people can meet someone is: social circle. Friends, relatives, priests contribute to a broader social network and thereby, a wider "field of eligible". However, since people have lesser time to engage in a social activity, networking becomes an issue. Online dating acts in a similar way. It provides people with a wide range of social circle, a broader "field of eligible" and the liberty to set their priorities before they actually date someone. Meeting potential dates online is quite similar to meeting potential dates offline. Online dating covers an extra mile and allows you to browse through the profile of the potential mate in order to gain more insights about them. You can then use your discretion on whether to take it forward or not [6].

While users have the freedom of browsing through their date's profile before meeting them in person, online and offline dating have a fundamental similarity. Whether a user browses through his date's profile or meets the date in person, there is still little knowledge about the concerned party. While the site helps in suggesting potential dates,

messaging/talking to the date and taking things forward is still the user's responsibility. This is prevalent in offline dating as well.

Statistics suggest that 72% of American adults use online dating sites. The Internet users on online dating has reached to more than 115 million and is expected to reach more than 200 million by 2018 [8]. USA, UK, China market is going towards saturation but Indian market is the next future, in next 3 years. According to the Indian market, 67% of graduates under the age 18-28, 27% of married people and 42% of females use online dating sites. With these numbers, we can say online dating is becoming the new hot sector, not only in the worldwide market but also in the Indian market.

It might be too soon to say that online dating produces better romantic outcomes. However, the increase in the number of users implies that more and more people are open to the idea of meeting their partner behind the screen.

B. Is online dating permanent and how has it altered the prejudice of people?

Numbers in the previous section show how more and more users are accepting the concept of online dating. A few social norms exist where people are driven by their preconceived notions about online dating but the thought process has been changing recently. On a general note, men are more open to the idea of finding a partner online than women. This is evident from the data that men also send out more messages online than women and receive fewer responses [5]. A woman in her 20's might be interested in older men but as she approaches 30, she becomes open to the idea of dating younger men. On the contrary, men are more interested in dating younger women. Men give more importance to attributes such as physical appearance and attractiveness while women pay more attention to the socioeconomic status. Geographic distance plays a vital role in selecting a mate online. 46.5% of messages are exchanged between users in the same city.

There are a couple of reasons why women are still apprehensive to the idea of online dating [8]:
- Women are concerned about the fake user profiles.
- Sites have few filters to segregate genuine and fake profiles. Most of the times, it is left up to a woman's instinct to go by.
- Most Indian women who registered for online dating mentioned they couldn't discuss it with friends and family. Since most Indians still have a conservative background, women fear being judged. Guilt or stress is usually, associated with it.
- Women rarely face rejection when it comes to online dating. But it functions differently for men. Women fear malicious users who may not take rejection well.

Negative reviews about online dating have been changing recently. People have begun to realize its spread, reach and power. Since we spend most of our time online, online dating not only helps us date in our busy schedule but also enables us to do so from our comfort zone. Another school of thought prevails which says, it is not online dating but online meeting people. Dating is an option you can take, online or offline.

C. How has online dating evolved?

In the pre Internet era (classified as before 1980), dating was restricted to either meeting someone directly or via a connection. Some people would resort to newspaper advertisements to find a suitable partner. With the onset of the Internet, dating has taken a whole new form. Online dating can be classified as:
- Online personal advertisement sites
- Algorithm based match making sites
- Smart phone based dating applications

Online personal advertisement sites (e.g. Craigslist) enable users to post personal ads describing their needs. Users may post ads describing what they are looking for (e.g. attributes in a potential date) and receive responses from interested people. Algorithm based matching sites (e.g. eHarmony) ask users for their attributes (such as age, job, and education) and that of the potential partner's. The site uses an algorithm to traverse through its database and find user profiles which come closest to the user's stated preferences. The site doesn't play a role beyond the point of suggesting matches. It is up to the user to decide to send/reply or whether the user wishes to take things forward. Smart phone based dating applications (e.g. Tinder) work in a similar manner as algorithm based matching sites, the difference being, users have access to dating apps on their mobile phones/tablets. Users can now date on these apps on the go, with access anytime, anywhere.

D. How do users deviate from their stated preferences?

There is a popular concept in psychology, known as "dissonance", which talks about how people deviate from their stated preferences. When a user signs up for a dating site, the site asks the user for a list of attributes, such as age, job, education and those of the ideal partner's. The system then takes these values as initial preference and produces a list of potential matches based on these attributes. However, a user may not know the significance of each of the attributes and it is troublesome to explicitly assign weights to each attribute. It is common for a user to deviate from his own stated preferences. For instance, a 30 year old man may set his age preference as 25-30. But it is likely that he will deviate from the preferences and be more interested in users who lie outside the given range.

Yoon Joo Park came up with an adaptive match making algorithm [3]. The algorithm automatically adjusts the user's preferences by analyzing his behavior online. First, the algorithm collects user data such as age, height, job,

education, etc and shows suggestions based on them. As and when the user keeps on using the site, behavioral data is accumulated.

Once the behavioral data crosses the threshold, a logistic regression model is created where user's implicit preferences are taken into account. The actual preferences are adjusted by keeping a track of both implicit and explicit user preferences. Cold start problem with new users does not exist in the system. Since the system asks for specific preferences, the algorithm executes with the user supplied data until enough data has been recorded to develop a logistic regression model.

Collaborative filtering techniques have also been implemented [7]. In CF algorithms, correlation between two users is recorded. For instance, say, Alice has listed some of her preferences and the algorithm gave Bob as one of the many suggestions. When Carol signs up for the same service, the system learns that Alice and Carol have similar preferences.

Common sense would suggest same matches for both Alice and Carol. This is where CF algorithm plays an important role. The system creates a correlation matrix where similarities between Alice and Carol are recorded. The matrix would result to null when recording similarities between Alice and Bob or Carol and Bob. As such, the matrix holds a valid set of data for users of the same sex. Based on the correlation values, the system makes suggestions. Thus, if Alice is matched to Bob, Carol will also be matched to Bob and so on.

These algorithms have their own limitations. For instance, user preferences are not accounted for in collaborative filtering whereas adaptive match making algorithm doesn't account for user feedback. However, these algorithms overcome our concern of dissonance. They provide an adaptive system which learns on the go and adapts to the user behavior.

E. How is deception prevalent in online dating? How do men and women use deception to enhance different traits?

Since there is little or no face to face interaction, deception on online dating is a booming issue. Research indicates that the probability of deception increases with the pressure of self presentation [1]. For instance, when interacting with someone of the opposite sex, particularly, if they are attractive, the motivation to self present increases. A threat to one's self image also results in an increment to engage in self presentation.

Whether it is online or offline, men and women want to present best versions of them. This becomes easier online. Since dating services have few rules on authenticity and verification, users engage in writing false description. Deception can range from outright lying to exaggeration. However, men and women use deception to enhance different traits. Men use deception to appear more dominant, resourceful and more kind than they actually are. Women, on the other hand, use deception to appear more attractive physically.

Several dating services have come up with ways to reduce the amount of deception and exaggeration online. For instance, Truly Madly, a popular Indian dating app, incorporates a "trust" factor. A user can gain "trust points" by verifying contact information, identity proofs and social network verification. True.com is an online dating website that conducts background checks on all of its members. TrueDater.com allows online daters to review others they have met in person through a dating website.

However, these techniques do not guarantee authenticity. Services which verify user information do so by analyzing their social network profiles or explicitly ask for data. Both the sources can be forged and aren't completely authentic. For instance, True.com performs a background check on its user. Say, Alice comes across Bob's profile on True.com. Alice can be sure that Bob isn't a criminal. However, Alice still has no other way to validate any of the information Bob claims about him. TrueDater.com allows users to write a feedback. Writing a feedback has its own implications.

A user is less likely to provide a feedback without any motivation. Many sites claim to let go off the subscription fee when a user provides a feedback. It may lead to users providing false feedback. If reviews are non anonymous, users risk their identity being known. If reviews are anonymous, there may be a higher probability of false reviews. A third party feedback is less likely to be false and the third party has little or no intention of doing so. However, the third party might not be motivated enough to do so.

For example, Alice and Bob, who know each other offline and do not see each other as potential matches, can provide honest feedback about each other. However, if Alice and Bob end up fighting or have an argument, either of them could be motivated enough to write a false negative feedback.

If Alice and Bob meet offline and end up having a great time, Alice might want to date Bob exclusively. This may lead to Alice writing a false negative feedback about Bob so that other potential matches do not approach Bob.

III. CONCLUSION

Online dating has become pervasive. It has fundamentally, altered the way people encounter their romantic partners. For example, millions of people first come across their potential partner's profile rather than meeting them in person. According to the United Nations, more than 3 billion people have access to the Internet, meaning, more than 3 billion people have the power and liberty to choose their romantic partners.

We saw certain similarities and certain differences between online dating and conventional dating. When online dating provides a wider social network, both online and offline dating cater to a person's desire for a romantic partner, physical and emotional well being. While online dating services suggest suitable matches for a person, the person is still responsible for his relationship's progress (just as a third party introduces a person to a potential date). Since more and more people are using online dating, more and more people have the liberty to mould their personal lives.

Every new concept faces certain amount of criticism. However, the negative reviews related to online dating are declining and people are becoming open to the idea of finding a potential date online. Major reasons for this change are

access, communication and matching. Whether it is algorithm based or scientific matching, online dating has more options than a person can have physically. Dating services have certainly, evolved over time. From simple lists to complex algorithms, dating services have been trying to optimize their efficiency. More users are becoming satisfied with the results of online dating and are recommending it to friends and family.

Deception is still an issue online. User feedback, verification cannot guarantee authenticity. Besides, malicious purpose of a user may never be recorded for.

REFERENCES

[1]   Rosanna E. Guadagno,Bradley M. Okdie, Sara A. Kruse. Dating deception: Gender, online dating, and exaggerated self-presentation. Elsevier Systems with Applications, 2012.
[2]   Eli Finkel, Paul Eastwick, Benjamin Karney, Harry Reis, and Susan Sprecher. Online Dating: A Critical Analysis From the Perspective of Psychological Science. 2012.
[3]   Yoon-Joo Park. An Adaptive Match-Making System reflecting the explicit and implicit preferences of users. Elsevier Systems with Applications, December, 2013.
[4]   Jeffrey T. Hancock, Catalina Toma and Nicole Ellison. The Truth about Lying in Online Dating Profiles. May, 2007.
[5]   Peng Xia, Kun Tu, Bruno Ribeiro, Hua Jiang, Xiaodong Wang, Cindy Chen, Benyuan Liu and Don Towsley. Who is Dating Whom: Characterizing User Behaviors of a Large Online Dating Site. Jan, 2014.
[6]   Michael J. Rosenfeld and Reuben J. Thomas. Searching for a Mate: The Rise of the Internet as a Social Intermediary. American Sociological Review, 2012.
[7]   Krzywicki, Wobcke, Kim, Cai, Bain, Mahidadia, Compton. Collaborative Filtering for people-to-people recommendation in online dating: Data analysis and user trial. Elsevier Systems with Applications, Dec, 2014.
[8]   Online Dating Statistics and Facts, http://www.datingsitesreviews.com/staticpages/index.php