



## Enhancing Student Satisfaction with University's Information in Social Media Environment: Mediating Role of Parasocial Interaction

Nam Hoai Nguyen<sup>1✉</sup>, Phuc Thi Hong Nguyen<sup>2</sup>, Ngoc Thi Pham<sup>3</sup>

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<sup>1</sup>Department of Admissions Consulting and Brand Development, Banking Academy of Vietnam

<sup>2</sup>Faculty of Economics and Management, Dai Nam University, Vietnam

<sup>3</sup>VNDIRECT Securities Corporation

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### Abstract

Nowadays, universities use social networks as a crucial tool for providing information and engaging students. Factors like openness, perceived interaction, and parasocial interaction influence students' feelings toward these interactions. Parasocial interaction, the imagined relationship between the sender and receiver, significantly impacts students' attitudes and engagement. This study aims to evaluate the effects of perceived interaction, openness, and parasocial interaction on student satisfaction with university social networks. A survey of 346 students from universities in Hanoi, Vietnam, was conducted, and data were analyzed by the structural equation model (SEM). Results show that perceived interaction, openness, and parasocial interaction positively impact student satisfaction. Moreover, parasocial interaction mediates the relationship between perceived interaction, openness, and satisfaction. Additionally, content quality and responsiveness on social networks play a vital role in shaping students' perceptions and engagement. Universities that provide high-quality, timely content and meaningful interactions can strengthen student trust and satisfaction. These findings suggest that universities should optimize their social media strategies, focusing on interactive communication and content relevance to enhance student relationships and engagement.

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✉ Correspondence Author:

Nam Hoai Nguyen, Banking Academy of Vietnam, 12 Chuaboc, Dongda, Hanoi, Vietnam, 1000000

Email: [namnh@hvn.edu.vn](mailto:namnh@hvn.edu.vn)

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## INTRODUCTION

Nowadays, social networks are considered a real revolution due to their power to change human relations through the Internet. They can enhance interaction among different groups, organizations, and companies (Robinson et al., 2019). Also, social networks can affect the universities, create relationships with their relevant stakeholders (Clark et al., 2017). Therefore, communication via social networks has become a common practice for universities. Effective information delivery can increase student satisfaction with the university.

Koshkin et al. (2017) found that students' satisfaction with the information provided on a university's social media platforms significantly enhances their attachment to the institution. The research emphasizes the importance of effective social media communication in fostering stronger connections between students and their universities. Social media has created new possibilities, not just for entertainment and marketing, but also for the exchange of knowledge and educational purposes (Sivakumar et al., 2023). Moreover, social media makes it possible for everyone to respond directly to comments and get involved in conversations with the university (Shields & Peruta, 2019).

Alshibly (2014) argues that parasocial interaction (PSI) is an interactive relationship between the sender and the receiver through the media. Recent studies have shown that PSI may be applied to develop strong relationships between companies and social media users, thereby increasing user loyalty to brands. A number of research studies on PSI worldwide focus on the relationship between the interaction and media personalities (Newhagen et al., 1995, Rubin & McHugh, 1987). Ko et al. (2017) investigated the function of PSI in affecting viewers' loyalty toward beauty YouTubers, as well as the causes of PSI. Their study shows that viewers' perceptions of beauty, YouTubers' self-disclosure, expertise, similarity, and likability are key drivers of PSI. Fur-

thermore, PSI can potentially increase viewer loyalty to beauty YouTubers.

Currently, in Vietnam, universities use various methods to communicate with students, in which Facebook and the university's websites are the popular channels. Social networks are potential communication channels for universities in Vietnam because there are 65 million social network users, and Vietnamese youths spend a lot of time on social media to update information (Statistics of the Internet Vietnam, 2020).

Parasocial interaction may play an important role in enhancing student satisfaction when they communicate with the university via social media. However, in Vietnam, there has been no research on the relationship between PSI and student satisfaction with university information. Additionally, there is a lack of research examining factors affecting PSI. Consequently, there is no explanation of the influence of parasocial interaction on student satisfaction with a university's social network. With the aim of contributing to PSI theory in educational marketing, this research explores how parasocial interaction explains the influence of social media on student satisfaction. Specifically, this study examines the influence of perceived interaction and openness on parasocial interaction and aims to explain the relationship between parasocial interaction and student satisfaction.

Previous PSI research has focused on the relationship between customers and a product's brand (Labrecque, 2014; Lawry, 2013; Xiang et al., 2016) and the relationship between PSI and media personalities (Chung & Cho, 2017). However, very little research has been conducted on the role of PSI in the service sector. Specifically, there is limited exploration of PSI in education marketing, particularly how PSI can influence prospective students' perceptions and decision-making processes when choosing a university. Furthermore, while studies have established PSI as a factor in customer-brand relationships, there is a lack of research examining how universities can leverage PSI to enhance engagement and

loyalty among students. Additionally, existing studies have primarily focused on PSI factors such as perceived interactivity, openness, and brand knowledge but have not explored how different social media strategies can enhance these factors in an educational context.

This research explores how PSI enhances student satisfaction in higher education. By applying PSI to universities, this study investigates how social media interactions improve students' sense of connection and satisfaction with the university. It also examines how universities can strategically use social media to foster PSI, leading to a more engaging and satisfying experience for prospective students. Unlike previous studies that focus on brand loyalty, this research explores how PSI-driven satisfaction influences students' enrollment decisions. Additionally, the findings provide actionable recommendations for universities to optimize their social media strategies, enhance student satisfaction, and foster long-term engagement. By addressing these gaps, this study highlights the role of PSI in improving student satisfaction and offers practical guidance for universities to strengthen their digital marketing efforts.

### **Parasocial Interaction**

In the past, the media terminology defined parasocial interaction as a one-sided relationship between the public and users. This interaction between viewers and media figures such as the master of ceremonies, actors, or celebrities is 'parasocial interaction' because relationships are not built through a face-to-face meeting, but through television images or movies.

Nordlund (1978) explains that PSI helps the audience not to feel lonely because they can interact with a media character the way they interact with their friends. Parasocial interaction is similar to real interaction but different from face-to-face contact. Formerly, these interactions were mainly through traditional media such as television, radio, etc. For a long time, most of the research on parasocial interaction has been done in the field of television,

and some authors have also defined parasocial interaction as the interaction relationship between television viewers and characters in television (Rubin & McHugh, 1987). Parasocial interaction is becoming much more important. Scholars have suggested that increasing the personalization of mass communication, which means making communication through mass media to individuals, can increase the credibility and persuasiveness of communication messages (Beniger, 1987; Newhagen et al., 1995).

Originating from the domain of traditional broadcast media, the exploration of PSI has broadened its horizons to encapsulate a variety of fields, especially in the era of digital interconnectedness (Labrecque, 2014). These PSI experiences emulate the depth and warmth of genuine interpersonal relationships, casting media personas as familiar acquaintances in the eyes of their audience (Koay et al., 2023).

Recently, in the era of technology and the Internet, researchers have paid more attention to studying PSI in social media instead of traditional media (such as television and radio) because the concept of modern media is wider than traditional media (Razak & Zulkifly, 2020). Social media can create two-way communication between the social media users and the persona through chat boxes or comment spaces, unlike traditional media (Stever & Lawson, 2013). Thus, interaction in social media can be an alternative to face-to-face interaction. Central to its development is the element of perceived interactivity, characterized by open communication channels, which in turn foster loyalty and information-sharing intentions (Yuksel & Labrecque, 2016). As researchers like Chung & Cho (2017), PSI morphs into parasocial relationships (PSR) when individuals resonate with media figures akin to real-life social connections.

Social media has changed the way people interact with each other, so marketers want to use social media to increase customer satisfaction, brand awareness, and brand loyalty (Labrecque, 2014). Based on the development of technology, parasocial interaction is

promoted through a two-way system. That is, message receivers and transmitters can enhance interaction with each other. It is indicated that parasocial interaction can affect consumer behavior (Zhang & Hung, 2020). In marketing, PSI augments shopping experiences, adding layers of enjoyment and satisfaction (Yuan et al., 2023).

An interactive, transparent dialogue can enable brands to harness PSI, culminating in heightened engagement, trust, and loyalty (Labrecque, 2014). As consumers increasingly view media figures as an extension of their social circles, the depth of information available intensifies the perceived intimacy of these relationships. This is evident in online platforms, where users indulge in behavioral parasocial interactions, especially in thriving online communities (Xiang et al., 2016).

Celebrities, both traditional and born from social media, wield enormous influence in this domain. Platforms like Instagram, TikTok, and YouTube have emerged as fertile grounds for fostering these parasocial relationships, doubling up as potent branding instruments (Lee & Lee, 2017). Interestingly, psychological elements, from wishful identification to parasocial relationships, hold sway over consumer engagement and purchase intentions (Hu et al., 2020). The digital ecosystem has witnessed the infusion of PSI into social commerce, enhancing purchase intent for a range of products, including sustainable offerings (Kim et al., 2020).

Therefore, the higher the level of parasocial interaction, the more likely it is to influence the attitudes and behavior of information recipients via social networking. Increasing engagement by commenting or messaging will increase engagement on social networks. Notably, the surge in consumers leaning on influencers for purchase advice underscores the pivotal role of PSI (Joshi et al., 2023). These, in tandem, forge a compelling backdrop where individuals calibrate their actions to resonate with dominant societal norms, aspiring for broader acceptance and integration (Lim, 2022).

Labrecque (2014) applied PSI theory to examine how marketers can build effective social media strategies and concluded that a stronger relationship between customers and brands could be gained by building PSI with clients through the social network. In an educational setting, a relationship can be formed and developed using social networks (Meyliana et al., 2020). In particular, students can learn more about university activities by using social media. They can also interact with the university or current students to get the answers via the social media platform of the university. In the past, television and radio were the media used to form social relationships. These relationships can be formed with fictional characters. It is indicated that these relationships are *de facto* relationships in the educational context (Meyliana et al., 2020).

In our study, parasocial interaction was examined as the university's parasocial interaction with students. It can be understood simply that parasocial interaction is a form of interaction between students and the university through social networks. In the educational environment, social networks help develop relationships to become closer. Social networks can assist students to learn more about extracurricular activities, training programs, and the learning environment to hone their skills, thereby helping to develop students' knowledge and skills. The benefits of parasocial interaction through social networks can make students more satisfied, and thereby, students will be more engaged with the university and have positive communication with the university.

### **Perceived Interactivity**

In different contexts, the concept of perceived interaction has not been unified. Newhagen et al. (1995) argue that perceived interactivity is the "message content of the message that the sender wants to convey and the interaction of the receiver". Wu (1999) suggested that perceived interactivity is a communication mechanism that includes responsiveness and orientation. From another perspective,

perceived interaction is defined as the extent to which users perceive their experiences as a simulation of the interaction between individuals and the feeling that they are present to another user in a social environment (Lin & Chang, 2018).

Song & Zinkhan (2008) found that both response speed and the ability to convey information effectively can enhance perceived interactivity. Thus, perceived interaction is formed mainly through the response quality and speed of the transmitting subject. Lee (2019) found that the level of interaction and perceived attitude toward social networks are highly correlated. Specifically, people who have high perceived interactions when participating in social networks will show more positive attitudes towards those who do not interact on social networks. Perceived interactivity is considered a strong predictor of user attitudes. For example, previous research has indicated that perceived interactivity positively affects consumers' attitudes toward a website (Wang et al., 2020). Lee et al. (2019) Further, conceptualized perceived interactivity as having two dimensions: human-to-information interaction and human-to-human interaction.

Moreover, perceived interactivity is a critical factor in a customer's experience of the flow state in an app and their satisfaction with it (Khare et al., 2020; Wu et al., 2021), which in turn influences their behavioral intentions to use the app. In the educational environment, learners' perception of interactivity depends on how they perceive the learning environment and whether they participate in it. Therefore, university social networks play an important role in shaping that perception.

### **Openness**

Openness is a concept that has long been associated with education, but has proven difficult to define, Baker III (2016). According to Bozkurt et al. (2019), openness in education is a concept that is shaped by the changing needs of society, culture, geography, and economy, so it isn't easy to have a fixed definition. Yuan et al. (2008) argue that openness means that

information should be freely disseminated and shared through social networks for the benefit of the community. Peters (2008) argues that openness in education represents values such as equality, freedom, and creativity. Labrecque (2014) defines openness as the process of forming trust and belonging.

Openness is a fundamental value underpinning social change and a prerequisite for social adaptation of higher education institutions (Wiley & Hilton III, 2009). Their research indicated that all educational institutions must consider "openness as the core value of the organization, both relevant to learners and contributing to the positive advancement of the field of higher education" (Wiley & Hilton III, 2009). The importance of openness is equated with the importance of factors such as technology, society, economy, and culture (Peter & Deimann, 2013) and Wiley & Hilton III, 2009). Therefore, educational institutions should consider openness as a core value of the organization so that it is both relevant to learners and contributes to the positive advancement of the field of higher education (Wiley & Hilton III, 2009).

In higher education, the openness creates opportunities to share ideas and cooperation among national and international institutions, learners, and educators, thus facilitating participation in learning and teaching more meaningfully (L. Yuan & Powell, 2013). It is clear that openness makes education processes and systems more transparent. Trainees are recognized for their qualifications and skills to participate in recruitment and contribute to economic growth (Mishra, 2012). Openness in education can lead to a more civilized educational environment by opening up ways for people to access knowledge more easily (Olakulehin & Singh, 2013); (M. Oliver, 2015).

The concept of customer satisfaction is heterogeneous (Youjae, 1989). According to Oliver (1981) consumer satisfaction is the fulfillment of their wants, including the degree of satisfaction above and below the desired. Eggert & Ulaga (2002) concluded that satisfaction is a post-consumption evaluati-

on. Another study defines customer satisfaction as a customer's feeling of satisfaction or disappointment resulting from a previous assessment of their expectations and perceived performance (Leninkumar, 2019). The current literature also concludes that customer satisfaction is a customer's attitude, feeling, or inclination after a service/product has been used (Yi et al., 2021).

In the educational environment, the term "student satisfaction" is also defined differently (Richardson, 2005). According to Browne et al. (1998), student satisfaction is formed based on learners' evaluation of the quality of subjects, extracurricular activities, and other factors surrounding the university. Another definition indicates that student satisfaction is formed when they are served as customers, and the service meets their needs and expectations (Grossman, 1999). The needs of students can be very diverse. In this day and age, the need for information is considered an important need for students. Student satisfaction can be defined as a student's positive feeling or attitude towards his or her learning activities.

Student satisfaction level is the gap between "the level of anticipation" and "actual results" (Abdullahi & Yusoff, 2019). Elliott & Shin (2002) describe student satisfaction as "the subjective assessment of students' preferences for outcomes and different experiences related to education". Doan (2021) underscores the pivotal role of service quality in enhancing student loyalty, with university sustainability practices and student satisfaction acting as mediating variables. These findings suggest that improving overall service quality and implementing sustainable development strategies are essential for fostering student satisfaction and loyalty in public universities in Vietnam.

Higher education institutions can considerably benefit from developing long-term connections with their students, thanks to the analysis and research on student satisfaction in higher education. This partnership will provide the university with a competitive advantage

while also benefiting students (Alves & Raposo, 2006). Mai (2005) indicates that the general impression of the university, the overall impression of the quality of the education, the professionalism of the teachers, the students' interest in their subject, the accessibility and quality of technological facilities, and student career development are factors that have a great influence on student satisfaction. Access to technology facilities and students' career development are factors that have a great influence on student satisfaction.

Similarly, DeShields et al. (2005) used the satisfaction model and Herzberg's two-factor theory to examine the determinants of student satisfaction with education. They found that the performance of faculty and classes was an important determinant of the quality of a student's college experience, leading to satisfaction. According to several studies on student satisfaction with universities in Spain, university image is a factor affecting student satisfaction with universities (Palacio et al., 2002). According to Navarro et al. (2005), the teaching staff, teaching methods, and course management are the key factors in achieving student satisfaction. These findings highlight the multifaceted nature of student satisfaction, which is influenced by both institutional quality and educational services.

Expanding on these insights, Wong & Chapman (2023) provided an in-depth analysis of eight dimensions of student satisfaction, including satisfaction with the program, teaching quality, institution, campus facilities, student support services, personal learning experience, overall university experience, and student life. Their research suggests that different aspects of student satisfaction are closely linked to three primary forms of interaction: formal student-student interaction, informal student-student interaction, and student-instructor interaction. This underscores the importance of fostering both academic and social engagement to enhance students' university experiences.

Beyond institutional and instructional factors, research also highlights the role of di-

gital engagement in shaping student satisfaction. Studies indicate that satisfied students are more likely to attract new students and return to the university for additional courses. In this context, universities can leverage social networking platforms to provide timely information, facilitate student engagement, and strengthen emotional connections with the institution. The more interactive and informative the university's digital presence is, the greater the student satisfaction and the stronger the relationship between students and their university.

In addition to direct institutional satisfaction, De-Juan-Vigaray et al. (2024) suggest that factors related to teaching staff behavior, such as teaching methods and course management, can serve as alternatives in shaping student satisfaction. This implies that while institutional quality is important, students' perceptions of their learning experience and faculty engagement also significantly influence their overall contentment.

### **Effects of Perceived Interaction and Openness on Parasocial Interaction**

One of the distinguishing features of social networks from traditional media is perceived interaction. A person can feel interactions through social media exchanges. These feelings cannot be obtained through interactions on television or the radio. Perceived interaction is an important element in communication, especially in marketing communications. In measuring perceived interactivity, the response speed between the university and students via social media platforms is tracked (Alshibly, 2014). Perceived interaction is also affected by response time from when a student comments and receives a response from the university (Alshibly, 2014). Thus, when students receive quick feedback from the university through social networks, they will feel they are an important part of the relationship with the university, or in other words, they will tend to feel positive about parasocial interaction. On that basis, the authors propose the hypothesis: H1: Perceived interaction has a positive influence

on parasocial interaction.

Openness is also an important factor influencing parasocial interaction. Openness can promote shared understanding and encourage commitment in a relationship (Ghazinejad et al., 2018). Openness is the desire to receive diverse stimuli and the willingness to engage in new situations, experiences, or interactions. Open-minded people may be willing to seek out alternative or more interesting relationships than real-life relationships, such as television media personalities. However, in the area of media technologies, individuals who prefer openness may require more interactivity or channel diversity than can be found through TV (Kraaykamp & Eijck, 2005). Research by Meyliana et al (2020) indicates that openness has a positive impact on students' extra-parasocial interactions in the university's social networking environment.

This study also wishes to explore the nature of the relationship between openness and PSI. We can expect that the more open and informative universities are on social media, the stronger the student engagement with the university will be. When a university social network allows users to find any kind of information about a university and get answers to any question that students ask, it can be considered a university with trustworthy and open learning. Therefore, students will feel more connected to the university's interactions. From the above explanation, the author makes the following hypothesis:

H2: Openness has a positive influence on parasocial interaction.

### **Effects of Perceived Interaction, Openness, and Parasocial Interaction on Satisfaction**

Customer satisfaction in the service industry is often represented by the quality of the interactions between the customer and the service provider. Service providers can be active in the communication process to try to accommodate customer requests to ensure that the customer's opinion is heard, which can be seen as a correspondingly high level of inter-

action between individuals and providers (Alshibly, 2014) (Lu, 2011). This will create a new relationship with the customer (Lu, 2011). Song & Zinkhan (2008) found that both response speed and ability to convey information are factors that increase perceived interactivity, and they proved that perceived interactivity has a positive impact on satisfaction.

In the workplace, openness is positively related to job satisfaction (Smith et al., 2018). It is indicated that an enhanced level of job satisfaction is achieved when leaders are trustworthy in an environment of open communication (Bashir et al., 2020). In the e-tailing context, indicated that increasing information quality will enhance customer loyalty. Alshibly (2015) concluded that the information provided by the customer has great value and meaning for the service provider.

When customers feel the openness from transparent, clear, and accurate information on online media, it helps customers easily compare options, and by using the university's social media platform, students can get their questions answered. There may be a chat or comment option that allows students to inquire directly about university enrollment, available majors, facilities, and more. With easier and more direct access to information, students will have all the information they need to make decisions and be more satisfied with the university's social media platform.

Today, most universities use social networks to interact directly with their students by using university social media. There may be a direct message or comment option to inquire about the university. When the university's social network responds quickly, accurately, and fully to the requirements set by students, the level of trust in the university will be enhanced. This is an easier and more direct approach to information. Accordingly, we propose that:

H3: Perceived interaction has a positive influence on satisfaction.

H4: Openness has a positive effect on satisfaction.

Many studies have shown a relationship between PSI and satisfaction. In a study by Lim & Kim (2011) in the context of TV shopping, satisfaction is derived from parasocial interactions that help them feel more excited or interested in the program. Social interactions increase a consumer's positive experience with TV shopping. While parasocial interaction has been studied for positivity, there are few studies to the contrary. Kassing & Sanderson (2015) argued that this behavior is encouraged by being anonymous on the internet and is also driven by increased engagement of fans on websites.

It can be seen that parasocial interaction, whether negative or positive, also brings satisfaction to students because it helps students gain an objective view of the information provided by the university's online society. According to research by Kim & Park (2020) social interaction has a significant influence on customer experience satisfaction. When direct selling programs are broadcast, parasocial interaction has a direct effect on user experience satisfaction. In a university environment, when students feel interested in the university, they tend to connect the university with the desire that the university will provide much information through social networks.

Students will feel like they are participating in university discussions on social networks, which will create new experiences, and they will learn more things. When the university partially meets the needs that students want, it will create a positive effect that helps students feel more confident and secure about the quality of the university's education. On the other hand, they will have a positive attitude, be happier, more optimistic, and more excited. It follows that if students have more positive parasocial interaction with the university, the student's satisfaction will increase. Therefore, in this study, the following hypothesis is proposed: "They quickly make a good choice for themselves, from which their satisfaction level also increases."

Meyliana et al. (2020) suggested that perceived interaction and openness impact student satisfaction when using the university's social media platform. This suggests that the more information a social media platform provides, the higher the relationship and satisfaction created between the university and students.

H5: Parasocial interaction has a positive influence on satisfaction.

There is research indicating that perceived interaction and openness have direct effects on student satisfaction when students use the university's social media platform (Balandine, 2005) (Hsu et al., 2015) (Meyliana et al., 2020) (Shipp & Phillips, 2013). However, there is hardly any research paying attention to examining the mediating role of parasocial interaction in the relationship between perceived interaction and satisfaction, as well as between openness and satisfaction. Since increasing perceived interaction and openness may increase parasocial interaction, it in turn may help increase satisfaction. Therefore, the hypothesis:

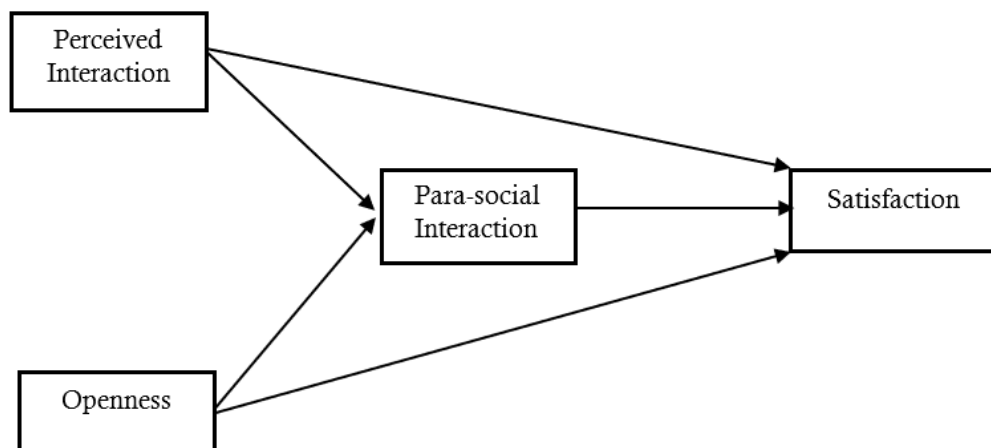
H6: Parasocial interaction mediates partially or totally the effect of perceived interaction on satisfaction

H7: Parasocial interaction mediates partially or totally the effect of openness on satisfaction

## METHODS

The data was collected from students of different multidisciplinary universities in Hanoi. The method of data collection involves internet-mediated questionnaires as well as delivery-collection questionnaires. First, the questionnaires were distributed directly to students during an event where the student startup contest was held in Hanoi. The direct method of administering surveys enables the authors to control the seriousness of the respondents as well as the quality of the data.

Second, online questionnaires via Facebook were also used to collect data. Facebook is highly effective in collecting data in Vietnam due to the activity of over 33.2 million users in the country. This social network enables the authors to reach and recruit many participants quickly and easily (eMarketer, 2016). In terms of sampling, the study uses the convenient sampling technique involving students who are our friends. In addition, to minimize the effect of social desirability bias, as suggested by Podsakoff et al. (2012), the authors provided clear instructions for respondents on how to respond to the questions. Respondents were informed about the study's academic purposes so that the study could achieve a high degree of integrity and objectivity from their answers.



**Figure 1.** Research Model

To ensure the appropriateness of the respondents, this study used two screening questions. The first question is that “Are you a student studying at a university in Hanoi?”. The second question is “Do you interact with your university through the university’s social network?” To motivate them to participate in the survey, students who are taking the survey will have the opportunity to receive 1 of 10 vouchers for an English course in Hanoi. The data collection lasted from April 2023 to June 2023. Finally, the survey acquired a total of 401 responses, of which 346 valid responses were used for the analysis process.

The questionnaire in the study is designed with 20 measurement variables. Two de-

pendent variables are parasocial interaction (PSI) with the scale inherited from the study of Alshibly (2014). The second variable is satisfaction (SAS) with the scale referenced by Alshibly (2014). The study used a 5-point Likert scale (1st is “strongly disagree”, 2 is “disagree”, 3 is “neutral”, 4 is “agree”, and 5 is “totally agree”).

In addition, the perceived interaction scale is denoted (PEI) with 4 measurement variables, and the openness scale is denoted (OPE) with 5 measured variables inherited, edited, and supplemented by Alshibly (2014) and Xiang et al. (2014). The specific scales are shown in Table 1.

**Table 1.** Measurements

Code	Descriptions
Perceived Interactivity (Labrecque, 2014)	
PEI1	All of my questions were answered using the university social media platform (Facebook or Website)
PEI2	The university has responded to my questions quickly and thoroughly.
PEI3	University allows me to communicate directly with them.
PEI4	University listens to what I say on its social media platform (Facebook or Website).
Openness (Labrecque, 2014)	
OPE1	The university is always open to providing information (such as registration, faculty and study programs, curriculum) and pictures (photos or videos) about campus life or events in the university via their social media (Facebook or Website).
OPE2	The university routinely provides me with updates via their social media (Facebook or Website).
OPE3	University answers any question, either academic or non-academic, on their social.
OPE4	University’s social media platform (Facebook or Website) has met my needs.
OPE5	University’s social media platform (Facebook or Website) provides plenty of information about the university.
Parasocial Interaction (Alshibly, 2014)	
PSI1	This university makes me feel comfortable.
PSI2	When dealing with this university, I always feel like I participate in any discussion on their social media (Facebook or Website)
PSI3	Can I connect with this university through their social media platform (Facebook or Website)
PSI4	I love listening to anything the university has to offer on its social media platform (Facebook or Website)
PSI5	I am interested in what is happening at this university.
PSI6	I hope the university can achieve its goals.

Satisfaction (Alshibly, 2014)	
SAS1	This university's social network met my expectations.
SAS2	Overall, I am satisfied with the information and services provided by this university's social network.
SAS3	I had a positive experience with this university's social network.
SAS4	This university social network provided everything I needed.
SAS5	Overall, I feel satisfied using this university's social network

Analytical methods using SPSS 26 have been used to test the reliability of Cronbach's Alpha and analyze the exploratory factor analysis (EFA). In addition, the confirmatory factor analysis (CFA) and the structural equation modeling (SEM) were tested using AMOS 26. To be reliable in the model test, 100 to 200 observations are required. Although a meaningful minimum sample size for structural equation modeling (SEM) application was not identified with a consensus in the literature, a median sample size of previous studies in different research areas might be 200. Therefore, 346 respondents were obtained by this study to ensure the reliability of the analysis.

## RESULT AND DISCUSSION

### Descriptive Statistics of the Study Sample

The survey obtained 346 valid respondents who are students from the first to the fourth year of university. The sample descriptions are shown in detail in Table 2.

**Table 2.** Descriptive Statistics of the Survey Sample

Characteristics	Frequency	Ratio
Sex	N = 346	100%
Male	221	63.8%
Female	125	36.2%
Academic Level	N = 346	100%
Freshman	41	11.84%
Sophomore	51	14.73%
Junior	52	15.02%
Senior	180	52.06%
Fifth-year Student	22	6.35%

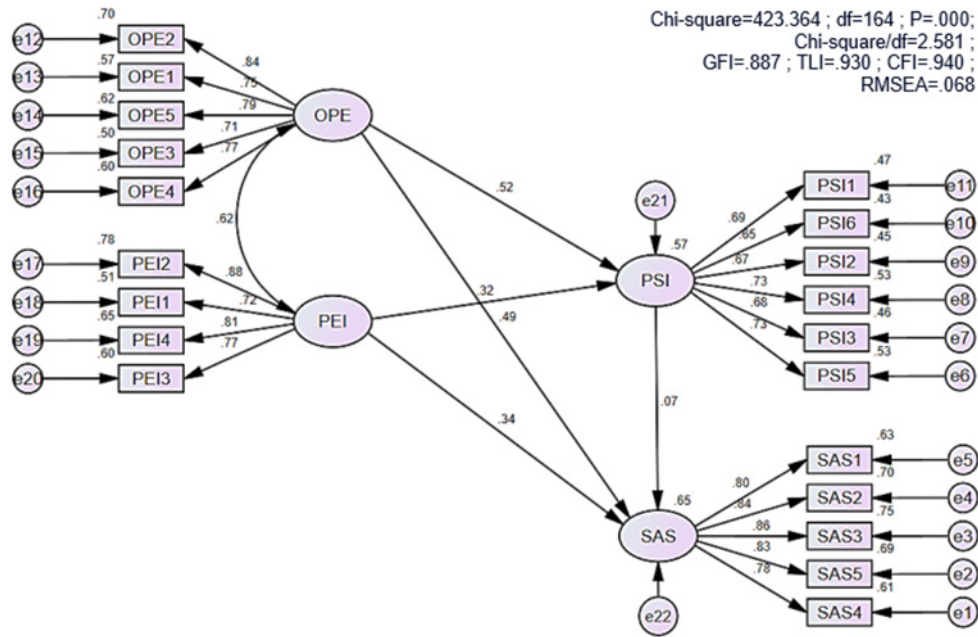
Characteristics	Frequency	Ratio
Industry Sector	N = 346	100%
Economy	141	40.51%
Skill	138	39.88%
Others	67	19.61%
Income/Month	N = 346	100%
Under 2 million	250	72.28%
From 2 < 6 million	62	17.91%
From 6 < 9 million	22	6.35%
> 9 million	12	3.46%

Source: SPSS output (2024)

### Measurement Model Analysis

First, the validity and reliability of measurement scales have been tested as suggested by Hair (2009). By checking the item loadings, which are all 0.5 or higher (Hair, 2009), the convergent validity has been tested, and the average variance extraction (AVE), which is greater than 0.5 (Hair, 2009); the Cronbach's alpha, which is greater than 0.7 (Hair, 2009), As a result, all measures met the requirements, the factor loadings are higher than 0.5, the Cronbach's alpha is between 0.86 and 0.913, and the AVE is between 0.507 and 0.679 (Table 3).

The result of CFA indicated that all the fit indices of the measurement model are acceptable with  $p = 0.000$  (Chi-square = 423.364;  $df = 164$ ; Chi-square/ $df = 2.581 < 3$ ; CFI = 0.940 > 0.9; GFI = 0.887 > 0.8; TLI = 0.930; RMSEA = 0.068 < 0.08; PCLOSE = 0.000). We, therefore, retained all entries for each structure and continued the process of exploratory factor analysis. Overall, the results confirm the validity of the structure and demonstrate the unidimensionality of the structural measurement (Straub, 1989).



**Figure 2.** CFA Result

Source: SPSS output (2024)

**Table 3.** Reliability and Convergent Validity of Measurement Scales

Construct Scale Items	Factor Loading	Cronbach's Alpha	AVE
OPE		0.88	0.597
OPE1	.849		
OPE2	.847		
OPE3	.753		
OPE4	.542		
OPE5	.786		
PEI		0.867	0.632
PEI1	.895		
PEI2	.931		
PEI3	.652		
PEI4	.798		
PSI		0.86	0.507
PSI1	.595		
PSI2	.692		
PSI3	.840		
PSI4	.563		
PSI5	.759		

Construct Scale Items	Factor Loading	Cronbach's Alpha	AVE
PSI6	.794		
SAS		0.913	0.679
SAS1	.682		
SAS2	.738		
SAS3	.780		
SAS4	.940		
SAS5	.870		

Source: SPSS output (2024)

On the other hand, discriminant validity measures whether separate factors are unrelated. The results are shown in Table 4. Values range from 0.507 to 0.679 for AVE, indicating that the constructs' reliability and convergent validity are also verified. The validity of the discriminant was evaluated based on a comparison between the AVE values and the squared coefficients. As all AVE values are greater than the square of the equivalence between the two constructs, as shown in Table 4, this confirms the discriminant validity of the measures.

**Table 4.** Average Variance Extracted

	PSI	OPE	PEI	SAS
PSI	0.507			
OPE	0.581	0.597		
PEI	0.572	0.552	0.632	
SAS	0.670	0.679	0.628	0.679

Source: SPSS output (2024)

### Hypothesis Testing

Hypothetical relationships were tested by using SEM on AMOS 26. The structural model had a statistically significant chi-squared value (Chi-square = 358,780; df = 161; Chi-square/df = 2,228 < 3; CFI = 0.954 > 0.9; TLI = 0.946 > 0.9; GFI = 0.902 > 0.9; RMSEA = 0.060 = 0.06). Therefore, as shown in Figure 1, the proposed model fits the data.

Table 5 presents the estimated standardized structure coefficients for the assumed

associations among constructs. It also presents the significance of constructs in the original proposed model or model 1. According to the above analysis, openness, social interaction, and perceived interaction positively affect satisfaction with  $\beta$  coefficients: 0.370, 0.361, and 0.320 ( $p < 0.05$ ), thus supporting H3, H4, and H5. In addition, the positive effect of openness on social interaction ( $\beta = 0.433$ ;  $p < 0.05$ ) is also significantly confirmed (H2). Furthermore, perceived interaction was also found to have a significantly positive effect on satisfaction (H1) ( $\beta = 0.378$ ;  $p < 0.05$ ).

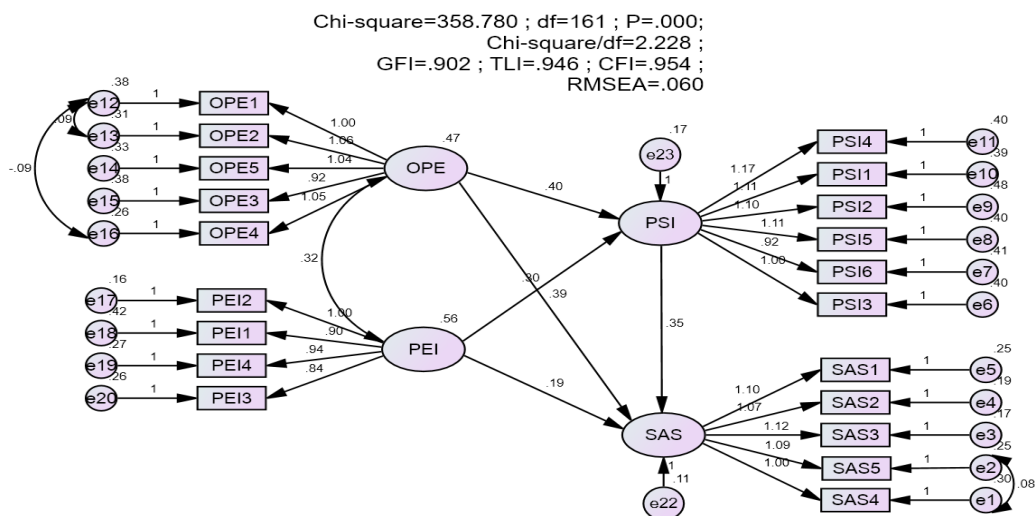
In the proposed initial model, there is a hypothetical mediator to be tested: the extra social interaction. To examine its role, SEM has been conducted, in which different adversarial models were compared according to the guidelines and conditions proposed by Reuben & David (1986).

**Table 5.** SEM Results

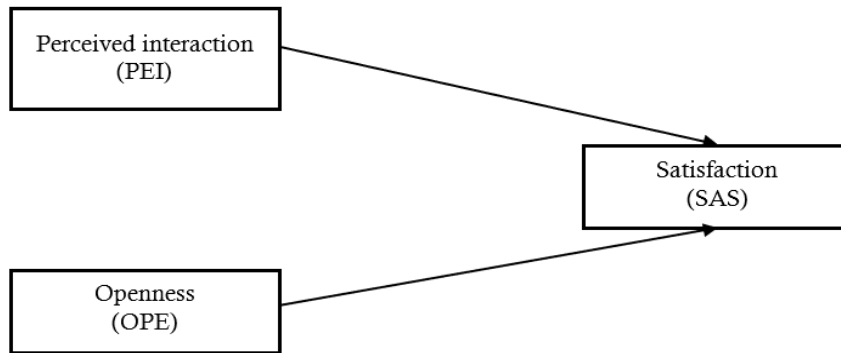
	Normalized regression coefficient	Standard error	P value	t value	
PSI→SAS	0.361	0.072	***	5.409	Accepted
PEI→SAS	0.320	0.051	***	3.976	Accepted
OPE→SAS	0.370	0.043	***	5.988	Accepted
OPE→PSI	0.433	0.056	***	6.179	Accepted
PEI→PSI	0.378	0.056	***	5.524	Accepted

**Note(s):** \*\*\* $p < 0.05$ .

Source: SPSS output (2024)


**Figure 3.** SEM Result

Source: SPSS output (2024)



**Figure 4.** Regulatory Relationship of PEI and OPE to SAS

Specifically, it will examine the mediating role of perceived PSI in the effect of perceived openness or interaction on student satisfaction. We first regressed the students' perceived openness and interaction on social interaction and satisfaction (see Figure 1). Finally, the regression of openness and perceived interaction on student satisfaction (see Figure 3). The regression results in Table 6 show that perceived interaction and openness significantly affected satisfaction (SAS) in model 2 (when PSI was absent). In model 1, PSI is perceived to affect student openness and satisfaction significantly, and its influence on the relationship between perceived interaction and student satisfaction.

Following the mediating conditions proposed by Reuben & David (1986), these results indicate that the perceived PSI partially mediates the effect of openness on satisfaction and perceived interaction on student satisfac-

**Table 6.** Path Coefficients

Construct Path	Model 1 (original)	Model 2 (without PSI)
PEI → PSI	0.301	
PEI → SAS	0.185	0.132
OPE → PSI	0.397	
OPE → SAS	0.388	0.301
PSI → SAS	0.348	

Source: SPSS output (2024)

tion ( $p < 0.05$ ). Therefore, H6 and H7 have been supported.

This paper evaluates the impact of perceived interaction, openness, and prosocial interaction on students' satisfaction with information via the university's social network. The results of this study provide empirical support for the proposed research model shown in Figure 1. Most of the causal rela-

**Table 7.** Summary of Hypothesis Results

	Hypotheses	Results
H1	Perceived interaction has a positive influence on parasocial interaction.	Accepted
H2	Openness has a positive influence on parasocial interaction.	Accepted
H3	Perceived interaction has a positive influence on satisfaction.	Accepted
H4	Openness has a positive effect on satisfaction.	Accepted
H5	Parasocial interaction has a positive influence on satisfaction.	Accepted
H6	Parasocial interaction mediates partially the effect of perceived interaction on satisfaction	Accepted
H7	Parasocial interaction mediates partially or totally the effect of openness on satisfaction	Accepted

tionships among the variables in the study are supported. The hypotheses were accepted at the 95% confidence ( $p < 0.05$ ). The following is a discussion regarding the results of this research analysis.

The results of hypothesis testing in Table 5 show that the normalization coefficient of openness is 0.433. This indicates that openness has a 43.3% impact on students' parasocial interaction. The value of  $t = 6.179 > 2$ . This is statistically significant at the  $p < 0.05$  level. Therefore, this accepts the research hypothesis H2 and explains the relationship between openness and parasocial interaction. Moreover, openness has a normalization coefficient of 0.370, demonstrating that students' openness will increase by 0.370 for every one-unit increase in satisfaction. The value of  $t = 5.988 > 2$ . This value is statistically significant at the  $p < 0.05$  level.

Therefore, this accepts research hypothesis H4 and elucidates the relationship between student openness and satisfaction. Similarly, the research hypothesis H1 is accepted and explains a relationship between students' perceived interaction and social interaction. Besides, hypothesis H3 is accepted and explains the relationship between perceived interaction and student satisfaction. Finally, the value of the normalization coefficient of parasocial interaction is 0.361. It means that each one-unit increase in social interaction will generate satisfaction 0.361 times, showing that social interaction affects 36.1 percent of the endogenous variable (satisfaction). T value ( $= 5.409 > 2$ ) indicates that it is statistically significant at the  $p < 0.05$ . Therefore, this accepts hypothesis H5 and explains the relationship between social interaction and satisfaction.

The results of parameter estimation show that the relationships are statistically significant. Therefore, relationships between the variables are consistent with the theory. The regression results between the variables indicate that perceived interaction (PEI) and openness (OPE) both positively affect parasocial interaction (PSI). However, openness has a more substantial impact on social interaction,

mainly since these two variables also affect satisfaction

Research results show that if students feel more open and perceive that they can interact with university information via social networks, they will have higher PSI and satisfaction. Besides, openness and perceived interaction will encourage students to learn more about the university. This will increase their interaction with the university. The results are consistent with previous research by Labrecque (2014), which stated that perceived openness affects PSI. This study also confirms previous research by Alshibly (2015), which suggested that perceived interaction and openness affect student satisfaction.

There were very few studies on the mediating role of PSI in the relationship between openness and perceived interaction on satisfaction. The results indicate that PSI is partially mediated by the impact of openness and perceived interaction on satisfaction. This means that openness and perceived interaction not only have a direct impact on satisfaction but also have an indirect effect through PSI. These findings are similar to previous studies (Ballantine, 2005) (Meyliana et al., 2020) (Shipps & Phillips, 2013).

## CONCLUSION

The results of this study show that although PSI theory originates from studies on user interaction through TV or movies, in the current context, this theory can be applied to explain differently. In particular, this theory can be used to describe the interaction between the university and student social networks. Using EFA and confirmatory factor analysis showed that all factor loads, including openness, perceived interaction, social interaction, and satisfaction, were statistically significant. From the results of SEM, we determined that openness and perceived interaction positively impact social interaction.

In particular, openness (0.433) substantially impacts social interaction more than perceived interaction (0.378). The results of

this study are similar to those of Labrecque. (2014). Research results also show that social interaction positively impacts student satisfaction. This finding aligns with the study of Levy & Windahl (1984), which indicates that an individual's participation affects their satisfaction when engaging with media-based information. Similarly, Wong & Chapman (2023) analyzed how different forms of interaction between students, their peers, and instructors relate to student satisfaction. Their findings suggest that interpersonal interactions significantly contribute to higher satisfaction levels among undergraduate students, further reinforcing the importance of social engagement in learning environments.

The results also show that openness strongly impacts student satisfaction through social interaction. These results also have similarities with Meyliana et al. (2020), who suggested that cognitive interaction and openness positively impact social satisfaction and interaction. Extending previous studies on the outcomes of social interaction, this empirical study shows evidence of the impact of the social interaction mediating variable on student satisfaction. In particular, the spillover effects of social interaction are not limited to students' openness and more perceptive interactions. The partial mediating effect of social interaction indicates that the impact of student openness on student satisfaction can be explained by the positively perceived association of social interaction. Helps to build more openness among students and thus the interests of this target group.

### *Practical Significance*

In addition to providing information and interacting with learners through websites, universities now also focus on social networking platforms to communicate and interact with students. Based on these results, universities can note some of the following measures to improve student satisfaction.

Firstly, universities must regularly and continuously provide academic and non-academic

information via social media such as Facebook. Besides, it is necessary to respond quickly to students' questions. In addition, it is possible to build a communication platform for many different segments and purposes so that students can easily search and distinguish, and not spend too much time finding solutions. As a result, all activities increase the perception of interaction and sympathy, increasing satisfaction.

Secondly, for students to have a clear sense of openness from the university, thereby improving student satisfaction, universities must create an environment that attracts them. University information must be accurate, complete, relevant, and easy to understand. In addition, universities can create online chat sessions with students to increase interaction and help students answer questions they have. Among the various strategies for engaging students in today's landscape, social interaction with students is an essential intermediate step in maintaining relationships with them.

It mediates not only the relationship between openness and satisfaction but also the perceived interaction with satisfaction of research subjects. Therefore, good social interaction with students and providing more specific social information on electronic websites is a key goal in relationship building because it dramatically enhances the influence of students' openness and social interaction on student satisfaction.

Universities can post information such as their traditional history and achievements through social networks and media so that students can understand and be prouder of their school. At the same time, universities must regularly update information about school activities, competitions, and job opportunities. Based on this information, students can grasp and participate. Universities should also create and manage social media groups for their students to join, exchange, express opinions, and have questions answered. All of these activities would help increase student satisfaction.

### *Limitations and Suggestions for Future Research*

Firstly, social interaction is considered a multidimensional and broad concept that includes influencing factors. In this study, we have studied two factors: perceived interaction and openness. Other studies can add factors such as knowledge, trust, and quality.

Second, this sample was also conducted in universities in Hanoi, and the subsequent studies can expand the scope of the survey so that there can be a difference between student behavior in metropolitan areas and smaller cities. The analysis can also be extended to compare regions/countries on the impact of social interaction on students' satisfaction with information on university social networks. As a result, we can see the difference in education between countries.

Third, the respondents in our study were randomly selected, which may raise concerns about gender distribution bias in the study results. Due to the limitations of time and resources, the study has shortcomings. However, later studies also have a gap to inherit and develop more diverse articles.

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