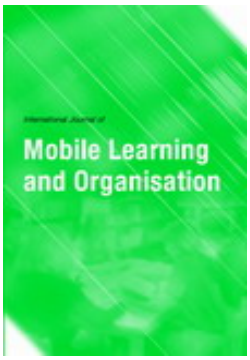

International Journal of Mobile Learning and Organisation

ISSN online: 1746-7268 - ISSN print: 1746-725X
https://www.inderscience.com/ijmlo

Factors affecting users' continuance intention to use social network sites: a sample of Vietnamese Facebookers

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DOI: 10.1504/IJMLO.2024.10056983

Article History:

Received:	10 March 2023
Last revised:	13 March 2023
Accepted:	22 March 2023
Published online:	02 December 2024

Factors affecting users' continuance intention to use social network sites: a sample of Vietnamese Facebookers

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Abstract: This study adopts social exchange theory as the research framework to investigate the factors influencing users' interactivity and self-disclosure on social media platforms, and explores which factors can successfully increase users' intention to continue using the platform. A total of 874 valid samples were collected, and the results confirmed that: 1) benefit factors are the main antecedents affecting user interactivity and self-disclosure; 2) the determinative factors that affect users' intention to continue using the platform are users' perception of human-computer interaction, interpersonal interaction, and self-disclosure depth; 3) users' immersion experience moderates the positive impact of interaction on intention to continue using. This study provides academic and practical management implications and recommendations for future researchers.

Keywords: interaction; Facebook; immersion; interaction; self-disclosure.

Reference to this paper should be made as follows: Duong, N.T. (2025) 'Factors affecting users' continuance intention to use social network sites: a sample of Vietnamese Facebookers', *Int. J. Mobile Learning and Organisation*, Vol. 19, No. 1, pp.87–112.

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1 Introduction

Research on the motivation of using social networking sites showed that maintaining interpersonal relationships and making new friends are one of the main motivations for users to use social networking sites (Eginli and Tas, 2018). In order to achieve this goal, users tend to maintain relationships with others through interactive behaviours and self-disclosure behaviours. Self-disclosure behaviours on social networking sites can be generated through personal files or through the process of interacting with others, such as posting comments, participating in group discussion or release status (Richey et al., 2018). Due to the anonymous nature of most social networking sites today, those who are

more introverted, shy, or have social anxiety can easily use social networking sites to interact with others. Through these websites, users can disclose themselves, share their thoughts and experiences with others (Yu et al., 2015). In the research on social networking sites, the interactivity and self-disclosure of social networking sites are seen as important factors affecting the use of social networking sites (Cheung et al., 2015). Therefore, in this study, the two variables of interactivity and self-disclosure are used as the main purpose of people's use of social networking sites.

According social exchange theory, when an individual wants to develop interpersonal relationships with others, or perform a certain behaviour or activity, he will decide whether to implement it after evaluating the potential benefits and potential costs of the behaviour (Kankanhalli et al., 2005). On the other hand, the main purpose of social networking sites is to provide a platform for interpersonal interaction, allowing users to have more free space to communicate with others, or to express themselves, vent their emotions and relax. Therefore, this study uses social exchange theory as the main theoretical framework of the research, to explore the impact of factors affecting interactivity and self-disclosure on social networking sites. In previous studies based on social exchange theory and conducted on interaction and disclosure behaviour, issues such as trust, reciprocal behaviour, monetary reward, perceived risk, and perceived usefulness have often been discussed (Loiacono, 2015; Šilkūnaitė, 2023). However, the factors that affect the interaction and disclosure behaviour of users may not only be interpersonal issues such as trust or reciprocal behaviour among members of the community, or issues such as monetary rewards that are highly related to trading behaviours. After all, most social networking sites do not need to pay any fees to apply for membership. Taking Facebook as an example, if you have a valid e-mail account, you can join and use it. Therefore, the factors affecting users' interaction and disclosure behaviour on social networking sites may be related to the functions provided by the site and the overall impression presented to users. For example, if the network system can create a rich and colourful interface, it will be able to capture the user's attention more effectively and make the interactive process more interesting. Thus, the study will refer to Luo and Hancock (2020) classification of the antecedent variables of social networking sites, and the functional characteristics provided by social networking sites, such as updating status, adding photos and videos, online chat, sharing information, games, etc., which provides users with positive emotional feelings such as effective self-presentation, enjoyment, and a sense of social presence such as warmth, sociability, and personalisation generated in the process of instant interaction, the study would like to explore the impacts of self-presentation, social presence and hedonicity. By that, the study aims to investigate the antecedents of benefits affecting interaction and disclosure behaviour are divided into three dimensions: self-presentation, social presence, and enjoyment.

In terms of cost, this study incorporates privacy risk beliefs as an influencing factor, instead of variables such as perceived risk, risk beliefs, perceived network risk, and others that have been used by previous scholars (Lăzăroiu et al., 2020). The study focuses on privacy issues that are of most concern to most internet users and uses the privacy risk belief variable developed from the privacy computing theory based on social exchange theory as a factor on the cost. Social exchange theory views individual behaviour as a process of rational choice, often exploring trust, reciprocal behaviour, monetary rewards, perceived risk, perceived usefulness, and other aspects to understand the influence on individual choice behaviour in different research contexts (Cheung et al., 2015; Lăzăroiu

et al., 2020). However, personal psychological characteristics such as social anxiety and social support are also important issues in social media research. Therefore, based on past research on social anxiety and social support, individuals with social anxiety tend to avoid face-to-face interaction or tend to rely on safe social behaviours, such as monitoring conversation content, to avoid anxiety (Clark et al., 2005). As a result, it is more difficult for them to establish connections with others in social networks and obtain social support (Wenzel, 2002). The internet provides a more comfortable environment that reduces the interaction modes that anxious individuals fear, such as eye contact, blushing, trembling, etc. (Rasouli et al., 2022), allowing individuals with social anxiety to interact with others in a non-face-to-face manner and obtain social support, thus enhancing their well-being. Therefore, referring to past research on social anxiety and social support (Moghtader and Shamloo, 2019; Porter and Chambless, 2017), social anxiety and social support are included as psychological variables to supplement the social exchange theory from the three aspects of benefit, cost, and psychology, in order to more reasonably and comprehensively explore the behaviour of Facebook users.

This study uses continuance intention to use as the outcome variable because in the long run, the most crucial factor for the survival of a social networking site is the users' continuous usage behaviour, rather than a one-time usage behaviour. Only when users continue to use the site repeatedly, can the network externalities be achieved, attracting more people to join, and creating revenue for the site operators through advertising links, game charges, and other means. In addition, users' intention to use the site is also influenced by their immersive experience. Studies on online shopping, brand websites, online games, and others have all indicated that the interactivity provided by a website can affect users' immersive experience (Billewar et al., 2022). Therefore, continuance intention to use is set as the outcome variable, and immersion is set as the moderator variable, exploring the effects of the variables from different perspectives.

Based on the above motivations, the following objectives are expected to be achieved:

1 explore the antecedents that affect social networking site users' interactive and self-disclosure behaviours

2 investigate whether interactive and self-disclosure behaviours affect social networking site users' continuance intention to use

3 explore whether moderator variables have a moderating effect between interaction and continuance intention to use.

This study is expected to be helpful for subsequent researchers and social networking site operators in formulating operational strategies.

2 Literature review

2.1 Social exchange theory

Social exchange theory originated in the 1950s. The main basic concept of social exchange theory is that interpersonal relationships are formed based on subjective evaluations of benefits and costs. That is, when individuals decide to form interpersonal relationships or engage in certain behaviours, they will evaluate the potential benefits and

losses of the behaviour. When the assessed benefit side outweighs the loss side, individuals will take action. This way of assessing benefits and losses before taking action is seen as a rational behavioural process (Homans, 1958).

Previous studies on interactivity and self-disclosure based on social exchange theory have focused more on exploring issues such as trust, reciprocity, monetary rewards, perceived risks, and perceived usefulness proposed by the technology acceptance model (Lăzăroiu et al., 2020; Liu et al., 2016). However, there is a lack of an overall conceptual framework for the features provided by online social networking sites. Therefore, according to the classification of benefits and costs for social networking sites proposed by Luo and Hancock (2020), and based on the sharing, interactivity, entertainment, and other features provided by online social networking sites, the highly social presence of real-time interaction in the process can also affect users' warmth, personalisation, socialisation, and other feelings, which may have an impact on their usage behaviour (Cheung et al., 2015). Therefore, the antecedents that affect interactive and self-disclosure behaviours are classified into three dimensions: self-presentation, social presence, and enjoyment. Besides, considering the privacy issues that are most concerning to social networking site users (Ku et al., 2013), the antecedents that affect interactivity and self-disclosure from the cost perspective include the variable of privacy risk beliefs.

2.2 Self-presentation

Self-presentation refers to the process of personal information management, and this personal information can be used to define one's state of being and allow others to form impressions of oneself through the information displayed. Additionally, self-presentation is also known as impression management, which represents the means by which humans attempt to influence others' impressions of themselves through control (Schlenker, 1980). Because the content of self-presentation not only reflects the true self but also represents how one wants others to perceive oneself, self-presentation can also serve as a tool to compensate for the real and ideal self (Schlenker, 1980).

In the world of the internet, through the process of self-presentation, Facebook users can construct their personal image by providing various self-information and manage how others perceive them, shaping their ideal impression and association in the eyes of others. Therefore, self- presentation is considered a benefit and is further investigated to explore its impact on Facebook usage and interactive behaviour.

2.3 Social presence

Social presence refers to the extent to which media can make users feel the presence of others in a psychological sense (Gefen et al., 2003). It is a psychological connection, and when users feel a higher degree of warmth, personalisation, and sociability in the website, they can create a feeling of interpersonal contact and interaction in the user's mind, similar to the real world (Toader et al., 2019). That is, the media can allow users to experience the degree of real interaction. Emotionally rich content or images can make users feel a higher social presence on the website (Hassanein and Head, 2007), and the degree to which the media can provide social presence will also affect the level of sociability in users when interacting with others through the media (Short et al., 1976). Therefore, media that can provide a high degree of social presence are often the preferred

tool for users to communicate and connect with others, and have a significant impact on users' participation in or continued use of social networking sites (Hassanein and Head, 2007).

In summary, social presence not only allows users to have a sense of real contact with people but also enables them to establish connections with others through the warmth and sociability gained in interactions. Although social presence has not been studied as a benefit variable in e-commerce-related research, this study regards social presence as a benefit variable based on the positive emotional experiences it brings to users and aims to explore its impact on Facebook usage and interaction behaviour.

2.4 Enjoyment

In research focusing on online social networking sites, such as Facebook, pleasure is defined as the feeling of happiness and enjoyment an individual experiences when performing specific behaviours or activities (Rodrigues et al., 2020). It is further defined as the value derived from the enjoyable and pleasurable experiences users obtain from using online social networking sites (Chen and Roberts, 2020). Davis et al. (1992) found in their research on computer usage motivation that external motivations, such as usefulness, and internal motivations, such as enjoyment, are both important factors influencing users' behaviour when using information systems, and subsequent research has yielded similar results (Lee et al., 2019; To and Trinh, 2021). In addition, online social networking sites belong to the category of entertainment-oriented information systems (Heinonen, 2011), and the significant factor affecting the usage intention of this type of online social networking sites is pleasure (Kim, 2011).

In summary, enjoyment is not only an important factor that affects the usage of information technology and online social networks, but it can also provide users with an immersive feeling that allows them to experience pleasure and enjoyment while using the technology or website. Therefore, enjoyment is considered a benefit and is further examined in depth for its impact on Facebook usage and interaction behaviour.

2.5 Privacy risk beliefs

Due to the growing awareness of privacy, privacy-related issues have received increasing attention in recent years, and many international companies such as Google and Facebook have faced strong impacts from privacy-related issues (Li et al., 2011). Among the many privacy-related issues, the most concern is the illegal misuse of personal information. According to the Zimmer et al. (2010), as many as 99% of online companies collect personal information from their website users. In addition, studies focusing on social networking sites also indicate that 76% of social networking site users believe that others can find their real identities from the information they disclose (Bateman et al., 2011).

Many research studies have confirmed that privacy risk beliefs have a strong negative impact on providing personal information to companies (Lăzăroiu et al., 2020). In research on disclosing health information to healthcare service websites, it was also found that privacy risk beliefs affect the intention to provide health information to the website, as well as users' trust in the website (Zimmer et al., 2010). In addition, in research on online social networking sites, it was found that users' attitudes towards privacy can affect the amount and types of content they share on the social networking

site (Stutzman et al., 2011). In summary, privacy risk beliefs not only increase users' concerns when using a website but can also affect or change users' attitudes and behaviours. Therefore, privacy risk beliefs are categorised as a cost factor to deeply explore their impact on the use and interaction behaviours of Facebook users.

2.6 Interactivity

Interactivity has been widely discussed by researchers in many fields, such as advertising, marketing, communication, information science, computer science, and education (McMillan and Hwang, 2002). However, although there are many academic studies investigating interactivity, there is still no consensus on its definition, and a complete operational definition has not been developed (McMillan and Hwang, 2002).

In the research of internet business applications, Hoffman et al. (1999) divided interactivity into two categories: machine interaction and interpersonal interaction. Machine interaction is defined as the interaction with the media, emphasising the connection between people and computer interfaces. When a user clicks on a media interface, the media responds to the user's requests, providing functions that allow users to interact with it directly through browsing, searching, sending information, etc. Interpersonal interaction is defined as interaction conducted through the media, emphasising the use of computers as a means for people to communicate with each other. Users can use the media to share values, exchange information, maintain interpersonal relationships, and other interactions (Keskin et al., 2023).

Many studies have shown that the dependent variable of this study is related to interactive behaviour. In terms of the benefit variables, it was found that 90% of social media users create personal profiles for self-presentation and to maintain contact with old friends and make new ones. Self-presentation behaviour is also one of the main reasons users post and read on blogs. Studies on online learning environments have also found that when users feel warmth and can interact with others in a personalised way, they experience a high sense of social presence and become deeply engaged in online interactions. In addition, the enjoyment factor experienced on websites not only positively affects attitudes and usage intentions but is also an important factor in the use of interactive information technologies such as instant messaging. Therefore, the following hypothesis is proposed:

H1 Benefit has a significant positive impact on interactivity.

In terms of cost, research on e-commerce has pointed out that consumers have concerns about privacy risk when providing information to merchants (Lăzăroiu et al., 2020). Therefore, the higher the privacy risk belief, the less likely they will engage in subsequent behaviours such as transactions and information exchange on the website. In addition, research on social networking sites has found that users' attitudes towards privacy on the site also affect the amount and type of content they share on the site (Eginli and Tas, 2018). Therefore, if users are particularly concerned about privacy issues, they are likely to reduce posting statuses and messages to interact with others. Based on the above, the following hypothesis is proposed:

H2 Cost has a significant negative impact on interactivity.

Although variables such as benefits and costs can all influence interactive behaviour, previous studies have not classified their interactive behaviours. Therefore, this study

aims to investigate the extent to which these antecedent variables affect both human-computer interaction and interpersonal interaction.

2.7 Factors influencing self-disclosure

There have been many different interpretations of the definition of self-disclosure by scholars. Self-disclosure is the intentional sharing of any information related to oneself, including personal thoughts, feelings, and experiences, with one or more individuals in an interactive process (Richey et al., 2018). With the changing times and technological advancements, the definition of self-disclosure has also evolved. In the past, the definition of self-disclosure was limited to verbal communication (Cozby, 1973). With the emergence of new technologies such as the internet, scholars have also developed new perspectives on self-disclosure, defining it as the exchange of personal thoughts, feelings, and experiences with others either online or in real life, whether using an anonymous or real name (Chan, 2021).

In self-disclosure research, some scholars have explored it using a single dimension, while others have subdivided it into five dimensions: amount of disclosure, consciously intended disclosure, honesty-accuracy of self-disclosure, positiveness-negativeness of disclosure, and depth-intimacy of disclosure (Cozby, 1973). These dimensions aim to provide a more in-depth understanding of self-disclosure. The amount of disclosure refers to the frequency and duration of an individual's self-disclosure behaviour, consciously intended disclosure refers to the degree of control and awareness of an individual's self-disclosure behaviour, honesty-accuracy of self-disclosure refers to the correctness of the content disclosed, positiveness-negativeness of disclosure refers to whether the content disclosed is positive or negative, and depth-intimacy of disclosure refers to the level of intimacy in an individual's self-disclosure behaviour with others (Luo and Hancock, 2020).

This study examines the antecedents of self-disclosure and classifies them into four parts: benefit, cost, psychological, and interactive. In terms of the benefit aspect, previous research found that online social networking sites allow users to express themselves more efficiently and have ample time to form the impressions they want to show to others. In addition, users can reduce the pressure of face-to-face interactions, allowing them to decide the content and quantity of information they want to disclose. Moreover, self-presentation is found to be one of the motivations for disclosure. Thus, this study includes self-presentation as a variable in self-disclosure. With regards to instant messaging software, research found that when people perceive social presence characteristics such as personalisation, immediacy, warmth, and interactivity online, they are more likely to trust the website and tend to disclose more private and intimate information, although the content is more negative and unpleasant. The provision of pleasure-oriented functions and services also increases users' motivation to disclose personal information. Users feel the pleasure of benefits through self-disclosure and participation in using social networking sites. Based on the above, the following hypothesis is proposed:

H3 Benefit has a significant positive impact on self-disclosure.

In terms of cost, many studies related to privacy have found that the belief of privacy risk has a negative effect on self-disclosure. For example, in research on e-commerce, it has been shown that the belief of privacy risk has a strong negative impact on the disclosure

of information to unfamiliar e-commerce companies. In research on websites, it has been shown that the belief of privacy risk has a negative impact on attitudes, intentions, and behaviours related to disclosing personal information on the website. In research on social media, it has been found that users who have a stronger belief in privacy risk are more likely to prefer face-to-face interaction for disclosure since face-to-face disclosure does not leave a record like online disclosure, and it does not allow others to keep the disclosed information. Privacy and online security are also the top concerns of students when disclosing information on social media. In addition, the higher the perceived publicness of the disclosure, the more negatively it affects the intention to disclose, which shows that users may not want to share their disclosure with everyone and highlights the importance of privacy on social media. Therefore, the following hypothesis is proposed:

H4 Cost has a significant negative impact on self-disclosure.

2.8 Continuance intention to use

Continuance intention to use refers to users' intention to continue using an information system in the future, which is dependent on their experience and acceptance of the system (Bhattacherjee, 2001). The intention to continue using an information system is used to describe users' thoughts on whether they will continue to use the system in the future after having already used it. The importance of continuance intention is different from that of users' initial experience with the system, as the success of an information system in the long run depends on users' continued use behaviour, not just their initial use behaviour (Srite and Karahanna, 2006). Therefore, this study investigates the continued use intention of social media users to examine whether the aforementioned independent variables can influence users' intention to continue using the system in the future.

Jin et al. (2010) defined usability as human-machine interaction and sociability as interpersonal interaction in their study. The results showed that the level of usability (human-machine interaction) provided by online social networking sites did not affect users' proactivity in participating in the community, but the level of sociability (interpersonal interaction) did. Park and Yang (2012) found that the perceived interactivity of online social networking sites positively influenced community members' intention to participate in community activities, while sociability and system ability can affect users' attitudes and intentions to use social software such as e-mail, instant messaging, blogs, forums, social networking sites, and online games (Gao et al., 2010). In summary, the following hypothesis is proposed:

H5 Interactivity has a significant positive effect on continuance intention.

In addition, in addition to the fact that interaction behaviour on social networking sites affects users' usage intentions and behaviours, research on why users use social networking sites has also indicated that there are seven major factors that affect users' use of social networking sites, among which an important influencing factor is self-disclosure, because social networking site users need someone with whom to share their ideas and experiences (Eginli and Tas, 2018). Research specifically on social networking sites also indicates that when users engage in self-disclosure on social networking sites, users' attitudes towards self-disclosure and their self-disclosure behaviour will increase their intimacy with other users (Freeman, 2011), and the verbal and emotional intimacy with other social networking site users will also increase the

frequency of sharing information on that site (Zhao et al., 2020), thereby generating a continued usage intention. In summary, the following hypothesis is proposed:

H6 Self-disclosure has a significant positive impact on continuance intention to use.

2.9 Immersion

Immersion refers to a state where an individual focuses all their attention on a certain behaviour and becomes completely absorbed in it, as if losing self-awareness and being unaware of the passage of time (Csikszentmihalyi and Csikszentmihalyi, 1988). In the online world, users interact with each other through virtual identities, such as usernames, avatars, and virtual personas. When users believe that these virtual identities are extensions of their real selves, they find the interaction more interesting and engaging, leading to a sense of immersion (Freeman and Maloney, 2021). In social media, users frequently share personal information on their profiles, which can pique the interest of other users and cause them to become immersed in the browsing experience. Users also think about how to present their image and privacy, further contributing to a sense of immersion during the use of social media (Appel et al., 2020).

For example, the Facebook social networking site provides various types of gaming applications and has many fan pages and groups that allow users to interact, communicate, and share information with others through games or groups. Studies on immersion-related research targets such as online shopping, online games, and mobile instant messaging have shown that the interactivity provided by websites can affect users' sense of immersion. For example, a study on online shopping found that users' perceived interactivity positively affected their sense of immersion (Appel et al., 2020); a study on brand websites found that the higher the level of interactivity provided by the website, the higher the level of immersion experienced by users (Freeman and Maloney, 2021); and a study on online games found that the level of human-computer interaction and social interaction provided by online games had a significant positive effect on users' sense of immersion (Shin and Shin, 2011).

Immersion is an important determinant of users' online behaviour (Appel et al., 2020) and has been demonstrated to be an effective way of understanding users' behavioural intentions. Hoffman et al. (1999) proposed that media characteristics affect immersion, which in turn affects users' attitudes and behaviour. When individuals experience higher levels of immersion, they are likely to have higher levels of satisfaction and loyalty. For example, in the study of brand websites, it was found that the immersive experience on the website positively affected the intention to revisit the website (Appel et al., 2020); in the study of online games, immersion was found to have a significant positive effect on the intention to continue using the game (Shin and Shin, 2011); and in the study of mobile instant messaging, immersion was found to enhance users' satisfaction.

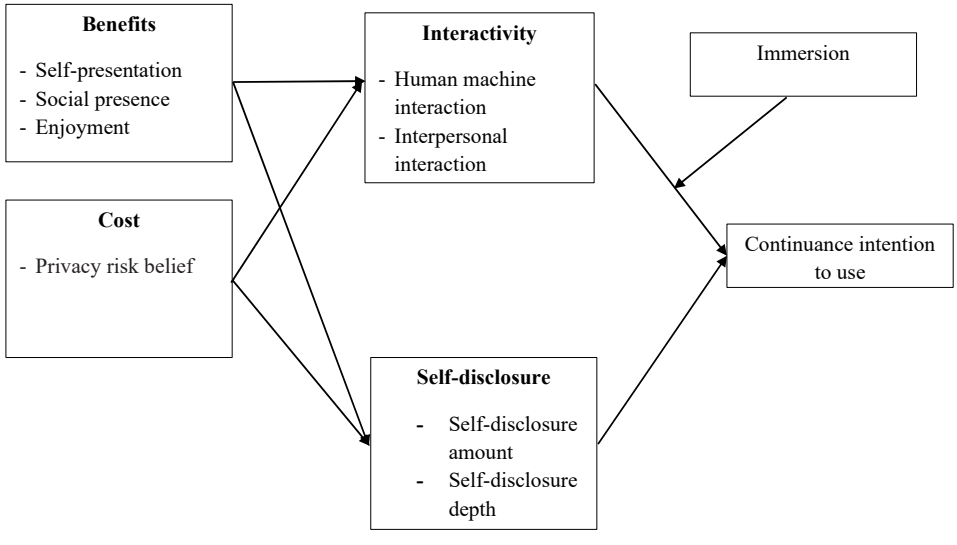
Although previous research has confirmed that interactive behaviour has a positive effect on immersion, and immersion also has a positive effect on continued usage intention, it can be inferred that the experience of immersion not only enhances the positive emotional state of the group, such as joy, excitement, and confidence, but also promotes individual exploration behaviour and social behaviour (Jones et al., 2014). However, few scholars have investigated whether immersion has a positive enhancing moderation effect on the path from interactive behaviour to continued usage intention in

social networking sites. Therefore, based on the above literature, the following hypothesis is proposed:

H7 Immersion has a significant moderating effect on the relationship between interactivity and continuance intention to use.

The conceptual model of this study is illustrated in Figure 1. Based on the literature review and social exchange theory, the antecedent variables are divided into two parts. The first part is the benefit aspect, which includes self-presentation, social presence, and enjoyment. The second part is the cost aspect, which is privacy risk belief. The outcome variable is the continuance intention, to investigate whether interactivity and self-disclosure will affect the user's continuance intention, and whether immersion will moderate the relationship between interactivity and the continuance intention.

Figure 1 Conceptual model



3 Method

3.1 Sample and procedures

This study limited the sample to users in Vietnam who have used Facebook for at least six months. Due to the fast data delivery speed of social networks, an online questionnaire was used as the survey tool to collect data, and the questionnaire content was sent to respondents through the Google online questionnaire. This study's online questionnaire was placed on the internet platform for people to fill out from November 2nd, 2021, to December 24th, 2021, and a total of 1,014 questionnaires were obtained. After excluding invalid questionnaires, such as those from

1 individuals who had never used Facebook

2 individuals who filled out the survey in a consistent manner

3 those with missing responses

4 those who did not fill out basic information, 874 valid questionnaires were obtained, resulting in an effective sample of 86%.

Among the 874 valid questionnaires, there were 442 responses from male respondents (50.57%) and 432 from female respondents (49.43%).

In terms of the personal basic information of the sample, there were more male participants (50.57%) than female participants (49.43%). In terms of age, the majority were between 20 to 24 years old (42.79%), followed by 25 to 34 years old (27.92%). In terms of education level, the majority had a college degree (78.49%), followed by a graduate degree or above (8.47%). In terms of occupation, the majority were students (87.53%), followed by those in the service industry (6.64%). In terms of monthly income, the majority earned less than 5 million VND (43.94%), followed by those earning 5 million to 10 million VND (31.81%). In terms of daily internet usage time, the majority spent 4 to 6 hours online (47.60%), followed by those spending less than 3 hours online (35.47%).

3.2 Measures

The questionnaire items, except for demographic variables, are divided into two types of measurement scales. The dimensions of social anxiety, social support, and immersion use the Likert 5-point scale to quantify the data filled in by respondents, with scores ranging from one to five, with one being strongly disagree and five being strongly agree. The dimensions of self-presentation, social presence, hedonic, privacy risk beliefs, human-machine interaction, interpersonal interaction, self-disclosure quantity, self-disclosure depth, and continuous use intention use the Likert 7-point scale to quantify the data filled in by respondents, with scores ranging from one to seven, with one being strongly disagree and seven being strongly agree.

- *Self-presentation:* Based on the literature review related to self-presentation, this study adopts a comprehensive perspective to define self-presentation as "the process of self-information management to construct a personal image and manage others' impressions of oneself in order to shape an ideal perception and association of oneself in the eyes of others". The measurement items are mainly based on the items in a past study (Krasnova et al., 2009).
- *Social presence:* Based on the literature review related to social presence, this study adopts a comprehensive perspective to define social presence as "the degree to which users experience humanistic, warm, intimate, and social feelings in the process of interaction". The measurement items mainly refer to the items in a past study (Animesh et al., 2011).

- *Enjoyment:* Based on the relevant literature on pleasure, this study adopts a comprehensive perspective to define pleasure as "the value of individuals obtaining pleasant and enjoyable experiences when performing specific behaviours or activities". The measurement items mainly refer to the items proposed by Krasnova et al. (2009).
- *Privacy risk beliefs:* Based on the literature related to privacy risk beliefs, this study uses a comprehensive perspective to define privacy risk beliefs as "the expected losses that may occur when providing personal information". The measurement items mainly refer to the items proposed by Li et al. (2011).
- *Interactivity:* The construct of interactivity with two dimensions including Human-Computer Interaction and Interpersonal Interaction. From the relevant literature on human-computer interaction, this study adopts a comprehensive perspective to define human-computer interaction as "the degree to which one can feel interaction with the information system when using social media". The measurement items mainly refer to the items proposed by Hoerner (1999). Besides, based on the relevant literature on interpersonal interaction, this study adopts a comprehensive perspective to define interpersonal interaction as "the degree to which individuals can perceive their interactions with others when using social media". The measurement items are mainly based on the items proposed by Hoerner (1999).
- *Self-disclosure:* The construct of self-disclosure with two dimensions including self-disclosure amount and self-disclosure depth. Based on the relevant literature on self-disclosure amount, this study defines self-disclosure amount as "the amount of intentional disclosure of any information related to oneself to others". The measurement items mainly refer to those proposed by Pornsakulvanich et al. (2008). Besides, based on the relevant literature on self-disclosure depth, this study defines self-disclosure depth from a comprehensive perspective as "the degree of privacy of information that individuals intentionally disclose to others that is relevant to themselves". The measurement items mainly refer to the items proposed by Pornsakulvanich et al. (2008).
- *Continuance intention to use:* Based on the literature review related to continuance intention, this study adopts a comprehensive perspective to define continuance intention as "the user's thoughts and intention to continue using in the future". The measurement items mainly refer to the items proposed by Kim (2011).
- *Immersion:* From the literature review on immersion, this study adopts a comprehensive perspective to define immersion as "the user's complete attention on using social media, being fully engrossed, and not feeling a loss of time perception". The measurement items mainly refer to the items proposed by Chang and Zhu (2012).

3.3 Analysis

This study used SPSS 24.0 and AMOS 24.0 statistical software packages for data analysis, based on the research objectives and hypotheses. Basic data analysis was conducted using SPSS 24.0, while overall model analysis was performed using AMOS 24.0 and structural equation modelling (SEM) statistical methods were used for

testing. Four types of statistical analysis methods were used in this study, including descriptive statistical analysis, common method variance (CMV) problem detection, reliability and validity analysis, and structural equation modelling analysis.

4 Results

4.1 Common method variance

To test for CMV issues in the data, Harman's single-factor method was used and conducted in two parts: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) for single-factor validation.

1 EFA: In the first part, all items were subjected to EFA, which extracted nine factors. The first factor explained 32.807% of the variance, which did not reach 50%. Therefore, it can be determined that the pretest sample data was not seriously affected by the CMV.

2 The second part of the analysis was a CFA of a single factor, which included all 44 items from the 11 constructs. The results showed that not all of the items had significant factor loadings of 0.5 or above, indicating that the sample was not significantly affected by CMV.

3 The fit indices of the one-factor CFA model are Chi-square = 10668.31, DF = 902, GFI = 0.561, AGFI = 0.518, IFI = 0.556, CFI = 0.555, RMSR = 0.080. The fit indices of the present study model are Chi-square = 2004.143, DF = 859, GFI = 0.888, AGFI = 0.871, IFI = 0.948, CFI = 0.948, RMSR = 0.033. The fit of the present study model is superior to that of the one-factor CFA model, indicating that the present study sample is not seriously affected by CMV.

4.2 Reliability and validity

Based on Anderson and Gerbing (1988), a two-stage approach of measurement model and structural model is used to conduct the data analysis for structural equation modelling. By separating the measurement and structural models, the two-stage approach can help determine whether the issue lies in the measurement model or the relationships between constructs when the test results are inconclusive. In evaluating the measurement model, Cronbach's alpha coefficient analysis and CFA are conducted for each construct and measurement item to understand the reliability, convergent validity, and discriminant validity of each concept and to develop a stable measurement model. In the overall structural model, the significance of path coefficients and various fit indices are examined to verify the proposed research hypotheses. This section focuses on testing the questionnaire's reliability and validity, where reliability is measured by Cronbach's alpha reliability coefficient and intercorrelations among variables, while validity is tested using CFA.

1 Convergent validity is examined through CFA, and according to the suggestion by Hair (2009), composite reliability (CR) and average variance extracted (AVE) are used to measure the convergent validity between latent variables and observed variables. CR is the reliability of the latent variable based on all observed variables

assessing the latent variable, and AVE is the average amount of variance explained by each observed variable of the latent variable. In this study, all constructs have a CR greater than 0.7, indicating good internal consistency of the observed variables assessing the latent variable (Bagozzi and Yi, 1988). Therefore, all constructs have good convergent validity.

2 Discriminant validity is measured based on the approach of Fornell and Larcker (1981) using the square root of AVE. If the correlation between two constructs is less than the square root of their AVEs, it indicates good discriminant validity. The results of this study meet the above criteria for discriminant validity, indicating that all constructs have good discriminant validity.

3 Reliability analysis is measured both at the item and construct levels. Item reliability is measured by factor loadings and squared multiple correlations (SMC). The factor loadings of all items met the standard suggested by Hair (2009) that factor loadings should be greater than 0.5, and the SMC values for each item met the threshold of 0.2 suggested by Bentler (1990). These results indicate good item reliability and high internal consistency. Construct reliability was measured using Cronbach's alpha coefficients, which ranges from 0.741 to 0.906 for each construct. All constructs exceeded the minimum threshold of 0.7 suggested by Nunnally (1978), indicating that they are reliable.

4.3 Model fit

The model fit of this study is $\chi 2/df = 2.333$, GFI = 0.888, AGFI = 0.871, NFI = 0.913, CFI = 0.948, IFI = 0.948, RMSEA = 0.039. Overall, based on the judgment of various indicators, the model fit of the theoretical model is good.

According to the hypothesis testing, the structural model analysis can verify the causal relationships between latent variables in the research framework. The hypothesis testing results are shown in Table 2, where r represents the regression coefficient between the exogenous latent variable and the endogenous latent variable, and b represents the regression coefficient between the endogenous latent variables. The research results show that except for nine path hypotheses, which are privacy risk beliefs on human-machine interaction (r14), privacy risk beliefs on interpersonal interaction (r24), social anxiety on human-machine interaction (r15), social anxiety on interpersonal interaction (r25), hedonic motivation on self-disclosure depth (r43), privacy risk beliefs on self-disclosure quantity (r34), privacy risk beliefs on self-disclosure depth (r44), social support on self-disclosure quantity (r36), and self-disclosure depth on continuance intention (r53), the remaining 19 path hypotheses are supported. Additionally, the results of the path analysis of the verified structural model are shown in Table 1, indicating good measurement results.

In the direct and indirect effect analysis of the continuance intention (Table 2), the dependent variables that have the most significant impact on the continuance intention are interpersonal interaction, followed by self-disclosure depth, enjoyment, social presence, self-presentation, human-computer interaction, social support, social anxiety, self-disclosure amount, and privacy risk beliefs. In terms of exogenous variables, enjoyment has the highest effect on the continuance intention, followed by social presence, self-presentation, social support, social anxiety, and privacy risk beliefs.

Table 1 Path analysis and hypothesis testing

Hypothesis	*Path*	*Relationships between dimensions*	*Path coefficient*	*p-value*	*Results*
H1a	r11	SP → MI	0.248	***	Supported
H1b	r21	SP → II	0.156	**	Supported
H1c	r12	SOP → MI	0.136	***	Supported
H1d	r22	SOP → II	0.176	***	Supported
H1e	r13	ENJ → MI	0.254	***	Supported
H1f	r23	ENJ → II	0.555	***	Supported
H2a	r14	PRB → MI	–0.019	X	Unsupported
H2b	r24	PRB → II	–0.040	X	Unsupported
H4a	r31	SP → SDA	0.482	***	Supported
H4b	r41	SP → SDD	0.154	**	Supported
H4c	r32	SOP → SDA	0.155	***	Supported
H4d	r42	SOP → SDD	0.446	***	Supported
H4e	r33	ENJ → SDA	0.129	**	Supported
H4f	r43	ENJ → SDD	–0.027	X	Unsupported
H5a	r34	PRB → SDA	0.073	X	Unsupported
H5b	r44	PRB → SDD	–0.011	X	Unsupported
H7a	r51	MI → CI	0.121	*	Supported
H7b	r52	II → CI	0.371	***	Supported
H8a	r53	SDA → CI	0.022	X	Unsupported
H8b	r54	SDD → CI	0.293	***	Supported

Notes: X: >0.1; *<0.05; **<0.01; ***<0.001
SP = Self-presentation; SOP = Social presence; ENJ = Enjoyment; PRB = privacy risk beliefs; MI = Human-machine interaction; II = Interpersonal interaction; SDA = Self-disclosure amount; SDD = Self-disclosure depth; CI = Continuance intention

Table 2 Analysis of direct and indirect effects of continuance intention to use

Variables		*Direct effect*	*Indirect effect*	*Total effect*	*Ranked by total effect*	*Exogenous variable ranking*
Exogenous variable	Self-presentation	-	0.144	0.144	5	3
	Social presence	-	0.216	0.216	4	2
	Enjoyment	-	0.232	0.232	3	1
	Privacy risk beliefs	-	–0.019	–0.019	8	4
Human-machine interaction		0.121	-	0.121	6	-
Interpersonal interaction		0.371	-	0.371	1	-
Self-disclosure amount		0.022	-	0.022	7	-
Self-disclosure depth		0.293	-	0.293	2	-

Table 3 Stepwise regression

IV	*M*	*DV*	*IV → DV*		*IV → M*		*b*	*IV + M →DV*		*S.E.*
			b	*S.E.*	*b*	*S.E.*		*S.E.*	*b.*	
SP	MI	CI	0.527***	0.033	0.560***	0.028	0.361***	0.038	0.297***	0.038
SOP	MI	CI	0.616***	0.029	0.512***	0.028	0.499***	0.034	0.228***	0.035
ENJ	MI	CI	0.469***	0.029	0.506***	0.025	0.317***	0.034	0.300***	0.038
SP	II	CI	0.527***	0.033	0.549***	0.029	0.316***	0.037	0.385***	0.036
SOP	II	CI	0.616***	0.029	0.535***	0.028	0.454***	0.034	0.302***	0.034
ENJ	II	CI	0.469***	0.029	0.607***	0.023	0.239***	0.038	0.380***	0.042
SP	SDD	CI	0.527***	0.033	0.525***	0.035	0.352***	0.034	0.333***	0.030
SOP	SDD	CI	0.616***	0.029	0.642***	0.031	0.466***	0.035	0.233***	0.031

Notes: *p < 0.05; **p < 0.01; ***p < 0.001
IV = Independent variable; DV = Dependent variable; M = Mediating variable
SP = Self-presentation; SOP = Social presence; ENJ = Enjoyment; PRB = Privacy risk beliefs; MI = Human-machine interaction; II = Interpersonal interaction; SDA = Self-disclosure amount; SDD = Self-disclosure depth; CI = Continuance intention

4.4 Mediating effects

From the analysis of structural patterns, it can be confirmed that human-machine interaction, interpersonal interaction, and self-disclosure depth have a significant positive impact on continuance intention, and thus further explore the mediating effects of these three variables.

1 Human-machine interaction has a mediating effect in self-presentation, social presence, and enjoyment. The results of the Sobel Test show that the statistical test values for self-presentation, social presence, and enjoyment are all significantly greater than 1.96, and the 95% confidence intervals obtained from bootstrapping 2,000 samples do not include 0, indicating that human-machine interaction is indeed a mediating variable among self-presentation, social presence, and enjoyment. Furthermore, the analysis of stepwise regression (Table 3) shows that human-machine interaction has a partial mediating effect in the relationship between self-presentation, social presence, enjoyment and continuance intention.

2 Interpersonal interaction has a mediating effect on self-presentation, social presence, and enjoyment. The results of the Sobel Test show that the statistical test values for self-presentation, social presence, and enjoyment are all significantly greater than 1.96, and the 95% confidence intervals obtained from bootstrapping 2000 samples do not include 0, indicating that interpersonal interaction is indeed a mediating variable among self-presentation, social presence, and enjoyment. Furthermore, the analysis of stepwise regression (Table 3) shows that interpersonal interaction has a partial mediating effect on the relationship between self-presentation, social presence, enjoyment and continuance intention (Baron and Kenny, 1986).

3 Self-disclosure depth has a mediating effect in self-presentation, social presence. The results of the Sobel Test show that the statistical test values for self- presentation, social presence are all significantly greater than 1.96, and the 95% confidence intervals obtained from bootstrapping 2000 samples do not include 0, indicating that the depth of self-disclosure is indeed a mediating variable among self-presentation, social presence. Furthermore, the analysis of stepwise regression (Table 3) shows that self-disclosure depth has a partial mediating effect on the relationship between self- presentation, social presence and continuance intention.

4.5 Moderating effects

This section aims to verify the hypothesis that immersion has a moderating effect on the relationship between human-machine interaction, interpersonal interaction, and continuance intention. This study uses multi-group causal analysis to test the moderating effect of immersion.

In exploring the moderating effect of immersion on the relationship between human-machine interaction, interpersonal interaction, and continuance intention, the research sample was divided into two groups based on the average score (3.90) of the immersion construct items: high immersion group (≧3.90) and low immersion group (< 3.90). The high immersion group had a sample size of 402, and the low immersion group had a sample size of 472.

The structural model analysis of the moderating effect of immersion on the relationship between human-machine interaction and continuance intention is shown in Table 4. From the results, the difference in the fit indices between the constrained and unconstrained models, as indicated by the difference in chi-square values (Dχ2) is 5.644 ($p < 0.00$), demonstrating that the two groups of samples differ significantly.

Table 4 Moderating effects of immersion

	Constrained model	*Unconstrained model*	$\Delta\chi^2$	*p-value*
Absolute fitness			5.644	***
χ^2 (DF)	89.752 (44)	84.108 (38)		
GFI	0.976	0.977		
AGFI	0.960	0.957		
RMSEA	0.026	0.023		
Brief fitness				
PNFI	0.765	0.662		
PGFI	0.596	0.516		
			Immersion (IM)	
			High	*Low*
H9a		MI → CI	0.410***	0.470***

On the path from human-machine interaction to continuance intention, the standardised path coefficient for the high immersion group is 0.410 ($p < 0.000$), and the standardised path coefficient for the low immersion group is 0.470 ($p < 0.000$). This indicates that the human-machine interaction to continuance intention relationship is significant and positive for both the high and low immersion groups, but the strength of the relationship is higher for the low immersion group. This suggests that Facebook users have a higher continuance intention when their level of immersion during human-machine interaction is lower. One possible reason for this is that when users are less immersed, they can focus more on the process of human-machine interaction, such as leaving messages, liking, sharing, and interacting with different objects, thus generating a higher sustained usage intention. Therefore, the hypothesis, which states that "immersion has a significant moderating effect on the relationship between human-machine interaction and continuance intention" is supported.

The structural model analysis of the moderating effect of immersion on the relationship between interpersonal interaction and continuance intention is shown in Table 5. From the data results, the difference in the fit indices between the constrained and unconstrained models, as indicated by the difference in chi-square values (Dχ2) is 5.723 ($p < 0.00$), demonstrating that the two groups of samples differ significantly.

Table 5 Moderating effects of immersion

	Constrained model	*Unconstrained model*	$\Delta\chi^2$	*p-value*
Absolute fitness			5.723	***
χ^2 (DF)	85.140 (31)	79.417 (26)		
GFI	0.973	0.975		
AGFI	0.951	0.945		
RMSEA	0.033	0.029		
Brief fitness				
PNFI	0.716	0.602		
PGFI	0.538	0.452		
			Immersion (IM)	
			High	*Low*
H9b		II → CI	0.380***	0.585***

On the path from interpersonal interaction to continuance intention, the standardised path coefficient for the high immersion group is 0.380 ($p < 0.000$), and the standardised path coefficient for the low immersion group is 0.585 ($p < 0.000$). This indicates that the interpersonal interaction to continuance intention relationship is significant and positive for both the high and low immersion groups, but the strength of the relationship is higher for the low immersion group. This suggests that Facebook users have a higher sustained usage intention when their level of immersion during interpersonal interaction is lower. One possible reason for this is that when users are less immersed, they can focus more on the process of interpersonal interaction, such as leaving messages, liking, sharing, and interacting with different individuals, thus generating a higher continuance intention. Therefore, the research hypothesis H9b, which states that "immersion has a significant moderating effect on the relationship between interpersonal interaction and continuance intention" is supported.

5 Discussions

In terms of benefit factors that affect interactivity and self-disclosure, self-presentation, social presence, and enjoyment all have a significant positive impact on interactivity and self-disclosure. This shows that benefit factors influence users' interaction and self-disclosure behaviour in the context of social networking sites. In terms of cost factors that affect interactivity and self-disclosure, it was found that privacy risk belief does not have a significant negative impact on either interactivity or self-disclosure. Therefore, this study believes that in the context of social networking sites, users' privacy risk beliefs are not a decisive factor affecting their interaction and self-disclosure behaviour.

Regarding the factors that influence the continuance intention, the research results show that, in addition to self-disclosure amount, which does not have a significant positive effect on users' continuance intention, human-computer interaction, interpersonal interaction, and self-disclosure depth all have a significant positive effect on continuance intention. Therefore, this study believes that the perceived interaction behaviour and self-disclosure amount are important decision-making factors for users' continued use of social networking sites.

From the direct and indirect effect analysis, the direct effects of factors that influence social network site users' continuance intention, interpersonal interaction has the highest impact, followed by of self-disclosure depth, human-computer interaction, and self-disclosure amount. In terms of the total effect analysis of factors that influence social networking site users' continuance intention, interpersonal interaction has the highest impact, followed by self-disclosure depth, enjoyment, social presence, self-presentation, human-computer interaction, self-disclosure amount, and privacy risk beliefs.

For research on the immersion of social media users, the results show that when the immersion level of human-computer interaction and interpersonal interaction is low, users tend to have a higher intention to continue using the social media platform. One possible reason is that when users have lower immersion levels during human-computer and interpersonal interactions, they can easily maintain close interactions with many other users at any time, rather than being immersed in more static activities such as watching videos, browsing photos, and reading texts alone. Active interaction processes can also enhance users' intention to continue using the platform.

The conceptual research framework established through literature review was verified through the overall model validation. Most research hypotheses established in this study were supported, with only a few hypotheses failing to obtain empirical support. The following is an inference on the possible reasons for the unsupported hypotheses. Enjoyment does not have a significant positive impact on self-disclosure depth. Therefore, hypothesis was not supported. It is possible that social media users, although they can receive novel, interesting information, photos, and videos on the platform, or achieve entertainment effects through games provided by the platform, may not have a close emotional connection with other users, or only interact with strangers. Therefore, although users can enjoy themselves during the use of social media and enhance their interaction behaviour with other users, it may not effectively enhance their motivation and actual behaviour to disclose their deep personal information.

The privacy risk beliefs do not have a significant negative impact on human-computer interaction, interpersonal interaction, self-disclosure amount, and self-disclosure depth. Therefore, Hypothesis 2 was not supported. It is possible that most participants in this study were college students aged 20 to 24. Past research has indicated that young social

media users have difficulty understanding the privacy settings or methods used on social media platforms (Boyle and Johnson, 2010). Therefore, when users do not understand the privacy features provided by the social media platform, they may ignore the risks associated with privacy disclosure, thereby reducing their privacy risk beliefs. As a result, privacy risk beliefs cannot become negative factors that affect the interaction and self-disclosure in social media.

The amount of self-disclosure in self-disclosure does not have a significant positive impact on continuance intention to use, so H8a is not supported. One possible reason for this is that only deep self-disclosure behaviour can enhance intimacy between users and thus influence their continuance intention to use.

The innovative finding of this study is based on the social exchange theory, dividing the independent variables into three aspects: benefits, costs, and incorporating interaction and self-disclosure as mediator variables to explore the behavioural patterns of interaction on social networking sites. Overall, the research model was well-validated and can be used as a basis for subsequent research.

6 Theoretical implications

In previous studies on social networking site usage motives, it was found that user interaction and self-disclosure are important influencing factors affecting social networking site usage. Therefore, this study explored the antecedents that affect interaction and self-disclosure as the primary purposes of using social networking sites and their subsequent usage behaviour. Based on social exchange theory (Homans, 1958), this study divided the antecedents that affect interaction and self-disclosure into two aspects: benefits and costs. Furthermore, based on the classification by Hoffman and Novak (1996), interaction was divided into human-machine interaction and interpersonal interaction for analysis. Through statistical analysis, the empirical results confirmed that the antecedents of self-presentation, social presence, and enjoyment under the benefits aspect, privacy risk beliefs under the costs aspect all have different effects on interaction and self-disclosure.

However, in this study, it was found that privacy risk beliefs are not antecedents that affect interaction on social networking sites. Furthermore, it was found that the higher the privacy risk beliefs, the more self-disclosure by the user, which is contrary to the results of previous studies on the relationship between privacy risk beliefs, interaction, and self-disclosure. However, previous studies on privacy risk have also pointed out that young social networking site users may not fully understand the privacy settings provided by the site or the methods used (Boyle and Johnson, 2010). Therefore, this study believes that when social networking site users are younger, their lack of understanding of privacy risk beliefs or unfamiliarity with privacy settings may lead to user negligence towards privacy risks. Therefore, privacy risk beliefs cannot be a negative influence on interaction and self-disclosure on social networking sites.

This study used sustained usage intention as the outcome variable, and the empirical results showed that user interaction and self-disclosure on social networking sites can indeed enhance their continuance intention to use. Furthermore, continuance intention to use is mainly influenced by human-machine interaction, self-disclosure amount, and self-disclosure depth. As for the moderating variables, the results showed that the perceived

immersion level of users can moderate the relationship between interaction and continuance intention to use on social networking sites.

7 Theoretical contributions

This study focused on exploring the antecedents and outcome variables of interaction and self-disclosure. While interaction has been widely discussed by scholars in various fields such as advertising, marketing, and communication, there has been a lack of detailed classification and explanation, leading to the exploration of only a single aspect. Therefore, based on the classification by Hoffman et al. (1999), interaction was divided into human-machine interaction and interpersonal interaction for analysis. The empirical results confirmed that human-machine interaction and interpersonal interaction in interaction are influenced by different antecedent variables and have different effects on outcome variables. This study also verified that interaction cannot only be measured from a single dimension, but can be discussed and analysed from multiple aspects.

Based on the social exchange theory, previous studies that explored interaction and self-disclosure using social exchange theory have mainly focused on issues such as trust between community members, reciprocity, and user perceptions of monetary rewards, perceived risk, and usefulness (Lăzăroiu et al., 2020; Zimmer et al., 2010). However, there has been a lack of research focusing on the potential motivations for users to interact and self-disclose on social networking sites based on the functional aspects provided by the sites. Therefore, this study explored the benefits aspect by using self-presentation, social presence, and enjoyment as antecedent variables, while privacy risk beliefs were used as antecedent variables for the costs aspect. The empirical results also confirmed that the antecedent variables under the benefits and costs aspects indeed have an impact on user interaction and self-disclosure behaviour.

Previous studies related to social exchange theory did not discuss social presence as a factor within the theory. However, based on the definition of social presence, this study hypothesised that it may be a factor under the benefits aspect of social exchange theory and included it in the model for exploration. The empirical results also confirmed that social presence can indeed represent a significant positive impact on interaction and self-disclosure as a factor under the benefits aspect. Therefore, this study can confirm the suitability of social exchange theory for analysing social networking site users.

In terms of moderating variables, although past studies have shown that interactivity affects user immersion, and immersion in turn affects users' continued usage intention, there is a lack of research on social media as the target of study and the use of immersion as a moderating variable. Therefore, based on previous literature, it was hypothesised that immersion would moderate the relationship between interactivity and continuance intention to use on social media. The empirical results show that immersion can indeed moderate the significant positive relationship between interactivity and continuance intention to use.

8 Managerial implications

This research found that in the context of social networking sites, the three factors of self-presentation, social presence, and enjoyment in the benefit aspect could all have a

significant positive impact on users' interactivity, which is consistent with past research results (Boyle and Johnson, 2010). Regarding the factors affecting users' self-disclosure, the benefit aspect's self-presentation, social presence, and enjoyment could all have a significant positive impact on users' self-disclosure, which is consistent with past research results (Krasnova et al., 2009; Sheldon et al., 2021).

From the above research results, it can be concluded that self-presentation, social presence, and enjoyment in the benefits dimension are all significant antecedents of user interaction and self-disclosure in social networking sites. Therefore, to encourage users to increase their interaction and self-disclosure in social networking sites, it is necessary to increase the perceived benefits that users can obtain from the site. This means that the higher the perceived benefits, the more willing users are to use the site to interact with others and disclose personal information.

In terms of the intention to continue using the platform, for most users, the enhancement of human-computer interaction, interpersonal interaction, and the depth of self-disclosure remain the main decisive factors affecting the intention to continue using. Finally, this study found that when users feel a lower level of immersion, they tend to enjoy the process of human-computer interaction more and increase their willingness to interact and intention to continue using the platform in the future.

9 Managerial contributions

The internet has changed the way people interact, which was previously limited to face-to-face, telephone, or mail. The rise of social media not only provides more diversified options for interpersonal interaction, but also makes social networking sites a trend with the globalisation trend. However, as time goes by, the competition among social media platforms becomes increasingly fierce. Website operators hope that their platforms can increase profits through network externalities. Therefore, exploring the antecedents and effects of social networking site interaction and self-disclosure can help social networking site operators understand users' actual usage and needs, and provide interfaces and functional settings that meet users' expectations.

According to the results of this study, the factors of self-presentation, social presence, and enjoyment in the benefit dimension are the main antecedents affecting user interaction and self-disclosure, based on the social exchange theory used as the theoretical framework. Therefore, it is recommended that website operators improve the website interface and functionality to enable users to express themselves more flexibly and conveniently, and to create a warm and friendly atmosphere for interaction, as well as to enhance the entertainment level of the usage process. When users perceive a higher degree of benefits, the level of interaction and self-disclosure within the website will also increase. Furthermore, as the interaction between users increases, it will also have an impact on the entire social media environment, attracting more users to the website.

10 Limitations and future research

Due to time constraints, this study used cross-sectional data as empirical evidence, which could only measure the current cognition and behavioural response of respondents when filling out the questionnaire, and could not truly understand the internal changes and

actual usage behaviour of Facebook users. In addition, this study used an online questionnaire to collect data, although Facebook users are all internet users, the distribution of online questionnaires is still limited by distribution nodes and filling time, and therefore cannot reach all levels of Facebook users comprehensively, which may result in measurement biases. Furthermore, since the questionnaire was translated from previous scales, and with differences in national culture and other factors, it may not fully conform to the meaning of the questions developed by the original scholars.

Acknowledgements

The authors would like to thank Ho Chi Minh City University of Economics and Finance (UEF), Vietnam for funding this work.

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