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Are phubbers academically buoyant?

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ABSTRACT

Purpose: Phubbing refers to the act of ignoring the presence of others around you by fixating one's eyes on a digital device. The behavioural phenomenon of Phubbing has received much traction recently with the increasing dependence of individuals on internet-enabled-digital devices. Students have now been using digital gadgets to achieve their academic goals. Hence, we assume that the phenomenon of phubbing may also be prevalent among students, which might influence their ability to overcome everyday academic challenges (low levels of academic buoyancy, i.e., the ability of students to deal with their academic tasks).

Design: The present work explores the relationship between the two recently studied concepts of Phubbing and Academic Buoyancy. The current study collected data from students of management schools ranked among the Top 10 in India, as per India's National Institutional Ranking Framework (NIRF) ranking for 2024. The authors used survey methodology to collect data, which involved sending a questionnaire link to 300 students, out of which 258 students reverted back to the survey. After filtering out the data for incomplete surveys, the final sample included 203 students. Reliable and validated psychometric scales were used to analyze the constructs of the current study. A 7-point Likert scale was used to assess each item. For the analysis, structural equation modelling (SEM) was employed.

Findings: The results supported our hypothesis at a 5 per cent level of significance. We find that the act of phubbing is associated with lower academic buoyancy among the students, and the relation between the two is mediated by imposter syndrome. The results show that phubbing can lead to a detrimental impact on students' capability to perform effectively. The frequent display of phubbing indicates grave behavioural issues because of imposter syndrome, which manifests as lower academic buoyancy. Academic practitioners can enhance their understanding of the factors leading to lower capabilities among students and approach the problem accordingly.

Originality: The current study extends the academic literature by showing the impact of phubbing on the levels of academic buoyancy. The study also suggests that phubbing would influence academic buoyancy through the individual's level of feelings of imposter syndrome. The higher the phubbing, the higher the feeling of imposter syndrome, which would lead to a lower level of academic buoyancy.

1. Introduction

The advancement of technology and increasing dependence on digital devices have led to the emergence of negative behavioural and psychological outcomes, impacting the lives of individuals (Ansari et al., 2024; Nakshine et al., 2022; Hawi & Samaha, 2017; Roser et al., 2016). There has been rising interest among researchers in studying technology-influenced behavioural patterns (Xia, 2023; Zhang, 2017). One such pattern that has come to the scrutiny of academicians and practitioners is the phenomenon of phubbing. Phubbing refers to the act of ignoring the presence of others around you by fixating the eyes on one's digital device (Ansari et al., 2024; Karadağ et al., 2015; Chotpitayasunondh & Douglas, 2016). The conditions during COVID-19, which led to excessive dependence on online learning, have further exacerbated the issue of phubbing (Hessari et al., 2024; Ong et al., 2024). These conditions pushed adolescents to use their digital devices to pursue their academic endeavours (Meng & Xuan, 2023; Zhao et al., 2022; Kapasia et al., 2020). The act of phubbing is not just a behavioural pattern; it has its genesis in various psychological conditions like lack of self-control, fear of missing out, anxiety and problematic usage patterns

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(Arenz & Schnauber-Stockmann, 2024; Ansari et al., 2024; Chotpitayasunondh & Douglas, 2016). Phubbing thus impacts various outcomes of the individual's life, including social relationships, satisfaction (Chotpitayasunondh & Douglas, 2018), and productivity (Tandon et al., 2022). Among students, it can have a significant negative impact on their academic performance, especially when they have to be fixated on digital devices for their learning. According to the Compensatory Internet use theory, individuals constantly use the internet to escape from their real life, which might lead to negative outcomes such as psychosocial problems of being unable to develop a relationship in real life (Kardefelt-Winther, 2014).

Previous research has already focused on the negative influence of online learning. Researchers have suggested that online learning often increases the mental load of students when compared with traditional educational approaches because students pursuing education through online mode are asked to search more from real as well as the online world (Chu, 2014). However, online learning during the pandemic and online learning before the pandemic differed in terms of coping resources that individuals developed. Unlike the pre-pandemic period, many individuals during the pandemic struggled to develop resilience as their individual resource to deal with the constant uncertainty and drastic changes in their daily activities of life (Prime et al., 2020). In academic settings, the ability to cope with day-to-day academic challenges is referred to as academic buoyancy (Martin & Marsh, 2009). This paper explores the link between students' acts of phubbing and their ability to cope with everyday academic challenges. Phubbing is a behavioural pattern, whereas academic buoyancy is a construct in positive psychology. We hypothesize that there exists a tacit relationship between phubbing and academic buoyancy. Individuals more prone to phubbing can be expected to show lower levels of academic buoyancy. Earlier research lacks an understanding of the relationship between phubbing and academic buoyancy. Thus, our study bridges this gap and focuses on how phubbing influences academic buoyancy among students.

The paper is divided as follows. Section 1 elucidates the definitions and literature on the constructs and explains the gap in the literature. Section 2 and Section 3 focus on hypothesis building and methodology. The following section explains the empirical strategy used to test the hypothesis. Section 5 discusses the implications and concludes.

2. Literature review

The literature on these behavioural phenomena is extensive, but no attempt has been made to analyze them through a unified lens.

2.1. Phubbing

Phubbing as a word came into existence when the Macquarie Dictionary included it in its updated version (Karadağ et al., 2015). Phubbing has been defined as the behavioural action of an individual to look into their digital device while ignoring others around them who are in a conversation with them, thus escaping interpersonal communication (Ansari et al., 2024; Karadağ et al., 2015; Chotpitayasunondh & Douglas, 2016), in turn, impacting the relationship of the individual with others (Roberts & David, 2016).

Phubbing as a phenomenon has been found in the literature to be determined by anxiety and lack of self-control (Saggaf & Donnel, 2019; Garrido et al., 2021; Rahman et al., 2021). Problematic smartphone usage was highly linked to the characteristics of individuals who phubs (Arenz & Schnauber-Stockmann, 2024). Research has also explored the kind of personality types that are more prone to phubbing. Erzen et al. (2021) found that individuals showing high levels of neuroticism lead to higher levels of anxiety, and thus high neuroticism can often lead to higher phubbing. Internet addiction, mobile phone addiction, SMS addiction, and social media addiction are the significant determinants of phubbing (Karadağ et al., 2015). This suggests that individuals who are more addicted to their digital devices are more prone to phubbing others around them.

Research to understand the effects of phubbing has majorly focused on how it impacts the social domain of the individual's life. Chotpitayasunondh and Douglas (2018) experimentally found that phubbing significantly impacts individuals' relationship satisfaction. A higher level of phubbing negatively influences the level of communication between the partners, thus impacting their level of relationship satisfaction (Chotpitayasunondh & Douglas, 2018). Another research study by Ergün et al. (2020) confirmed the results of Chotpitayasunondh and Douglas's (2018) study, which found that phubbing negatively influences an individual's life satisfaction. In addition to that, Ergün et al. (2020) suggested that Phubbing positively influences the level of anxiety, hostility, and negative self. Among adolescents and youth, phubbing impacts their social and relationship health and is significantly linked to depression and distress (Davey et al., 2018).

The negative impact of phubbing has been recognized in various fields, including workspace (Tandon et al., 2022; Yasin et al., 2020), interpersonal relations (Chotpitayasunondh & Douglas, 2018; CİZMECİ, 2017), and academic space (Wang et al., 2021). However, the focus on the influence of phubbing on individuals' academic domains still needs further investigation, especially in the current pandemic scenario. Most adolescents are using digital devices for academic purposes, especially after the outbreak of COVID-19 (Kapasia et al., 2020). Thus, it becomes essential to understand the influence of phubbing on individuals' academic domains. The current research would bridge this gap.

2.2. Imposter syndrome

Imposter syndrome has been seen as a psychological experience that often leads to distressing and maladaptive consequences (Kolligian & Sternberg, 1991). Imposter syndrome, also known as fraud syndrome, perceived fraudulence, or imposter experience in a nutshell, refers to the feeling of not deserving the achievements that an individual has achieved and a constant feeling of being exposed as a fraud (Bravata et al., 2020). Individuals who have such a syndrome often have a higher level of self-doubt, which is expressed in their fear of being exposed as a fraud (Bravata et al., 2020). The impact of Imposter syndrome varies with gender, with women being more prone to experiencing imposter syndrome than men (Bravata et al., 2020).

Imposter syndrome has also been part of the academic literature. Borrowing from Ramsey and Brown (2018), we understand that the feeling of being a fraud and, hence, an imposter in students can lead them to doubt their self-efficacy and persistence. Thus, we find links that literature has made implicit attempts to link buoyancy with the imposter phenomenon. Recent scholarship on students in different academic fields has found that Imposter syndrome is associated with depression and anxiety among students (Qureshi, Taj, Latif, 2017; Wang et al., 2019; Bouthello & Roulet, 2018).

2.3. Academic buoyancy

Academic buoyancy in positive psychology explains the ability of students to "bounce back" or deal with their routine academic tasks (Martin & Marsh, 2009). The concept is similar yet different from the traditional concept of academic resilience. Academic resilience refers to students dealing with their learning disabilities, while academic buoyancy is a generic term for any student to deal with their academic tasks (Martin & Marsh, 2008). Colmar et al. (2019) conducted a study investigating the buoyancy of primary school students in learning mathematics and reading. They found that academic buoyancy has a direct bearing on academic performance. Individuals can be called highly academically buoyant if they show higher self-efficacy, planning, and persistence. Moreover, factors like anxiety and uncertainty negatively influence buoyancy. Therefore, we note that high levels of anxiety and uncertainty of control are associated with lower academic buoyancy

(Martin et al., 2010). For instance, a better ability to control one's time leads to the ability to be more buoyant in everyday academic tasks (Collie et al., 2015).

Putwain et al. (2015) found empirical evidence using a study conducted on secondary school students that the students with higher academic buoyancy showed reduced levels of worry and reaped higher examination scores. Literature has also suggested a clear link between academic buoyancy and academic motivation (Collie & Martin, 2016). Collie and Martin's (2016) study divided the students into three groups based on their academic level and found that academic buoyancy is linked with the student's academic motivation in all three groups. This reveals that academic buoyancy is important for students to feel motivated towards their academics.

2.4. Research gap

From the above review, the literature indicates some common links. We find that anxiety, lack of self-control, and decay in persistence are associated with all three phenomena under scrutiny. We find that anxiety as an underlying psychological state manifests into different behaviours and impacts academic performance. A similar set of psychological dispositions impacts academic buoyancy, imposter syndrome, and the act of phubbing. Thus, we hypothesize a relation between these three phenomena as well. While there has been an increase in scholarly inquiry into phubbing and academic buoyancy individually in recent times, the existing literature fails to illuminate the potential relationship between these two phenomena. Additionally, the study uses references from studies conducted by Kobicheva et al. (2024), Li et al. (2024) and Mostafavi et al. (2024), which called out researchers to explore the relationship between phubbing and academic variables. Thus, the present work is an attempt to highlight the less intuitive relation between phubbing and academic buoyancy mediated through the imposter syndrome.

3. Hypothesis building

Phubbing is the act through which an individual (called phubber) snubs other individuals (called phubbee) by fixating their eyes on digital devices (Chotpitayasunondh & Douglas, 2016). It is an act of ignoring the presence of other individuals, which influences the relationship between the phubber and the phubbee (Roberts & David, 2016). It has been linked to mental health conditions such as depression (Davey et al., 2018), which suggests the gravity of the impact such behaviour has on individuals, both the phubber and the phubbee. The majority of the research on phubbing has been done on the adolescent and adult population ranging from the age group of 15–36 years (Chotpitayasunondh & Douglas, 2018; Davey et al., 2018). Among this population, the majority of the students use their digital devices for academics, especially after the pandemic when the world has gone all digital (Kapasia et al., 2020). Therefore, it becomes essential to understand the impact of phubbing on academics, especially during current times of e-learning.

Earlier research on Phubbing has focused on the negative impact on social interaction and relationship satisfaction (Chotpitayasunondh & Douglas, 2018; Davey et al., 2018) and self-flourishing (Davey et al., 2018). Flourish creates a body of resources for individuals to be resilient in stressful situations (Martin & Marsh, 2009). In the context of academics, such resilience has been termed academic buoyancy. Academic buoyancy is the concept borrowed from positive psychology that focuses on the student's ability to effectively handle everyday academic setbacks such as deadlines and grades (Martin & Marsh, 2009). Compensatory Internet use theory posits that individuals constantly use the internet to escape from their real lives (Kardefelt-Winther, 2014). The tendency to escape might impact their personal and academic life. At a personal level, this may adversely impact their interpersonal relations. At the academic level, it may reduce their ability to cope with everyday routine academic challenges, or in other words, make them less buoyant. Using Compensatory Internet Use theory, we suggest that students constantly be on their digital devices to deal with academic tensions. This has the potential of turning into a spiral of developing less buoyancy in dealing with their academic concerns. This, in turn, would increase the academic tensions, again leading to higher phubbing. Thus, we hypothesize:

Hypothesis1. *Phubbing is negatively associated with academic* buoyancy

Individuals suffering from Imposter syndrome constantly fear being exposed as frauds in the events where they are achieving success (Villwock et al., 2016). A recent literature review on imposter syndrome has suggested that low self-esteem and social dysfunctions together increase the chance of individuals developing the imposter syndrome (Bravata et al., 2020). In today's digital era, students are experiencing low self-esteem (Schmuck et al., 2019) and social dysfunctions (Ozkan & Solmaz, 2015) due to the constant use of their digital devices. According to the Compensatory Internet Use Theory (Kardefelt-Winther, 2014), one of the negative outcomes of constantly using the internet includes the psychosocial problem of being unable to develop a relationship in real life. Research has found a link between social dysfunctions and higher levels of phubbing (which includes the dimension of being obsessed with digital devices) (Chotpitayasunondh & Douglas, 2018). The rationale is that as one is involved in phubbing, they ignore the other individuals around, leading to less interaction, low relationship building, and less relationship satisfaction, which becomes a co-morbid condition for individuals to develop an imposter syndrome. One's social circle is a supportive cushion that helps them regulate their emotions in a stressful event. According to the regulation relation theory (Lakey & Orehek, 2011), strong social support reduces one's chances of developing an adverse mental health condition after a stressful event. The absence of social support would impact the regulation of emotions, leading to the development of psychological conditions (Lakey & Orehek, 2011) such as impostor syndrome. This suggests that there might be a strong link between Phubbing and the prevalence of impostor syndrome. Thus, we hypothesize:

Hypothesis 2. *Phubbing is positively associated with Imposter syndrome*

Academic buoyancy refers to the ability to overcome the routine challenges faced by an individual in their academic life. These everyday academic difficulties can be experienced as infrequent low scores, exam pressure, the burden of deadlines and assignments, or temporary poor performance. Academically buoyant students are better off dealing with academic setbacks like negative feedback, low grades, etc. (Martin & Marsh, 2009). In contrast, low academic buoyancy may manifest as low levels of motivation and engagement in academic activities, minor tussles with other stakeholders in the academic space, and minor negative outcomes (Martin & Marsh, 2009). As a result, it can hamper the self-confidence of the student (Martin et al., 2013). Research shows that anxiety is negatively related to buoyancy, while self-efficacy and academic engagement are positively related to buoyancy (Martin et al., 2013). Self-efficacy (negatively) and anxiety (positively) are also related to imposter syndrome, such that imposter syndrome can lead to performance anxiety and lack of self-confidence (Sherman, 2013). These two outcomes are relevant to both the phenomenon of imposter syndrome and buoyancy. We suggest that impostor syndrome and academic buoyancy are related to each other, as impostor syndrome leads to anxiety, which influences academic buoyancy. It implies that the feeling of being an imposter is negatively related to academic buoyancy. One reason can be suggested as follows: as an individual achieves a level in their academic life (like admission in a prestigious university program, for instance) but finds that they are less deserving of the achievement, they end up developing the feeling of an imposter. The development of the imposter syndrome impedes their ability to deal with academic challenges effectively. As per the research, individuals with imposter syndrome are found to face higher levels of anxiety and low levels of self-efficacy (Sherman, 2013). This diminishes their ability to deal with

everyday academic challenges of low grades or negative feedback. For instance, negative feedback can accentuate their anxiety levels as they would find themselves unworthy of the given entitlement. This may reduce their level of self-confidence, thereby reducing their belief in their effectiveness in dealing with everyday academic challenges. Looming of such feelings can make them less buoyant in their academic life. Thus, we hypothesize:

Hypothesis 3. *Imposter syndrome is negatively related to academic buoyancy.*

The relationship between phubbing and academic buoyancy is clear in the sense that higher phubbing might lead to lower academic buoyancy. As stated in earlier hypotheses 2 and 3, it can be observed that phubbing has a direct relationship with impostor syndrome, and impostor syndrome impacts academic buoyancy among students. From the above hypotheses, we propose that there may be an indirect relationship between phubbing and academic buoyancy through impostor syndrome. The relation between the act of phubbing and academic buoyancy is mediated by the phenomenon of imposter syndrome. The act of phubbing is a co-morbid condition for imposter syndrome. The resulting imposter syndrome often leads to lower academic buoyancy among the students. This indicates that the imposter syndrome is the mechanism that explains the relation between phubbing and academic buoyancy. This suggests that individuals with high levels of phubbing show a lower ability to deal with their everyday academic challenges because of the existence of stronger feelings of being an imposter. Thus, we hypothesize:

Hypothesis 4. *The relationship between phubbing and academic buoyancy would be mediated by the impostor syndrome*

3.1. Research model

The proposed mediation model tested the indirect effect of Phubbing on Academic Buoyancy through Imposter Syndrome. Phubbing was hypothesized to increase Imposter Syndrome, which in turn would negatively impact Academic Buoyancy.

Fig 1 graphically represents our hypothesized model.

4. Methodology

4.1. Design of the study

This study employs a quantitative research design. A structured survey is implemented to gather data from students at management schools. The criteria for sample inclusion and exclusion are covered below. The data undergoes additional refinement to eliminate any overlooked or incomplete surveys, after which the final dataset is subjected to analysis through Structural Equation Modeling (SEM) (Ullman, 2012). SEM is employed in the present study as it enables the evaluation of diverse causal relationships between independent and dependent variables. This also enables the researcher to evaluate the relationship between latent constructs, making it suitable for the present study (Ullman, 2012).

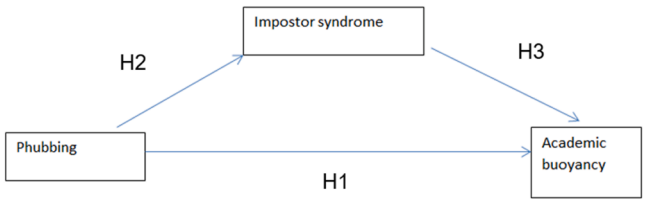

Fig. 1. Research model.

4.2. Data collection

The current study collected data from students of management schools ranked among the Top 10 in India, as per India's National Institutional Ranking Framework (NIRF) ranking for 2024. The students at a premier management school in India were selected as the participants for the current study as they go through various academic courses, with each course requiring constant effort from the students (Jena, 2018). It becomes essential for these students to develop academic buoyancy to deal with their rigorous academic structure. The students were sent the link to the survey via email. The questionnaire link was sent to 300 students, out of which 258 students reverted back to the survey. After filtering out the data for incomplete surveys, the final sample included 203 students. The overall response rate of the current survey was 67.66 %. The sample consisted of 138 males and 64 females. The majority of the students, i.e., 97 %, had an engineering background, 34 % students had a commerce background, 34 % had a science background, 26 % had arts as past education while 12 % had management courses in the past academics. The mean age of the students in the current study was 25 years, with a standard deviation (S.D.) of 7 years.

4.3. Measure

Reliable and validated psychometric scales were used to analyze the constructs of the current study. A 7-point Likert scale was used to assess each item. A 7-point Likert scale is considered appropriate for its accuracy in reflecting respondents' evaluation and ease of use (Nunnally & Bernstein, 1994). All scales were validated by presenting the scale items to two research experts and one industry expert in India for their evaluation. Furthermore, factor analysis was performed on each scale, revealing that the items aligned with the factors as previously delineated in the standardized scale. The aforementioned steps are derived from the work of John & Benet-Martínez (2000), published in 2000.

Phubbing: Phubbing was measured using the three dimensions of the General Scale of Phubbing in social interactions (Chotpitayasunodh & Douglas, 2018). This 15-item scale assesses phubbing behaviour in social interactions. Its subscales are- interpersonal conflict, which assesses an individual's perceived conflict between themselves and others; Self-isolation, which assesses one's concern of using the phone to escape from social activities resulting in isolation; and Problem Acknowledgement, i.e. an individual acknowledging that they have a phubbing concern. A 7-point Likert scale was used to assess each item, with 7 = Always to 1 = Never. Cronbach Alpha value for the measure was $\alpha = 0.865$ as values above 0.7 are generally deemed reliable (Nunnally & Bernstein, 1994). The scale establishes convergent and discriminant validity (Chotpitayasunodh & Douglas, 2018). One item on the scale included was "People tell me that I interact with my phone too much." lack." There were no reverse-coded items in the scale.

Academic Buoyancy: Academic buoyancy was measured using the Academic Buoyancy Scale (ABS) developed by Martin and Marsh (2009). The 4-item scale measures a variety of everyday schoolwork pressures. Each item was measured on a 7-point Likert scale ranging from 1 = Disagree strongly to 7 = Agree strongly. Cronbach Alpha value for the measure was $\alpha = 0.760$ as values above 0.7 are generally deemed reliable (Nunnally & Bernstein, 1994). One item on the scale included was "I think I'm good at dealing with academic work pressures." The scale was validated for use with college students by Cassidy (2015) in her study with college students. lack." There were no reverse-coded items in the scale.

Imposter Syndrome: To measure impostor syndrome, the Imposter Syndrome Scale developed by Leary et al. (2000) was used. A 7-point Likert scale was used to assess each item, with 7 = very much to 1 = not at all. The 7-item scale assesses individuals' feelings of being an impostor or their fear of being exposed as inadequate. Cronbach Alpha value for the measure was $\alpha = 0.927$ as values above 0.7 are generally deemed reliable (Nunnally & Bernstein, 1994). One item of the scale

included was, "Sometimes I'm afraid others will discover how much knowledge or ability I really lack." There were no reverse-coded items in the scale. The scale was validated to use with college students by Cokley et al. (2017) in their study of college students.

Controls: We controlled age, gender, and academic background to isolate the effect of our explanatory variables, i.e., phubbing, on the dependent variables. We expect that variables like age, educational background, and gender can influence the outcome variable. The control variables were included in the final SEM model.

4.4. Data analysis

For the analysis, structural equation modelling (SEM) was employed. A two-step approach method (Pandey et al., 2020) was used in the first step required to determine the convergent and discriminant validity of the data through confirmatory factor analysis, and then in the second step, testing the proposed hypotheses. In the first step, we conducted CFA to test the convergent validity (factor loadings) and discriminant validity (inter-factor correlations) of the measurement model. In the second step, we tested the hypothesized relationships using structural equation modelling (SEM), assessing direct and indirect effects. The measurement model was assessed using structural equation modelling, and then the final mediation model was assessed using process macro. As the current study proposed a simple mediation model, SEM seemed to be an appropriate method to analyze the data (Pandey et al., 2020). SEM was conducted using maximum likelihood estimation (MLE), as the data met the assumptions of normality (Shapiro Wilk Normality Test). If necessary, robust methods were used to correct for violations of normality. Each model of confirmatory factor analysis and structural equation modelling was analyzed on the basis of the accepted range of fit indices which are: RMSEA (Root Mean Square Error of Approximation) should be < 0.08, TLI (Tucker-Lewis Index) should be > 0.90, $\chi 2$ /df should be < 3 and CFI (Comparative fit Index) should be > 0.90 (Pandey et al., 2020; Hair et al., 2010). The model fit was assessed using the following thresholds: RMSEA $\langle$ 0.08, TLI $\rangle$ 0.90, χ^2/df $\langle$ 3, and CFI $\rangle$ 0.90, with more stringent fit indices (e.g., RMSEA $\langle$ 0.05, CFI/TLI $\rangle$ 0.95) suggesting even better model fit. Absolute fit (compare structural model to basic model, RMSEA) and Incremental fit (compare the structural model with its own without reference to other models, TLI, and CFI) indices were within the acceptable range for the given model.

5. Results

5.1. Descriptive statistics

Table 1 shows the mean, standard deviation, correlation coefficient, and Cronbach's Alpha. The table shows that the three variables are related to each other. It can also be observed that Cronbach's alpha values were above 0.7, thereby establishing the reliability of the measures (Nunally & Bernstein, 1994). Table 2 shows the CR, AVE, and MSV indices.

From Table 2, we note that the values of CR are above 0.7 (Nunnally & Bernstein, 1994), the AVE of impostor syndrome and academic buoyancy is above 0.5 (Pandey et al., 2020), which is the acceptable value, suggesting the establishment of convergent validity. The AVE of phubbing is below 0.5. However, it has been argued in the literature that AVE, as the direct effect, is often too strict, and reliability can be established through CR alone (Pandey et al., 2020). Hence, it establishes the reliability. Discriminant validity is also established as the MSV is less than AVE. In addition, the square root of average variance extracted (AVE) > the inter-construct correlation (Pandey et al., 2020; Hair et al, 2010).

Table 2
CR, AVE, MSV.

	CR	AVE	MSV	1	2	3
Phubbing	0.873	0.466	0.111	0.683		
Impostor Syndrome	0.925	0.640	0.111	0.332***	0.800	
Academic Buoyancy	0.768	0.527	0.086	−0.183*	−0.293***	0.726

Note(s): Measurement model.
*** $= p < 0.001$.
Square root of AVE is shown along the diagonal in the table
MSV = maximum shared variance, AVE =average variance extracted, CR =composite reliability.

5.2. Common method bias

Harman's single-factor test was conducted to control for potential common method bias. The results showed that a single factor did not account for a majority of the variance (< 50 %), indicating that common method bias was not a significant concern. Harman's single-factor test was conducted to assess the common method bias. All the factors, when restricted to a single factor, extracted 34.3 % variance, which is acceptable as it is below 50 % (Hair et al, 2010). In addition, we conducted marker variable analysis to assess the common method bias in the current study (Hassan & Pandey, 2021; Williams, Hartman & Cavazotte, 2010). Our results suggested that the inclusion of the marker variable had no significant impact on the items, suggesting the absence of common method bias. Among the varied models, the original model demonstrated the values of CMIN/DF = 2.118, RMSEA = 0.074, SRMR = 0.071, CFI = 0.902) best fit (MacKenzie & Podsakoff, 2012). Table 3 shows varied models and their indices.

5.3. Test of hypothesis

Structural equation modelling was conducted to test the three hypotheses mentioned above. A 90 % confidence level with 5000 bootstrap samples was used in the current modelling. Table 4 shows the model fit indices.

The direct effect mode, where Phubbing impacts Academic buoyancy directly, revealed that the effect of Phubbing on Academic buoyancy was −0.188 with $p < 0.05$. The second model of full mediation, i.e.,

Table 1
Descriptive statistics and bivariate correlations.

	Mean	SD	Phubbing	Academic Buoyancy	Impostor Syndrome	Year of Birth	Gender	Academic Background
Phubbing	2.55	1.07	0.865					
Academic Buoyancy	4.70	1.27	−0.145*	0.760				
Impostor Syndrome	3.58	1.61	.308**	−0.237**	0.927			
Year of Birth	1996.33	6.956	0.003	−0.068	.191**			
Gender			−0.048	−0.095	.016	.182**		
Academic Background			−0.053	.092	−0.008	−0.184**	−0.175	

Notes:.
N = 203; Cronbach's alpha are displayed on the diagonals in the table.
* $p < 0.01$ level.
** $p < 0.05$ level.

Table 3
Measurement model.

	CMIN	DF	CMIN/DF	CFI	SRMR	RMSEA
Model 1	880.531	132	6.671	0.636	0.180	0.168
Model 2	739.613	131	5.646	0.704	0.168	0.152
Model 3	452.797	131	3.456	0.843	0.104	0.110
Model 4	438.085	131	3.344	0.851	0.091	0.108
Model 5	387.549	183	2.118	0.902	0.071	0.074

Note(s): Measurement model.
SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; DF = degrees of freedom; CFI = comparative fit index;. Model 1 included all items into single factor, Model 2 combined items of phubbing and imposter syndrome into single factor, Model 3 combined items of phubbing and academic buoyancy into single factor, Model 4 combined items of imposter syndrome and academic buoyancy into single factor, Model 5 separated items into three factors of phubbing, imposter syndrome and academic buoyancy.

where Phubbing impacts Academic buoyancy through imposter syndrome, revealed that the effect of phubbing on imposter syndrome was 0.334 with $p < 0.001$), and the effect of imposter syndrome on Academic buoyancy was −0.291 with $p < 0.001$). For the third model of partial mediation, i.e., where Phubbing impacts Academic buoyancy directly and indirectly, the effect of phubbing on academic buoyancy was −0.103 with a Confidence interval [−0.269, 0.77]. Hence, Hypothesis 1 was rejected. The effect of phubbing on imposter syndrome was 0.333 with a Confidence interval [0.198, 0.457]. Hence, Hypothesis 2 was supported, and the standardized direct effect of imposter syndrome on Academic buoyancy was −0.252 with a Confidence interval [−0.424, −0.089], supporting hypothesis 3. In support of hypothesis 4, the results revealed that the indirect effect of Phubbing on Academic buoyancy was −0.084 with a Confidence interval [−0.170, −0.029]. The mediation effect was tested using bootstrapping with 5000 samples to estimate confidence intervals for the indirect effect. The indirect effect of Phubbing on Academic Buoyancy via Imposter Syndrome was found to be significant (CI = [−0.15, −0.05]), supporting the mediation hypothesis.

6. Discussion

Academic buoyancy is a relatively new concept used to understand an individual's academic performance (Martin & Marsh, 2009). Past research has found an inverse relationship between academic buoyancy and psychological risks like anxiety, failure avoidance, and emotional instability (Martin et al., 2013). Research has also pointed out the importance of academic buoyancy for better academic outcomes for students with childhood growth disorders like ADHD (Martin, 2014). Thus, the literature establishes the importance of academic buoyancy in improving learning outcomes and taking steps to promote it. However, more exploration is needed to understand the various facets of human behaviour that would lead to higher academic buoyancy. For instance, Collie et al. (2015) found out that a sense of control has an impact on academic buoyancy and, in turn, links buoyancy with academic achievements.

Hypothesis 2 and 3

The present work is an attempt to broaden the understanding of academic buoyancy. It focuses on a seemingly unrelated aspect of human behaviour, i.e., phubbing, and shows its relation with academic buoyancy. The evolving human behaviour with the increasing use of digital devices has an unprecedented impact on different spheres of an individual's life (Hawi & Samaha, 2017). We study the impact of these digital devices through phubbing on an individual's ability to cope with routine academic challenges. Phubbing occurs when an individual ignores the other people around as they are involved in their digital devices (Chotpitayasunondh & Douglas, 2016). Previous research has discussed the linkages between phubbing behaviour and classroom learning outcomes and academic burnout (Wang et al., 2021)); however, the linkages between phubbing and academic buoyancy have been relatively unexplored. The current study extends the academic literature by showing the impact of phubbing on the levels of academic buoyancy. The study contributes to extending the body of knowledge on factors leading to academic buoyancy.

Hypothesis 4

However, the current study was not just concerned with the direct relationship between Phubbing and academic buoyancy; the authors also wished to understand how phubbing influences academic buoyancy. To understand this, the current study focused on individual factors such as the feeling of being an imposter. Imposter syndrome is the feeling of being exposed as a fraud, especially during events when they are achieving success (Kolligian & Sternberg, 1991). Thus, we finally suggested that phubbing would influence academic buoyancy through the individual's level of feeling imposter such that the higher the phubbing, the higher the feeling imposter that would lead to a lower level of academic buoyancy. The findings of the study supported the proposed mediation model. This supports our assumption that when students ignore others as they are too involved in their digital devices, they tend to feel more insecure about their achievements, which develops the feeling of imposter among them that significantly impacts their ability to be buoyant when it comes to their academics.

6.1. Theoretical contribution

The current study contributes to the existing literature on the usage of digital devices. Individuals may resort to overuse of the internet via digital gadgets to escape unfavourable life situations (Leung, 2007). Research now has used the Compensatory Internet Use theory (Kardefelt-Winther, 2014) to explain internet usage as a coping mechanism to overcome stressful life situations and interpersonal relations (Liu et al., 2019). Compensatory Internet use may operate in a loop in that problematic life situations may motivate one to spend more time on the internet. However, the act of spending more time on the internet leads to further issues in one's life (for example, the form of phubbing) and reduces productivity. Though individuals may feel that excessive use of the internet would lead to an escape and reduce their stress, it

Table 4
Structural model.

	CMIN	DF	CMIN/DF	CFI	SRMR	RMSEA	β (X to Y)	β (X to M)	β (M to Y)
Direct Effect Model	102.848	41	2.508	0.934	0.066	0.086	−0.188**		
Full Mediation Model	296.200	130	2.278	0.919	0.065	0.80		0.334***	−0.291***
Partial Mediation Model	387.539	183	2.118	0.902	0.071	0.074	−0.103	0.333***	−0.252**

Note(s): Structural model.
** $p < 0.05$.
*** $p < 0.001$
SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation; DF = degrees of freedom; CFI = comparative fit index
Direct effect model- Phubbing impacts Academic buoyancy directly
Full mediation model- Phubbing impacts Academic buoyancy through imposter syndrome
Partial mediation model-Phubbing impacts Academic buoyancy directly and indirectly.

ends up adding to the existing stress and reduces their ability to deal with various everyday challenges (Kardefelt-Winther, 2014). We extend the Compensatory Internet Use Theory to understand the impact of excessive internet-enabled-digital device usage in the field of learning. We examine how excessive fixation with digital devices leads to phubbing. Moreover, in turn, it can reduce the academic buoyancy of the students. In the present work, the Compensatory Internet Use theory is used to understand its impact on students' performance in everyday tasks and, thus, the impact on their learning outcomes.

Academic buoyancy has gained importance due to its nuanced approach to analyzing the everyday minor struggles in the process of learning (Martin & Marsh, 2009). Similarly, phubbing has gained currency among researchers due to its growing relevance in the world, which is experiencing the growing consumption of technology (Chotpitayasunondh & Douglas, 2016). The results of this paper determine phubbing as one of the factors leading to lower academic buoyancy. We find that the relation between phubbing and academic buoyancy is mediated by imposter syndrome. The findings are important as they provide a fresh perspective on understanding students' low levels of academic buoyancy. As mentioned, the impact of phubbing on academic performance has been discussed in the literature, but the aspect of buoyancy has not received much traction. Thus, our paper expands the scope of literature on both concepts. It identifies the new determinants detrimental to buoyancy and analyses the ways humans are impacted by phubbing.

6.2. Practical applications

The findings have implications for various agents in the field of academics. The results have firm- and individual-level implications and need attention from academicians and practitioners. The results show that phubbing can lead to a detrimental impact on students' capability to perform effectively. The frequent display of phubbing indicates grave behavioural issues because of imposter syndrome, which manifests as lower academic buoyancy. Academic practitioners can enhance their understanding of the factors leading to lower capabilities among students and approach the problem accordingly. They can help students to attain better control over daily tasks and keep them motivated. Practitioners can also develop self-confidence among students to tackle anxiety and the feeling of being an imposter through a better support system. A conducive academic environment can help students handle everyday academic tasks and control their phubbing behaviour.

6.3. Limitation and future research

Phubbing is only one of the factors that influences academic buoyancy. Other factors, such as school factors (infrastructure, Instructor support) and individual factors (personality, values (Dahal et al., 2018), and social support) might also influence the level of academic buoyancy. Further research can be conducted to understand the factors leading to academic buoyancy. Though the present work is related to academic buoyancy, we expect phubbing to cause difficulties in other spheres of life. Phubbers may be less able to deal with their everyday tasks in other professional places or personal spaces. The feeling of difficulty in completing everyday office or household tasks can also be due to phubbing behaviour moderated by imposter syndrome. Thus, future research can study the phenomenon in different survey fields, such as workspaces. In addition to extending the knowledge of the presented phenomenon, a more solution-oriented approach can be acquired in future research. The approach can help not only highlight the problem but also provide effective solutions to curb phubbing behaviour in order to boost buoyancy. The current study also was limited in using a cross-sectional approach. Further research to understand how the suggested relationship develops through a longitudinal study would provide a deeper understanding. Previous research has focused on the impact of phubbing on teachers, and it would be interesting to see the impact of phubbing when teaching happens offline compared to online. The impact of phubbing may also vary among students at various levels of academic programs.

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CRediT authorship contribution statement

Vartika Varyani: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Akansh Khandelwal:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Jatin Pandey:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

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

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