Online Dating Apps Adoption: A Perspective from Young Adults in Malaysia

Xin Yi Chan[✉], Jey Ni Choy, Zhen Ling Chua, Sin Jie Ng, and Sook Kwan Ong

Faculty of Business and Finance, Universiti Tunku Abdul Rahman, Jalan Universiti, Bandar Barat, 31900 Kampar, Perak, Malaysia
`angelchan.3020@gmail.com`

Abstract. Online dating apps created opportunities for adults to connect and initial romantic intimacy, especially during the global pandemic of COVID-19. But the perspective of young adults in Malaysia remains unclear. The Unified Theory of Acceptance and Use of Technology (UTAUT) was applied in this research to discover determinants of online dating apps' adoption intention among young adults in Malaysia. For this purpose, possible determinants that might affect the intention to adopt online dating apps are sought and critically reviewed. With reference to the model, the variables proposed in this research include performance expectancy, effort expectancy, social influence, facilitating conditions, and an additional variable – trust. Five hypotheses were constructed based on the proposed variables. Questionnaires were distributed to young adults to obtain valid primary data from respondents. Limitation was found in this research is the approach to collecting data causing the participants to overlook the questionnaires. Besides, restriction was found in the demographic profile of the respondents. The study might not accurately reflect Malay and Indian individuals' adoption intentions. The responses collected determine the adoption intention of young adults towards online dating apps within Malaysia only. This research contributes to the debate among online dating apps developers.

Keywords: Online dating · Young adults · Adoption intention · UTAUT · Trust

1 Introduction

1.1 Research Background

The concept of dating originated back at the beginning of the 20th century. Before that, youngsters are prohibited from having a date before marriage (Markarian, 2017). Dating could be a felony in the 1900s as dating is recognised as veritable prostitution in the eyes of authorities (Brown, 2016). Until the mid-1920s, dating had completely replaced the old courtship system (Bailey, 1989). The fundamental difference between dating and courtship is the level of freedom. Relationships became less severe and more personal (Markarian, 2017).

Based on Maslow's Hierarchy of Needs, love and belongingness are basic human needs (Maslow, 1943, 1954). Romantic relationships as basic human needs are vitally

important in shaping one's personality and characteristics. During the experiences in a romantic relationship, one learns and trains for their future intimate relationship. The successful establishment and maintenance of a romantic relationship are beneficial to one's mental health, physical health, and well-being, as well as the partner's (Gómez-López et al., 2019). Dating and romantic relationships encourage the feeling of connecting with others. Romantic experiences could help teenagers successfully establish autonomy when exploring extra-family relationships and reducing dependence on their parents (Dowdy & Kliewer, 1998; Furman & Shaffer, 2003; Gray & Steinberg, 1999).

As long as people recognize the desire to form a romantic relationship, they probably will notice that getting the ideal mate could be challenging (Finkel et al., 2012). With the help of the advancement of technology, people tend to go online to start dating and form romantic relationships. The first computer-based matchmaking service, Operation Match, was created in 1965 by a group of Harvard undergrads in the United States. This emerging technology has become the steppingstone for online dating in the future (Lee, 2016).

The evolution of online dating sites can be categorised into (1) online personal advertisement sites, (2) algorithm-based matching sites and (3) mobile dating apps. The origination of web-based personal advertisement sites can be dated back to the release of Match.com in 1995, which functioned as a search engine, allowing users to post and browse for online personal advertisements. In the following years, many sites followed the footstep of Match.com by offering similar services. In 2000, the introduction of eHarmony kick-started the generation of algorithm-based matching sites. Similar sites such as Perfect Match and Chemistry were launched in 2002 and 2005. These sites offer the services of providing matches according to the processed data provided by the user. Shortly after Apple Inc. opened its Apps Store in 2008, the development of online dating sites entered the third generation: smartphone-based dating apps. These apps included the feature of location-based online dating by utilising mobile internet technology and the global positioning system (GPS), allowing users to browse for potential partners without physical restrictions. These mobile dating apps are regularly launched and have become enormously popular (Finkel et al., 2012).

In the 2020s, the number of online dating sites and apps has rapidly emerged over the past decade. For instance, Tinder, Bumble, OkCupid, Match.com, Facebook Dating, Paktor, Tantan etc. (Corpuz, 2021; GMO Research, 2021a). The users of online dating apps are growing at a rapid pace. According to Curry (2021), the number of individuals using dating apps worldwide has increased by 46% from 185 million (in 2015) to 270 million (in 2020). Besides, the global dating apps revenue reached USD3.08 billion in 2020. It has increased by 50% over the last four years and is forecasted to exceed USD8.4 billion by the next four years (GMO Research, 2021a).

According to GMO Research (2021a), 32.4% out of 1000 Malaysian have used an online dating app before, and 47.8% out of the 32.4% of Malaysians are currently using an online dating app. Based on Müller's (2022) studies, the adoption rate of online dating apps among young adults in Malaysia is higher when compared to other age categories. Approximately 41% aged 16–24 and 43% aged 24–34 stated that they had used online dating apps. Besides, Tinder has arisen as the most popular online dating app

in Malaysia, followed by Dating.com, Tantan, OkCupid, Grindr, Coffee Meets Bagel, Paktor and Bumble (Müller, 2021).

People are using online dating apps as a mechanism to find virtual connections for friendship and emotional support for coping with loneliness. There must be an upward trend in relationships starting online. As online dating becomes mainstream, it may lead to more genuine relationships and even marriages (GMO Research, 2021a).

Although the potential value of online dating is still apparent, there is growing evidence that users are at risk. People may forge some or all dating information to attract each other or hide negative personal aspects. In addition, criminals are misusing online dating apps to target victims. Romance scams on online dating sites have been rising recently, and they are able to occasionally lead to major criminality. Some unethical operators may even hire fake daters to recommend it to their users to charge unreasonably high membership fees. Online dating sites are frequently used for suspected fraud and other illicit activities. Those risks may lead to trust issues in online dating apps (Chen et al., 2020).

Young adults nowadays are mostly made up of Generation Y and Generation Z (Leger, 2022). Generation Y is defined as individuals born between 1981 and 1996, while Generation Z is defined as individuals born between 1997 and 2012 (Lathabhavan & Padhy, 2022, p. 1). The target respondents of this research are younger Gen-Yers and older Gen-Zers aged 18–30 during this research (born between 1991 to 2004). Looking back on history, the Internet was invented in 1991 (CERN, 2022). These targeted respondents have the common characteristic of being born after the Internet was invented.

In this research, the theory of UTAUT will be used as a fundamental study for the adoption intention of young adults in Malaysia (18–30 years old) towards online dating apps. The determinants will be (1) performance expectancy (PE), (2) effort expectancy (EE), (3) social influence (SI), (4) facilitating condition (FC), and (5) trust (TR).

1.2 Research Problem

During the COVID-19 pandemic, the countries went into lockdown, and social distancing became the norm. The isolation has created a lot of lonely souls who seek romantic relationships. Therefore, online dating has become one of the best ways to get a date during the lockdown. Online daters tend to spend more time on apps than before the pandemic. For instance, Paktor reported that users in Singapore spent ten times longer on the apps compared to pre-pandemic. Tantan, a mobile dating app, reported that compared with the average usage time before COVID-19, the average use time of the app during the pandemic has increased by more than 30% (GMO Research, 2021a; GMO Research, 2021b).

Moreover, young adults nowadays are labelled as digital savvy as they are directly and broadly exposed to digital technologies (Parker-Pope, 2019; Turner, 2015). Digital saturation makes young people more socially withdrawn, uneasy, and empowered, reflecting why they have fewer sexual encounters than earlier generations (Parker-Pope, 2019). Another reason young people have fewer sexual encounters may be that they seem to take a more pragmatic approach to relationships than previous generations. Young people are reported to reach financial stability before jumping into a romantic relationship. Besides, they also tend to understand themselves better before pursuing a romantic

relationship. This signals a very self-conscious approach to dating, prioritising finding someone meaningful to them rather than just finding someone attractive or interesting. A range of easily accessible resources makes young adults more knowledgeable about finding the right partners (Klein, 2022).

Young adults are also reported to be commitment-phobes (Copestake, 2020). Orchard (2020) reported that young adults fear commitment, which includes being scared of saying the word 'date' or 'dating', which suggests formality. The fear of saying that they are dating may be accounted to the fear of telling others they have broken up when it is over. Young people tend to participate in casual dating to shield themselves from harm in a relationship. This result in the word 'dating' seems to be in the past. While seeing people, hookups, and friends with benefits is the latest term used to describe young adults' relationships. The unique perspective of how young adults in this era perceive romantic relationships may influence young adults' perception of online dating apps.

Furthermore, according to Stoicescu (2020), online dating apps feature the ability to find a partner and broaden the horizons of intimacy, leading to new motivational and coordinated actions with repercussions on a social and psychological level. Albury et al. (2019) reported that user experiences discrimination and harassment when using online dating apps. Some participants reported that online dating apps are a source of feeling setbacks, rejection and exclusion. Besides, Alsing et al. (2021) suggested that online dating apps might affect morbidity in wider sexually transmitted diseases. Moreover, young adults appear to spend more time on social media and online dating apps. Their interaction is shallow and controlled by their unwillingness to be alone as a result of their high level of reliance on technology (Stoicescu, 2020). Pesce (2019) mentioned that when loneliness is combined with social anxiety, it will result in the overuse of dating apps and life consequences for an individual, leading to addiction to online dating apps. In the worst-case scenario, someone addicted to online dating apps will disregard other crucial aspects of their lives. The above-mentioned past research proposed that using online dating apps will result in social problems, including discrimination, harassment, rejection, exclusion, the prevalence of sexually transmitted diseases, and addiction to online dating apps. These social problems may reflect more serious social issues, even criminal ones. It is vital to observe whether young adults will take social impact into account when coming to the intention of adopting online dating apps.

Lastly, online dating attempts to connect strangers based on their given data and profiles (Chen et al., 2020). People may lie on their online profiles for appealing purposes (Anderson, 2016). GMO Research (2021b) reported that 12% of online dating app users in Malaysia admitted to fabricating their profiles, 65% of users' profiles are authentic, and 23% of users admitted they fabricate a bit of their profile.

Although the online dating user profile contains certain dishonesty levels, online dating apps are still top-rated. Because of the widespread usage of smartphones and the Internet, online dating apps now allow users to swipe left or right 10 to 100 times when communicating with a potential date in "real life". In addition, the time-effectiveness of online dating apps has driven up the popularity of online dating. Browsing profiles is considered time-saving compared to mingling with people in a social context (Anderson, 2016). Furthermore, online daters report that it is easy to find someone they are physically attracted to or share the same interests with online dating apps (Anderson et al., 2020).

Choosing convenience or performance may affect the intention to adopt online dating apps among young adults in Malaysia.

This research aims to explore the factors that induce the intention of Malaysian young adults to use online dating apps by referring to the UTAUT model, which includes Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitation Condition (FC), and Trust (TR). Furthermore, this study would be beneficial for online dating app companies as the study of Trust (TR) added in the research could fill the gap in previous studies and bring a new perspective to developers and marketers of online dating apps.

1.3   Research Significance

This study is significant in uncovering the determinants that impact the adoption intention of young adults of online dating apps in Malaysia. Through this research, online dating app developers could analyse consumer behaviour towards online dating apps by acknowledging the possible determinants that influence young adults' adoption intention of online dating apps in Malaysia. Besides, the developers of online dating apps could find out and formulate suitable strategies to encourage young adults to adopt online dating apps. By improving their services, the online dating app developers are able to build credibility and trustworthiness with the customers and obtain a competitive advantage in the Malaysia market.

Moreover, future researchers will benefit from this research in terms of earning academic experience. This research will help academics have a more evident mindset on exploring the underlying attitudes of young adults regarding how they perceive online dating apps. It also provides related information on the determinants that affect Malaysian young adults' intention to adopt dating apps. Hence, this research could act as a reference for academics to develop their future studies, specifically the research that relates to online dating apps.

2   Literature Review

2.1   Underlying Theories

Unified Theory of Acceptance and Use of Technology (UTAUT) is known as an extension theory derived from Technology Acceptance Model (TAM) (Venkatesh et al., 2003). To develop this model, researchers reviewed and integrated constructs from the theory of reasoned action (TRA), technology acceptance model (TAM), motivation model (MM), theory of planned behaviour (TPB), a combination of TPB and TAM, model of PC utilisation (MPCU), innovation diffusion theory (IDT), and social cognitive theory (SCT). UTAUT was able to explain 70% of the diversity in usage intention, a substantial enhancement above previous models and their expansions (Garavand et al., 2019). The theory is proposed to determine the intention of a user to adopt an information system and subsequent usage behaviour. Individual adoption and use of information technology are among the most established research topics in the context of information systems (Venkatesh et al., 2007). UTAUT appeared to be the best theory, with the potential to be

a valuable tool for management evaluating the impact of new technologies (Garavand et al., 2019). UTAUT is a more integrated theory and has better predictive power compared to other prior models and theories (Okumus et al., 2018). Therefore, it is the most effective theory to study adoption intention.

UTAUT consists of four root constructs, including performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). Besides, there are moderators such as gender, age, experience, and voluntariness of use which will influence the behavioural intention and usage behaviour. The theory has been widely utilised as a theoretical framework in studies of user intention and behaviour towards mobile apps' adoption. In the past, many researchers have applied UTAUT in their research. Providing an example, UTAUT was applied in analysing the influence of the essential determinants on the usage intention of mobile devices for learning (Alghazi et al., 2021). UTAUT is applied to study the factors that affect the adoption intention of people with visual impairment towards mobile apps (Moon et al. 2020). Hoque and Sorwar (2017) also implement the UTAUT framework in studying the factors which influence the elderly to adopt mHealth (mobile health) services. Based on the research mentioned above, the main characteristics and effects of UTAUT are assessed in a good manner. However, moderators are less evaluated by other researchers as most of the research mainly focuses on the major impacts of the model (Venkatesh et al., 2016).

In the UTAUT model (Fig. 1), the four root constructs are considered the direct determinants of behavioural intention and usage behaviour. Performance expectancy is known as one of the significant elements of technology adoption and acceptance. The term is defined as "the measure to which individuals trust that using the system will help him or her to boost job performance" (Venkatesh et al., 2003, p. 447). Besides, effort expectancy indicates the easiness associated with the usage of the system. Meanwhile, social influence relates to how much an individual perceives the important individuals believe he or she should utilise the new system. Facilitating condition indicates the extent to which individual trusts that organisational and technical infrastructure is present to facilitate the usage of the system. Venkatesh et al. (2003) mentioned that performance expectancy accounted for the greatest impact on one's behavioural intention towards the adoption of technology. The behavioural intention is anticipated to have a significant positive impact on the usage behaviour.

UTAUT is applied in this study as this theory is suitable for looking into the adoption intention of online dating apps among Malaysian young adults. Performance expectancy, the independent variable in this research, indicates young adults' expectancy towards the effectiveness of the usage experience of online dating apps. Next, effort expectancy shows the belief of young adults towards the ease of use of online dating apps. The social influence will act as an independent variable of the social context surrounding young adults in this research. Facilitating condition refers to the resource availability and support for young adults to adopt online dating apps in this research.

Another independent variable, trust, is added in this research. According to Arpaci (2016, p. 152), trust is defined as faith in the reliability and trustworthiness of the system or services. Previous studies mention that trust could impact the intention to adopt a technology (Alharbi, 2017; Han & Conti, 2020; Patil et al., 2020; Sim et al., 2018). It is
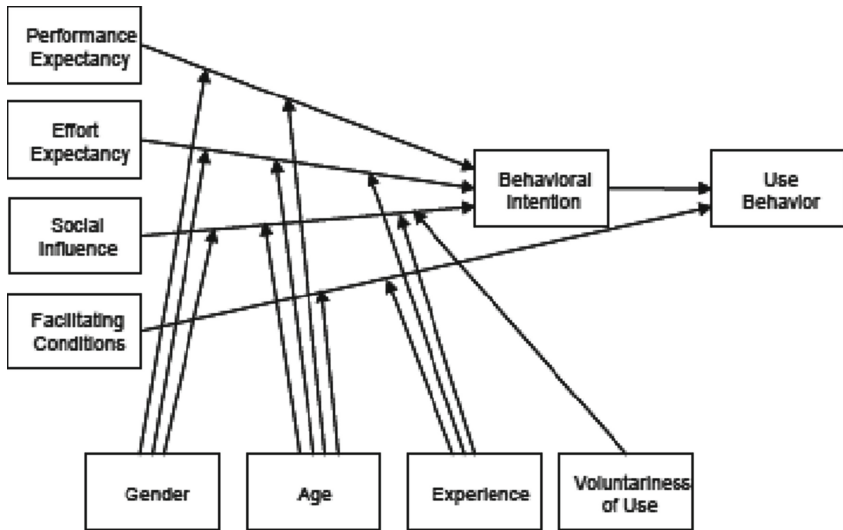
Fig. 1. UTAUT Model. Adapted from Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425.

highly approved as a factor of the UTAUT model. Therefore, trust that shows confidence toward online dating apps is used as an independent variable in this research.

Throughout this research, these variables will impact behavioural intention, which refers to the adoption intention of young adults towards online dating apps.

2.2 Review of Variables

2.2.1 Dependent Variable (DV) – Adoption Intention Towards Online Dating Apps (AI)

Peng and Cao (2017) mentioned that the adoption of online dating apps results from interactions between individuals, peers, and society, as well as a diffusion of innovation processes. According to Kumar et al. (2018), diffusion is driven by a succession of individual decisions to start adopting new technologies. These decisions are typically predicated on comparing the new technology's uncertain advantages versus the unknown adoption costs. According to Sintonen and Sundqvist (2010), the term "adoption intention" refers to one's eagerness to participate in a particular behaviour; here, readiness to use online dating apps. Fishbein and Ajzen (as cited in Patil et al., 2020) define intention to use as their attitude towards using a system. Kupfer et al. (2016) suggested that adoption intention measures the possibility of an individual performing a specific behaviour in the future. It is also the most critical determinant of online dating app usage behaviour. According to Welch and Morgan (as cited in Balan et al., 2021), the original intention of online dating apps was to extend users' social circles and networks.

2.2.2   Independent Variable (IVs) – Performance Expectancy (PE)

According to Sagnier et al. (2019), performance expectancy refers to the degree to which a person perceives that implementing a system will enhance job performance. Individuals are more inclined to accept innovative technologies if individuals trust that they could improve their ability to accomplish their jobs (Vermaut & Trybou, 2017). Ogunsola and Olojo (2021) explained performance expectancy as the assumption that employing a specific technology or practice enables one to benefit or improve an individual's performance in some way. Hence, performance expectancy reflects the perceived usefulness and effectiveness associated with using online dating apps. According to Nicholson (2014), people could connect with a much larger pool of potential matches through online dating apps compared to meeting physically in their daily lives. Additionally, online dating apps reduce the likelihood of entering relationships only to discover that your partner is the total opposite of what you desired (Orlando, 2021). Therefore, online dating apps' performance could improve online dating app users' living and companion searching performance.

2.2.3   Independent Variable (IVs) – Effort Expectancy (EE)

According to Chao (2019), in determining intention to use, effort expectancy is a significant factor. Effort expectancy refers to the easiness associated with a system or procedure that can be employed (Ogunsola & Olojo, 2021). It is premised on the concept that there are connections between the amount of effort committed at work, results accomplished, and rewards received from that effort. According to Ustun et al. (2020), the ease of using the system is known as effort expectancy. It also refers to the amount of effort required to utilise a system, regardless of how simple or complex it is. Most people prefer technology that offers flexibility, utility, and ease of use (Catherine et al., 2017). Effort expectancy reflects the ease of use of utilising dating apps. However, the constraints of dating apps, such as poorly designed app interfaces and complex navigations, made it more difficult for users to adopt them.

2.2.4   Independent Variable (IVs) – Social Influence (SI)

Adopting or rejecting an innovation or technology is not merely an individual's decision but is significantly influenced by peers (Peng & Cao, 2017). In human communities, social influence is all around. It manifests itself in many ways, which include obedience, compliance, persuasion, social wandering, social assistance, deindividuation, observer effect, bystander effect, and peer pressure (Izuma, 2017). Peer is frequently used as a primary reference group when making decisions. As a result, if a user's significant others suggest that they use online dating apps, they may follow their opinion. According to Mcleod (2021), social influence can be explained as the process through which the presence or behaviour of others influences one's attitudes, beliefs, or actions. Conformity, compliance, obedience, and minority influence are known as the four facets of social influence. Intentional and unintentional attempts to persuade someone to change their beliefs, attitudes, or behaviour are referred to as social influence (Gass, 2015). Moreover, Peng and Cao (2017) highlighted that positive peer feedback and successful examples of others using online dating apps to meet the right person would be tremendously

motivating. Social influence suggests the impact of peer evaluations on individual user behaviour. When peers find a product beneficial, word-of-mouth could significantly impact their family and friends.

2.2.5   Independent Variable (IVs) – Facilitating Conditions (FC)

Ustun et al. (2020) suggest facilitating conditions refer to a person's belief the current organisational as well as technological infrastructure is capable of supporting the adoption of technology. When comes to this study, indicated objective elements, for instance, resources and knowledge affect the intention to adopt online dating apps. For example, users need to bear the costs of adopting online dating apps, such as communication fees and service fees. Onaolapo and Oyewole (2018) found that indicators such as perceived behavioural control and compatibility play a critical role in determining facilitating conditions. According to Agudo-Peregrina et al. (2016), the level to which a person perceives that existing organisational and technical infrastructure assists one's system usage is referred to as facilitating conditions, whether or not they have the necessary expertise and resources to do so. Moreover, Kamaghe et al. (2020) highlighted that an individual might be hesitant to accept web-based technology due to a lack of guidance, inadequate information, and restricted resources.

2.2.6   Independent Variable (IVs) – Trust (TR)

Trust is characterised as an individual's eagerness to expose themselves to another person in the confident expectation that the trustee will act in accordance with the confident expectation of the trustor (Mayer et al., 1995). Trust is the careful thoughts or impressions one has about another party regarding honesty, goodness, and competence, resulting in trusting behaviour intentions. According to prior studies, trust influences the perceived advantages of dating platforms, as well as the intention to adopt the platforms (Chen et al., 2020). In addition, it has been demonstrated that a user's social presence and trust experiences affect their decision to adopt online communities in general (Srivastava & Chandra, 2018). Therefore, trust has been identified as an essential component in raising benefit perceptions and decreasing risk perceptions for mobile apps.

2.3   Conceptual Framework

A research framework is modified according to the review of related underlying theories and literature. In Fig. 2, the IVs indicate Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC) and Trust (TR) shall affect the DV, which is Adoption Intention (AI) towards online dating apps among young adults in Malaysia.

2.4   Hypothesis Development

H1: Performance expectancy (PE) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.
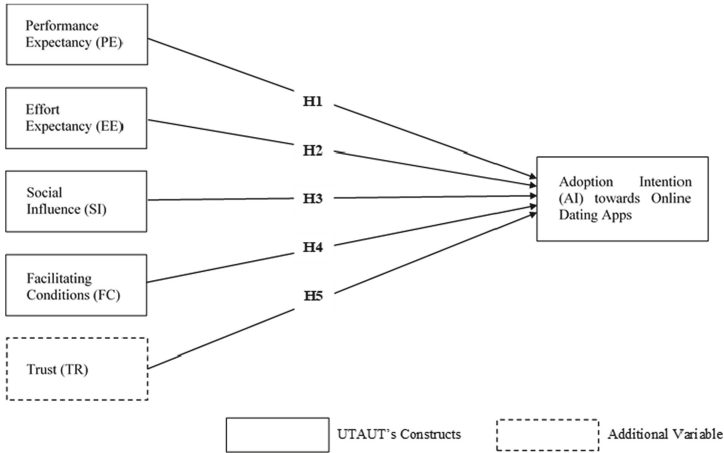
Fig. 2. Proposed Research Framework

Performance expectancy is strongly linked to technology adoption (Alghatrifi & Khalid, 2019). According to a study by Chopdar et al. (2018), apps that provide a variety of useful tasks will considerably increase the desire to adopt mobile apps. Arora et al. (2020) also mentioned that the cumulative benefits supplied by mobile apps would impact performance expectancy and improve the motivation of people to utilise mobile apps. Hence, the adoption of mobile apps was significant when the benefits provided by the apps were high. According to Hew et al. (2015), users are more inclined to accept mobile apps since those apps are beneficial in their daily lives. It is predicted that individuals tend to adopt online dating apps if they perceive the advantages and usefulness of the apps.

H2: Effort expectancy (EE) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

Individuals tend to embrace mobile technology if they perceive it is user-friendly and the interface interaction is straightforward and comprehensible (Giovanis et al., 2018). According to Malik et al. (2017), app adoption will evoke pleasant feelings and lead to pleasure if it is simple to use. When a mobile app is less sophisticated and easier to use, the users tend to adopt it. Online dating apps must be well-designed to be simple to use and understand. It is stated that the fewer effort people need to access an app, the greater the tendency they are to adopt it (Duan & Deng, 2021). It is hypothesized that individuals tend to adopt online dating apps if they perceive the apps required less effort to use.

H3: Social influence (SI) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

Social impact has a direct impact on intention behaviour because it influences potential users' attitudes. Individuals' intentions to adopt technology are higher when there is reasonable social assistance for doing so (Saprikis et al., 2021). According to Duan and Deng (2021), significant individuals such as friends, family members, co-workers, and other prominent people substantially affect the contact tracking apps' adoption. The more powerful those people's influence is, the more an individual is likely to follow their opinion in using the apps. The study by Arora et al. (2020) discovered that peer influence was critical in determining app adoption by investigating the social impact on how individuals were exposed to the latest apps. Besides, individuals' social networks also significantly impact one's acquisition of mobile apps, as demonstrated by Malik et al. (2017). Therefore, it is predicted that social influence will affect Malaysian young adults' adoption intention towards online dating apps.

H4: Facilitating conditions (FC) significantly influence the adoption intention towards online dating apps among young adults in Malaysia.

The facilitating condition captures individuals' judgments of the resources obtainable to aid the adoption, encompassing external and internal variables that impact individuals' adoption intentions, according to Venkatesh et al. (2016). In particular, a user who is accessible to a desirable set of enabling requirements will increase the chances to adopt a technology. Users intend to adopt mobile apps if they have the appropriate resources and support, such as online assistance, mobile devices, internet connectivity, etc. (Hew et al., 2015). According to Puriwat and Tripopsakul (2021), facilitating conditions substantially and positively impact social networking app adoption behaviour. While not all users have a limitless mobile internet connection, the extent to which mobile app performance is dependent on continuous internet connectivity may influence users' intention to adopt mobile apps (Vinnik, 2017). It is hypothesized that the facilitating condition will influence Malaysian young adults' intention to adopt online dating apps.

H5: Trust (TR) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

According to Chao (2019), an essential element that impacts the intention of people to use internet technology is trust. People are less inclined to trust internet technologies when the risk level increases (Arfi et al., 2021). Besides, trust is also crucial in deciding subsequent actions between two or more parties and building interpersonal and commercial relationships (Waseem et al., 2018). People who are grouped have similar values and aims tend to view each other favourably according to the theory of perceived similarity (Liu & Xiong, 2016). Users who believe that other Internet users are like them are more likely to trust them, especially in social apps. It is predicted that the absence of trust has negative consequences on user experience, reducing consumers' willingness to adopt the apps.

3 Research Methodology

3.1 Research Design

A quantitative research approach is applied for accurate analysis. The quantitative research approach emphasises gathering and evaluating measurable, organised data, and the results interpreted can be represented statistically (Goertzen, 2017). According to Goertzen (2017), one of the main objectives is to provide accurate, at the same time, reliable measurements for statistical analysis. The quantitative approach is used to obtain results from a larger sample size. Thus, it is suitable for this research context. Furthermore, the descriptive research design is applied to determine the factors of online dating apps' adoption intention among young adults in Malaysia. The descriptive research method explains phenomena and traits using statistical analysis to determine the relationship (Akhtar, 2016). According to Akhtar (2016), descriptive research describes conditions such as social events, social structure, and social situations. This research design is used to investigate current situations and answer the questions regarding what, who, where, how and when (Akhtar, 2016). It emphasises the determinants instead of the association between the variables. As this research investigates the determinants of adoption intention, descriptive research design can be applied in this study context.

3.2 Sampling Design

3.2.1 Target Population

The targeted population for this study is young adults aged 18–30 in Malaysia. According to a past study on young adults coping with loneliness, the age range is determined from 18 to 30 years old (Golemis et al., 2022). Besides, according to the Youth Societies and Youth Development (Amendment) Act 2019, youth is defined as between 15 and 30 years old. Besides, the age of the majority is 18 years old or older, according to the Age of Majority Act of 1971. Many major online dating sites and apps have an age limitation of 18 years old. For instance, minors below 18 years old are prohibited from using online dating sites and apps (Bumble, 2021; OkCupid, 2022; Tinder, 2021; Tan Tan, n.d.). Thus, specifically, in this research, the target population is Malaysian young adults aged 18 to 30 years old.

3.2.2 Sampling Method

As the sampling frame for Malaysian young adults aged above 18 is unavailable, this study uses a non-probability sampling method, known as the judgemental sampling method, to collect data. Recently, researchers have been using a judgmental sampling method to study adoption intention using the UTAUT model (Daka & Phiri, 2019; Mahardika & Giantari, 2020; Rosnidah et al., 2019). Judgemental sampling design means that the samples are selected according to the judgement of the researcher (Etikan & Bala, 2017). Furthermore, judgemental sampling is cheap, easy, time-saving and ideal for quantitative research design (Taherdoost, 2016).

The researchers selected samples with a certain understanding of online dating apps in this research. The selected samples are (1) aged from 18 years old to 30 years old,

(2) have at least heard about online dating apps before and (3) never used or currently not using online dating apps. Furthermore, the respondents are expected to read and understand English as the questionnaire is conducted in English. The questionnaire is distributed to the respondents who meet the requirements. This sampling method allows researchers to reach the right audience.

3.2.3 Sampling Size

According to Population Pyramid (2021), Malaysia's total population in 2021 is 32,776,195 people. Approximately 7,390,831 Malaysians are aged 18 to 30.

According to DataStar (2008), at a confidence level of 95%, the tolerable margin of error applied by survey researchers is between 4% and 8%. In this research, the margin of error is 6% at a 95% confidence level, the population size is approximately 7,400,000, and the response distribution is 50%. Using the sample size calculation based on the normal distribution, the recommended minimum sample size is 267 (Raosoft, 2004). In this research, the sample size will be 280.

3.3 Research Procedure

3.3.1 Primary Data Collection Procedures

The term "primary data" refers to a dataset that was obtained directly by the researcher for a certain study. Various methods can be used to collect primary data (Salkind, 2010). Questionnaires will be the primary data collection technique in this research. Questionnaires are an affordable, efficient, and effective way to gather huge amounts of data from a larger sample of people. Data can be obtained in a short amount of time because the researcher is unnecessary to be onsite when the surveys are being completed by the respondents (McLeod, 2018). Google Forms will be the tool for creating online questionnaires in this research as it includes basic data validation, skip logic, and a variety of questions kinds. Researchers may contact as many people as they hope rapid and efficiently with online questionnaires (QuestionPro, 2021). The online questionnaire will be distributed by email, QR codes, social media and online pages. The primary data would be collected by distributing questionnaires to 280 young adult participants.

3.3.2 Questionnaire Design

The questionnaire is in English and is categorised into three sections: Pre-Screening, Section A and Section B. Respondents are requested to answer three screening questions in the pre-screening section to ensure the respondents' validation before continuing to the subsequent section. In Section A, demographic profiles, for instance, age, gender, race and sexual orientation, are required from the target respondents. Section B focused on the response of respondents regarding the IVs (PE, EE, SI, FC and TR) and DV (AI) of this research. There are a total of 30 questions in this section, and 5 questions are allocated for each construct. The items adopted are being modified to suit this research study. The Five-Point Likert Scale is applied in the design of questions in Section B with the scale from strongly disagree to strongly agree.

3.4 Proposed Data Analysis Tool

Statistical Package for Social Science (SPSS) software is proposed to interpret collected data (Puteh & Azman Ong, 2017).

3.4.1 Descriptive Analysis

To summarise the raw data, a descriptive analysis will be conducted in this research (Kaur et al., 2018). This analysis includes the measures of frequency, central tendency, dispersion, and position. As descriptive analysis compresses data which consists of the demographic data into a concise summary, it allows researchers to interpret the data easily and evaluate specific populations in a more structured manner.

3.4.2 Internal Consistency Analysis

The internal consistency analysis will be applied to assess the consistency and accuracy of outcomes across the test variables (Hajjar, 2018). Sekaran and Bougie (2016) insisted that the most usual internal consistency measure would be Cronbach's Alpha. The application of Cronbach's Alpha can determine the test values' reliability. The rule of thumb on Cronbach's Alpha is shown in Table 1 (Malhotra et al., 2017).

Cronbach's Alpha scale spans from 0 to 1, which is being used to access the value of accuracy of each variable. As shown in Table 1, a rule of thumb shows that a reliability score of 0.6 to less than 0.7 suggests a fair level of reliability. Meanwhile, a reliability score greater than 0.8 or above shows a very good level of reliability. Nevertheless, when the value exceeds 0.95, it is not necessarily desirable as this suggests redundancy of response.

3.4.3 Inferential Analysis: Multiple Regression Analysis

Multiple regression analysis examines relationships between IVs and one DV (Malhotra et al., 2017). This analysis is mainly used to identify the effect of several IVs on a DV. According to Kurniatullah and Pramudi (2017), the common form of the multiple regression equation is as follows:

$$Y = a + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + \ldots + bkXk$$

Table 1. Rule of Thumb on Cronbach's Alpha

Cronbach's Alpha	Level of Reliability
<0.60	Poor
0.60 to < 0.70	Fair
0.70 to < 0.80	Good
0.80 to < 0.95	Very Good

Note. From Malhotra, N. K., Nunan, D., & Birks, D. F. (2017). Marketing Research: An applied approach, (5th ed). United Kingdom: Pearson.

The equation generated for this research is as follows:

$$AI = a + b1(PE) + b2(EE) + b3(SI) + b4(FC) + b5(TR)$$

Whereby,

AI = Adoption Intention of Online Dating Apps
A = constant
PE = Performance Expectancy
EE = Effort Expectancy
SI = Social Influence
FC = Facilitating Conditions
TR = Trust

By using this equation, the researchers can predict the value of DV (AI) by using the values of IVs (PE, EE, SI, FC, TR).

4 Data Analysis

296 questionnaires were administered, and 280 valid responses were collected. A descriptive analysis is performed first followed by a reliability test. Preliminary data screening was performed to see if multicollinearity and the issue of non-normality are present. Nevertheless, Multiple Linear Regression Analysis is employed to analyse the collected data. Version 26.0 SPSS is used to examine data for this research.

4.1 Descriptive Analysis

4.1.1 Gender

According to Fig. 3, the number of female participants outnumbered the male participants in the present study. 64.6% of the respondents are female (N = 181), while the rest are male (N = 99, 35.4%).

4.1.2 Race

Among the 280 valid responders shown in Fig. 4, Chinese respondents accounted for the largest portion of 86.4% (N = 242), followed by 7.9% of Malay respondents (N = 22) and 5.7% of Indian respondents (N = 16). In this study, there are fewer Malay and Indian respondents. The possible reason might be that most Malay and Indian communities still believe that arranged marriages would be the appropriate way to develop a love relationship. Due to their cultures, only a small portion of them allow their child to find their loved ones by themselves (Zhang, 2005; Kukreja, 2022).
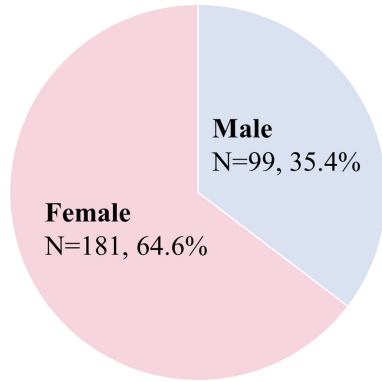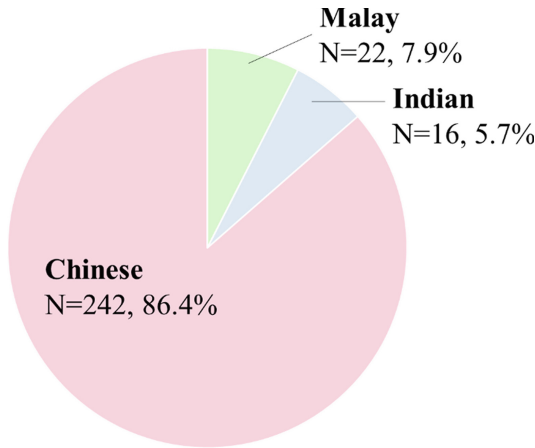
Fig. 3. Gender of Respondents

Fig. 4. Race of Respondents

4.1.3   Sexual Orientation

According to Fig. 5, most of the respondents are heterosexual, which are attracted to people of the opposite sex (N = 269, 96.1%). At the same time, ten respondents claim that their sexual orientation is bisexual (3.6%). Only one homosexual respondent is reported in this study, consisting of only 0.4%.

Among this study (Fig. 6), Tantan is the most popular online dating app which approximately 37% of people heard about this app before, followed by Tinder (30.9%), Facebook Dating (16.4%) Bumble (4.5%), OkCupid (3.9%), Paktor (3.4%) Match.com (2.4%), Soul (0.7%), Coffee Meets Bagel (0.4%) and Grindr (0.1%).

4.2   Internal Consistency Analysis

According to the rule of thumb on Cronbach's Alpha, variables with a Cronbach Alpha range above 0.8 have very good reliability (Malhotra et al., 2017). According to Table
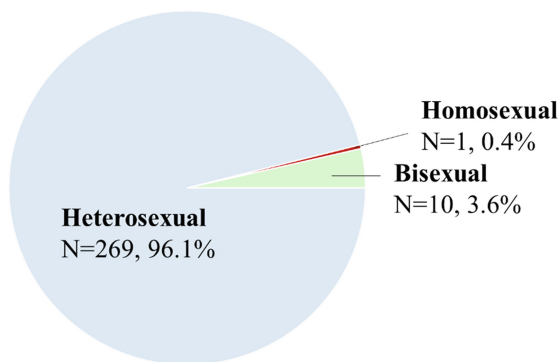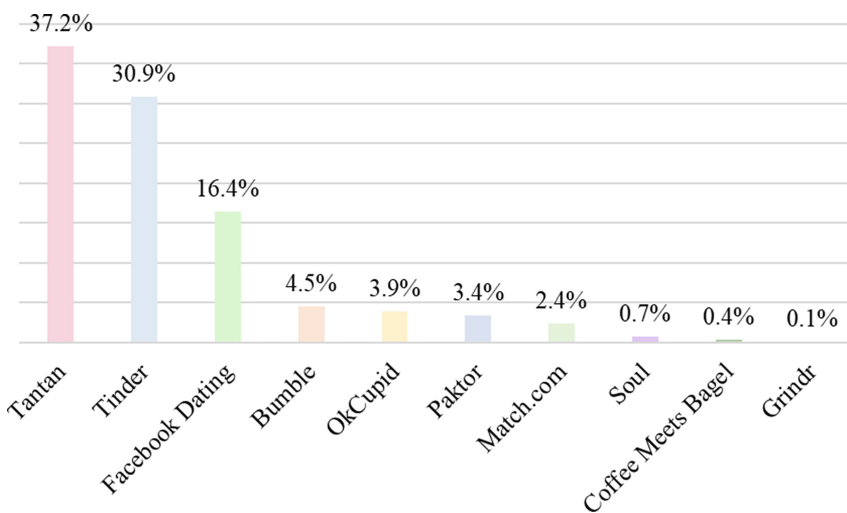
Fig. 5. Sexual Orientation of Respondents

Fig. 6. The popularity of Online Dating Apps

2, all the tested variables' Cronbach Alpha scores are higher than 0.8, so the reliability is very good. It also shows that the consistency and accuracy of the result are reliable.

4.3 Inferential Analysis: Multiple Regression Analysis

According to Moore and Flinger (2013), it states that when the range of R-squared value is between 0.5 and 0.7, it can be considered a moderate effect size. Based on Table 3, the R-squared value is 0.565. It means that 56.5% of the variability of young adults' AI towards online dating apps can be justified by all IVs in this research.

Based on Table 4, the F-value of this research is 71.157, and P-value is <0.0001. The relationship between IVs and DV is statistically significant as the P-value is lower than 0.05 (McLeod, 2019). Thus, PE, EE, SI, FC and TR can demonstrate the variation in AI toward online dating apps among young adults in Malaysia.

Table 2. Result of Reliability

Variables		Number of Items	Cronbach's Alpha	Result of Reliability
Dependent Variable (DV)	AI	5	0.928	Very Good
Independent Variables (IV)	PE	5	0.871	Very Good
	EE	5	0.831	Very Good
	SI	5	0.911	Very Good
	FC	5	0.850	Very Good
	TR	5	0.889	Very Good

Table 3. Model Summary

Model	R	R-Square	Adjusted R Square	Std. Error of the Estimate
1	.752[a]	.565	.557	3.30599

a. Predictors: (Constant), TR, EE, SI, FC, PE

Table 4. Anova Result

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3888.592	5	777.718	71.157	.000[b]
	Residual	2994.708	274	10.930		
	Total	6883.300	279			

[a] Dependent Variable: AI. [b] Predictors: (Constant), TR, EE, SI, FC, PE

Table 5 shows the P-values of PE, SI, and TR are <0.0001, which is lower than 0.05. This means that these three IVs significantly influence AI. On the other hand, EE and FC have the P-values of 0.889 and 0.410 each, greater than 0.05. This indicates that EE and FC have no significant relationship with AI. Besides, the standardised coefficient of SI (0.318) suggests that it is the most influential IV as it has the largest absolute value among other IVs. The unstandardised PE, SI, and TR coefficients positively correlate with AI. Hence, the multiple regression equation is as below:

$$AI = 0.263 + 0.327(PE) + 0.310(SI) + 0.340(TR)$$

According to Malhotra et al. (2017), the equation above explains when AI increases by 0.327, 0.310 and 0.340 units respectively when the IVs of PE, SI and TR increase by one unit.

To sum up, H1, H3 and H5 are accepted while H2 and H4 are rejected (Table 6).

Table 5. Coefficients of Equation

Model		Unstandardized Coefficients	Standardized Coefficients			
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.263	1.158		.227	.821
	PE	.327	.069	.284	4.732	0.000
	EE	.010	.073	.007	.139	.889
	SI	.310	.051	.318	6.071	0.000
	FC	-.052	.063	-.044	-.826	.410
	TR	.340	.065	.300	5.246	0.000

[a] Dependent Variable: AI

Table 6. Summary of the results of hypothesis testing

Hypothesis	Sig.	Result
H1: **Performance expectancy (PE)** significantly influences the adoption intention towards online dating apps among young adults in Malaysia.	0.000	Supported
H2: **Effort expectancy (EE)** significantly influences the AI towards online dating apps among young adults in Malaysia.	0.889	Not supported
H3: **Social influence (SI)** significantly influences the AI towards online dating apps among young adults in Malaysia.	0.000	Supported
H4: **Facilitating conditions (FC)** significantly influences the AI towards online dating apps among young adults in Malaysia.	0.410	Not supported
H5: **Trust (TR)** significantly influences the AI towards online dating apps among young adults in Malaysia.	0.000	Supported

5   Conclusion and Discussion

5.1   Discussion of Major Findings

H1: Performance expectancy (PE) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

The finding shows that PE significantly influences Malaysian young adults' adoption intention towards online dating apps. This research has discovered that users are concerned about the usefulness of dating apps in carrying out beneficial functions such as expanding social networks, increasing dating chances, and satisfying dating needs. The result is compatible with the prior study. Based on the past research by Saprikis et al. (2021), it has been discovered that users' performance expectancy has a major influence

on their desire to pursue mobile apps if they feel that using mobile apps will result in positive outcomes.

H2: Effort expectancy (EE) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

There is a contradictory result whereby EE has no significant influence on the adoption intention of online dating apps among young adults in Malaysia. The finding is incompatible with an earlier study that stated that effort expectancy could affect the intention to adopt a technology (Abrahão, Moriguchi & Andrade, 2016). However, previous research by Alowayr (2022) is consistent with the finding of this research, as EE had no substantial impact on mobile technology adoption intentions since most users are unconcerned with the required effort and time in utilising technology. Hence, it could further explain that although young adults may take some time to discover how to use online dating apps' features, they are ready to adopt them due to the benefits of the apps in facilitating their usage performance.

H3: Social influence (SI) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

According to the results, SI significantly influences Malaysian young adults' adoption intention towards online dating apps. According to this study, the people who are significant to them, especially peers have affected their decision to use online dating apps. The significant people tend to affect their intention by communicating the advantages of online dating apps and will recommend the individual to use the apps. This can be supported by Peng and Cao (2017) that social influence such as peer influence becomes more directly influential to an individual in becoming an online dating app adopter.

H4: Facilitating conditions (FC) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

H4 is rejected based on the findings whereby FC has no significant influence on Malaysian young adults' adoption intention towards online dating apps. A past study by Puriwat and Tripopsakul (2021) demonstrated that facilitating conditions affect user adoption behaviour. However, this research finding is inconsistent with the earlier study. The probable explanation may be that the users are familiar with the operation of mobile technology. There is less requirement for technological infrastructure and support from the users to adopt mobile technology; hence, it was not the primary concern of most users (Alowayr, 2022).

H5: Trust (TR) significantly influences the adoption intention towards online dating apps among young adults in Malaysia.

According to the findings, TR significantly influences Malaysian young adults' adoption intention towards online dating apps. The result is consistent with past research by

Almaiah et al. (2020). There is a greater reluctance to decide on adopting mobile services due to a lack of trust. Therefore, when trust improves, there will be less reluctance from young adults to adopt online dating apps and an increase in the number of users using online dating apps.

5.2 Implications of the Study

5.2.1 Theoretical Implications

In terms of theoretical implications, this research contributes by providing insights on the "Determinants of Online Dating Apps Adoption Intention Among Young Adults in Malaysia". The theoretical framework of the UTAUT model is used in this research to examine the adoption intention. The theory is proposed to discover user intent to adopt an information system and subsequent usage behaviour. This research modifies the UTAUT model by including an additional variable – Trust (TR). In this research, Performance Expectancy (PE), Social Influence (SI) and Trust (TR) indicate positive influence towards online dating apps (ODA) adoption. While the hypothesis of Effort Expectancy (EE) and Facilitating Conditions (FC) positively influencing online dating apps adoption are rejected. Previously, limited research studied how TR can influence the adoption of ODA. Therefore, the study of the additional variable – TR in this research may provide better insights into future research on dating apps adoption. People are more likely to adopt dating apps at lower risk. Furthermore, this research has contributed to the relevant online dating app research field. Many researchers have adopted the UTAUT model in studying mobile payment apps, e-banking apps, learning apps, etc. However, no foundable study has been done on the adoption intention of online dating apps using this model. This research reflects the broad range of activities and outcomes undertaken and achieved. Relevant researchers who are studying this topic may benefit from this study. To sum up, the study of the UTAUT model in this research is partially supported as two hypotheses are rejected. Hence, further study of the theory is needed, or modifications are necessary.

5.2.2 Managerial Implications

Besides theoretical implications, some managerial implications have been made for the development and usage of online dating apps.

First and foremost, ODA developers should pay more attention to TR towards ODA as there have been limited studies on this topic previously. The findings recommend that TR is a significant determinant influencing the adoption intention. TR has been identified as an essential determinant in raising advantage perceptions and lowering perceived risks. When it comes to online dating, TR towards the intermediary (for example, the online dating apps) and other human parties (e.g., other users on the app) might have varying effects on individuals' adoption intention. For instance, ODA developers should focus more on verifying the authenticity of users' identities. ODA developers should consider creating adequate information verification and privacy protection policies to alleviate individual apprehensions about online dating. Individuals' perceived risks will be reduced as a result of their reservations about privacy infringement.

Second, ODA developers should focus on the PE of the ODA. As this research suggests that PE has a positive influence on the adoption intention, the effectiveness of finding the right partner in online dating apps is very crucial. Assessing users' profiles and getting feedback from users is very important to increase efficacy. To exemplify, developers may show testimonials or feedback from real users showing the effectiveness in finding a perfect match in the apps.

On the other hand, SI positively influences adoption intention in this study. Young adults appear to use social media and online dating apps more due to the influence of their peers and the people around them. Peers greatly influence users' adoption intention; the satisfaction and pleasure in using the app would motivate them to recommend it to their peers. For instance, ODA developers may consider implementing a referral reward program by incentivizing previous customers to recommend the apps to their families and friends.

5.3   Limitations and Recommendations of Study

The data collection method utilised for this study is limited. Google Forms was chosen for the data collection method since the survey was carried out amid the Covid-19 pandemic. The team noticed that the respondents might not put in the full effort while filling up the questionnaire. The response collected for the study might not reflect the genuine attitude or behaviour towards the adoption of online dating apps. Due to the Covid-19 pandemic, there are a variety of research questionnaires being distributed on social media due to convenience, causing the questionnaires to be generalised, overlooked, and ignored by the participants. Even though the participants are aware of the questionnaires, most are unwilling to participate. Due to this situation, the data collection efficiency fell behind, and the duration of the data collection process was dragged down. Therefore, future researchers are encouraged to provide incentives to the respondents that have successfully filled up the questionnaires. It will be more efficient for the data collection process as the potential respondents will be triggered by the reward given and pay attention to the questionnaires distributed. With the incentives offered by the researchers, the participants could feel sincerity, thus feel a sense of worthiness, and increase their willingness to fill up the questionnaires.

Besides, limitations are found in the demographic profile of the respondents. According to the demographic profile, Chinese respondents hold the biggest portion of the population, 86.4%, while Malay and Indian respondents occupied 7.9% and 5.7%, respectively. The reason behind this may be caused by the cultural difference between the Malay and Indian communities. Due to their beliefs, the majority of them still feel that planned weddings are the best way to build a love relationship, and only a tiny percentage of them allow their children to discover their loved ones on their own (Zhang, 2005; Kukreja, 2022). Thus, they may not find the questionnaires relevant to them. Due to data limitations, the study might not accurately reflect Malay and Indian individuals' intended behaviour in adopting online dating apps. Hence, future researchers are encouraged to conduct future studies focusing on specific races to discover more about their adoption behaviour towards online dating apps. This kind of study can help determine different aspects and perspectives on the adoption intention of online dating apps. It may also act

as a reference to the online dating companies that intend to target the market of different race communities.

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