



## Research article

# SNS citizenship behavior based on D&M information system success model and social capital theory: Mediating role of subjective well-being

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## ARTICLE INFO

## Keywords:

SNS citizenship behavior  
D&M system model  
Social capital theory  
Subjective well-being

## ABSTRACT

Social media has become integral to contemporary society, with online behaviors impacting individual experiences and the wider community. In Bangladesh, a developing country, SNS have played a pivotal role in the nation's digitalization efforts. This study explores the relationship between social capital theory, D&M Information System Model, subjective well-being, and SNS Citizenship Behavior (SCB) among active social media users in Bangladesh. Data was collected from 418 participants through an online survey, and hypotheses were tested using structural equation modeling. The findings indicate that the items of the D&M model positively influenced the aspects of social capital theory, excluding service quality. In contrast, social interaction ties and shared values were positively associated with SCB, although social trust did not exhibit a significant relationship. Additionally, subjective well-being mediated the connection between social capital and SCB. This research offers valuable insights into the factors influencing online prosocial behavior and provides practical implications for cultivating a positive communication culture in the digital era. The model proposed in this study holds significant implications for Bangladesh's policymakers and social networking site authorities, guiding their efforts in implementing technology-based initiatives.

## 1. Introduction

Bangladesh, as a developing nation, has undergone substantial advancements in its pursuit of digitalization in recent years. An integral facet of this digital transformation pertains to the enhancement of the country's communication infrastructure. Social networking sites (SNS) have emerged as pivotal agents propelling this revolution [1]. This study focuses on the perspective of Bangladesh regarding the growing popularity of SNS citizenship behavior in the country. SNS have gained immense popularity worldwide, emerging as the preferred online social platform where individuals, particularly the youth, spend a substantial amount of

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<https://doi.org/10.1016/j.heliyon.2024.e29982>

Received 27 November 2023; Received in revised form 11 April 2024; Accepted 18 April 2024

Available online 20 April 2024

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time engaging with their friend networks. These sites enable users to create personal profiles, share photos, disclose personal information, and join various friend groups [2]. Possibly, these increase social support, mutual trust, and the reduction of uncertainty while expanding their experience and knowledge of current concerns, all of which may ultimately be favorably connected with life satisfaction [3]. Major SNS like Facebook, Messenger, YouTube, Google+, LinkedIn, and Twitter have achieved tremendous success in today's era. Among these platforms, Facebook provides people a valuable avenue to express their thoughts and ideas [4]. The impact of social networking on society in the 21st century has been profound, revolutionizing how individuals interact [5]. SNS have been associated with several positive outcomes such as facilitating knowledge sharing and enabling users to form social connections [6]. Customer reviews on mobile social media can be strengthened and revitalized by the quality of the services provided, which will increase their likelihood of maintaining long-term relationships with companies and products [7]. However, they have also been linked to negative effects through undesirable behaviors. The use of SNSs has led to unintended social problems such as privacy violations, malicious remarks, and cyberbullying [8], reduced educational attainment as a result of perceived information and social overload [9]. It is worth noting that SNSs are extremely popular among adolescents, and these platforms have become a common ground for cyberbullying incidents [10]. The fundamental concept underlying various anti-cyberbullying campaigns is not merely to cease posting abusive comments online but also to encourage individuals to proactively foster harmonious online communities and assist others, resembling the notion of citizenship behaviour [11]. In other words, reducing self-centered and immoral negative behaviours, enhancing user satisfaction, and fostering a positive communication environment are voluntary participatory actions that can manifest as citizenship behaviour [12,13]. Citizenship behavior refers to voluntary actions that go beyond one's required duties and are not driven by formal rewards. It involves efforts made by an individual to contribute to the overall effectiveness and success of a social group [11]. When an individual exhibits online citizenship behavior while using SNS, it suggests a willingness to assist others and maintain a positive attitude towards enhancing the functionality of SNS platforms [8]. This study suggests a theoretical framework that incorporates the D&M information system model and social capital theory, with the added consideration of subjective well-being as a mediating factor that affects SNS citizenship behavior. Previous research has extensively explored the impact of various characteristics of online communities, including the examination of citizenship behavior and its antecedents in the context of knowledge sharing within online communities [14–17]. While D&M information system theory performs better when analyzing online behavior in the setting of social networking sites, few noteworthy studies have applied this theory extensively, particularly in the context of developing nations. Therefore, the current study perceives to investigate the underlying mechanisms or empirically validated SNS citizenship behavior based on the D&M information system success model and social capital theory, including the mediating role of subjective well-being. Additionally, this study aims to offer deeper insights into the perceptions and behaviors of respondents in Bangladesh regarding SNS citizenship behavior. The following primary research questions (RQs) are thereby addressed in this study.

- RQ1.** What is the relationship between SNS citizenship behavior and the variables of the D&M Information System Success Model?
- RQ2.** To what extent does subjective well-being mediate the relationship between SNS citizenship behavior and the variables of the D&M Information System Success Model and social capital?
- RQ3.** How can the D&M Information System Success Model, social capital theory, and subjective well-being are integrated to explain the factors influencing SNS citizenship behavior?

The paper outlines the theoretical foundation, conceptual research model and hypothesis development in the following section. In sections 3 and 4, the study's methodology and empirical findings are described. The key discussions over the findings are addressed in Section 5. The paper is concluded in section 6 with insightful conclusions, implications, limitations, and recommendations for further research.

## 2. Theoretical ground and hypothesis development

### 2.1. Theoretical justification

Social media platforms enable individuals to interact with strangers and display their social networks, leading to new connections that may not have been possible otherwise. This unique characteristic distinguishes SNS, as noted by Boyd [18]. As a network-based communication platform, SNSs have multiple functions that have transformed social interactions, as discussed by Gibbs, MacDonald, and MacKay [19]. SNS's presence, sharing, discussion, identity, groups, relationships, and reputation were described by Kietzmann et al. [20] as some of its fundamental functional components. Additionally, Boyd [18] emphasized the functions of connection and content sharing within an SNS. Connection enables the establishment and upkeep of user networks, facilitating ongoing communication, social capital and interaction among SNS users [3]. Kietzmann et al. [20] introduced the concept of citizenship behavior in organizations, which encompasses work-related behaviors that are not formally rewarded but collectively enhance the organization's effectiveness. Within the context of SNS, citizenship behavior is considered as the foundation. Organizational citizenship behavior, as defined by Chou et al. [8], refers to discretionary prosocial behaviors that are not explicitly recognized by the formal reward system, but when taken together, they promote the effective functioning of the organization. According to the conceptualization put forth by Organ et al. [11], the behavioral pattern of citizenship behavior within SNS possesses certain fundamental characteristics. These include the fact that helping others is a voluntary endeavor and the favorable effects these activities have on the effectiveness of the targeted organization. When applying this framework to the context of SNS, activities like actively participating in anti-cyberbullying campaigns can be viewed as discretionary behaviors that users opt to engage in. Hence, online citizenship behavior can be regarded as a form of prosocial behavior exhibited within the context of SNS.

2.1.1. D&M information system model

The D&M Information System Model is a well-known and influential framework designed to elucidate the various aspects and impacts of information systems (IS) [21]. The model has been revised and adjusted since it was first put forth by DeLone and McLean [22]. The initial D&M Information Systems Success model was created to pinpoint the elements that determine an information system's success [22]. It comprises six interconnected dimensions that collectively contribute to the effectiveness and achievement of an information system [23]. System quality, information quality, service quality, usability, user happiness, and net benefits make up the D&M Information System Model's dimensions [24]. Numerous sorts of information systems have been measured using this paradigm [25]. The research model's independent constructs, such as content quality, system quality, and service quality are regarded as the forerunners of quality. As depicted in Fig. 1, content, system, and service quality have a direct influence on the elements of social capital theory that directly impact citizenship behavior in SNS. These three external variables were hypothesized to have an impact on the elements of social capital theory within the system.

2.1.2. Social capital theory

A sociological idea known as "social capital theory" highlights the importance of social networks and relationships in producing advantages for individuals and communities. Earlier studies have highlighted the value of social capital in addressing social issues prevalent in today's societies [3,26]. Since similar problems arise in online environments, such as cyberbullying, offensive comments, and privacy violations, social capital can also serve as a tool to prevent such issues and foster positive online citizenship, particularly within SNS. Three aspects of social capital—structural, cognitive, and relational—have been identified in earlier research that are relevant not only to offline communities but also to online communities and SNS [27]. Building upon this research, we have incorporated elements of social capital such as trust, social interactions, and shared values to promote citizenship behavior within SNS. According to social capital theory, a buildup of social capital can produce numerous favorable consequences and also function as a protective factor against negative outcomes. For instance, previous studies have demonstrated that social capital is associated with lower crime rates, greater willingness to assist others [28], and increased citizenship behavior. Social capital is fundamentally about establishing meaningful social relationships that enable individuals to collectively address shared challenges and attain mutually beneficial outcomes [25]. Therefore, this study aims to investigate the impact of social capital theory on citizenship behavior within SNS, using a conceptual construction developed in the subsequent section.

2.1.3. Conceptual framework

This study's framework is built on the conceptual model shown in Fig. 1. It integrates the D&M Information System Success Model and social capital theory, considering the moderating influence of subjective well-being. The framework identifies several factors that impact SNS citizenship behavior, including service, content, and system quality from the D&M model, as well as trust, shared values, and social interactions from social capital theory. Fig. 1 provides a visual representation of the interrelationships among these seven key variables that are likely to influence SNS citizenship behavior.

2.2. Hypotheses development

2.2.1. Content quality vs. social capital theory

The quality of content, including its relevance, sufficiency, accuracy, and timeliness, has a significant impact on social capital theory [29,30]. It plays a critical role in establishing trust and credibility among individuals within a community [31], that potentially

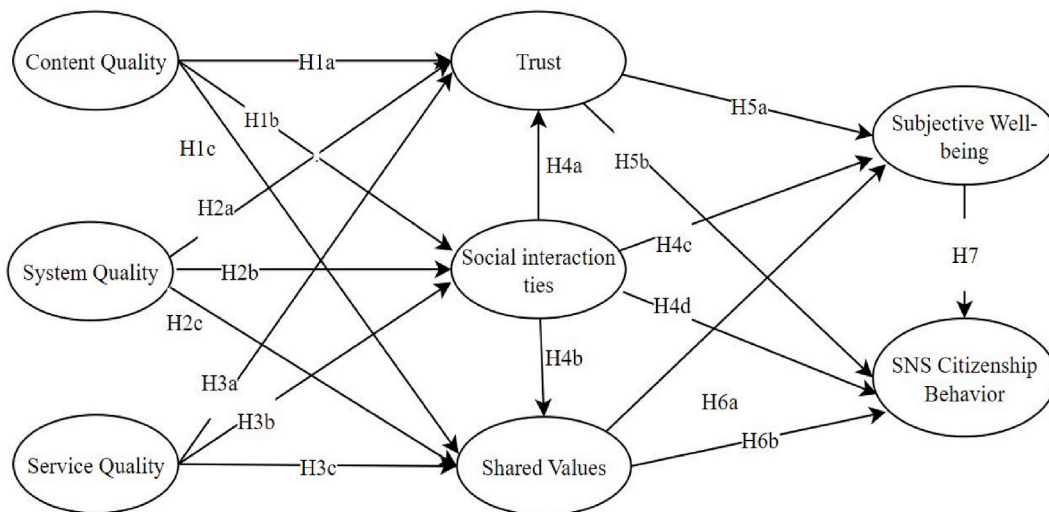


Fig. 1. Conceptual research model.

improve emotional attachment [7]. When the content is of high quality, it facilitates the effective sharing of information and exchange of knowledge [32], thereby enhancing the overall knowledge capital of the community. Furthermore, content quality has the additional effect of encouraging inclusion, active participation, and fostering a sense of shared understanding, all of which contribute to the formation of social capital [33]. So content quality is crucial for building trust, facilitating the exchange of information, promoting inclusivity and participation, fostering shared understanding, and strengthening social norms and cohesion within a community or society. Thus, the current research advances the following hypotheses in light of the literature review above:

$H_{1a}$ : The quality of content positively influences the level of trust among users of SNS

$H_{1b}$ : The quality of content has a positive relationship with social interaction ties among users of SNS

$H_{1c}$ : The quality of content is positively associated with shared values among SNS users

### 2.2.2. System quality vs. social capital theory

The influence of system quality on social capital theory is significant in the development and functioning of social capital within a community or society [30]. In this study, we rate the system's usability and quality based on factors including appearance, navigation, usability, and accessibility. System quality, which is defined as the information system's usability and functionality, is essential for promoting engagement, communication, and access to resources and information. It promotes seamless communication, knowledge sharing, and collaboration among individuals, thereby fostering social capital [3,34]. A superior standard of system quality assists SNS users in locating relevant information and avoiding irrelevant content [32]. In contrast, users may struggle with blocking or filtering out irrelevant information if the system is difficult to operate, which might result in information overload [32]. A high-quality system is essential for providing trustworthy and accessible information, which lowers barriers and encourages inclusivity [35]. Additionally, it significantly affects how successfully a community works together and takes collective action [36]. Trust is cultivated when users perceive the system as reliable and trustworthy [37,38]. Building trust through SNS usage intensity has a favorable impact on people's online word-of-mouth engagement and builds a mindset that surpasses word-of-mouth communication [37]. Consequently, system quality has implications for social capital by facilitating communication, improving access, encouraging collaboration, building trust, and promoting engagement within a community or society. The following hypotheses are therefore presented.

$H_{2a}$ : The quality of system positively influences the level of trust among users of SNS

$H_{2b}$ : The quality of system has a positive relationship with social interaction ties among users of SNS

$H_{2c}$ : The quality of system is positively associated with shared values among SNS users

### 2.2.3. Service quality vs. social capital theory

According to Liang et al. [39] service quality can be assessed based on its reliability, responsiveness, assurance, and personalization. The significance of service quality in relation to social capital theory, as highlighted by Lin [40] and Ou et al. [33], cannot be underestimated. It has a profound impact on the establishment and reinforcement of social capital within a community or society. When services consistently meet expectations and demonstrate reliability, they foster trust and dependability among members of the community [33]. According to Liang et al. [39], when service quality is high, it results in user satisfaction and loyalty, motivating individuals to actively participate and maintain their commitment to the community. This loyalty is crucial for sustaining social capital, as emphasized by Zhou et al. [41]. Furthermore, Liang and Chen [35] argue that service quality plays a role in shaping the level of support and assistance available within a community. Accessible and responsive services contribute to collaboration and support, facilitating the development of social capital, as noted by Ou and Davison [42]. Moreover, Ahn et al. [38] highlight that valuable and meaningful services strengthen individuals' emotional attachment and dedication to the community, thereby enhancing social capital. The impact of service quality on social capital is notable because it encourages trust, positive interactions, user satisfaction, loyalty, support, and attachment to the community. The following hypotheses are therefore presented.

$H_{3a}$ : The quality of service positively influences the level of trust among users of SNS

$H_{3b}$ : The quality of service has a positive relationship with social interaction ties among users of SNS

$H_{3c}$ : The quality of service is positively associated with shared values among SNS users

### 2.2.4. Social interactions ties vs. trust

Social interactions play a crucial role in the development and maintenance of trust between individuals. According to the authors, the trust progresses from its initial form to a more stable state as the relationship between the trust and trustee advances from mere awareness to active social interaction. Trust is considered a fundamental component of social relationships, encompassing a belief in the reliability, honesty, and goodwill of others. In essence, social interactions present opportunities for individuals to establish trust by fostering familiarity, engaging in transparent communication, practicing reciprocity, demonstrating consistency and reliability, adhering to social norms, and forming emotional bonds, as suggested by Bernoff and Li [43]. Trust is nurtured and reinforced through continuous positive social interactions, playing a critical role in sustaining rewarding and healthy relationships [40]. This holds true even in the context of online communities, where members build stronger connections and cultivate trust by exchanging information and engaging in communication. Consequently, social interaction ties within a SNS environment should foster the development of social trust among its members. The following hypotheses are therefore presented.

$H_{4a}$ : The social interaction ties is positively associated with social trust among SNS users

### 2.2.5. Social interactions ties vs. shared values

By promoting a collective language, perception, and comprehension among its members, it becomes feasible to foster cognitive capital, which represents a shared set of values [44]. The formation of a common value system within a social group heavily relies on

social interactions, as they play a pivotal role in shaping and disseminating these values among members. The establishment of social network ties among individuals is predominantly rooted in interpersonal interactions, acting as a cornerstone for this process [45]. These encounters have a big impact on how members develop common ideals, which are subsequently communicated and exchanged with other individuals they engage with. Past research has underscored the importance of social interaction ties in facilitating the assimilation of social values by others [33]. Accordingly, in the realm of SNS, social interaction ties are anticipated to play a notable role in the development and dissemination of social values. Building upon these observations, the following hypothesis can be posited:

$H_{4b}$ : The social interaction ties has a positive relationship with shared values among users of SNS

#### 2.2.6. Social capital theory vs. subjective well-being

According to Social Capital Theory an individual's subjective well-being is influenced by their social networks, relationships, and interactions within a community, which emphasizes multiple relationships with others provides access to necessary social provisions. Each individual requires various provisions to fulfill their needs, and when those needs are met, it leads to specific feelings of well-being. Social capital encompasses resources such as trust, reciprocity, social support, and social connections [45]. These resources have a positive impact on subjective well-being. Having strong social ties and supportive relationships fosters a sense of belonging, security, and overall well-being. Trust and reciprocity play a role in nurturing positive relationships, while social integration and community involvement contribute to a sense of belonging and purpose. The availability of resources plays a vital role in enhancing an individual's well-being, empowering them to overcome challenges and pursue personal growth. Social capital influences the establishment of social norms and the level of social cohesion within a community, both of which contribute to individuals' subjective well-being. Based on these notions, it is possible to formulate the following hypotheses:

$H_{4c}$ : The social interaction ties have positively influenced subjective well-being among users of SNS

$H_{5a}$ : Social trust has a positive relationship with subjective well-being among users of SNS

$H_{6a}$ : Shared values is positively associated with subjective well-being among users of SNS

#### 2.2.7. Social capital theory vs. SNS citizenship behavior

Social Capital Theory posits that the presence of social capital within SNS communities directly influences individuals' citizenship behaviors, resulting in increased engagement, support, and adherence to community norms. While the three dimensions of social capital theory social interaction ties, shared values, and trust represent distinct aspects, they are interconnected [44]. Social interaction ties refer to the depth of bonds, amount of time spent, and frequency of communication between SNS users [46]. Based on previous research conducted by Sun et al. [44], the concept of shared values within SNS is suggested as a component of cognitive capital. According to Pang et al. [37], social interaction ties, trust, and perceived homophily are strong predictors of people's attitudes toward online word-of-mouth and its engagement. According to Inkpen and Tsang [45], this relates to the degree of shared understanding and significance among SNS members. Relational capital, on the other hand, pertains to the level of trust formed through interactions within a social group, as discussed by Chow and Chan [28]. Trust plays a crucial role in voluntary actions and assisting others, such as the exchange of knowledge in online communities, as highlighted by Chiu et al. [46]. Similar to this, social trust is projected to encourage voluntary and supportive activities in the setting of an SNS acting as an online community [44]. Therefore, it is believed that the presence of social trust influences the promotion of civic conduct within the framework of a SNS. The hypotheses put forward focus on the influence of shared values, social trust and social interaction ties which represent emotional aspects, on SNS citizenship behavior. Building on these foundations, we can formulate the following hypotheses:

$H_{4d}$ : The social interaction ties have positively influenced on SNS citizenship behavior among SNS users

$H_{5b}$ : Social trust has a positive relationship with SNS citizenship behavior among SNS users

$H_{6b}$ : Shared values are positively associated with SNS citizenship behavior among SNS users

#### 2.2.8. Subjective well-being vs. SNS citizenship behavior

Subjective Well-being refers to an individual's personal evaluation of their own life satisfaction and happiness. Similarly, SNS Citizenship Behavior is voluntary actions undertaken for the benefit of the SNS community. According to Chiu et al. [46], a positive association exists between subjective well-being and engagement in positive behaviors within the SNS community. This relationship arises from the tendency of happier individuals to possess a positive perspective, higher life satisfaction, and a willingness to contribute to the community's welfare [44]. Therefore, this study suggests that people will feel higher degrees of happiness and satisfaction with their online social life when they obtain social support from other community members. As a result of their feeling forced to act as good citizens in response to this support, and the following theories can be developed.

$H_7$ : Subjective well-being is positively associated with SNS citizenship behavior

#### 2.2.9. Subjective well-being as mediator

According to Social Capital Theory, social connections and networks offer individuals valuable resources and support. These resources can have a favorable influence on an individual's subjective well-being, resulting in greater happiness and satisfaction with life. Consequently, individuals with higher subjective well-being are more inclined to display positive behaviors within SNS [44]. When individuals feel content, happy, and satisfied with their lives, they are more likely to participate in activities that benefit others, contribute positively to discussions, and cultivate a sense of community within the SNS context [46]. Hence, subjective well-being plays a mediating role between Social Capital Theory and SNS citizenship behavior. The effect of social capital on subjective well-being positively affects individuals' engagement in citizenship behaviors on SNS. So Social Capital Theory impacts an individual's subjective well-being through the provision of social resources and support. These premises lead to the formulation of the following

hypotheses.

1. Subjective well-being serves as a mediator between trust and SNS citizenship behavior.
2. Subjective well-being acts as a mediator between social interaction ties and SNS citizenship behavior.
3. Subjective well-being functions as a mediator between shared values and SNS citizenship behavior.

### 3. Methodology

#### 3.1. Research design

This study integrates the D&M Information System Success Model, social capital theory, and subjective well-being to elucidate the factors that contribute to Social Networking Site (SNS) citizenship behavior. Before creating a draft study design, this study carefully evaluates the corpus of previous research on our topic, making note of important variables, important points, and their relationships. Then confer with a focus group comprised of two advertising professionals, two social scientists, and one journalist. Following that, a few SNS users were gathered to discuss social media use in general and online citizenship behavior in particular. After considering the suggestions and advice from several layers, the suggested study model is then conceptualized (Fig. 1). The majority of the survey for this study was completed online, while some was completed in person, with participants being young social media users residing in various cities across Bangladesh. A structured questionnaire was developed to collect primary data from the participants. This questionnaire survey method was deemed suitable to explore the hypothetical relationship among the proposed variables and constructs based on the participant's perceptions. Finally, the data was analyzed through structural equation modelling (SEM) to establish empirical evidence for the hypothesized relationships.

#### 3.2. Data collection

The participants in the study comprised all citizens of Bangladesh who had at least six months of prior experience using SNSs. If respondents from Bangladesh were eligible and older than 15, they were suggested to answering the survey or, otherwise stop answering to the survey. This study adopted a non-probability sampling technique known as "judgmental sampling." The respondents were purposively selected from various cities in Bangladesh based on the researchers' judgment, taking into consideration the ease of data accessibility. A pilot test with 22 respondents was conducted early in the data collection process to evaluate the data's clarity prior to final data collection. In January and February of 2023, data were gathered and it emphasizes the importance of user attributes in influencing subjective well-being and SNS citizenship activity by using data from 418 online social media users, which was determined based on the threshold recommended by Malhotra and Dash [47]. The current study, first distributed a total of 575 questionnaires to participants through both online and offline platforms, using physical interaction, inboxing, or emailing, but only 488 of the replies were gathered. Following the screening process, 70 responses were discarded because of several serious problems, including straight lines, missing responses, and incomplete questionnaires. As a result, 418 valid responses were suitable for analysis. This sample size was above the minimum requirement of 386 recommended by Kline [48]. Additionally, the response rate of 61.92 % was deemed appropriate and was higher than the response rates of previous studies, which were 33.3 % and 44.3 % [49].

#### 3.3. Measurement and scaling

There are primarily two sections to the questionnaire design. The goal of the first section is to gather respondents' demographic data using four constructs: gender, age, study background, and everyday usage experience of SNS. The current study constructed a model of SNS citizenship behavior influenced by the D&M information system model and social capital theory, incorporating the mediating role of subjective well-being through items representing each type of SNS citizenship behavior. There are prime eight constructs in the second section such as content quality, system quality, service quality, trust, social interaction ties, shared values, subjective wellbeing and SNS citizenship behavior. Specifically, this study included items based on content quality, system quality, and service quality from the D&M information system model [25], and trust, social interaction ties, and shared values from social capital theory [46], all of which were tailored to the unique features of SNSs. All the measurement questions were taken from existing literature, in order to attain better reliability and validity. Nonetheless, the questions were modified as necessary to align with the study's context based on input from the experts. For example, Appendix 1 shows, questions about content and system quality are taken from Dong et al. [50], questions about service quality are taken from Li et al. [51], questions about trust are taken from Lin and Lu [52], questions about social interaction ties are taken from Chung et al. [53], questions about shared values and SNS citizenship behavior are taken from Son et al. [54], and questions about subjective well-being are taken from Huang et al. [55]. The eight major constructs were measured using five questions-par however, because to their low loadings, a number of items with the exception of service quality were removed from the construct. Two questions from the system quality constructs and just one from the rests have been removed. A 5-point Likert scale, with 1 denoting "strongly disagree," and 5 denoting "strongly agree," was used for the poll in the second part of the questionnaire. To ensure the validity of the scales, the researchers conducted consistency measurements that involved composite reliability, average variance extraction, and factor loading.

### 3.4. Data analysis tools

To input and screen data, the researchers used Microsoft Excel. The demographic profile of the respondents was summarized using SPSS 26. The measurement and structural models were assessed using AMOS-24, a prediction-oriented statistical tool well-suited for SEM analysis. The researchers chose AMOS-24 because it is highly accurate and reliable, providing precise results for complex measurements and structural models. It can also prevent specification errors, improve result reliability, and minimize structural errors [56].

### 3.5. Method bias test

The study tested for Common method variance (CMV) to prevent potential method biased threat. The current study used procedural and statistical methods to make sure that Common Method Bias (CMB) is a non-issue. To examine the non-response bias, the study applied an independent t-value for all the main constructs and found that there were no unnecessary inconsistencies amongst respondents. According to Harman's Single Factor Test for CMB, the first aspect of the study explained 34 % of the variance. If the variance percentage is less than 50 % and some other factors of eigenvalues are greater than 1, then it is perfect for the next step of the analysis [57]. Therefore, it is accepted that there are no serious issues with method bias.

## 4. Analyses and findings

### 4.1. Demographic statistics

Table 1 shows the demographic characteristics of the survey respondents. Of the analyzed sample, 52.2 % were female, while 47.8 % were male. Most participants (27.3 %) fell within the age range of 26–30. Approximately 21.3 % of respondents were over 20, while 17 % were between 20–25 and 31–35, respectively. Additionally, 16.3 % of respondents were between 36 and 40 years old and only 1.2 % were under 20. Regarding education level, 50.5 % of respondents were pursuing their bachelor's degree, 16.5 % at the master's level, 18.7 % in college, 12.7 % in high school, and 1.7 % with a Ph.D. or higher. Regarding social media usage, the poll indicated that 28.2 % of respondents used social media networks for 1–2 h daily, while 22.7 % used them for 10–30 min. Moreover, 26.3 % of respondents reported using social media between 30 min and 1 h, and 8.9 % used it for less than 10 min.

### 4.2. Measurement model evaluation

The current study initially utilized confirmatory factor analysis (CFA) to evaluate the reliability and validity of the constructs (Fig. 2). The composite reliability (CR) and Cronbach's alpha scores were used to determine reliability. As indicated in Table 2, all the estimates, standard error, table value, and Cronbach's alpha values demonstrated adequate reliability of the reflective constructs employed in the model. Moreover, Table 3 presents the results of the assessment of convergent validity based on factor loadings, AVE scores, composite reliability, and maximum and minimum values. Scholars have suggested that factor loadings above 0.7 and AVE scores greater than 0.6 provide evidence of a construct's convergent validity [58]. In this study, all factor loadings and AVE values were higher than the recommended levels, demonstrating acceptable convergent validity.

Additionally, the composite reliability, maximum and minimum values further supported the convergent validity of the model. The measurement model was accepted because an acceptable fit as evidenced by the following values: CMIN/df = 1.90, GFI = 0.89, AGFI = 0.86, CFI = 0.97, TLI = 0.96, NFI = 0.93, RMSEA = 0.046, and RMR = 0.107. Moreover, the summary statistics suggest that the measurement model is internally consistent, implying that it may have a significant impact on the variables that influence SNS citizenship behavior.

Table 2 shows that all factor loadings, standard errors, critical ratio values, probability levels, and Cronbach's alpha values indicate that the reflective constructs utilized in the model are reliable. Thus, it can be concluded that all inter-correlations among the constructs are strongly internally consistent, confirming the validity of all constructs.

**Table 1**  
Demographic characteristics.

Content		Frequency	Percent	Content		Frequency	Percent
Gender	Female	218	52.2	Study background	Bachelor degree	211	50.5
	Male	200	47.8		College education	78	18.7
Age	20–25	71	17.0	High School or less	53	12.7	
	26–30	114	27.3	Master degree	69	16.5	
	31–35	71	17.0	PhD/more	7	1.7	
	36–40	68	16.3	Daily usage	1–2 h	118	28.2
	Below 20	5	1.2		10–30 min	95	22.7
	More	89	21.3		30 min - 1 h	110	26.3
Less than 10 min					37	8.9	

Note:  $n = 418$ .

Source: survey results.

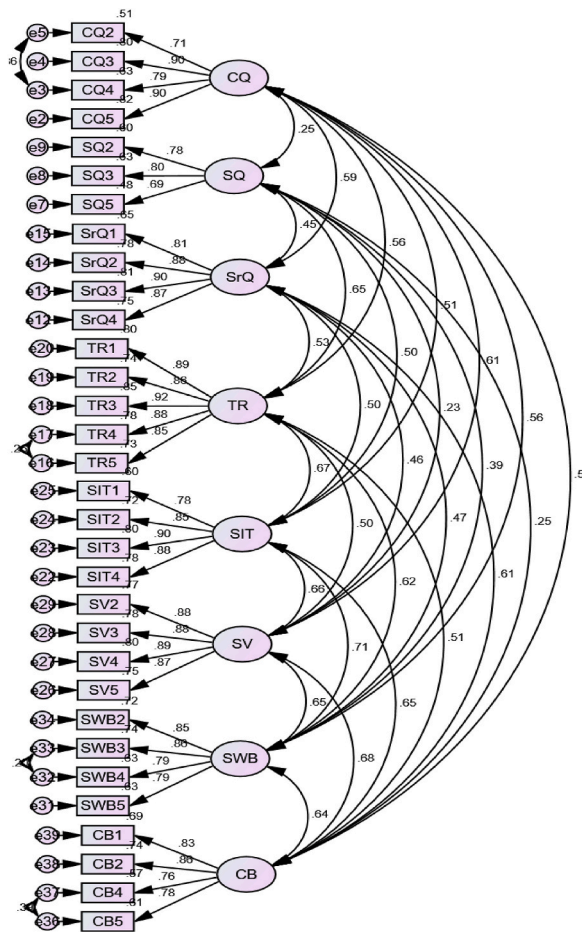


Fig. 2. Measurement model.

Table 3 displays the reliability, validity, and model fit indices, indicating the distinctiveness of each construct. The Fornell-Larcker criterion is used to evaluate the discriminant validity. The diagonal values, representing the square root of AVE, are in bold and are greater than the off-diagonal correlation coefficients. Thereafter, the variance inflation factor (VIF) was calculated for each variable using the multicollinearity test method developed by Kock and Lynn [59], which has been successfully used in previous studies [7]. All VIF values are below 5.0, indicating that there are no multicollinearity issues. These implies that the discriminant validity is satisfactory. As a result, we can conclude that the intercorrelations among all constructs are highly accurate, confirming the validity of all constructs.

### 4.3. The structural model

The AMOS-24 version was utilized by the researchers to evaluate the structural model and investigate the proposed connections. The explanatory capacity of a structural model is determined by analyzing the structural paths and  $R^2$  scores of the endogenous variables in AMOS analysis. The results of the structural path analysis for the data of expectant are illustrated in Fig. 3. The model includes seven exogenous variables and one endogenous variable. The summary of model fit indices indicates that  $CMIN/DF = 2.461$ ,  $RMR = 0.41$ ,  $GFI = 0.86$ ,  $AGFI = 0.83$ ,  $NFI = 0.91$ ,  $IFI = 0.95$ ,  $TLI = 0.94$ ,  $CFI = 0.94$ , and  $RMSEA = 0.059$ , all of which fall within their respective acceptable ranges. As a result, the structural model displays a good level of fit. All structures and interrelationships between constructs were examined to assess the predicted conceptual model, as shown in Fig. 3.

### 4.4. Measuring hypotheses

Table 4 and Fig. 3 indicate that a greater fundamental value indicates a stronger correlation, while the absolute value of R-square indicates the strength. The Path Coefficients analysis yields significant insights into each structure's standardized coefficient,  $t$ -test, and p-values. The findings of the hypotheses tests are provided in Table 4, while Fig. 3 depicts the structural model with factor loading and R-square values that measure the constructs' strong relationship and strength. Overall, our model has good explanatory power,



**Table 2**  
Measurement model statistics.

Items		Construct	Estimate	S.E.	C.R.	P	Cronbach's alpha
CQ5	<—	CQ	0.905				0.90
CQ4	<—	CQ	0.794	0.041	20.986	***	
CQ3	<—	CQ	0.897	0.036	26.126	***	
CQ2	<—	CQ	0.712	0.048	17.414	***	0.79
SQ5	<—	SQ	0.693				
SQ3	<—	SQ	0.796	0.084	13.452	***	
SQ2	<—	SQ	0.776	0.081	13.259	***	0.92
SrQ4	<—	SrQ	0.867				
SrQ3	<—	SrQ	0.898	0.040	25.120	***	
SrQ2	<—	SrQ	0.881	0.043	24.257	***	0.94
SrQ1	<—	SrQ	0.807	0.044	20.775	***	
TR5	<—	TR	0.854				
TR4	<—	TR	0.881	0.036	28.295	***	0.91
TR3	<—	TR	0.922	0.039	26.284	***	
TR2	<—	TR	0.862	0.042	23.168	***	
TR1	<—	TR	0.893	0.040	24.720	***	0.93
SIT4	<—	SIT	0.882				
SIT3	<—	SIT	0.896	0.039	25.896	***	
SIT2	<—	SIT	0.848	0.042	23.326	***	0.89
SIT1	<—	SIT	0.777	0.043	19.946	***	
SV5	<—	SV	0.866				
SV4	<—	SV	0.894	0.042	25.250	***	0.89
SV3	<—	SV	0.885	0.044	24.753	***	
SV2	<—	SV	0.879	0.043	24.425	***	
SWB5	<—	SWB	0.795				0.89
SWB4	<—	SWB	0.791	0.060	17.007	***	
SWB3	<—	SWB	0.862	0.060	19.085	***	
SWB2	<—	SWB	0.847	0.054	18.971	***	0.89
CB5	<—	CB	0.779				
CB4	<—	CB	0.757	0.049	20.639	***	
CB2	<—	CB	0.858	0.056	18.278	***	0.89
CB1	<—	CB	0.832	0.054	17.716	***	

Note: \*\*\*p < 0.001.

Source: data analysis results.

**Table 3**  
Reliability and validity statistics.

	CR	AVE	MSV	MaxR(H)	SWB	CQ	SQ	SrQ	TR	SIT	SV	CB
SWB	0.894	0.680	0.511	0.898	<b>0.824</b>							
CQ	0.898	0.690	0.377	0.919	0.556	<b>0.831</b>						
SQ	0.800	0.572	0.429	0.806	0.386	0.249	<b>0.756</b>					
SrQ	0.922	0.746	0.371	0.926	0.472	0.592	0.449	<b>0.864</b>				
TR	0.946	0.779	0.449	0.949	0.620	0.558	0.655	0.530	<b>0.883</b>			
SIT	0.914	0.726	0.511	0.921	0.715	0.508	0.503	0.502	0.670	<b>0.852</b>		
SV	0.933	0.776	0.465	0.933	0.645	0.614	0.234	0.461	0.498	0.659	<b>0.881</b>	
CB	0.882	0.652	0.465	0.888	0.640	0.579	0.249	0.609	0.513	0.651	0.682	<b>0.808</b>

Source: data analysis results.

explaining variance in for trust, social interaction ties, shared values, subjective well-being, and SNS citizenship behavior by 57 %, 32 %, 51 %, 54 %, and 52 %, respectively.

The hypotheses were evaluated using a statistical technique on pooled data, with the results presented in Fig. 3. The analysis revealed significant effects of content quality on trust (H1a), social interaction ties (H1b) and shared values (H1c). Trust (H2a) and social ties (H2b) were shown to be significantly impacted by system quality, and service quality was found to be significantly impacted by social ties (H3b). Additionally, our study discovered that social interaction ties significantly improve trust (H4a), shared values (H4b), subjective well-being (H4c), and SNS citizenship behavior (H4d). Trust has been proven to significantly affect subjective well-being (H5a). In addition, shared values have a favorable impact on subjective well-being (H6a) and SNS citizenship behavior (H6b). On SNS citizenship behavior, subjective well-being also demonstrated a favorable influence (H7).

However, system quality showed a non-significant negative effect on shared value ( $\beta = -0.24, p > 0.01$ ), the standard estimate of service quality ( $\beta = 0.051, p > 0.01$ ) and ( $\beta = 0.074, p > 0.01$ ); were non-significant for trust and shared values, and trust generate a non-significant effect on SNS citizenship behavior. Therefore, except H2c, H3a, H3c, and H5b, all research hypotheses were statistically significant (See Table 4).

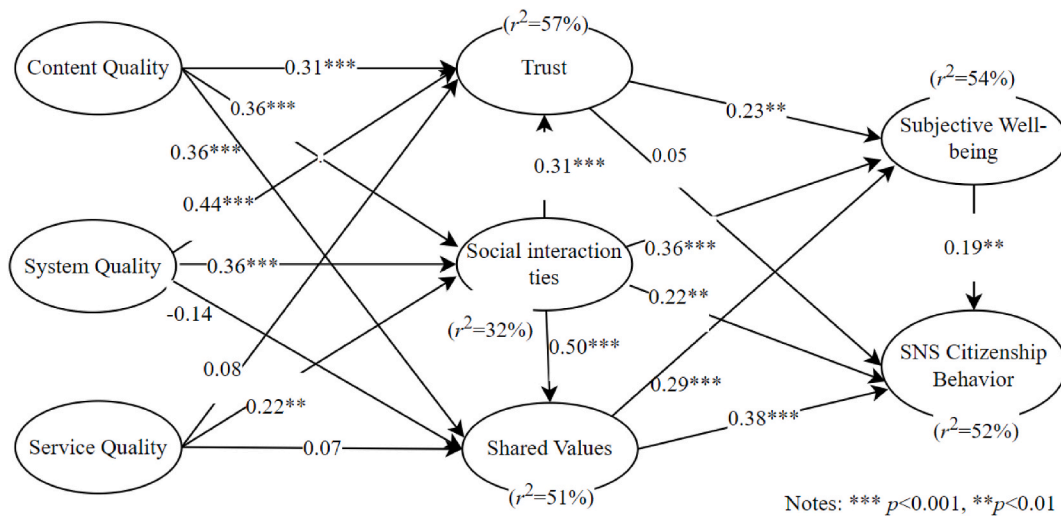


Fig. 3. Structural model.

Table 4 Hypothesis results.

Independent	Dependent	Unstd. estimate	Std. estimate	s.e.	t-value	p-value
CQ	TR	0.244	0.311	0.035	7.021	***
	SIT	0.290	0.365	0.038	7.596	***
	SV	0.346	0.364	0.044	7.792	***
SQ	TR	0.627	0.440	0.077	8.106	***
	SIT	0.527	0.365	0.079	6.686	***
	SV	-0.244	-0.141	0.084	-2.910	n.s.
SrQ	SIT	0.222	0.227	0.046	4.842	***
	TR	0.084	0.087	0.038	2.203	n.s.
	SV	0.086	0.074	0.049	1.768	n.s.
SIT	TR	0.304	0.308	0.050	6.092	***
	SV	0.600	0.501	0.066	9.106	***
	SWB	0.260	0.295	0.048	5.436	***
TR	SWB	0.380	0.360	0.069	5.522	***
	CB	0.238	0.223	0.057	4.166	***
	SV	0.377	0.385	0.059	6.332	***
SV	CB	0.247	0.211	0.083	2.996	**
	TR	0.060	0.051	0.066	0.909	n.s.
	SWB	0.219	0.197	0.077	2.849	**

Squared multiple correlations: SIT: 0.318; SV: 0.507, TR: 0.574, SWB: 0.541, CB: 0.517.

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , n.s. not significant.

Source: data analysis results.

4.5. 5Hypotheses testing results (mediating effects)

The study examined the role of subjective well-being as a mediator in the relationship between trust, social interaction ties, and shared values, with SNS citizenship behavior. The product of coefficient approach [60] was used to investigate the mediating

Table 5 Mediation results.

Mediating paths	Indirect effect	error	Bootstrapping results			
			Bias-corrected model with 95 % confidence interval			
			Lower bound	Upper bound	p-value	decision
TR- > SWB- > CB	0.044	0.025	0.006	0.108	**	Mediate
SIT- > SWB- > CB	0.322	0.060	0.214	0.451	***	Mediate
SV- > SWB- > CB	0.058	0.036	0.006	0.152	**	Mediate

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ .

Source: data analysis results.

relationship, where significant specific indirect effects indicate mediation. Previous research suggests that if the confidence intervals of the indirect paths do not include zero, the indirect effects are significant [61]. Table 5 provides evidence that all specific indirect effects meet these criteria, indicating their significance.

## 5. Discussion

The measurement model's findings strongly supported the model's fitness, indicating reliability and validity. The significant effects of the proposed structural model are presented in Tables 4 and 5, with the *t*-test results used for significance analysis. According to the results presented in Table 4, the quality of content significantly influences the three components of social capital theory, namely trust, social interaction ties, and shared values, which are all positively affected by content quality (trust:  $\beta = 0.311$ ,  $t = 7.021$ ,  $p < 0.001$ ; social interaction ties:  $\beta = 0.365$ ,  $t = 7.59$ ,  $p < 0.001$ ; shared values:  $\beta = 0.364$ ,  $t = 7.79$ ,  $p < 0.001$ ). These findings suggest a positive linear relationship between content quality and social capital theory. Therefore, hypotheses **H1a**, **H1b**, and **H1c** are supported, indicating that the content provided through social media platforms is crucial in fostering meaningful interactions and establishing trust, mutual respect, and social acceptance among users. This content is characterized by its relevance, meaning it addresses topics and interests that are of significance to users, and it is sufficiently comprehensive, providing critical information and resources. The results also suggest that high-quality content on social media platforms can contribute to the development of social capital by fostering trust, social interaction, and shared values among users. Another finding from Table 5 reveals that the quality of a system has a significant impact on three critical components of social capital theory: trust, social interaction ties, and shared values. Specifically, the results indicate that higher system quality is associated with increased levels of trust ( $\beta = 0.440$ ,  $t = 8.10$ ,  $p < 0.001$ ) and social interaction ties ( $\beta = 0.365$ ,  $t = 6.68$ ,  $p < 0.001$ ) among users. Interestingly, the results also show a negative effect of system quality on shared values ( $\beta = -0.141$ ,  $t = -2.91$ ,  $p < 0.01$ ), suggesting that improving system quality may lead to a decline in shared values. This finding emphasizes the importance of system designers in carefully considering the design aspects that support the development of all dimensions of social capital. Therefore, hypotheses **H2a**, **H2b**, and **H2c** are supported, which indicate that high-quality systems play a vital role in fostering social capital by enhancing trust and facilitating social interaction ties among users. The results presented in Table 5 provide additional insights into the influence of service quality on two critical aspects of social capital theory: trust and social interaction ties. The result reveals a significant positive correlation between service quality and these components of social capital theory (Trust:  $\beta = 0.087$ ,  $t = 2.203$ ,  $p < 0.01$  and SIT:  $\beta = 0.227$ ,  $t = 4.842$ ,  $p < 0.001$ ). Furthermore, the relationship between service quality and shared values is not statistically significant ( $\beta = 0.074$ ,  $t = 1.768$ ,  $p > 0.001$ ). Thus, **H3a** and **H3b** are supported, while **H3c** is not, indicating that service quality may not significantly affect shared values development among users. These results emphasize the importance of service quality in promoting trust and social interaction ties within the social capital theory framework. However, it is crucial to note that further research is necessary to fully understand the relationship between service quality and shared values, as the findings do not demonstrate a meaningful impact. Another crucial result presented in Table 5 provides additional insights into the influence of social interaction ties on four key aspects: trust, shared values, subjective well-being and SNS citizenship behavior. The result reveals a significant positive relationship between social interaction ties and these variables. Specifically, the findings indicate that a higher level of social interaction ties is associated with increased levels of trust ( $\beta = 0.308$ ,  $t = 6.09$ ,  $p < 0.001$ ), shared values ( $\beta = 0.501$ ,  $t = 9.106$ ,  $p < 0.001$ ), subjective well-being ( $\beta = 0.360$ ,  $t = 5.52$ ,  $p < 0.001$ ), and SNS citizenship behavior ( $\beta = 0.211$ ,  $t = 2.99$ ,  $p < 0.01$ ) among SNS users. These results support hypotheses **H4a**, **H4b**, **H4c**, and **H4d**, indicating that social interaction ties significantly foster trust, shared values, subjective well-being, and SNS citizenship behavior within social networks. The findings emphasize the importance of establishing and maintaining strong social connections in promoting positive outcomes, particularly regarding SNS citizenship behavior. Table 4 provides additional information on how trust affects subjective well-being and SNS citizenship behavior. The results show a significant positive correlation between trust and subjective well-being among SNS users ( $\beta = 0.223$ ,  $t = 4.166$ ,  $p < 0.001$ ) but no significant relationship between trust and SNS citizenship behavior ( $\beta = 0.051$ ,  $t = 0.909$ ,  $p > 0.001$ ), suggesting that trust may not play a major role in influencing SNS citizenship behavior. These findings support hypothesis **H5a**, but do not support hypothesis **H5b**, which implies that while trust can improve subjective well-being, it may not significantly promote SNS citizenship behavior among SNS users. Table 4 provides how shared values influence subjective well-being and SNS citizenship behavior. The findings indicate a significant positive correlation between shared values, subjective well-being ( $\beta = 0.295$ ,  $t = 5.43$ ,  $p < 0.001$ ), and citizenship behavior ( $\beta = 0.385$ ,  $t = 6.33$ ,  $p < 0.001$ ) among SNS users. This suggests that when individuals have shared values, they are more likely to experience higher levels of subjective well-being and engage in citizenship behavior on SNS. These results support hypotheses **H6a** and **H6b**, indicating that shared values positively shape subjective well-being and SNS citizenship behavior. The findings (see Table 4) indicate that higher levels of subjective well-being have a significant favorable influence on SNS citizenship behavior ( $\beta = 0.197$ ,  $t = 2.84$ ,  $p < 0.01$ ). This suggests that individuals who experience greater subjective well-being are more inclined to engage in citizenship-related activities on SNS platforms. When people feel happier and have a heightened sense of well-being, they are more likely to actively participate in SNS communities by contributing to discussions, assisting others, and fostering a supportive atmosphere. These results emphasize the significance of subjective well-being in shaping users' behavior and involvement on SNS platforms.

Table 5 displays the outcomes of the mediation analysis, which examined the mediating effect by evaluating the differences in the confidence interval. The results reveal that social well-being acts as a mediator in all three relationships. Specifically, social well-being mediates the relationships between (1) Trust and SNS citizenship behavior ( $\beta = 0.044$ ,  $L = 0.006$ ,  $U = 0.108$ ,  $p < 0.01$ ), (2) social interaction ties and SNS citizenship behavior ( $\beta = 0.322$ ,  $L = 0.214$ ,  $U = 0.451$ ,  $p < 0.001$ ), and (3) Shared values and SNS citizenship behavior ( $\beta = 0.058$ ,  $L = 0.006$ ,  $U = 0.152$ ,  $p < 0.01$ ). The findings indicate that social well-being mediates the influence of trust, social interaction ties, and shared values on SNS citizenship behavior. This suggests that the impact of these factors on SNS citizenship

behavior is partially explained by their effect on social well-being. This analysis provides valuable insights into how these variables influence users' citizenship behavior on SNS platforms.

## 6. Conclusion

This study contributes to our understanding of SNS Citizenship Behavior by examining its association with social capital theory, the D&M Information System Model, and the mediating role of subjective well-being. The findings underscore the significance of cultivating positive online conduct within SNS platforms to tackle social challenges like cyberbullying, hacking, false interaction etc. The identified three fundamental aspects D&M information system model of SNSs, three dimensions of social capital theory, and the mediating role of subjective well-being establish a theoretical framework for comprehending and advancing SNS Citizenship Behavior. By enhancing social interaction ties, shared values, and social trust, SNS providers can enable SNS Citizenship Behavior and mitigate instances of cyberbullying and other negative issues. Building upon the proposed model and deepening this comprehension of SNS dynamics, practitioners can formulate effective strategies and interventions to promote constructive interactions and behaviors within SNS platforms.

### *Implications to theory*

This study carries significant theoretical implications. Firstly, it presents and explores the idea of SNS citizenship behavior, emphasizing how important it is to understand citizenship behavior within the framework of SNS platforms. This allows for a thorough understanding of the complex relationships between social dynamics, information systems, and personal experiences in the digital age. This comprehension is essential for optimizing the positive impacts of SNS utilization to facilitate communication between information systems research and sociological viewpoints on social capital, while mitigating adverse outcomes such as privacy violations and cyberbullying, and hence improving awareness of general SNS citizenship behavior. Secondly, this study provided a thorough framework for comprehending the fundamental connections between social capital theory and D&M information success model. Specifically, by validating the link among content quality, system quality, service quality, perceived trust, social interaction ties, and shared values, it emphasizes the considerable influence of social capital theory and the information system model on SNS citizenship behavior. The current study further reinforced that subjective well-being one of the key variables in digital interactions that may contribute to the general pleasure and satisfaction of online users. Third, the study also reinforces social dynamics in the virtual world by demonstrating how technology is affecting social institutions and people's quality of life, with social capital theory acting as mediator. Overall, this study provides significant and novel insights into SNS citizenship behavior, the role of social capital, and its antecedents, thereby, offer substantial implications for future research.

### *Implications to practice*

The empirical results of this study offer thorough and detailed guidelines to policymakers, SNSs professionals, apps developers, and other stakeholders for planning appropriate actions and collaboration to ensure a sustainable SNS citizenship behavior. Firstly, using social capital theory and the D&M information system model, the current study proposed complex citizenship behavior and shown how various service features are precursors to these behaviors. It also established social capital as a primary driver of SNS citizenship behavior. The concerned stakeholders must genuinely focus on improving the utility, value, satisfaction, and engagement of SNSs. Service providers of SNSs should prioritize delivering high-quality information since this will increase the probability of users intending to use this platform with trust and sharing intentions. Second, the study emphasizes the importance of social capital in fostering positive interactions and behaviors among online social media users, by demonstrating how trust, social interaction ties, and shared values shape individuals' engagement in citizenship behavior on SNS platforms and their wellbeing. These help managers gain a better understanding of how technology is affecting social structures and people's quality of life, thus SNS providers should ensure that the service has all the essential elements since these would improve the wellness and civic engagement of users. For instance, a more user-centric social networking environment could be created by incorporating design elements that improve social connectivity and user well-being. Third, by applying the knowledge gained from the study, managers may promote community growth and social support on digital platforms. Encouraging the development of strong social relationships and boosting information exchange can enhance user well-being and strengthen their sense of belonging. Fourth, practitioners ought to address policies that tackle matters like cyberbullying, safeguarding privacy, and responsible handling of individual information to establish a more secure and encouraging virtual space, ultimately attaining excellence in digital citizenship. Furthermore, some advocacy efforts and instructional initiatives by practitioners can provide individuals with the skills they need to utilize social media platforms in a way that enhances their subjective well-being and social capital, allowing users to make informed decisions about what they do online. Accordingly, these results advance managements understanding of the dynamics of citizenship behavior inside online social networks and offer a strong basis for future research.

### *Limitations and scope for future research*

Despite the careful design of this study, it is important to acknowledge and address several limitations. First limitation lies in the fact that the sample comprises only active social media users, potentially leading to distinct perceptions of social support and social identity among individuals who abstain from using social media. Therefore, it is advised that future researchers use data from both

active and passive online users, which could allow one to see how they differ from one another. Second, cultural differences and varied social media usage habits may limit the applicability of the study's findings to other areas or nations, since the current study was limited to Bangladesh. Potential research could therefore guide their investigation into resolving such cultural disparities in the context of SNS. Third limitation is that current study relied on social media users' perceptions to identify the aspects of social capital theory, and other variables in the SNS context may also play a role. Future research could explore additional factors beyond those that have been identified. Finally it should be acknowledge that using a single data source can provoke common method bias, even though CMB tests in this study suggest this is not a significant concern. Future studies could collect objective data to increase the validity of the measure and investigate the potential outcomes of SNS citizenship behavior in reducing negative incidents.

### Ethics statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Quality Assurance (IQAC), University of Barishal, Bangladesh (protocol code IQAC/MBA-HRM-22-010/2022, date of approval: December 15, 2022).

### Data availability statement

The dataset used in this study is available from the corresponding author on reasonable request.

### CRedit authorship contribution statement

**Nusrat Jahan:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Formal analysis, Conceptualization. **Saiful Hoque:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Conceptualization. **Md Alamgir Hossain:** Writing – review & editing, Writing – original draft, Validation, Methodology, Conceptualization. **Jeong Se Hoon:** Writing – review & editing, Validation, Supervision. **Md Muslim Uddin Ahmed Pipul:** Writing – review & editing, Writing – original draft, Validation, Supervision, Conceptualization.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e29982>.

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