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DARK SIDE OF MOBILE PHONE TECHNOLOGY: ASSESSING THE IMPACT OF SELF-PHUBBING AND PARTNER-PHUBBING ON LIFE SATISFACTION

Imran Mahmud*	Daffodil International University, Dhaka, Bangladesh	imranmahmud@daffodilvarsity.edu.bd
Kodisvaran Supramaniam	Universiti Sains Malaysia, Penang, Malaysia	kodisvaran07@gmail.com
Nusrat Jahan	Daffodil International University, Dhaka, Bangladesh and Universiti Malaysia Perlis, Perlis, Malaysia	nusrat.swe@diu.edu.bd
Afsana Begum	Daffodil International University, Dhaka, Bangladesh and Universiti Malaysia Perlis, Perlis, Malaysia	afsana.swe@diu.edu.bd
Adiba Masud	Daffodil International University, Dhaka, Bangladesh	adiba.swe@diu.edu.bd

* Corresponding author

ABSTRACT

Aim/Purpose	The study aims to explore the attributes of self-phubbing and partner-phubbing, as well as their impact on marital relationship satisfaction and the quality of communication. Furthermore, it aims to comprehend how these characteristics could impact an individual's total level of life satisfaction.
Background	The study aims to establish a clear association between specific mobile phone usage behaviors and their subsequent impact on relationship satisfaction and the quality of communication. This study investigates the effects of two types of behaviors on interpersonal relationships: self-phubbing, which refers to an individual being deeply absorbed in their own mobile phone use, and partner-phubbing, which refers to witnessing one's partner being deeply absorbed in a mobile device.
Methodology	This study utilizes a quantitative approach. The poll involved 150 smartphone users in Malaysia who are in relationships, and they participated by completing a

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	questionnaire. The data analysis was performed using the Partial Least Squares-based Structural Equation Modeling method.
Contribution	This research addresses the gap and gives insight into the consequences of self and partner phubbing and its impact on the relationship and life satisfaction among partners by providing a research model that was validated with primary data.
Findings	The results of this survey show that smartphone conflicts harm relationship satisfaction but not communication quality. It was revealed that communication quality does not directly bring a negative impact on life satisfaction, but it directly affects relationship satisfaction, which, in turn, harms life satisfaction.
Recommendations for Practitioners	The findings of this study can be used by practitioners to improve relationship counseling and therapy. Through the integration of the notion of phubbing and its impact on relationship happiness, couples can receive guidance on how to reduce the tension that arises from using smartphones.
Recommendations for Researchers	Previous research was conducted exclusively on only an individual's phubbing behavior, but limited work was done on the partner's phubbing behavior. Future researchers can enhance this model by identifying more factors.
Impact on Society	This study addresses broader societal ramifications in addition to the dynamics of particular relationships. This study promotes a more mindful use of smartphones by exposing the complex relationships between technology use, relationship happiness, and general life contentment. This will ultimately lead to healthier relationships and improved societal well-being.
Future Research	In the future, we are going to implement an artificial neural network approach to test this data to predict the most important factors that influence phubbing.
Keywords	phubbing, cellphone conflicts, communication quality, relationship satisfaction, and life satisfaction

INTRODUCTION

Today, life is transforming dynamically with the adoption of technological innovations. Smartphones and smartphone apps are becoming the principal means and modes of communication and the source of information in people's daily lives. It is a known fact that the emergence of smartphones brought convenience not only in communication but also in many aspects of life, such as education, entertainment, banking, e-commerce, jobs, retail, and so forth (Nazir & Pişkin, 2016). Although smartphones provide several benefits to humans, frequent and excessive use of smartphones and smartphone apps has led to a new phenomenon called phubbing, which creates conflicts among people, which, again, raises a concern that asks whether this behavior influences the relationship (Krasnova et al., 2016) between partners and eventually affects life satisfaction (Roberts & David, 2016) of an individual. This will be the objective of this paper, which will be investigated.

Phubbing is a merged word derived from "phone" and "snubbing," and it originated in Australia (Pendergrass, 2017). Phubbing is the practice of using or attending to smartphones during an interaction between partners (Chotpitayasunondh & Douglas, 2018). People showing this behavior tend to ignore others with whom they are physically communicating when they are in proximity because their focus is always on their smartphones. This behavior is very common, and we see it happen around us every day. This practice has pulled people apart and created a harmful impact on relationships between partners (Chotpitayasunondh & Douglas, 2018).

This harmful effect, as a result of disruption in communication due to the usage of technological devices in our everyday life, is also known as "technoference" (McDaniel & Coyne, 2016) or referred to

as ‘smartphone conflicts’ in this study – a phenomenon that affects the relationship satisfaction and the life satisfaction of partners. As a result of this, a partner in a conversation may perceive phubbing as impolite behavior and believe that it violates the norm of how they expect their partner to behave when they are interacting with them (Eisenhauer, 2018). They may perceive phubbing as a form of rejection – an expression of the fact that they are not valued by the phubber in that situation. Here, the theory of violation can be applied, which will be discussed later as it is associated with phubbing.

Researchers have shown great interest over the past few years in the study of ‘technoference’ and its impact on human relationships (McDaniel & Coyne, 2016). However, in this study, phubbing behavior, as a result of the technoference phenomenon, will be investigated among partners, and the implication of this behavior on relationship satisfaction and communication quality, which are used to measure the life satisfaction of the individual, either as a victim (partner-phubbing) or a perpetrator (self-phubbing). Various studies have been done on this subject in Western countries, which focused on determinants of the phubbing factor (Karadağ et al., 2015) and its effects on social interaction (Chotpitayasunondh & Douglas, 2018) and relationship satisfaction (Roberts & David, 2016). However, in this study it will be further explained by incorporating self-phubbing elements in the context of Malaysia. This process will involve smartphone conflict to investigate whether it affects relationship satisfaction, communication quality, and finally, the life satisfaction of an individual.

In the past few years, smartphones have become an integral part of Malaysia, as these devices have features similar to pocket computers, which enable us to operate multiple applications. As a result, the number of internet subscriptions is also increasing every year. Smartphones are found to be the most favorable device used to access the internet, with more than nine out of 10 internet users (93.1%) using them to take part in online activities (Malaysian Communications and Multimedia Commission, 2018). The TNS/Google Global Connected Consumer Survey, 2014, indicated that one in two Malaysian adults owns a smartphone, and Malaysia is becoming a nation addicted to smartphones (Lee et al., 2015). These studies show that in Malaysia, reliance on smartphones and smartphone apps is very serious, and there is a possibility that this practice has already resulted in phubbing behavior. A study on Malaysian adults reveals that smartphone obsession has an impact on familial and social connectedness (M. P. Ang et al., 2019) and dents relationship quality. The Prudential Relationship Index, 2016, which numerically measures how satisfied people are with their primary relationships, has revealed that 47% of couples in Malaysia have mentioned that their frequent arguments are primarily caused by excessive phone usage, which accounts for 31% of their disagreements (Bernama, 2017).

This study aims to investigate the impact of phubbing in Malaysia, with a specific focus on incorporating a partner-phubbing variable. The present literature has not thoroughly examined the effects of self-phubbing and partner-phubbing on life satisfaction. The objective of our study is to establish a connection between self-phubbing and partner-phubbing and to understand how these behaviors can impact relationship happiness and, consequently, an individual’s overall life satisfaction. We will achieve this by constructing a model.

The difference between the two principal variables is as follows. *Self-phubbing* is the act of being completely absorbed in one’s smartphone and disregarding one’s spouse. An individual who frequently engages in the act of ignoring others in favor of using their smartphone is sometimes referred to as a “phubber.” Conversely, *partner-phubbing* refers to a situation in which one person feels neglected by their partner, who is engrossed with a smartphone while having a discussion (Al-Saggaf & O’Donnell, 2019).

Owing to Malaysia’s specific cultural, behavioral, and environmental factors, which diverge greatly from Western contexts, this study is anticipated to generate unique insights, hence enhancing comprehension and awareness in this sector on a wider scale.

LITERATURE REVIEW AND CONSTRUCT IDENTIFICATION

UNDERLYING THEORY: EXPECTANCY VIOLATIONS THEORY (EVT)

In a relationship, the quality and continuity of connection depend upon how well the expectations of both parties are managed in various aspects. The Expectancy Violation Theory gives a theoretical understanding of how individuals experience and evaluate the violation of their expectations, as mentioned by Burgoon (1993). Expectancy Violation Theory (EVT) was developed by Judee K. Burgoon (1993), who defined it as that emotional experience and expression can be understood by what experiences and expressions are expected in an interpersonal relationship and to what extent this deviates positively or negatively, the degree to which other types of expectancy engender emotional expressions and the effects of deviating from entrenched patterns. This theory of communication analyzes how individuals respond to the anticipated violation of social norms and expectations. Expectancy is interpreted as normal or typical behavior among people, and in this context, it is about giving attention to the partner who is having a conversation. When an individual behaves unusually, it violates the expectations of their partner. This behavior can be comprehended as either positive or negative based on the participant's relationship with the person who is engaged in the conversation. It assumes that individuals may develop expectations of others, which can direct the interaction process throughout the conversation. EVT was selected for this research because its use to study phubbing behavior makes a better understanding of communication among partners and helps individuals evaluate the expectations of others and react accordingly to maintain a healthy relationship and communication. Furthermore, EVT helps others understand the changes that are required to manage expectations, which are crucial for relationship satisfaction. It provides us the insight that if this expectation is met, this can lead to relationship and life satisfaction, and vice-versa (Quinn, 2018).

In the context of phubbing behavior, we can interpret that it violates personal expectations, beliefs, and trust someone has in their partner and leads to negative consequences. When a person's focus is on their smartphone or any other gadget during a conversation instead of their partner, this is interpreted as phubbing, which becomes more important than the conversation itself in that particular scenario. This behavior also violates one's expectations. Several studies have shown that perceived partner-phubbing can damage relationship satisfaction, closeness, intimacy, and quality of communication (Chotpitayasunondh & Douglas, 2018; McDaniel & Coyne, 2016).

As phubbing is strongly related to social media addiction, we can make an association between this theory and the consequences of social media usage and see how this serves as a violation of one's expectations in this context. A study on Facebook by Bevan et al. (2014) investigates the behavior of 'unfriending' as a violation of expectancy. The result of this study reveals that being unfriendly to someone is an assessment, which is being used here for expectancy violations after determining the relationship level between them. Here, relationships stand at the focal point of the relationship quality indicator and the satisfaction level among participants. When a good relationship is formed, the expectation towards communication becomes more specific based on the quality and characteristics of the person, which later turns into acceptable behavior. The EVT suggests that there is always a norm that is considered acceptable but is not accepted as standard behavior or any other ethical behavior in society that might guide our behavior in general. For example, how to text and reply politely, use a smartphone in a public place, and maintain a code of conduct while using gadgets lay the foundation of the expectations that others have of us. However, owing to rapid development and modernization, these norms and expectations constantly change, and it becomes difficult to predict whether these norms are acceptable or unacceptable, especially in the context of using smartphones and phubbing. However, a study by Hall et al. (2014) suggests that engaging in the current acceptable behavior of smartphone usage is crucial for relationship satisfaction. The study also clearly states that phubbing is not an acceptable behavior.

Phubbing

Many studies have been conducted on this subject and the potential negative effect of partner-phubbing on relationship satisfaction, including Al-Saggaf and O'Donnell (2019), Chotpitayasunondh and Douglas (2018), McDaniel and Coyne (2016), Vandermeer et al. (2018), Çikrikci et al. (2019), and X. Wang et al. (2021). All these authors have offered different perspectives on how smartphones affect communication and interpersonal relationships, which shows that this has a significant impact on life, relationship satisfaction, and personal wellbeing as well. A recent study among Chinese students revealed that parental phubbing is associated with students' depression and wellbeing in their late childhood and adolescence and highlighted that families need to establish norms to reduce phubbing behavior (Xie & Xie, 2020). In the Malaysian context, studies by M. P. Ang et al. (2019) have investigated the determinant factor of phubbing behavior among undergraduate students in Malaysia by focusing on the aspects of loneliness and fear of missing out.

SMARTPHONE CONFLICTS

The daily use of technological devices has increased phubbing behavior and is likely to create conflicts among partners. Thus, for this research, smartphone conflict will be used as a medium to evaluate relationship satisfaction and communication quality. It is reasonable to use smartphones, but the interruptions caused by phubbing may lead to emotional disturbance and misunderstanding, which may create conflict among partners and affect the relationship. This is what the term 'conflict' is referred to in this study. Smartphone conflict has obstructed meaningful communication and important interactions between individuals, which is particularly relevant for romantic relationships, according to a study by Tertadian (2012). Spending more time on their smartphones during a conversation with their partners may result in a loss of meaningful interaction and communication quality. Thus, conflicts may arise, not because of smartphones but due to the available time not being utilized for quality communication. Given this, phubbing has been found to harm communication quality (Vanden Abeele et al., 2019). In this study, we will test the relationship between partner-phubbing and perceived communication quality while being indicated by smartphone conflict.

Communication quality

Communication quality refers to the communication process that is positive, intimate, and controlled (Emmers-Sommer, 2004). The authors have referred positively to supportive, cheerful, and agreeable interactions. Intimacy means partners verbally disclosing or revealing information about themselves and the message intended to be delivered in control, which, together, manages the process of interaction. When smartphones are present, the desire for an individual to seek new information arises, and checking for messages can direct their mind to other areas (Eisenhauer, 2018). Thus, this distraction from smartphones can lower relationship satisfaction and communication quality, and it may create smartphone conflicts as well. C.-S. Ang et al. (2019) have used a mixed-method approach to investigate the impact of phubbing on social relationships and connectedness among adults in Malaysia. The conclusion derived from this study is that phubbing behavior is a predictive behavior in social and family relations. Phubbing behavior is a distraction and also the reason for being a separator.

Relationship satisfaction

Ignoring someone's partner during a conversation by responding to messages or accessing social media content indicates that interacting with someone's partner is less important than what is available on a smartphone (Roberts & David, 2016), which can create smartphone conflicts. Two unique measures have been taken by Chotpitayasunondh and Douglas (2018) to assess self-phubbing and being phubbed by partners while studying the experience of this behavior and to understand how this influences social interaction and relationship satisfaction. In the study conducted by Tertadian (2012), it was concluded that a smartphone becomes a conflicting third party in interpersonal relationships and blocks communication. Here, we can use a social displacement theory to explain the

consequences of smartphone conflict. According to social displacement theory, the more time one spends in the world of social media, the less time one is likely to spend socializing with people in the real world (Roberts & David, 2016). So, if an individual's partner is distracted by their smartphone when they are together, this could lead to smartphone conflict and dissatisfaction in their romantic relationship, and it will be negatively associated with their life satisfaction (X. Wang et al., 2021).

LIFE SATISFACTION

Life satisfaction refers to a judgmental process in which individuals assess the quality of their lives based on their own unique set of criteria (Diener et al., 1985). The life satisfaction level perceived by an individual varies from one person to another. However, in this study, a set standard was referred to as the level that matched this standard. Thus, life satisfaction is the perception of an individual's criterion for judgment, and it is up to the individual to decide the level of it. Therefore, in this study, life satisfaction will be measured based on the standard scale that was developed to assess the respondents' personal life experiences while dealing with their partners when they were engaged in conversation. This study is not specific to any other subject, like financial stability or the health status of an individual.

MODEL DEVELOPMENT

HYPOTHESIS FORMULATION

Predictor of conflict

Conflicts are unavoidable in relationships when expectations are not met, which can worsen the relationship itself; hence, it is justified to use smartphone conflict as a medium in this study. Moreover, the high frequency of phubbing is becoming a barrier to meaningful communication because it lowers relationship satisfaction and causes conflicts that undermine an individual's overall well-being (Krasnova et al., 2016). As a result, it may depress people and lower their overall life satisfaction (Winch, 2015). In the study conducted by McDaniel and Coyne (2016) on married women, the majority perceived that technological gadgets have reduced their interactions, which has led to conflicts and negative outcomes in personal life satisfaction. People tend to do multiple things on their smartphones while conversing with their partners, which invariably diverts their attention and can create conflict between them. Results have shown that the presence of smartphones affects performance and the capacity to concentrate if the task demands attention (Thornton et al., 2014). In addition to what has been said about conflicts, another survey conducted on 1,333 couples by Coyne et al. (2012) covering different ethnicities found that men, but not women, spent most of their time on social media and playing games, which gave rise to conflicts between partners. It is known that the amount of time that either of the partners spends on smartphones is the root of all conflicts, and these conflicts pave the way for further relationship problems. Hence, in this research, smartphone conflict will be examined to see if this has a positive relationship with self-phubbing and partner-phubbing and whether it can become an indicator for measuring an individual's relationship satisfaction and communication quality. Therefore, in this aspect, four hypotheses were proposed as per the following:

H1: Partner-phubbing is positively associated with smartphone conflict.

In any relationship, a distraction caused by any device may create uneasiness and interference in the relationship itself and aid in the loss of closeness. Similarly, in this study, it was predicted that partner-phubbing tends to create conflicts in relationships (Servies, 2012). Concern about the negative effects of partner-phubbing is reflected in the observation, where it interferes with the communication process and causes smartphone conflict (Halpern & Katz, 2017). Likewise, in the current study, we will investigate if the emergence of smartphone conflict was due to partner-phubbing and if a positive and healthy relationship still exists.

H2: Self-phubbing is positively associated with smartphone conflict.

Smartphone conflict and communication quality

Smartphone conflict has obstructed meaningful communication and important interactions between individuals, which is particularly relevant for romantic relationships, according to a study by Tertadian (2012). Spending more time on their smartphones during a conversation with their partners may result in a loss of meaningful interaction and communication quality. Thus, conflicts may arise not because of smartphones but due to the time that is available but not being utilized for quality communication. Given this, phubbing has been found to harm communication quality (Vanden Abeele et al., 2019). In this study, we will test the relationship between partner-phubbing and perceived communication quality while being indicated by smartphone conflict. Smartphones have been associated with undermining perceived closeness, connection, and communication quality. Therefore, we propose the following hypothesis.

H3: Smartphone conflict is negatively associated with communication quality.

Smartphone conflict and relationship satisfaction

Here, we can use the social displacement theory to explain the consequences of smartphone conflict. According to the social displacement theory, the more time one spends in the world of social media, the less time one is likely to spend socializing with people in the real world (Roberts & David, 2016). So, if an individual's partner is distracted by their smartphone when they are together, this could lead to smartphone conflict and dissatisfaction in their romantic relationship, which will be negatively associated with their life satisfaction (X. Wang et al., 2021). This statement has been supported by the two experiments conducted by Przybylski and Weinstein (2013), where the presence of smartphone conflict affects relationship satisfaction. The partners also reported a lesser feeling of trust and empathy if there was a smartphone present in the conversation. Therefore, in this study, we are to measure the communication quality, relationship quality, and smartphone conflict that arise due to excessive phubbing. These will be used to establish Hypothesis 4.

In life, conflicts are unavoidable, and this does not mean that conflicts are unscrupulous. Sometimes, it can be better to maintain a happy relationship rather than have any conflicts at all. However, in this study, phubbing behavior is predicted to create smartphone conflicts that harm communication quality. EVT, which was used in this study afterward, related phubbing behavior as a notable aspect of smartphone conflict (Tertadian, 2012). Phubbing was perceived as rude and offensive, which interrupted social norms, created conflicts, and deteriorated the quality of a conversation (Al-Saggaf & O'Donnell, 2019). A recent study in China proved that distraction caused by smartphones affects parent-child communication quality, which leads to depression among students in their late childhood (Xie & Xie, 2020).

H4: Smartphone conflict is negatively associated with relationship satisfaction.

Predictor of life satisfaction

Smartphone addiction, as one of the factors of phubbing behavior mentioned earlier, was found to have negative effects on well-being and life satisfaction in the study by Samaha and Hawi (2016). Another study by Dayapoğlu et al. (2016) found that when life satisfaction decreased, loneliness increased, and academic performance dropped with the increasing usage of mobile phones in respondents in Turkey. Moreover, a study in Japan among students in junior and senior high schools discovered that high dependency on smartphones affects life satisfaction (Kamino, 2017). To measure the life satisfaction of an individual associated with phubbing, the following hypothesis was made:

H5: Communication quality is positively associated with life satisfaction.

High quality and high frequency of face-to-face communication lead to better life satisfaction within family relationships and vice versa (Schwarz, 2008). Smartphones are found to reduce the quality of direct interactions, and as a consequence, good communication quality has a positive impact on well-being (Rotondi et al., 2017). In studying the impact of texting on romantic relationships by Halpern

and Katz (2017), phubbing behavior seems to reduce the perceived quality of a romantic relationship. Because of these facts, the following hypothesis was formed.

H6: Relationship satisfaction is positively associated with life satisfaction.

RESEARCH MODEL

This research will examine the possibility of a conflict created by self-phubbing and partner-phubbing. If they succeed in creating a conflict, it will be used as a medium to evaluate the relationship between phubbing, communication quality, and relationship satisfaction. Lastly, relationship satisfaction and communication quality will be tested to see if this variable has a significant effect on life satisfaction. This is illustrated in Figure 1.

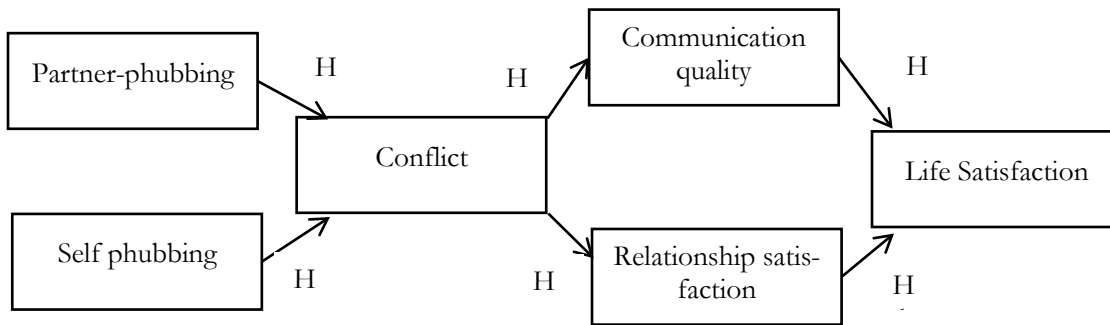


Figure 1. Research model

RESEARCH METHOD

DATA COLLECTION PROCEDURE AND SAMPLE SIZE

This research used a quantitative method where a survey was conducted, and a convenience sampling method was chosen for data collection. Since this subject is related to internet applications, an online survey was conducted for almost a month in September 2022 using Google Forms that were sent to people through WhatsApp, Facebook Messenger, email, and Twitter. As per the *GPower* sample size suggestion (Mahmud et al., 2020), the total number of participants required for this study was 107, but 150 respondents took part in this survey. Table 1 shows the demographic profiles of the respondents. Of the participants, 57% were female, and 43% were male in the gender category. In the age category, 62% were in the age group of 31–40. The average age group for this study was 37.5. The smallest percentage of this category came from people who were more than 50 years old. There were only five people, contributing only 3% of the total number of participants. In the category of ethnicity, there were 44% Indians, followed by 39% Malaysians and 17% Chinese.

Table 1. Demographic information

Variable	Category	Frequency	Percentage
Gender	Male	65	57%
	Female	85	43%
Race	Indian	66	44%
	Malay	58	39%
	Chinese	26	17%
Age	31-40	93	62%
	41-50	28	19%
	Less than 30	24	16%
	More than 50	5	3%

MEASURES

The survey for this study comprised a demographic questionnaire and was divided into seven parts. The rest of the parts were also questionnaires for each of the variables that included partner-phubbing (PP), self-phubbing (SF), cellphone conflict (CPC), relationship satisfaction (RS), communication quality (CS), and lastly, life satisfaction (LS). A five-point Likert scale was used, ranging from 'strongly disagree' to 'strongly agree,' which formed the base of the measurement. The first variable in this research, self-phubbing (SF), was evaluated by Chotpitayasunondh and Douglas (2018). The second variable, partner-phubbing (PP), was developed by Roberts and David (2016) to study the impact of partner-phubbing on relationship satisfaction. The third variable, smartphone conflict (CPC), was also adopted by the same author. The fourth variable is relationship satisfaction, which Susan S. Hendrick (1988) used in her study to measure the relationship among partners. Communication Quality (CQ) is the fifth variable, which was adopted from a study by Rebecca M. Schwarz (2008). Finally, the last variable, life satisfaction (LS), was adopted from Diener et al. (1985). In cases of conflict, a five-point Likert scale ranging from 'Rarely' to 'Always' formed the basis of the measurement items of CPC. The questionnaire is in Appendix A.

DATA ANALYSIS

This research used PLS-SEM to measure the relationship between variables from the framework research model. The selection of SEM as the preferred method was based on specified criteria. In the first place, SEM permits researchers to scrutinize a complex model with multiple independent and dependent variables very convincingly. A study conducted by Hair et al. (2019) has stated the maximum benefit of PLS-SEM while comparing it with conventional SEM or CB-SEM. The results from this study reveal that PLS is more robust in estimating convergent validity and path coefficients and yields a better output in the coefficient of determination (R^2). It also affects size (f^2) and makes PLS the best resource for researchers who use a variance-based approach in social sciences and marketing. Hence, we can conclude that research related to behavioral sciences focuses on PLS when it comes to data analysis, as a large volume of journals has been reported using this method (Hair et al., 2021).

DATA ANALYSIS AND RESULT

MISSING VALUE ANALYSIS AND DATA CLEANING

As we used Google Forms, no missing value was in the datasets. Harman's single-factor test was used to test the common method bias (CMB). Harman's single-factor test results showed the maximum co-variance, explained by one factor with 22.479% variance, indicating that the data did not have any CMB problem (Mahmud et al., 2017) (see Appendix B). for the result of Harman's single factor. SPSS version 25 was used to test Harman's single factor.

MEASUREMENT MODEL

Once the research model was developed, Hair et al. (2021) mentioned that the outer model had to be tested. Hence, in this study, the outer model was measured by average variance extracted (AVE), composite reliability (CR), and discriminant validity (DV). Before this, items with low factor loadings were removed to ensure the significance of loadings (Hair et al., 2021). Thus, of the total 46 items initially, only 36 were tested in this model to have a good AVE and CR. SmartPLS version 3 was used to analyze the data.

The AVE for all variables should be higher than 0.50, which will justify that the construct explains more than 50% of the variance of its items (Hair et al., 2019). In this study, this criterion has been met by the data gathered. It was explained that the construct and CR must be higher than a value of 0.7, and this criterion has been met, as can be seen in Table 2. Similarly, Cronbach's alpha results also show it has met the criteria of 0.7 and above.

Table 2. Cronbach's alpha, composite reliability, and AVE

	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
CPC	0.894	0.950	0.904
CQ	0.878	0.921	0.606
LS	0.843	0.890	0.631
PP	0.884	0.909	0.569
RS	0.748	0.833	0.556
SP	0.763	0.840	0.519

DISCRIMINANT VALIDITY

In providing the evidence for discriminant validity as advised by the Fornell and Larcker criterion (Rahman et al., 2022), the square root of the AVE for each latent variable has exceeded the correlation value of the variable and other variables as well. Thus, discriminant validity was established in this model of study, and the related Fornell and Larcker results are shown in Table 3. Moreover, this discriminant validity can be measured by using the cross-loading results, where there are no major findings in the highlighted value from the cross-loading table.

Table 3. Fornell and Larcker criteria (discriminant validity)

	CPC	CQ	LS	PP	RS	SP
CPC	0.951					
CQ	0.445	0.778				
LS	-0.170	-0.357	0.794			
PP	0.278	0.247	-0.199	0.754		
RS	-0.180	-0.357	0.790	-0.036	0.745	
SP	0.226	0.188	-0.061	0.068	-0.137	0.721

COEFFICIENT OF DETERMINATION (R²)

The coefficient of determination, or R², represents the level of accurate predictions in the model and can be observed as the combined effects of the independent variables on dependent variables, and to some extent, this measurement will be objective of PLS, which is to maximize the variance that is explained in the dependent variable (Cheah et al., 2018). Table 4 shows that there is no weak predictive accuracy in this model. The predictive value of SP and PP explained 12% of the variance in CPC, whereas for CQ and RS, the variance of 19.8% and 3.3% is explained by CPC. Lastly, for LS it indicates a good variance of 62.6%, which was explained by CQ and RS.

Table 4. R Square results

	R Square	R Square adjusted
PC	0.120	0.108
CQ	0.198	0.193
LS	0.631	0.626
RS	0.033	0.026

STRUCTURAL MODEL

According to Cheah et al. (2018), the explanatory power of the specified structural model in research can be evaluated by the squared multiple correlations (R^2) and the significance measure level of the path coefficients (See Table 5). For path co-efficient, the corresponding t-value was evaluated via a bootstrap procedure with 5,000 resamples. In addition to this, the size of the effect (f^2) of the study is also included under this structural model section (see Table 6 for effect size results).

RESULTS OF THE PROPOSED HYPOTHESIS

To get the result of the research model, Smart PLS 3 software was used with the bootstrap procedure on the 5,000 resample method. Table 5 indicates the results of the hypothesis of this study and whether the relationship is supported or not based on beta, P, and T values.

Table 5. Path coefficient and hypothesis result (direct relationship)

Hypothesis	Relationship	Beta value β	T value	P values	Remark
H1	PP -> CPC	0.264	3.050	0.002	Supported
H2	SP -> CPC	0.208	2.527	0.012	Supported
H3	CPC -> CQ	0.445	6.806	0.000	Not Supported
H4	CPC -> RS	-0.180	2.155	0.032	Supported
H5	CQ -> LS	-0.086	1.610	0.108	Not Supported
H6	RS -> LS	0.759	17.243	0.000	Supported

STRENGTH OF EFFECTS

This study also assessed the effect sizes to see the impact on the different variables under one model. In other words, it shows how much an independent variable contributes to the R^2 value of a dependent variable in a structure model (Cheah et al., 2018). As per the results in Table 6, communication quality does not produce any relationship or effect on life satisfaction ($f^2 = 0.018$). Contrary to this, life satisfaction is seen as having an exceptionally large or strong relationship with life satisfaction ($f^2 = 1.362$). Partner-phubbing and self-phubbing seem to have a small effect on smartphone conflicts ($f^2 = 0.079, 0.049$). Similarly, smartphone conflicts, having small effects on relationship satisfaction ($f^2 = 0.034$), and medium effects were produced for the relationship between smartphone conflicts and communication quality ($f^2 = 0.247$).

Table 6. Effects size results

Relationship	f^2 value	Effect Size
CPC-> CQ	0.247	Medium
CPC->RS	0.034	Small
CQ->LS	0.018	None
PP-> CPC	0.079	Small
RS->LS	1.362	Large
SP->CPC	0.049	Small

The final model is shown in Figure 2.

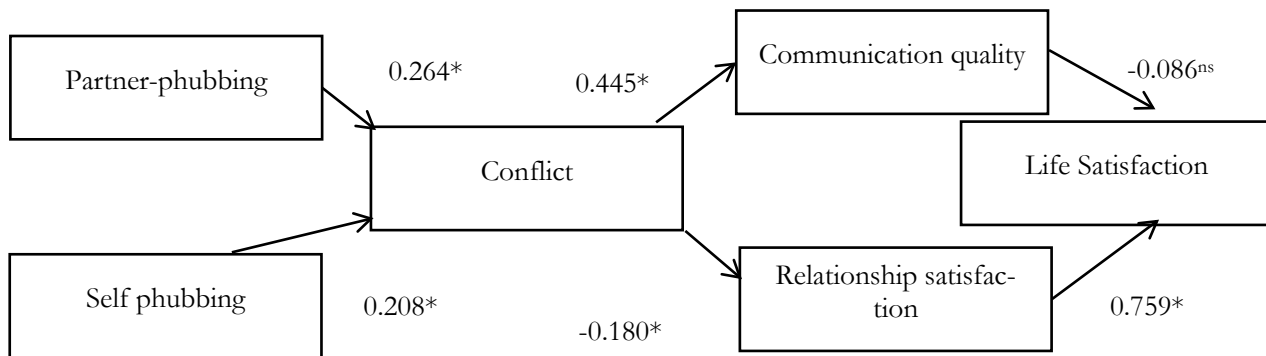


Figure 2. Final model with results

* Significant with p value less than 0.05

DISCUSSION

PREDICTORS OF SMARTPHONE CONFLICTS

As per H1 and H2 relationships, partner-phubbing and self-phubbing positively impacted smartphone conflicts. From the results of Table 5, it can be observed that H1 has ($\beta = 0.264$, $p < 0.05$) and H2 has ($\beta = 0.208$, $p < 0.05$), which gives evidence that a positive impact exists. These results are consistent with previous studies conducted by Halpern and Katz (2017). Their survey results indicate that the high frequency of partner-phubbing will eventually lead to smartphone conflicts that will harm the perceived quality of relationships. Although smartphone conflict has a positive relationship with partner-phubbing and self-phubbing, where PP and SP are explained to have only a 12% discrepancy, the effect size is relatively small for both predictors, where it is ($f^2 = 0.079$) for PP and ($f^2 = 0.049$) for SP. The effect size can be seen in Table 6. Thus, we can say that even though the statistics show it is significant, the effects are minor and not very meaningful. However, from this study, we can conclude that SP and PP have brought out smartphone conflicts among people. With the rapid increase in the frequency of PP and SP, smartphone conflicts began to degrade, and vice versa. Hence, H1 and H2 are supported.

RELATIONSHIP BETWEEN SMARTPHONE CONFLICTS AND COMMUNICATION QUALITY

As per the statistical value based on H5 ($\beta = 0.445$, $p = < 0.05$), it can be stated that smartphone conflicts have a positive relationship with communication quality. This is in contrast with the proposed hypothesis; therefore, H5 is not supported. Since the beta value is showing positive results, we can say that the higher number of smartphone conflicts is not affecting communication quality in a negative manner. This result is consistent with the study by Servies (2012), which showed that conflicts arising from smartphone distractions had no impact on the perceptions of either men or women or their excessive usage of smartphones. These conflicts are not compromised by the quality of communication, either. Based on the effect factor, this relationship has a medium effect size ($f^2 = 0.247$) and has the second largest effect size among the variables in this study.

RELATIONSHIP BETWEEN SMARTPHONE CONFLICTS AND RELATIONSHIP SATISFACTION

Like the above measurement, smartphone conflicts have been tested with relationship satisfaction, and H6 was proposed as a negative relationship that existed between them. Unlike communication quality, relationship satisfaction was found to be consistent with H6, where the statistical results indicated a negative relationship ($\beta = -0.180$, $p < 0.05$). To support this data, a 3.3% variance explained the relationship satisfaction by R^2 value, and a small effect size of ($f^2 = 0.034$) was achieved. These results are supported by the previous studies of P. Wang et al. (2017), which indicated that phubbing harmed relationship satisfaction among married adults. Furthermore, it can be said that similar results were obtained by McDaniel and Coyne (2016) and X. Wang et al. (2021). Hence, according to H6, the more smartphone conflicts tend to occur, the more meaningful interactions will be reduced, and because of this, the relationship satisfaction level between partners will start getting undermined.

PREDICTORS OF LIFE SATISFACTION

To address the objective of this study and to test the dependable variable, which is life satisfaction, H7 and H8 were developed, where communication quality and relationship satisfaction were predicted to have a positive impact on life satisfaction. The results of this analysis indicate that CQ has ($\beta = -0.086$, $p = > 0.05$) a negative relationship, which makes H7 fail in order to support the earlier prediction made in this study. Moreover, the effect size results ($f^2 = 0.018$) also indicate that there is no effect size existing in this relationship.

In contrast to this, the results of H8 ($\beta = 0.759$, $p = < 0.05$) have constructed a particularly good and significant relationship between relationship satisfaction and life satisfaction. Also, the effect size has produced a large effect ($f^2 = 1.362$) and is the largest effect among all the other relationships. As hypothesized, greater relationship satisfaction brings greater life satisfaction, and this is aligned with the study conducted by McDaniel and Coyne (2016) on an adult who was in a relationship. Likewise, these results are also aligned with the studies by Roberts and David (2017), which conclude that relationship satisfaction has a positive relationship with life satisfaction.

Lastly, this study looks at the mediating effects of smartphone conflict between partner-phubbing and communication quality under H3. A similar smartphone conflict that was used as a medium between self-phubbing and relationship satisfaction under H4 is illustrated in Table 5. The effect of CPC as a medium is significant ($\beta = 0.117$, $p < 0.05$) between PP and CQ under H3. Similarly, CPC is an agent of a significant relationship between SP and RS ($\beta = 0.092$, $p < 0.05$) but is smaller than the earlier value of beta as per H3. Therefore, both H3 and H4 are supported based on the results provided in Table 5. Thus, this evidence suggests that PP and SP can lead to CPC and eventually affect CQ and RS. Therefore, we should prevent this from happening by controlling PP and SP. The present outcomes of this study reveal that both self-phubbing and partner-phubbing tend to create smartphone conflicts and act as a medium that undermines communication quality and relationship satisfaction between partners. Smartphone conflict tends to reduce relationship satisfaction levels and eventually affects the life satisfaction of an individual. Hence, these results support the title of this study, which concludes that both self-phubbing and partner-phubbing affect life satisfaction.

CONTRIBUTIONS

THEORETICAL CONTRIBUTION

The results from this study suggest that phubbing behavior likely will tend to create conflict, which in turn will not affect the communication quality but the relationship satisfaction, based on the hypothesis proposed. Finally, this is probably expected to have a negative effect on the life satisfaction of an individual. Thus, the high probability of the results suggests this behavior may become the norm and be detrimental to social interactions (Chotpitayasunondh & Douglas, 2016). Our data shows that

there are people who have been phubbed by their partner, and there are also phubbers. Thus, when both of these people constantly switch their behavior, phubbing may be interpreted as a norm in society, as discussed earlier before the results were obtained. Hence, this may further support the expectancy violation theory, which was discussed earlier, saying that individual behavior may violate the expectations of their partner. As a partner, people may rely on someone to fulfill their emotional needs, but phubbing behavior will violate this expectation. Therefore, this theoretical contribution will teach us how to manage the expectations of our partner in a better way.

PRACTICAL CONTRIBUTION

The significance of this study is that it will provide an understanding and investigation of how phubbing behavior will impact relationship satisfaction and communication quality, and ultimately, as a result, life satisfaction will be affected. Given the ever-increasing internet and smartphone usage in Malaysia, where almost 80% of its population possess a smartphone (Osman et al., 2011), the current study may present an insight that such a gadget application may create conflicts that will impact partner relationships and indirectly create depression among partners who may need attention when they are in conversation together. This information will be valuable to the public and their family members if they want to stay healthy and maintain good relationships, especially those who rely heavily on smartphone usage in their daily lives. The result of this study may be crucial for policymakers and health professionals to create awareness among the public on this issue and to explore further the determinant factor of phubbing behavior. Perhaps, in the future, the government may consider a campaign to combat this phenomenon if this behavior is found to be a serious problem to society in Malaysia. However, this unhealthy norm can be gradually reduced if public awareness of this is strengthened and simultaneously encouraged for face-to-face interaction among partners for better and healthier interaction to maintain good life satisfaction. Hence, this study will serve the purpose of guiding and educating the public and improving their social interaction, not only with their partner but with society at large. It also emphasizes the importance of being true and maintaining a genuine connection with another person in eye-to-eye contact interaction to build a better society that may focus on caring for others and understanding others' emotions.

LIMITATIONS AND FUTURE RESEARCH

It is important to recognize and consider some limitations, which require careful interpretation of the data. The study only focused on Malaysian individuals who use mobile phones, and the research constructs were derived from their present perceptions of mobile phone usage. These views can change over time, potentially modifying certain factors' influence on life's happiness. Hence, it may be necessary to gather supplementary data to verify this study's conclusions and explore other pertinent relationships.

To ascertain the most significant components of communication quality and life satisfaction in connection to mobile phone usage in Malaysia, it would be beneficial to increase the sample size in future research. For instance, the growing prevalence of games and technologies such as smart TVs might lead to diverse consequences that intensify conflicts associated with technology.

Moreover, the authors of this research intend to investigate the impact of demographic variables, such as gender and age, on life satisfaction. These parameters will be utilized for conducting multi-group analysis and serving as predictors in artificial neural network models. Subsequent research will additionally examine the correlation between life satisfaction, irrational procrastination (Mahmud et al., 2023), absorptive capacity (Alzahrani et al., 2021), and technology-induced stress (Hossain et al., 2021).

CONCLUSION

It has become apparent that phubbing behavior influences life satisfaction based on the evidence presented in this study. A smartphone appears to be a double-edged sword that was initially developed to promote communication, but now it is damaging relationships and people's life satisfaction. This process is initiated by smartphone conflicts that arise due to excessive phubbing. In summary, we learned how an individual uses their smartphone when a communication process occurs with their partner, which can affect their relationship and life satisfaction. Hence, comprehending the adverse repercussions of smartphone phubbing is of paramount significance. The main objective in partnerships is frequently to attain happiness and satisfaction with one's spouse. When the use of smartphones hinders this goal, it gives rise to concerns that deserve careful thought. An imperative area for future investigation is to explore how individuals and couples can modify their behavior in response to advancing technologies. In light of the continuous emergence of new technical breakthroughs, it is imperative to strike a balance that enables the utilization of technology's advantages while preserving the interpersonal aspect between partners. This may entail establishing limits on smartphone usage, fostering consciousness regarding the consequences of phubbing, or formulating communication tactics that promote face-to-face interactions over digital involvement. Although cell phones have transformed communication and provided several advantages, their impact on personal relationships necessitates cautious management. As technology becomes more ingrained in our daily lives, it is crucial to comprehend and address its potential adverse effects on our relationships and overall enjoyment of life. This work addresses these difficulties and paves the way for additional investigation into how we might peacefully coexist with technology in a manner that improves, rather than obstructs, our interpersonal interactions.

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APPENDIX A. MODEL MEASUREMENT QUESTIONNAIRE

Item	Questionnaire	Adapted/ Adopted Source	Original Source
Partner-phubbing (PP)			
PP1	My partner places his or her smartphone where he/she can see it when we are together.	Roberts and David (2016)	Roberts and David (2016)
PP2	My partner keeps his or her smartphone in their hand when he/she is with me.		
PP3	When my partner’s smartphone rings or beeps, he/she pulls it out, even if we are in the middle of a conversation.		
PP4	My partner glances at his/her smartphone when talking to me.		
PP5	During leisure time that my partner and I are able to spend together, my partner uses his/her smartphone.		
PP6	My partner does not use his/her phone when we are talking.		
PP7	My partner uses his/her smartphone when we are out together.		
PP8	If there is a pause or break in our conversation, my partner will check his or her smartphone.		
Self-Phubbing (SP)			
SP1	I feel anxious if my phone is not nearby.	Chotpitayasunondh and Douglas (2018)	Chotpitayasunondh and Douglas (2018)
SP2	I cannot stand to leave my phone alone.		
SP3	I place my phone where I can see it.		
SP4	I worry that I will miss something important if I do not check my phone.		
SP5	People tell me that I interact with my phone too much.		
SP6	I get irritated if others ask me to get off my phone and talk to them.		
SP7	I use my phone even though I know it irritates others.		

Item	Questionnaire	Adapted/ Adopted Source	Original Source
SP8	I would rather pay attention to my phone than talk to others.		
SP9	I feel satisfied when I am paying attention to my phone instead of talking to others.		
SP10	I feel good when I stop focusing on others and pay attention to my phone instead.		
SP11	I get rid of stress by ignoring others and paying attention to my phone instead.		
SP12	I pay attention to my phone for longer than I intend to do so.		
SP13	I know that I must miss opportunities to talk to others because I am using my phone.		
Smartphone Conflict (CPC)		Roberts and David (2016)	Roberts and David (2016)
CPC1	I have clearly told my partner about these phubbing behaviors that irritate me.		
CPC2	I have had a direct conversation with my partner about my irritations due to phubbing.		
Communication Quality (CQ)		Schwarz (2008)	Duck et al. (1991)
	How would you describe the communication with your partner over the phone?		
CQ1	Relaxed to Strained		
CQ2	Impersonal to Personal		
CQ3	Attentive to Poor Listening		
CQ4	Formal to Informal		
CQ5	Smooth to Difficult		
CQ6	Guarded to Open		
CQ7	Great Deal of Understanding to Great Deal of Misunderstanding		
CQ8	Free of Communication Breakdowns to Laden with Communication Breakdowns		
CQ9	Free of Conflict to Laden with Conflict		
CQ10	Enjoyable to Not Enjoyable		
CQ11	High Quality to Low Quality		
Relationship Satisfaction (RS)		Schwarz (2008)	Hendrick (1988)
RS1	My relationship with my partner meets my needs.		
RS2	My partner and I have a very good relationship compared to most.		
RS3	I often wish that I was not in this relationship.		
RS4	I get what I would expect from my relationship with my partner.		
RS5	There are problems in my relationship with my partner due to this phubbing behavior.		
RS6	I am satisfied with this relationship, although phubbing exists.		
RS7	I care about my partner very much, although phubbing exists.		
Life Satisfaction (LS)		Prasoon and Chaturvedi (2016)	Diener et al. (1985)
LS1	In most ways, my life is close to my ideal/ satisfaction.		
LS2	The conditions of my life are excellent.		
LS3	I am satisfied with my life		

Item	Questionnaire	Adapted/ Adopted Source	Original Source
LS4	So far, I have gotten the important things that I want in life.		
LS5	If I could live my life again, I would not make any changes to it.		

APPENDIX B. HARMAN'S SINGLE FACTOR TEST (TOTAL VARIANCE EXPLAINED)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.340	22.478	22.478	10.340	22.478	22.478
2	5.056	10.991	33.469			
3	4.235	9.207	42.676			
4	3.583	7.789	50.465			
5	1.824	3.964	54.430			
6	1.646	3.577	58.007			
7	1.520	3.304	61.311			
8	1.404	3.052	64.364			
9	1.248	2.713	67.077			
10	1.145	2.488	69.565			
11	.952	2.069	71.635			
12	.909	1.975	73.610			
13	.885	1.924	75.533			
14	.824	1.790	77.323			
15	.811	1.763	79.086			
16	.697	1.515	80.601			
17	.671	1.459	82.059			
18	.635	1.380	83.439			
19	.626	1.361	84.800			
20	.557	1.211	86.011			
21	.535	1.163	87.174			
22	.508	1.104	88.278			
23	.483	1.049	89.327			
24	.420	.912	90.239			
25	.414	.900	91.139			
26	.372	.810	91.949			
27	.364	.791	92.739			
28	.325	.706	93.446			
29	.300	.651	94.097			
30	.282	.613	94.710			
31	.266	.578	95.288			
32	.249	.541	95.829			
33	.241	.524	96.353			
34	.232	.503	96.856			
35	.215	.467	97.323			
36	.186	.404	97.726			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
37	.179	.389	98.115			
38	.159	.346	98.461			
39	.147	.319	98.780			
40	.136	.297	99.077			
41	.104	.227	99.303			
42	.090	.196	99.500			
43	.076	.166	99.666			
44	.065	.141	99.806			
45	.051	.111	99.917			
46	.038	.083	100.000			

Extraction Method: Principal Component Analysis

AUTHORS



Mahmud completed a Masters in Software Engineering from the University of Hertfordshire, UK.

Dr Imran Mahmud is currently working as an Associate Professor and Head of the Department of Software Engineering at the Daffodil International University, Bangladesh. He is also working as a visiting professor in the Graduate School of Business, Universiti Sains Malaysia, and a visiting researcher at Thuongmai University, Vietnam. Previously, he worked as a senior lecturer in the Graduate School of Business, Universiti Sains Malaysia. Dr Imran was also a visiting lecturer at the Institute of Technology, Bandung (Indonesia), and the Hong Kong Management Association (Hong Kong). Dr Imran Mahmud received his PhD in Technology Management from the Universiti Sains Malaysia in 2017. In 2008, Dr.



Kodisvaran is a demonstrated personality with highly experienced working backgrounds in supply chain management and SAP master data management with diversified industry exposure and culture. Currently, he serves as a supply chain analyst in a local listed company in Kuala Lumpur, Malaysia. His enthusiasm always evolved in simplifying the supply chain process by automation and into system-oriented, which will add value to the organization. The research of this paper was done based on his intuitive understanding of the impact of mobile usage on human relationships. He completed his MBA from the Graduate School of Business, Universiti Sains Malaysia.



Nusrat Jahan, an esteemed academic and researcher, currently leads the Department of Information Technology and Management as an Assistant Professor at Daffodil International University, Bangladesh. Her academic journey extends beyond teaching, as she is also pursuing a PhD at Universiti Malaysia Perlis, delving into cutting-edge areas like database management, machine learning, fintech, and data science. A graduate of Jahangirnagar University with a BSc and an MSc in Information Technology, Ms. Jahan has made her mark on the international research community. She was honored with the prestigious Excellent Researcher Award (Female, Overseas) at the 2021 International Academics and Research

Excellence Awards (IARE), a testament to her contributions to the field of IT and research hosted by the GISR Foundation.



Afsana Begum, an Assistant Professor at the Department of Software Engineering, Faculty of Science and Information Technology at Daffodil International University, Bangladesh, is pursuing her PhD at the Faculty of Electronic Engineering & Technology, Universiti Malaysia Perlis, Arau, Malaysia. She also contributes as a member of the Centre of Excellence for Advanced Computing (AdvComp) at Universiti Malaysia Perlis. Since 2022, Ms. Begum has been the Coordinator of the Masters programs in her department at Daffodil International University. Recognized for her outstanding contributions, she received the ‘Best Performing Faculty Member’ award at the university in 2020 and 2022. Ms. Begum completed her M.Sc in Information Technology and Innovation (IIT) from Dhaka University, securing the first position in her class. She earned her B.Sc in Telecommunication and Electrical Engineering (TEE) from Hajee Mohammad Danesh Science and Technology University, Bangladesh.



Adiba Masud, a Lecturer at the Department of Software Engineering at Daffodil International University, Bangladesh, possesses a strong academic background in Information Technology, with both her Bachelor’s and Master’s degrees obtained from Jahangirnagar University. She stands out in her field through her keen focus on interdisciplinary research, expertly blending behavioral science, technology management, and data science. Her commitment to advancing these areas is underscored by two prestigious research fellowships awarded to her, one from the ICT Ministry and another from the National Science and Technology. In her role at the university, Ms. Adiba brings invaluable knowledge and experience to the Department of Software Engineering, significantly impacting both her students and the broader academic community.