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Exploring the Dimensions of Cognitive Absorption in a Hedonic Systems Context

Anju Varghese Philip[1*] | K. A. Zakkariya[2]

1. Corresponding Author, School of Management Studies, Cochin University of Science and Technology, Kalammassery, Cochin, India. Email: anjuvphil@gmail.com
2. School of Management Studies, Cochin University of Science and Technology, Kalammassery, Cochin, India. Email: zakkariya@gmail.com

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ABSTRACT

The popular conceptualization of the Information Systems variable Cognitive Absorption (CA) has five dimensions- Focussed Immersion (FI), Temporal Dissociation (TD), Heightened Enjoyment (HE), Control (Con), and Curiosity (Cur). The authors address the gap in the literature on absorption and flow experience in Social Networking Sites (SNS) use by exploring the dimensions of the construct, their relationships among each other and with user beliefs, and to continued use of SNS. Data collected from a sample of 448 Indian social media users was analysed using Structural Equation Modelling. The results showed that Perceived Ease of Use of the system increases Curiosity, Control and Heightened Enjoyment for users. Curiosity and Heightened Enjoyment emerged as the strongest predictors of reuse intentions, along with Perceived Usefulness and Perceived Ease of Use. However, Focussed Immersion, Temporal Dissociation and Control were not found to influence Continuance Intentions in an SNS context. The study's findings strengthen the understanding of hedonic system reuse intentions from an intrinsic motivational perspective. Practitioners can use the insights to design SNS to tap into the salient motivational factors and thereby enhance revisit intentions.

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1. Introduction

Like any technological advancement, the initial euphoria over the social media boom and its benefits to the way people communicate and connect was, over time, interspersed with concerns about the negative effects of social media use. Consumers are now more aware of the negative aspects of social media use, such as addictive behaviour (Bhargava & Velasques, 2021), privacy concerns (Gu et al., 2017), cyberbullying (Chun et al., 2020), and other health and wellness issues (Griffioen et al., 2020). Despite these concerns, social media use continues to grow, with more than 90 % of users coming from countries other than the US (Statista.com, 2022). Most people use their phones to access social media through the associated, relevant apps (Silver & Huang, 2019). Because mobile phones can be used anywhere and anytime, people spend more time on different activities using Social Networking Sites (SNS) (Kwak et al., 2014). This implies that social media usage is more pervasive than ever in peoples' lives. A pertinent question in this scenario is why people continue to use social media sites and why there is no end to the proliferation of new social media sites and apps.

The motives behind SNS use have been explored from various perspectives in research. Prior studies have investigated the role of motivators and gratifications such as the satisfaction of social needs (Croes & Bartels, 2021; Karahanna et al., 2018), self-esteem needs (Liu & Baumeister, 2016), need for communication (Gan & Li, 2017; Ross et al., 2009), expression, construction and management of identities (Cheung et al., 2011; Gan & Li, 2017), and knowledge-seeking behaviours (Croes & Bartels, 2021; Gan & Li, 2017) towards driving social media usage. However, social media is a hedonic system, and the use of hedonic systems is not utilitarian or instrumental; instead, it is driven by intrinsic motivators more than extrinsic motivation. Gamage et al. (2022) have called for further research from a gratifications perspective in social media studies. In light of the earlier studies and the need to focus on hedonic system use from an intrinsic motivation viewpoint, we bring in a fresh perspective by exploring the various dimensions of the intrinsic motivator Cognitive Absorption (CA) in the context of SNS users. The study attempts to answer the following research question: *Will a study of the nomological network of the dimensions of Cognitive Absorption unearth different relationships and implications when examined in a Social Networking Sites context?*

The present study makes a significant theoretical contribution by integrating the study of flow into a technology acceptance model adapted to hedonic systems use. Therefore, the study combines two streams of technology use studies and provides insights into some crucial aspects of human-computer interaction. The study makes two significant and novel contributions to the extant literature. First, the novelty of the research lies in deconstructing the five dimensions of Cognitive Absorption in order to study them individually and understand how they relate to each other and to social media system continuance. Secondly, the data for the study is drawn from a general sample of Indian social media users. Indians are now the largest nationality on social media platforms such as Facebook, surpassing users from the United States (Statista.com, 2022). However, most of the studies in this area are drawn from samples of Western users, which has led to calls for research on populations representative of other cultures and sentimentalities (Ellison & Boyd, 2013; Kapoor et al., 2018; Lee & Kim, 2017; Philip & Zakkariya, 2016). Therefore, this research fills a crucial theoretical gap (deconstructing the dimensions of flow in an SNS context) and a contextual gap (providing insights into an important social media demographic) in Information Systems research.

In light of the research question, the study seeks to understand how user beliefs about the system and the dimensions of Cognitive Absorption influence the intention to continue using social networking sites. Specifically, the researchers focus on examining which dimensions of Cognitive Absorption are salient in influencing SNS use, ascertaining the relationships between the dimensions of CA in the context of SNS use, and exploring the relationship of the dimensions of CA with Perceived Ease of Use (PE) and Perceived Usefulness (PU) and how these interactions affect SNS user continuance intentions (CI).

The rest of the paper is organized as follows. The second section presents the study's theoretical and conceptual background, leading to the development of the research hypotheses and a conceptual model for further validation. Then the methodology used to test the proposed hypotheses and validate the model is presented in detail. Next, the paper explains the data analysis findings, followed by a detailed discussion of the results in relation to the existing knowledge in the field of study. Finally, the

paper ends with a discussion on the theoretical and practical implications, the study's limitations, and the scope for future research in the area.

2. Theoretical Background

The study draws upon two streams of information systems research to explain social media users' continuance intention (CI). One is the concept of flow and the way it acts as an intrinsic motivator in influencing user behaviour. The other is the technology acceptance stream and the way user beliefs about the technology lead to use and reuse intentions. The following section briefly presents the two theoretical paradigms.

2.1 Hedonic Motivations Systems Acceptance Model (HMSAM)

Some of the competing theories that help explain user adoption of technology include UTAUT and its variants (Venkatesh et al., 2003; Venkatesh et al., 2012); Technology Acceptance Model (TAM) (Davis, 1989) and its derivatives, namely TAM 2 (Venkatesh & Davis, 2000) and TAM 3 (Venkatesh & Bala, 2008); Expectation Confirmation Model (Bhattacherjee, 2001); and Information Systems Continuance Model (Bhattacherjee, 2001). However, TAM is the most often cited and recognized model for technology use and acceptance at the moment (Weerasinghe & Hindagolla, 2018) and is considered one of the most parsimonious and reliable models in information systems adoption studies.

However, with the emerging popularity of hedonic motivation systems, it was imperative to develop models that could better explain the motivations and mechanisms behind the usage behaviour of hedonic systems. In utilitarian systems, the outcome of use is most important; hence, the operative motivations are external in nature. However, in the case of hedonic systems, the process and experience of use is valued by the user (Lowry et al., 2015, Lowry et al., 2013). Hence, the use of hedonic systems is intrinsically motivated. There are no extrinsic rewards associated with the use of hedonic systems. Especially in the case of using social networking sites for personal, non-commercial purposes, which is a non-instrumental, self-motivated activity, intrinsic motivations are paramount in determining usage behaviour.

Flow is an intrinsic motivator and is especially pertinent in studying hedonic systems such as social networking sites. Van der Heijden (2004) proposed 'joy' as a key component of the TAM for assessing hedonic system use. Joy was found to be a better predictor of CI than Perceived Usefulness and Perceived Ease of Use. Lowry et al. (2013) proposed the Hedonic Motivations System Acceptance Model. They extended Van der Heijden's model by substituting the construct Cognitive Absorption for joy as a critical antecedent of intention to use in a hedonic context. The researchers argue that 'joy' is too narrow a construct to encompass all the experiences of using hedonic systems. They proposed that CA, which comprises the enjoyment aspect of flow and the other elements of curiosity, immersion, time distortion, and control, is more suited and better able to explain the experience and process of using hedonic systems. The proposed model containing CA was found to explain the variance in behavioural intentions better than the model using only joy.

2.2 Cognitive Absorption

Cognitive Absorption was defined by Agarwal and Karahanna (2000) as "a state of deep involvement with software" that is exhibited through five dimensions: (1) temporal dissociation, or the inability to register the passage of time while engaged in interaction; (2) focused immersion, or the experience of total engagement where other attentional demands are, in essence, ignored; (3) heightened enjoyment, capturing the pleasurable aspects of the interaction; (4) control, representing the user's perception of being in charge of the interaction; and (5) curiosity, tapping into the extent the experience arouses an individual's sensory and cognitive curiosity. The four cognitive dimensions of Cognitive Absorption are Temporal Dissociation (TD), Focussed Immersion (FI), Control (Con) and Curiosity (Cur). The affective component is represented by Heightened Enjoyment (HE).

Cognitive Absorption has its origins in the trait of absorption (Cheung et al., 2021; Tellegen & Atkinson, 1974), the notion of cognitive engagement (Webster & Ho, 1997) and the state of flow as expounded by Csikszentmihalyi (1990), Ghani & Deshpande (1994), Ghani et al. (1991), and Webster et al. (1993). The trait of absorption signifies an individual's state of deep attention, the theory of flow describes the state whereby people are so involved in an activity that nothing else matters, and the

concept of cognitive engagement refers to playfulness and intrinsic interest (Agarwal & Karahanna, 2000; Saade & Bahli, 2005). The CA construct was first proposed and studied in the context of Internet use (Agarwal & Karahanna, 2000). Information Systems researchers found CA and flow to be of value in understanding the motivation of users of hedonic systems such as social networks (Chang & Zhu, 2012; Kaur et al., 2016; Lee & Kim, 2017; Rosen & Sherman, 2006), virtual communities (Kim et al, 2011; Lin, 2009), virtual worlds (Chandra et al., 2012; Midha, 2016) games (Lee & Tsai, 2010; Linares et al., 2021), and online shopping (Guo & Poole, 2009; Shang et al., 2005). Learning systems researchers found flow and CA to be relevant in explaining the effectiveness of various technological interventions in teaching and learning (Baker et al., 2017; Guinaliu-Blasco et al., 2019; Culbertson et al., 2015).

3. Hypotheses Development

Lowry et al. (2013) proposed the Hedonic Motivation Systems Acceptance Model (HMSAM), in which they separated and tested the dimensions of the CA construct in the gaming context. We adapt the model proposed by Lowry et al. (2013) and validate the model in a social networking site context. Baker et al. (2017) also separated the CA dimensions. They tested the relationships of the dimensions with each other and the way they contribute to grounded learning effectiveness in a business simulation environment. Although both studies deconstructed the dimensions, their models and the proposed relationships among the dimensions have some fundamental differences. The present study is be based on the model proposed by Lowry et al. (2013) since virtual games are closer in context to SNS use than business simulation software. The model is particularly suited to the study of hedonic systems such as social networking sites.

For simplicity, we will not explicitly state and test those hypotheses for relationships that have already been firmly established in the literature. Therefore, we will not propose or test the relationships between PE, PU and CI, which are already well established by a wide body of TAM-based research (Agarwal & Karahanna, 2000; Baker et al, 2017; Davis, 1989; Lin, 2009; Lowry et al., 2013; Venkatesh, 2000; Venkatesh & Bala 2008; Venkatesh & Davis, 1996, 2000; Shang et al., 2005).

The following sections will clarify the theoretical direction of the relationships proposed in the study. The hypotheses proposed in the study take three main directions, namely from PE to the CA dimensions, from the CA dimensions to CI, and the relationships among the CA dimensions. The final sections take the arguments presented to explicate the study's hypotheses for each dimension in turn.

3.1 Perceived Ease of Use and CA Dimensions

Perceived Ease of Use (PE) is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Saade and Bahli (2005) defined PE as "the assessment that the user's interaction with the system would be relatively free of cognitive burden." As an intrinsic motivator, PE measures how easy, understandable and free of effort is using a particular system. The HMSAM model (Lowry et al., 2013) – which is used as a base for the present research – has been proposed in the context of video gaming and has proved that PE is an antecedent to PU, TD, FI, HE, Control and Curiosity. PE has been proved to be an antecedent of the CA construct (Lowry et al., 2013; Van der Heijden, 2004) as well as PU (Midha, 2016; Shang et al., 2005) in prior studies. Cognitive barriers and dissonance are reduced as the system becomes easier to use. Thereby users perceive that the system is useful for fulfilling their needs (Philip & Zakkariya, 2020), and enables them to relax and experience the state of absorption, engagement and immersion in the activity (Chandra et al., 2012; Ghasemaghaei, 2020; Linares et al., 2021). PE enhances the flow experience (Trevino & Webster, 1992). Hence, our study will test the relationship of PE to the five dimensions of CA in a social media use context.

3.2 CA Dimensions and Intention to Continue Use

According to prior information systems literature, the intention to continue use can be a good substitute for actual system use in Technology Acceptance studies. "TAM views system usage to be the same as system success" (Agarwal & Prasad, 1999). In this study of Social Networking Sites, the focus is not just on adoption or one-time use. Instead, it is extended, active use over time and the intention to recommend usage to others that determines a successful site with a growing, vibrant user base. Prior empirical research in technology adoption has shown that the intention to continue or usage

intention is a strong predictor of actual use (Davis, 1989; Hsu et al., 2016; Tajeddini et al., 2022). Several prior studies have found that CA has a positive effect on CI, and it has been established that it acts as an antecedent for user intention (Agarwal & Karahanna, 2000; Balakrishnan & Dwivedi, 2021; Chang, 2013; Chang & Zhu, 2012; Ghasemaghaei, 2020; Hsu et al., 2016; Lee & Kim, 2017; Midha, 2016; Rosen & Sherman, 2006).

However, a few studies in the literature have come up with other interesting findings. Lallmahomed et al. (2013) studied Behavioral Intention as an antecedent of CA and recommended that future research use CA as an antecedent to SNS use. However, Chang and Zhu (2012) studied SNS users in China and found that flow experience (specifically the dimensions TD, FI and Curiosity) impacted satisfaction but did not directly impact the intention to continue use. Brooks and Longstreet (2015) studied how CA (specifically the TD, FI, and HE dimensions) impacts the amount of usage. They found that TD and HE were positively related to the amount of usage, but FI was found to be insignificant. Similarly, Barnes et al. (2019) found that two dimensions of CA (control and curiosity) were insignificant in leading to addictive usage.

Based on the prior empirical evidence, we can safely say that there is overwhelming evidence to support the impact of CA on CI. However, there are adequate contradictions in prior studies to justify examining the impact of individual dimensions on Continuance Intention. Therefore, in our study, we propose testing the relationship of each dimension to the intention to continue usage in a social networking site context. This will give us a better understanding of which dimensions are the most relevant in influencing usage and will extend the knowledge regarding the CA dimensions.

3.3 Relationships Between Dimensions of CA

Scholars have differed in their conceptual and operational definitions of flow and have used different dimensions to measure the construct depending on the context (Hoffman & Novak, 2009; Kwak et al., 2014). There has been disagreement regarding the sequence of causation among the dimensions and various relationships proposed among the dimensions (Lowry et al., 2013; Kwak et al., 2014). As per flow theory, each of the dimensions of CA have different causal antecedents and do not occur synchronously; hence, it does not make sense to lump these together (Lowry et al., 2013). Furthermore, flow happens in stages and not all at once. Therefore, users do not need to experience all these dimensions of flow at once; rather, it might occur in stages, or users might experience only some of these dimensions and not all of them simultaneously (Baker et al., 2017). Turel and Surenko (2012) and Lowry et al. (2013) proposed that HE would lead to TD and FI, while Baker et al. (2017) posited that being in a state of Temporal Dissociation and Focussed Immersion leads to Heightened Enjoyment. Ghani et al. (1991) and Ghani and Deshpande (1994) found that a sense of being in control leads to Heightened Enjoyment and Involvement (operationalized as a construct similar to temporal dissociation and focussed immersion). Pelet et al. (2017) proposed that entering a state of flow leads to temporal distortion, and suggestd that future research should pay attention to the interdependent relationships between the dimensions of flow. We tried to address the discrepancies in literature in this study and contribute to a better understanding of the inter-relationships among the dimensions and the way they influence behavioural intention towards hedonic use of SNS. Therefore, we propose to analyse the dimensions separately and understand the relationships among them.

3.4 Temporal Dissociation

Temporal Dissociation is the inability of the user to register the passage of time while engaging in social media use (Agarwal & Karahanna, 2000). When the system is easy to use and free of effort, the user experiences a lowering of cognitive barriers and is hence more likely to stop noticing the passage of time. TD positively influences the user's enjoyment of the technology interaction (Agarwal & Karahanna, 2000; Baker et al., 2017; Lowry et al., 2013). TD indicates a user's absorption in the activity. The more absorbed they become during the activity, the more likely it is that it is enjoyable for them, and the more likely they will be to desire continued engagement in the activity. Thus, drawing on the discussion given in the earlier section explicating the theoretical links between PE, CI and TD, we can propose:

H1a) Perceived ease of use will positively influence the temporal dissociation experienced by users of SNS.
H1b) Temporal dissociation will positively impact the intention to continue use.

3.5 Focussed Immersion

Focussed Immersion is the extent to which the user becomes so involved in the social media use that he/she is able to block out all other distractions and is completely focused on the social media use (Agarwal & Karahanna, 2000). When the system is perceived as easy to use, and cognitive barriers have been successfully lowered, it is easier for the user to enter a state of deeper involvement with the act of social media use, thus contributing to focusing on the interaction.

Researchers have linked FI to the enjoyment of technology interaction (Agarwal & Karahanna, 2000; Baker et al., 2017; Lowry et al., 2013). FI also indicates that the user has become completely absorbed in the act of social networking site usage because it is an enjoyable experience. Hence, the user is more likely to continue using SNS in the future. A sense of complete absorption in the activity, which blocks out all other distractions, will lead to the user losing track of the passage of time while engaging in SNS use (Pelet, 2017). Thus, PE lowers cognitive barriers, enabling greater FI; FI leads to the user losing track of time and experiencing TD. This temporary escape from real-life to the virtual world will cause the user to want to continue the usage behaviour in future as well. Therefore, we propose that:

H2a) Perceived Ease of Use of SNS will positively influence Focussed Immersion experienced by users.
H2b) Focussed Immersion will positively impact the Intention to Continue use.
H2c) Focussed Immersion will positively relate to Temporal Dissociation.

3.6 Heightened Enjoyment

This dimension captures the pleasurable aspects of the system interaction described as being fun and enjoyable rather than boring. HE is the sense of pleasure, accomplishment and interest when engaged in an absorbing activity such as SNS use (Agarwal & Karahanna, 2000). Originally, researchers studied 'joy' as an intrinsic motivator influencing system use. It was found that joy was a more powerful predictor of use intention than both PU and PEOU. HE has captured aspects of intrinsic interest from early studies about flow (Webster et al., 1993) as well as PE from TAM (Davis, 1989). This is the only affective component among the dimensions of CA.

Drawing on the earlier discussion regarding how user perceptions about ease-of-use influence CA, we can say that lowering cognitive barriers through simple and easy-to-use interactions with the SNS contributes to a more enjoyable user experience. Enjoyable activities make the user feel more energized and engaged. Users who enjoy their interaction with the SNS are more likely to perceive the SNS as useful for their hedonic purposes (Kwak et al., 2014) and to satisfy their psychological needs. Users find the use of hedonic systems such as Social Networking Sites enjoyable (Lowry et al., 2013; van der Heijden, 2004) and are likely to want to continue the use of such systems in future also. Therefore, we can propose:

H3a) Perceived Ease of Use will positively influence the Heightened Enjoyment experienced by the user.
H3b) Heightened Enjoyment will positively impact the Intention to Continue Use.
H3c) Heightened Enjoyment will positively relate to Perceived Usefulness.

3.7 Control

Control is the extent to which the user perceives being in control of the interaction with the technology (Agarwal & Karahanna, 2000). A lack of control over the interaction will cause users to feel frustrated with their system usage and increase cognitive barriers toward system usage (Venkatesh, 2000). Therefore, a sense of control over one's interaction with technology is important for users. In addition, being in control reduces the cognitive barriers and opens the pathway to enjoying the interaction experience.

PE plays a significant role in minimizing the cognitive burden associated with system usage and enabling users to feel a sense of control over their use of the system (Lowry et al., 2013). As users

gain control over system usage, their perception of self-efficacy will increase (Venkatesh & Davis, 1996), leading to greater motivation to continue using the system. Furthermore, users who feel they are in control of their interaction with the SNS are more likely to enjoy the experience and want to continue using it (Lowry et al., 2013). Therefore, we can propose the following hypotheses:

H4a) Increase in perceived ease of use will positively influence the control experienced by the user.

H4b) Control will positively impact intention to continue use.

H4c) Control will positively relate to heightened enjoyment.

3.8 Curiosity

Curiosity is the extent to which the user feels an enhanced sense of sensory and cognitive inquisitiveness while interacting with social networking sites (Agarwal & Karahanna, 2000). It is a motivational state (Lowry et al., 2013) that is intrinsic in nature.

Experiencing a sense of curiosity indicates that the user is devoting more attention to the activity. The cognitive burden should ideally be minimal for such an attentional focus to occur. When the system is easy to use, it lowers the cognitive burden experienced by the user and enables him/her to focus cognitive resources on satisfying the felt curiosity (Lowry et al., 2013). The use of Social Networking Site provides an avenue for exploratory system use while satisfying the curiosity of users about the lives of others in their network (Whiting & Williams, 2013). It also keeps them up to date on the latest news and information while browsing through their feed (Pelet et al., 2017). Curiosity leads to excitement about interaction with the system, and users are likely to repeat usage when their curiosity has been satisfied through social media use. Curiosity is one of the major drivers of SNS use. Browsing through SNS feeds and profiles gives users information about the lives and activities of those on their friendship network. It gives them access to product, service reviews, sponsored content, and opinions and information about current events (Pelet et al., 2017). This increases the enjoyment experienced by the users (Kwak et al., 2014). Curiosity also contributes positively to the user's feeling of being in control over the interaction. This is because the interaction with the system is self-motivated (Lowry et al., 2013), as opposed to extrinsically motivated, and the user is driven to satisfy their sense of curiosity by using the system to find out what they need to know (Kwak et al., 2014; Pelet et al., 2017). Thus, we can propose:

H5a) Perceived ease of use will positively influence the curiosity experienced by users.

H5b) Curiosity will positively impact the intention to continue use.

H5c) Curiosity will positively impact heightened enjoyment.

H5d) Curiosity will positively impact control.

3.9 Indirect Effect Tested

We are also interested in examining the indirect effects of the model variables to unearth the antecedent- consequent relationships and the underlying mechanisms by which the CA dimensions influence the CI of users. We also test a serial mediation path to support the notion that CA dimensions can have antecedent-consequent relationships with each other. We propose that Perceived Ease of Use will influence Continuance Intention through the serial mediation effect of Control, Curiosity, Heightened Enjoyment and Perceived Usefulness, respectively. This sequence has been influenced by the findings of Lowry et al. (2013) and Baker et al. (2017), which found support for this kind of conceptualization.

H6: The influence of Perceived Usefulness on Intention to Continue is mediated serially by Curiosity, Control, Heightened Enjoyment and Perceived Usefulness.

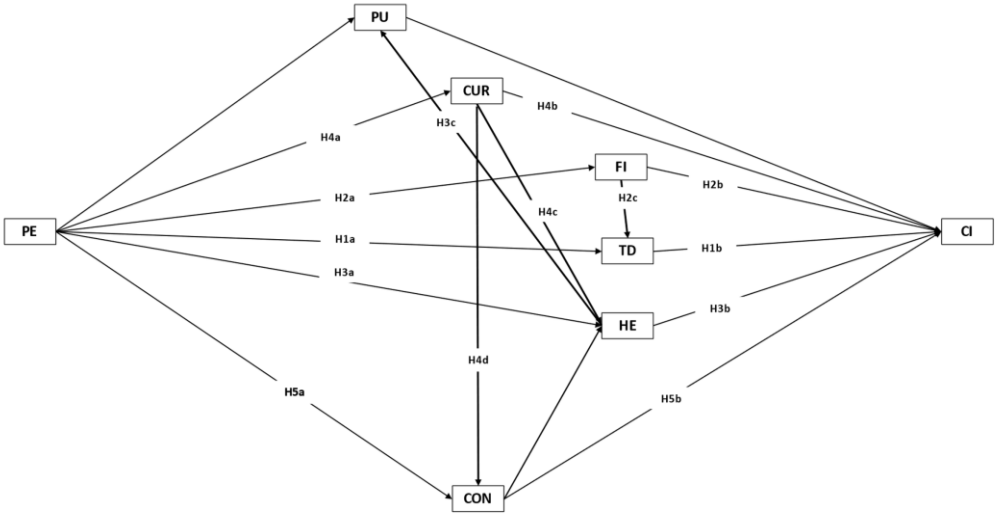

Figure 1. Proposed Conceptual Model

4. Methodology

4.1 Study Context and Sample

As discussed in the preceding sections, one of the research gaps that the study seeks to fill is the contextual gap created by the paucity of research examining the behaviour of social networking site users from India. The Indian population of social media users is especially significant because of the market's sheer size. India had 467 million social media users in January 2022, which is equivalent to 33.4 % of the country's population (datareportal.com, 2022).

This is not a known population and is infinite in nature. Hence, no appropriate sampling frame is available. Therefore, a purposive sampling approach, namely snowball sampling, was adopted to achieve the objectives of the current study (Baltar & Brunet, 2012; Tajeddini et al., 2022).

The instrument used for data collection was distributed to the researchers' first points of contact, and the respondents were asked to circulate the questionnaire within their networks of friends and acquaintances. Both online and offline channels were used to circulate the research instrument. Filter questions were used to identify the users of social media sites/apps as relevant to the study context. A total of 489 complete responses were received. After data cleansing and preparation, the final sample used for the study was consisted of 448 Indian social media users.

4.2 Measurement

The instrument used for data collection was a structured questionnaire, and responses were collected both online and offline. The questionnaire used previously validated scales available in the literature to measure the variables of interest and contained questions regarding the demographic characteristics of the respondents, such as their age, gender and social media use characteristics (social media sites/apps used, time spent on social media, frequency of usage). All variables were measured on a five-point Likert scale, with 1 being "strongly disagree" and 5 being 'strongly agree'. Table 1 gives a brief representation of the scales adapted for use in the study.

4.2.1. Perceived Ease of Use: This was measured using three items from the scale developed by Bhattacherjee et al. (2001) and adapted by Lowry et al. (2013). The scale measured how easy the interaction with social networking sites was, as perceived by the user. The items measured how clear and understandable the interaction was, how trouble-free using the SNS was, and how easy the SNS use was.

4.2.2. Cognitive Absorption: The present study used items derived from the scale measuring the dimensions of CA developed by Agarwal and Karahanana (2000). The original scale was used in the context of internet usage, which was adapted to the context of social networking sites in the current work. Davis et al. (1992) and Webster et al. (1993) developed and validated scales to measure the four individual dimensions of flow experience. Agarwal and Karahanna (2000) used these scale items and other conceptual works in the area of flow (Ghani & Deshpande, 1994; Hoffman & Novak, 1996;

Trevino & Webster, 1992) to generate items for their conceptualization of CA as a second-order construct with five reflective dimensions.

The participants were asked to rate their agreement with the statements on a scale from 1(Strongly Disagree) to 5 (Strongly Agree). The factor structure was tested using Confirmatory Factor Analysis, and the reliability and validity measures were found to be satisfactory. Sample items used to measure each of the dimensions are mentioned below.

Temporal Dissociation: The scale measured whether the user felt that the use of social media resulted in a distorted sense of the passage of time with three items that rated whether 'time goes quickly', 'time flies' and whether the user 'spent more time than intended' on the SNS.

Focussed Immersion: The four items used to capture this dimension used statements such as whether the user is able to 'block other distractions', get 'absorbed in what I am doing', be 'immersed in the task', and whether 'attention does not get diverted.'

Heightened Enjoyment: This dimension measured the extent of enjoyment experienced by the respondent while using the SNS with three items using the following phrases 'have fun interacting with the SNS', 'SNS use gives me a lot of enjoyment', and 'I enjoy using SNS'.

Curiosity: Three items measured with statements such as 'excites my curiosity', 'makes me curious', and 'arouses my imagination' were used to capture the extent of curiosity experienced by the user while using SNS.

Control: The sense of being in control over the interaction with SNS was captured using the following phrases in three statements- 'feel in control when using SNS', 'no control over interaction', 'control over interaction'. The reverse coded item was appropriately interpreted during the data entry stage and used for further data analysis.

4.2.3. Perceived Usefulness: This was measured using a 5-item scale adapted from Lowry et al. (2013). It captured whether the use of Social Networking Sites helped 'decrease stress,' 'better pass time,' 'provide a useful escape,' 'helped think more clearly,' and 'feel more rejuvenated'. This is in line with the conceptualization of Perceived Usefulness in this context as the usefulness of the system for having fun.

4.2.4. Continuance Intention: Intention to continue the use of SNS was measured with a 4- item scale adapted from Bhattacherjee (2001), which measured aspects of whether users intended to visit SNS again and whether they would recommend SNS use to others.

Table 1. Variables and Scales Used

Variables		Items	Scale used
Perceived ease of use		3	Lowry et al. (2013)
Perceived usefulness		5	Lowry et al. (2013)
Cognitive absorption dimensions	TD	3	Agarwal & Karahanana (2000)
	FI	4	
	HE	3	
	Con	3	
	Cur	3	
Continuance intention		4	Bhattacherjee (2001)

5. Analysis

The researchers used IBM SPSS 24 and AMOS software to conduct the data analysis. Structural Equation Modelling (SEM) was used to evaluate the proposed model. SEM enables us to validate the model from both a theoretical and practical viewpoint. In addition, we examined the serial mediation pathways using SEM. The following sections explicate in detail the steps followed by the researchers to conduct the SEM analysis.

5.1 Sample Characteristics

The final study sample was consisted of 448 Indian social media users. Out of these, 237 (approximately 53%) were males, and 211 (approximately 47%) were females. Moreover, 182 respondents (40%) were in the age group 25-34 years of age, followed by 105 (23%) respondents in

the 35-44 age category. In addition, 100 (22%) respondents were in the 18-24 age group, followed by 55^{+} years at 7% and 45-54 years at 6%. This distribution indicates that the sample is a true representation of the population of Indian social media users.

5.2 Common Method Bias

As the study used a self-reported questionnaire for collecting data about all the study constructs, it was essential to ensure that Common Method Bias would not affect the results. Therefore, the data was screened using Harmann's single factor test, which is done by running an Exploratory Factor Analysis that loads all the items onto a single, unrotated factor. It was found that the single, unrotated factor explained only 25.744% of the variance, which is well below the recommended cut-off point of 50% (Podsakoff et al., 2003). CMB was also tested by running a Principal Latent Factor Analysis on AMOS, which returned a shared variance of 10.9% (Podsakoff et al., 2003). Therefore, we can safely conclude that Common Method Bias is not an issue in the current study; hence, we can proceed with further analysis.

5.3 Descriptive Statistics

The next step was to examine the descriptive statistics of the data to ensure that the data satisfied the assumptions required for running a successful SEM analysis. First, the mean and standard deviation of the constructs used in the model were examined for deviation from normality. The means ranged from 3.1442 for PU to 3.799 for TD. Standard deviations were at acceptable levels ranging from .6242 for TD to .8425 for PU. Refer to Table 2 for detailed reporting regarding the descriptive statistics of the data.

5.4 Validity and Reliability

Next, all recommended tests to ascertain the reliability and validity of the study constructs were undertaken before proceeding for further confirmatory analysis. Reliability was assessed using Cronbach's Alpha. All study constructs were found to have Cronbach's Alpha above 0.7. Average Variance Extracted (AVE) was greater than Mean Shared Variance (MSV) for all constructs, which is a good indicator of validity. CR values for all constructs were found to be above 0.7 and ranged from .749 for TD to .914 for CI. Inter construct correlations (off-diagonal elements) were less than the squared correlation coefficients (diagonal elements) (Fornell & Larcker, 1981). Table 2 gives all the required results regarding the reliability and validity of the constructs under study.

Table 2. Descriptive Statistics, Reliability and Validity of Study Constructs

	Mean	SD	Alpha	CR	AVE	MSV	PE	PU	FI	TD	HE	Cur	Con	CI
PE	3.626	.71	.854	0.866	.685	.258	**.827**							
PU	3.144	.8425	.848	0.850	.533	.268	.459	**.730**						
FI	3.516	.6761	.877	0.956	.844	.148	.056	.060	**.918**					
TD	3.799	.6242	.726	0.749	.502	.148	.079	.061	.385	**.708**				
HE	3.672	.7223	.890	.914	.779	.324	.472	.518	.066	*.116*	***.883***			
Cur	3.365	.7950	.886	.921	.796	.324	.362	.474	.145	*.132*	*.569*	***.892***		
Con	3.292	.8414	.849	.896	.741	.208	.373	.360	.126	*.062*	*.393*	*.456*	***.861***	
CI	3.792	.7504	.914	.909	.717	.258	.508	.503	.027	*.027*	*.493*	*.411*	*.283*	***.847***

Further, a Confirmatory Factor Analysis was performed to ensure that the variables conformed to theoretical and operational expectations. An examination of the item-wise loadings on respective constructs showed that all items had loaded significantly onto their constructs with sufficiently high loading scores and no cross-loadings were present (refer to Table 3). Therefore, we could conclude that the results of the Confirmatory Factor Analysis were in line with theory. Since we had a clean factor structure and good validity and reliability scores, we could proceed to assess the measures of model fit for the Measurement Model.

Table 3. Item-Wise Loading of Constructs

Constructs and items			Loadings
PE	PE1	My interaction with social media sites/apps was understandable.	.823
	PE2	I found social media sites/apps to be trouble-free.	.886
	PE3	I found the social media sites/apps easy to use.	.738
PU	PU1	Using social media sites/apps decreased my stress.	.725
	PU2	Using social media sites/apps helped me better pass time.	.698
	PU3	Using social media sites/apps provided a useful escape.	.670
	PU4	Using social media sites/apps helped me think more clearly.	.764
	PU5	Using social media sites/apps helped me feel more rejuvenated.	.769
FI	FI1	While using social media sites/apps, I am absorbed in what I am doing.	.869
	FI2	While using social media sites/apps, my attention does not get diverted very easily.	.697
	FI3	While using social media sites/apps, I am immersed in the task I am performing.	.835
	FI5	While using social media sites/apps, I am able to block out most other distractions.	.805
TD	TD1	Time appears to go by very quickly when I am using these social media sites/apps.	.674
	TD3	Time flies when I am using these social media sites/apps.	.616
	TD5	I often spend more time on social media sites/apps than I have intended.	.767
HE	HE1	I have fun interacting with these social media sites/apps.	.859
	HE2	I enjoy using social media sites/apps.	.846
	HE3	Using social media sites/apps provides me with a lot of enjoyment.	.858
Con	Con1	When using social media sites/apps, I feel in control.	.808
	Con2	I feel that I have no control over my interaction with social media sites/apps.	.821
	Con3	Social media sites/apps allow me to control my computer interaction.	.793
Cur	Cur1	Interacting with social media sites/apps makes me curious.	.901
	Cur2	Using social media sites/apps arouses my imagination.	.832
	Cur3	Using social media sites/apps excites my curiosity.	.830
CI	CI1	I would visit social media sites/apps again.	.724
	CI2	I would continue to use social media sites/apps again.	.959
	CI3	I would recommend that others use social media sites/apps.	.706
	CI4	I would recommend social media sites/apps to others.	.929

Note: All loadings were significant at p<=.001

5.5 Measurement Model

As the data satisfied the criteria for validity and reliability of the study constructs, we could now proceed to examine the measurement model on AMOS for adequate fit to the data. On examination, it was found that the measurement model had adequate fit indices (Hair et al., 2010) as detailed: CMIN/df= 2.210, CFI= .948, TLI= .938, NFI= .909, RMSEA= .052. Now that we have established that the data satisfies all requirements for Structural Equation Modelling, we can proceed to test the relationships in the proposed model empirically.

5.6 Structural Model

As the results of the hypothesised structural model showed a good fit: CMIN/df= 2.223, CFI= .945, TLI= .938, NFI= .906, RMSEA= .052 (Hair et al., 2010), we could proceed to examine the hypothesised relationships between the variables.

An examination of the direct relationships tested in the model, as illustrated in Table 4, show us that the Perceived Ease of Use positively influences Curiosity (B= .340, p=.000), Control (B= .217, p= .000) and Heightened Enjoyment (B= .238, p= .000). However, the proposed direct relationships between Perceived Ease of Use and Temporal Dissociation (B= .038, p= .478) and Perceived Ease of Use and Focussed Immersion (B= .079, p= .171) are not significant. We also find a confirmation for the positive influence of Perceived Ease of Use on Perceived Usefulness (B= .292, p= .000).

Further examination of the direct relationships among the dimensions of CA and Continuance Intention shows us that while Curiosity (B= .125, p= .060) and Heightened Enjoyment (B= .134, p= .071) play a significant positive role in influencing Continuance Intention, Control (B= -.076, p=.234), Temporal Dissociation (B= .008, p= .918), and Focussed Immersion (B= -.051, p= .440) do not have a significant influence on Intention to Continue.

However, looking at the direct relationships among the dimensions we can see that Focussed Immersion has a strong positive effect on Temporal Dissociation (B= .543, p= .000) and Curiosity has a significant positive influence on Control (B= .402, p= .000), while Heightened Enjoyment is

positively influenced by both Control (B= .132, p= .036) and Curiosity (B= .465, p= .000). Heightened Enjoyment also significantly impacts the Perceived Usefulness (B= .362, p= .000) of the Social Networking Site.

Table 4. Hypotheses Results With Standardized Direct Effects and Lower and Upper Bound Limits

Hypo	Direct paths	B	Bias-corrected		Percentile		Result
			CI	P	CI	P	
-	PE→PU	.292	[.179, .404]	.000	[.179, .405]	.000	Supported
H1a	PE→TD	.038	[-.053, .122]	.478	[-.050, .124]	.450	Not Supported
H2a	PE→FI	.079	[-.016, .171]	.171	[-.016, .172]	.167	Not Supported
H3a	PE→HE	.238	[.150, .324]	.000	[.151, .324]	.000	Supported
H4a	PE→Con	.217	[.134, .304]	.000	[.134, .303]	.000	Supported
H5a	PE→Cur	.340	[.244, .428]	.000	[.245, .428]	.000	Supported
-	PE→CI	.289	[.175, .392]	.001	[.182,.399]	.000	Supported
H1b	TD→CI	.008	[-.101, .111]	.918	[-.098, .115]	.878	Not supported
H2b	FI→CI	-.051	[-.150, .059]	.440	[-.153, .056]	.415	Not supported
H3b	HE→CI	.134	[.012, .260]	.071	[.010, .257]	.074	Supported
H4b	Con→CI	-.076	[-.182, .031]	.234	[-.183, .030]	.229	Not supported
H5b	Cur→CI	.125	[.014, .232]	.060	[.018, .236]	.053	Supported
-	PU→CI	.269	[.168, .369]	.000	[.169, .370]	.000	Supported
H2c	FI→TD	.543	[.457, .619]	.000	[.458, .620]	.000	Supported
H3c	HE→PU	.362	[.264, .458]	.000	[.266, .460]	.000	Supported
H4c	Con→HE	.132	[.029, .227]	.036	[.032, .228]	.033	Supported
H5c	Cur→HE	.465	[.379, .547]	.000	[.381, .547]	.000	Supported
H5d	Cur→Con	.402	[.299, .504]	.000	[.298, .503]	.000	Supported

Table 5 shows the results of significance tests for the indirect paths present in the tested structural model. A total of 12 indirect paths are present, out of which ten are found to be significant. The indirect path from PE→TD and HE→CI are found to be insignificant in the data. These results confirm the similar results obtained for the direct paths between PE→TD and FI→CI as well, indicating that PE and FI do not influence TD and CI through neither direct nor indirect effects.

Table 5. Indirect Path Results of the Hypothesized Model

Indirect paths	B	Bias-corrected		Percentile		Result
		CI	P	CI	P	
PE→Con	.137	[.092, .191]	.000	[.089, .187]	.000	Supported
PE→HE	.205	[.149, .266]	.000	[.146, .264]	.000	Supported
PE→TD	.043	[-.008, .094]	.159	[-.009, .093]	.167	Not Supported
PE→PU	.160	[.109, .226]	.000	[.107, .222]	.000	Supported
PE→CI	.194	[.135, .264]	.000	[.129, .259]	.000	Supported
Cur→HE	.053	[.014, .101	.028	[.012, .098]	.033	Supported
Cur→PU	.188	[.131, .251]	.000	[.130, .251]	.000	Supported
Cur→CI	.090	[.016, .165]	.043	[.014, .163]	.048	Supported
Con→PU	.048	[.012, .087]	.030	[.011,.086]	.033	Supported
Con→CI	.031	[.008,.066]	.020	[.005,.061]	.036	Supported
FI→CI	.005	[-.055, .062]	.912	[-.054, .064]	.878	Not supported
HE→CI	.097	[.056, .157]	.000	[.053, .151]	.000	Supported

An examination of the indirect effects table (Table 6) shows that while the four-step serial mediation through Cur→Cont→HE→PU is significant at (B= .105, p=.007), the three-step mediation pathway through Cur→HE→PU has a better effect size (B= .122, p=.001). However, the three-step mediation pathway through Cont→HE→PU→ has a very weak effect size (B= .024, p= .007). This indicates that curiosity is the better mediator and the stronger antecedent for influencing intention to continue use of social networking sites than control. This also supports our reasoning that the dimensions of CA have antecedent-consequent relationships with each other.

Figure 2 represents the empirically validated model of the study with path coefficients and the significance of the hypothesized relationships.

Table 6. Serial Mediation Indirect Paths Result With Effect Sizes and Lower and Upper Bound Limits

Indirect path	B (unstandardised)	B (standardised)	Lower	Upper	P
PE→Cur→Con→HE →PU→CI	.002	.105**	.001	.005	.007
PE→Cur→HE→PU→CI	.022	0.122***	.013	.033	.001
PE→Con→HE→PU→CI	.004	.024**	.002	.008	.007

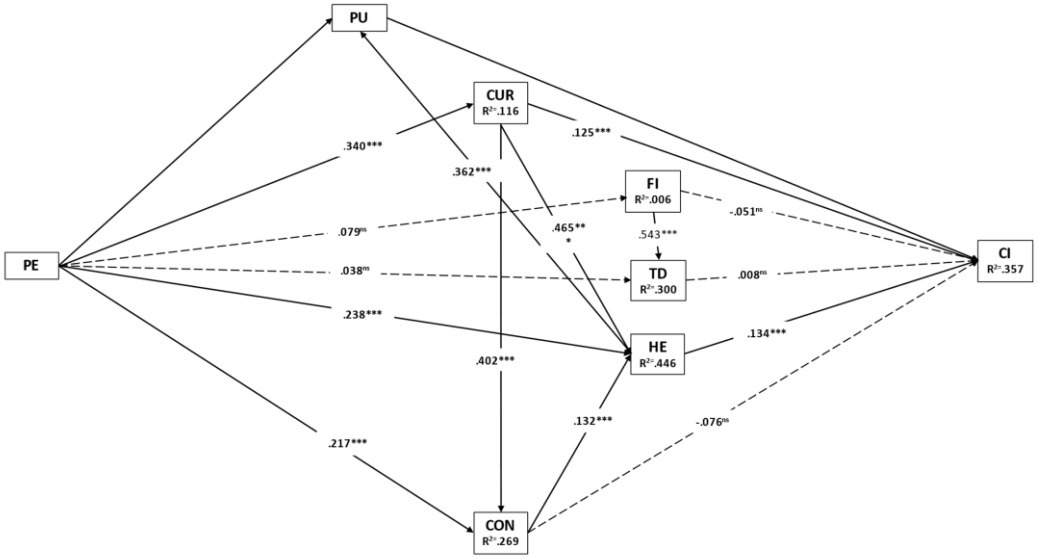

Figure 2. Result of Structural Model Analysis
Note: Dotted lines indicate insignificant paths

6. Discussion and Conclusion

This study has proposed and empirically ratified a conceptual model that integrates CA dimensions with user beliefs to explain the SNS use intention. This model is unique because it studies the dimensions of CA separately; hence, we can understand each dimension's individual contribution in affecting user behaviour. The model confirms that there is value in studying CA dimensions as independent variables in explaining user behaviour (Baker et al., 2017; Lee & Kim, 2017; Lowry et al., 2013). As a result, the researchers were able to isolate the dimensions that contribute the most to this specific context while eliminating those that do not seem to function within the nomological network of interest. In addition, the study was able to confirm that dimensions of CA do not occur all together simultaneously at the same point in time; rather, it is a process through which a user progresses during the use experience. The research also confirmed that dimensions of CA could have causal relationships with each other.

The proposed final model gives insight into the antecedent and consequent relationships among the CA dimensions and user beliefs in the context of social networking site use. Temporal Dissociation affects the Focussed Immersion of users; both Control and Curiosity contribute to the Heightened Enjoyment experienced by SNS users, confirming Baker et al. (2017) and Lowry et al. (2013). These results confirm the arguments put forward by previous researchers (Kwak et al., 2014; Pelet et al., 2017) that the dimensions of Cognitive Absorption do not occur synchronously.

Curiosity and Heightened Enjoyment, along with Perceived Ease of Use and Perceived Usefulness, play significant roles in influencing the Use Behaviour of SNS. However, Temporal Dissociation and Focussed Immersion were not relevant in contributing to user behaviour in the context of SNS. The hypothesized and tested model gives a good understanding of the mechanisms contributing to SNS users' reuse intentions.

6.1 Theoretical Implications

The theoretical contributions of the present study are fivefold. Firstly, we contribute to the literature on CA by splitting the dimensions and studying them. This is the first such study to do so in the SNS

context. Two studies in the earlier literature have split CA dimensions – the first by Lowry et al. (2013) in a gaming context and the second by Baker et al. (2017) in a simulated learning context. The results for Control, TD and FI reflected the results of studies by Lowry et al. (2013), Kaur et al. (2016), Guinaliu-Blasco (2019), Ghasemaghaei (2020) and Linares et al. (2021) in various contexts, indicating that in the case of SNS these dimensions of CA are not as important as Curiosity and HE in contributing to reuse and revisit intentions. Curiosity and HE were the strongest contributors to enhancing PU and CI.

Secondly, an interesting outcome of our study is the lack of contribution from Focussed Immersion and TD. While the results confirm that FI leads to TD as per the study by Pelet (2017), both variables seem to have no relationship with the other CA dimensions, PE and PU, and with CI. A few earlier studies have also found similar discrepancies in various contexts. For example, Guinaliu-Blasco et al. (2019) also found that FI does not contribute to the CA dimension in their study on marketing learning performance through Pinterest. Kaur et al. (2016) found that TD and escape (similar to Focussed Immersion) do not contribute to flow experience in adolescent SNS users. Pelet et al. (2017) found that flow experience did not lead to time distortion in their study of social media users. Chang and Zhu (2012) could not empirically prove the relationship between flow and CI in their study on SNS site use among Chinese users. Similarly, Lowry et al. (2013) found that control and immersion (a conceptually similar construct to TD and FI) do not predict CI. Similarly, a study by Brooks and Longstreet (2015) on SNS users found that FI was insignificant in contributing to the amount of usage. Therefore, our study's results support the evidence that some dimensions of CA may not be salient during SNS use.

Third, the results of the various direct and indirect relationships tested in this study support the reasoning of prior researchers that CA dimensions can have causal relationships and do not occur simultaneously at the same point in time (Baker et al., 2017; Lowry et al., 2013; Pelet et al., 2017). Curiosity was found to be an antecedent of HE and control. Control was found to be an antecedent of heightened enjoyment as well. The strongest serial mediation pathway was through Curiosity and Heightened Enjoyment, further confirming the findings of Lowry et al. (2013) regarding hedonic system use. In the context of SNS, curiosity and heightened enjoyment play a very important role in influencing the behaviour of users. Experimental studies need to confirm the findings to establish causality and time precedence and improve generalizability to other contexts. This will contribute to an enhanced understanding of the internal motivators leading to system use and reuse.

Fourth, we establish the relationship of PE and PU with CA and CI and with each other, thereby confirming the studies of Agarwal and Karahanna (2000), Lin (2009), Lowry et al. (2013), Baker et al. (2017) and Linares et al. (2021). Finally, we have used a sample of Indian social media users, thereby confirming the universal generalizability of the TAM constructs and Cognitive Absorption dimensions on a unique population demographic. The results of the study in this regard are theoretically significant as it contributes to the gap in the Information Systems literature for more studies to be conducted with diverse social media using populations. The representation of Indians (as one of the largest nationalities) across various social media platforms makes the results of this study even more significant.

6.2 Practical Implications

The study comes up with a plethora of important findings from a practical point of view. First, we can infer from the lack of contribution of Focussed Immersion and Temporal Dissociation that users of Social Networking Sites use their browsing as something to pass the time. Browsing through their feed is seen as a filler activity rather than something that requires all their attention and focus. When the majority of attention is not devoted to SNS usage, FI and TD will not occur (Lowry et al., 2013). Social Networking Sites are not so engrossing that users get completely immersed, lose track of time, and not register other distractions. Ghasemaghaei (2020) pointed out that the depth of interaction and social presence is low for SNS, which might be one more reason these dimensions are not salient in this study. Most social media users merely scroll through their feed and interact with the content they find interesting with a comment or a like at most. This activity is definitely not as immersive as that offered by virtual worlds, educational environments, gaming, and other high-involvement forms of social media. Linares et al. (2021), in their study of massively multiplayer online gaming (MMOG), found that the flow state is more likely to occur when users perceive a slight challenge in using the

system, and their skill level is adequately engaged during the interaction. Users are more likely to be distracted when the system is too easy to use. Therefore, practitioners should focus on including elements in the SNS design that ensures that users' skill levels are challenged so that the dimensions of FI and TD can be activated.

Kwak et al. (2014) proposed that SNS use via mobile devices would increase the SNS flow and positively impact SNS self-disclosure. However, our findings pertaining to TD and FI contrast this direction of scholarly thought. When accessing SNS in between other activities, it is more difficult to attain the flow experience because of surrounding environmental distractions. Another reason for the results can be the age demographic of the sample. The average age of our sample is around 33 years; looking at the characteristics of that age group, they are likely to have settled down with a career and family responsibilities by that age and are not likely to be able to indulge in mindless browsing behaviour. This might explain why control, TD and FI do not perform as expected in the sample.

The second significant takeaway for practitioners is how Curiosity and HE were found to be strong contributors to enhancing PU and CI. Curiosity was also found to be a significant predictor of HE in the sample. These findings provide valuable insights to practitioners on the internal motivation of users and the way to drive and sustain adoption and use intentions. The study aided in bringing understanding into which of the motivators are the most effective in influencing user beliefs and intentions. The results indicate that enjoyment and curiosity are important antecedents for reuse intention and mediate the relationship between PE, PU and CI. This implies that social media sites with greater media richness and interactive features will be more likely to have users experience TD and FI (Ghasemaghaei, 2020).

Third, PE significantly predicts Curiosity, Control and HE dimensions (Chandra et al., 2012; Linares et al., 2021; Lowry et al., 2013). This confirms that the reduction of cognitive burden experienced by users (Agarwal & Karahanna, 2000; Saade & Bahli, 2005) can improve the engagement they experience while using the SNS (Chandra et al., 2012). This is an important finding for the attention of user interface designers and confirms that the more intuitive and easier to use the site/ app is, the more likely the users will enjoy their use experience and the more the time they spend interacting with the interface.

Chandra et al. (2012) suggested that familiarity with SNS might influence the results of studies; users are less prone to experiencing absorption as they become more familiar with SNS use. This is similar to the results of Linares et al. (2021), where users entered into the state of flow only when the game offered a slight challenge to their skill level. Therefore, we can safely conclude that only content that arouses curiosity and causes enjoyment will engage users and cause revisit intentions. In the case of SNS, the challenge can come from the new information they unearth and the way their curiosity is excited. Lee and Kim (2017) and Ghasemaghaie (2020) suggested that practitioners should focus on designs that increase attention and interaction to increase continuance intention.

Control is another dimension that does not perform as expected in the social networking site context, bringing us to the fifth insight for designers and developers. While PE did lead to Control, and Control was found to be a significant predictor of HE, Control was found to be insignificant in predicting CI. This is because social networking sites such as Facebook are easy to use and navigate; hence, feeling a sense of control while using them is taken for granted. Control would be more pertinent in a gaming or virtual world context where users are challenged by the game interface and mastering the controls of the game to win and remain competitive in the playing field (Linares et al., 2021). This might imply that users' control over their SNS use, while leading to increased enjoyment of the interaction, does not necessarily impact their intentions to continue use or to recommend the use to others. This is in line with the findings of Kaur et al. (2016) and Pelet et al. (2017), where control did not have a role in predicting the flow experience. Barnes et al. (2019) explored the link between CA and addictive behaviours on SNS and found that control was not significant in predicting addiction to SNS and smartphone use. For flow experience to occur, the system interaction should have some element of challenge.

The findings of this study aid practitioners in approaching the question of increasing reuse intent among users. Practitioners need to focus on delivering content that stimulates user curiosity and increases enjoyment. The dimensions found insignificant in this context should be given special attention. Users need to be given an intuitive and easy interface to use, thereby reducing cognitive

barriers and increasing the absorption and involvement experienced during SNS use. Flow experience is strengthened when the use is in accordance with goal-directed activities (Hoffman & Novak, 2009; Kwak et al., 2014). The findings of this study give a clear direction on how the PU of hedonic systems can be impacted and increased by focussing on increasing the relevant dimensions of CA. Practitioners can focus on increasing the Curiosity and HE experienced by users while interacting with the SNS. The nature of SNS use does not allow users to enter into FI and TD. This needs to be investigated in more detail by academic researchers as well as practitioners. Variables such as telepresence can be studied in this context to explain why certain dimensions of CA are not significant contributors in this context. Practitioners should design their systems with more interactivity and presence to stimulate users' engagement and absorption. Future research can extensively explore the cause-effect relationships among the CA dimensions using experimental studies to offer more valuable insights into hedonic system engagement.

6.3 Limitations and Scope for Further Research

Although the present study was designed with the utmost care to maximize the impact and relevance of the findings, we address a few limitations in this section. First, the findings of the present study are based on cross-sectional data. The causality and time precedence of relationships (Gamage & Tajeddini, 2022) can probably be better supported with an experimental study designed to capture the Cognitive Absorption dimensions as and when users experience them. This will provide valid empirical proof of the causative relationships among the CA dimensions and user beliefs. Second, all the variables of the study were measured using self-reporting scales. We suggest that future studies can explore the possibility of measuring these variables using machine-learning methods on the textual data available from social media profiles. This will prevent any self-reporting bias and provide a more objective measure of the psychological constructs we are trying to capture.

Third, the sample of this study was drawn from the generic users of Social Networking Sites without specifying any particular site/app. This was done to improve the generalizability of the findings to hedonic systems in general and to provide a sample that most closely matches the demographic characteristics of Social Networking Site users. This limitation can be overcome by testing the differences in relationships in the model across specific sites/ apps. Researchers can also look at the influence of competence, challenge, skill levels, and efficacy on influencing users' flow experience.

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