

Original Research Article

## Mobile Addiction among Higher Education Students: A Cross-Sectional Survey in West Bengal

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**Abstract:** The present study examined mobile addiction among higher education students in West Bengal with reference to gender, father's education, and mother's education. It aimed to compare mobile addiction between male and female students and to analyse differences in addiction across categories of parental education. A quantitative descriptive survey method with a cross-sectional design was adopted. The sample consisted of 200 undergraduate and postgraduate students selected through purposive random sampling from Purba and Paschim Medinipur districts. Data were collected using a self-developed 28-item Mobile Addiction Scale. The data were analysed through mean, standard deviation, independent samples t-test, and one-way ANOVA. Results showed that female students reported slightly higher mobile addiction than male students, but the difference was not statistically significant. Father's education had a significant difference on mobile addiction, with students of illiterate fathers showing the highest scores. Mother's education also showed a significant difference, with students of secondary-educated mothers reporting the highest mobile addiction. The findings highlight the role of parental education in students' mobile-use behaviour.

**Keywords:** Mobile Addiction, Higher Education Students, Parental Education, West Bengal.

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## INTRODUCTION

The advent of the digital age has significantly transformed how students in higher education communicate, learn, and engage with the world, leading to an exponential rise in internet usage that offers valuable academic benefits while also posing potential risks to mental health, including addiction (Roy *et al.*, 2024; Carter & Johnson, 2020; Smith *et al.*, 2021; Pew Research Center, 2021). Mobile phones, especially smartphones, have become indispensable tools for academic, social, and recreational purposes, offering instant access to information and connectivity (Kuss & Griffiths, 2017). While these devices provide numerous advantages, their excessive and uncontrolled use has led to growing concerns about mobile addiction among students (Billieux, 2012). Mobile addiction refers to a behavioral pattern characterized by excessive dependence on mobile devices, leading to impaired control over usage and negative consequences in daily life (Chóliz, 2012). It shares similarities with other behavioral addictions, such as internet and gaming addiction, including symptoms like withdrawal,

tolerance, and interference with routine activities (Griffiths, 2005). Among higher education students, this issue is particularly prominent due to increased autonomy, academic pressure, and social networking demands (Samaha & Hawi, 2016). Higher education students are at a critical developmental stage where identity formation, academic engagement, and social relationships are highly dynamic (Arnett, 2015). The integration of mobile technology into educational practices has blurred the boundaries between productive and non-productive use, making it difficult to regulate screen time effectively (Lepp, Barkley, & Karpinski, 2015). Excessive mobile use has been linked to reduced academic performance, decreased concentration, and poor time management (Junco, 2012).

In addition to academic concerns, mobile addiction has significant psychological and social implications. Studies have shown that excessive smartphone use is associated with anxiety, depression, sleep disturbances, and reduced face-to-face interactions (Elhai, Dvorak, Levine, & Hall, 2017). These issues can adversely affect students' overall well-being and quality

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of life, making it an important area of investigation in educational and psychological research (Demirci, Akgönül, & Akpınar, 2015). Demographic and familial factors also play a crucial role in shaping mobile usage patterns. Gender differences in mobile addiction have been widely explored, with some studies suggesting higher usage among females due to social networking engagement, while others report negligible differences (Andreassen *et al.*, 2016). Similarly, parental education has been identified as an influential factor, as it often reflects the level of awareness, supervision, and guidance provided to students regarding responsible technology use (Hawi & Samaha, 2017).

In the Indian context, the proliferation of affordable smartphones and internet services has significantly increased digital accessibility among youth (Telecom Regulatory Authority of India, 2023). West Bengal, as one of the culturally and educationally diverse states, presents a unique setting to explore mobile addiction among higher education students (Government of West Bengal, 2022). Despite the growing reliance on mobile technology in education, there is limited region-specific empirical research examining its addictive patterns and associated factors. A cross-sectional survey design is particularly suitable for assessing the prevalence and patterns of mobile addiction at a specific point in time (Setia, 2016). It allows researchers to capture variations across demographic variables such as gender and parental education, providing a comprehensive understanding of the issue. Such data are essential for identifying vulnerable groups and informing targeted interventions. Given the increasing integration of mobile devices in academic and personal life, it is essential to examine the extent of mobile addiction among higher education students. Understanding how demographic factors influence this behavior can help educators, policymakers, and mental health professionals develop strategies to promote balanced and healthy technology use. Therefore, the present study aims to investigate mobile addiction among higher education students in West Bengal through a cross-sectional survey approach.

### **Rationale/ Significance of the Study**

The growing dependence on mobile technology among students has emerged as a critical concern in contemporary education, necessitating systematic investigation into its patterns and consequences (Kwon *et al.*, 2013). While mobile devices enhance learning opportunities and communication, their excessive use can lead to behavioral addiction, adversely affecting academic, psychological, and social functioning (Griffiths & Szabo, 2014). This study is significant as it addresses the dual nature of mobile technology, balancing its benefits against its potential risks. One of the primary reasons for undertaking this study is the increasing prevalence of mobile addiction among higher education students. Research indicates that young adults are among the most active users of smartphones, making

them particularly vulnerable to addictive behaviors (Pew Research Center, 2021). In academic settings, uncontrolled mobile usage can distract students from learning tasks, reduce productivity, and hinder academic achievement (Lepp *et al.*, 2015). Therefore, examining this issue is crucial for improving educational outcomes. Another important aspect of this study is its focus on demographic variables such as gender. Previous studies have reported mixed findings regarding gender differences in mobile addiction, highlighting the need for further empirical investigation (Andreassen *et al.*, 2016). Understanding whether male and female students differ significantly in their mobile usage patterns can help in designing gender-sensitive intervention strategies. The inclusion of parental education as a variable adds further significance to the study. Family background plays a vital role in shaping students' attitudes and behaviors, including their use of technology (Hawi & Samaha, 2017). Parents with higher educational levels may be more aware of the negative effects of excessive mobile use and may provide better guidance and supervision. Investigating this relationship can offer insights into the socio-cultural factors influencing mobile addiction.

The regional focus on West Bengal enhances the relevance of the study. Despite the widespread use of smartphones across India, there is a lack of localized research examining mobile addiction in specific states (TRAI, 2023). West Bengal, with its diverse socio-economic and educational landscape, provides an important context for understanding how mobile addiction manifests among students from different backgrounds. The findings can contribute to region-specific educational policies and interventions. The cross-sectional nature of the study allows for a comprehensive snapshot of mobile addiction at a particular point in time (Setia, 2016). This approach is useful for identifying patterns, trends, and associations between variables, which can serve as a foundation for future longitudinal research. It also enables the collection of data from a large sample, enhancing the generalizability of the findings. From a psychological perspective, the study is significant as it contributes to the understanding of behavioral addictions in the digital age. Mobile addiction is a relatively new phenomenon, and ongoing research is essential to explore its causes, symptoms, and consequences (Billieux, 2012). By examining its prevalence among higher education students, the study adds to the growing body of literature on technology-related behavioral issues. The study also has practical implications for educators and institutions. Awareness of mobile addiction levels among students can help teachers develop strategies to integrate technology in a controlled and productive manner (Junco, 2012). Institutions can design workshops, counseling programs, and digital literacy initiatives to promote responsible mobile use and reduce dependency.

Furthermore, the findings of this study can inform policymakers and mental health professionals.

With the increasing recognition of digital addiction as a public health concern, there is a need for evidence-based policies and interventions (World Health Organization, 2019). This study provides empirical data that can support the development of guidelines and preventive measures at both institutional and governmental levels. Finally, this research holds significance for students themselves. By highlighting the extent and impact of mobile addiction, the study can raise awareness among students about their own usage patterns and encourage self-regulation. Promoting a balanced approach to technology use is essential for maintaining academic success, mental well-being, and healthy social relationships. The present study is significant in addressing a contemporary issue that intersects education, psychology, and technology. By focusing on higher education students in West Bengal and examining key demographic variables, it provides valuable insights into the nature and determinants of mobile addiction. The findings are expected to contribute to academic research, inform policy decisions, and promote healthier technology usage practices among students.

#### Delimitations of the Study

- i. The study was delimited to only two districts surveyed i.e., Purab and Paschim Medinipur.
- ii. The study was delimited to only UG and PG level students selected.
- iii. The stud was delimited to only 200 students as a sample.
- iv. The study was delimited to only three demographic factors selected i.e., gender, father's education and mother's education.

#### Objectives of the Study

- i. To compare mobile addiction between male and female students.
- ii. To study the differences in mobile addiction among students based on father's educational status.
- iii. To analyze the differences in mobile addiction among students based on mother's educational status.

#### Hypotheses of the study

**H<sub>01</sub>:** There is no significant difference in mobile addiction between male and female students.

**H<sub>02</sub>:** There is no significant difference in mobile addiction among students with different levels of father's education.

**H<sub>03</sub>:** There is no significant difference in mobile addiction among students with different levels of mother's education.

## METHODOLOGY

The present study employed a quantitative approach using a descriptive survey method within a cross-sectional research design to examine mobile addiction among higher education students. The population comprised undergraduate (UG) and postgraduate (PG) students studying in various higher education institutions across West Bengal. From this population, a sample of 200 students was selected using a purposive random sampling technique, wherein relevant participants were first identified purposively and then chosen randomly to ensure adequate representation. Data were collected through a self-developed Mobile Addiction Scale (2022) consisting of 28 positively framed items, designed to assess different dimensions of mobile usage behavior among students. The instrument demonstrated acceptable reliability, with a reliability coefficient of 0.79, indicating satisfactory internal consistency. After collection, the data were systematically organized and analyzed using appropriate statistical techniques, including descriptive statistics (mean and standard deviation) and inferential statistics such as the independent samples *t*-test and one-way ANOVA to examine differences in mobile addiction across gender and parental education variables.

## RESULTS

### Descriptive Statistics

**Table 1: Showing independent variables wise descriptive statistics by students' mobile addiction**

Dependent Variable	Independent Variables	Categories	Number of Students	Mean	SD
Mobile Addiction	Gender	Male	101	96.56	15.135
		Female	99	99.76	14.977
	Father's Education	Illiterate	7	111.14	12.602
		Primary	41	102.44	15.595
		Secondary	103	98.29	15.356
		Higher Secondary	37	93.57	12.851
		Higher Education	12	88.75	9.265
	Mother's Education	Illiterate	27	94.00	15.517
		Primary	76	95.53	14.703
		Secondary	77	102.92	14.707
		Higher Secondary	18	95.67	14.059
		Higher Education	2	92.00	14.142

**Interpretations**

The table 1 presents the distribution of mobile addiction scores among students across different demographic variables such as gender, father’s education, and mother’s education. With respect to gender, female students (Mean = 99.76, SD = 14.977) exhibit slightly higher levels of mobile addiction compared to male students (Mean = 96.56, SD = 15.135). Students whose fathers are illiterate show the highest mean mobile addiction score (Mean = 111.14, SD =

12.602), whereas, those with primary (Mean = 102.44), secondary (Mean = 98.29), higher secondary (Mean = 93.57), and higher education father’s (Mean = 88.75). Students whose mothers have secondary education report the highest mean score (Mean = 102.92, SD = 14.707), whereas those with illiterate mothers (Mean = 94.00), primary mothers (Mean=95.53), higher secondary (mean=95.67) and higher education (Mean = 92.00).

**Inferential Statistics**

**Table 2: Shows independent sample t-test based on gender by students’ mobile addiction.**

Dependent Variable	Independent Variable	t-value	df	Sig. (2-tailed)	MD
Mobile Addiction	Gender	-1.500	198	0.135	-3.193

**Note:** df= Degree of Freedom, MD= Mean Difference, Sig.= Significant

**Interpretations**

The table 2 shows the results of an independent samples t-test in mobile addiction between male and female students. The obtained t-value is -1.500 with 198 degrees of freedom, and the corresponding significance

value (p = 0.135) is greater than the conventional threshold of 0.05. This indicates that the gender does not have a significant impact on the level of mobile addiction among the students in this sample.

**Table 3: Shows one-way ANOVA based on father’s education by students’ mobile addiction**

Dependent Variable	Independent Variables		Sum of Squares	df	Mean Square	f-value	Sig. (2-tailed)
Mobile Addiction	Father’s Education	Between Groups	3775.247	4	943.812	4.422	0.002
		Within Groups	41623.548	195	213.454		
		Total	45398.795	199			
	Mother’s Education	Between Groups	2928.315	4	732.079	3.361	0.011
		Within Groups	42470.480	195	217.797		
		Total	45398.795	199			

**Note:** df= Degree of Freedom, Sig.= Significant

**Interpretations**

The table 3 presents the results of one-way ANOVA examining the influence of father’s education and mother’s education on students’ mobile addiction. In the case of father’s education, the obtained F-value is 4.422 with a significance level of p = 0.002, which is well below the threshold of 0.05. This indicates that there are statistically significant differences in mobile addiction scores among students belonging to different categories of father’s educational background. Similarly, for mother’s education, the F-value is 3.361 with a significance level of p = 0.011, which is also less than 0.05. This indicates that mobile addiction significantly differs across different levels of mother’s education.

- Students whose mothers had secondary education showed the highest mobile addiction than students those whose mothers had illiterate, primary, higher secondary and higher education and the difference was found to be statistically significant.

**Major findings of the study**

- Female students showed slightly higher mobile addiction than male students but the difference was found to be statistically not significant.
- Students whose father’s had illiterate showed highest mobile addiction than students whose fathers had primary, secondary, higher secondary and higher education and the difference was found to be statistically significant.

**DISCUSSION**

The first major finding of the study reveals that female students showed slightly higher mobile addiction than male students, but the difference was found to be statistically not significant. This indicates that although female students reported a higher mean score, gender did not play a significant role in determining mobile addiction among the students. This finding is supported by Begum and Peter (2024), who conducted a study among adolescent students of West Bengal and found that smartphone addiction was present among students, but gender was not significantly associated with smartphone addiction. Similarly, Garcia-Santillán and Espinosa-Ramos reported that there was no significant gender difference in smartphone addiction among students. These findings suggest that mobile addiction is no longer limited to any particular gender group. However, some studies have reported dissimilar findings. Chen et al., (2017) found that male and female

students may differ in the way they use smartphones. Male students were more likely to use smartphones for gaming and multimedia activities, while female students were more likely to use them for communication and social networking. This difference in usage pattern may sometimes create gender-based variation in mobile addiction. In the present study, the difference between male and female students was not significant, possibly because smartphones are now commonly used by both boys and girls for education, communication, entertainment, social media, and online academic activities. In the West Bengal context, this finding is important because mobile phone use has become a common part of student life across gender groups, especially after the expansion of online learning and digital communication. Therefore, awareness and intervention programmes should target both male and female students equally rather than focusing on one gender.

The second major finding shows that students whose fathers were illiterate had the highest mobile addiction compared to students whose fathers had primary, secondary, higher secondary, and higher education, and the difference was found to be statistically significant. This finding indicates that father's educational status has an important influence on students' mobile addiction. Students whose fathers are educated may receive better guidance, monitoring, and control regarding mobile phone use. Educated fathers may also be more aware of the negative effects of excessive mobile use on academic performance, sleep, mental health, and social behaviour. On the other hand, illiterate fathers may have limited knowledge about digital platforms, social media risks, online distractions, and the need for regulated screen time. As a result, students from such backgrounds may use mobile phones more freely and develop higher dependency. This finding is supported by Kim *et al.*, (2018), who reported that family environment is significantly associated with adolescents' smartphone addiction. Their study also highlighted that self-control and positive friendship quality can act as protective factors against smartphone addiction. Similarly, Yogesh *et al.*, (2024) found that parenting style and family-related factors were associated with smartphone addiction among adolescents. These studies support the present finding that the family environment, including parental education and supervision, plays an important role in shaping students' mobile-use behaviour. However, some dissimilar findings also exist. In certain studies, students from more educated families have shown higher smartphone use because educated parents may provide better access to smartphones, internet facilities, and digital resources. Therefore, parental education may have two possible effects: it may increase access to mobile phones, but it may also improve awareness and control. In the present study, father's higher education appears to have a protective role, as mobile addiction was highest among students whose fathers were illiterate and

lowest among those whose fathers had higher education. This finding is especially important in the West Bengal context because many students, particularly in rural and semi-urban areas, come from first-generation learner families. In such families, parents may strongly desire educational progress for their children but may not have sufficient digital literacy to supervise smartphone use effectively. When fathers have low or no formal education, they may find it difficult to understand how mobile phones are being used for study, entertainment, gaming, social media, or other non-academic purposes. Therefore, the significant role of father's education in this study highlights the need for parental awareness programmes in schools and colleges of West Bengal. Such programmes should not only focus on students but also help parents understand healthy mobile habits, screen-time control, cyber safety, and academic use of digital devices.

The third major finding shows that students whose mothers had secondary education showed the highest mobile addiction compared to students whose mothers were illiterate, primary educated, higher secondary educated, and higher educated, and the difference was found to be statistically significant. This finding indicates that mother's education also has a significant relationship with students' mobile addiction. However, unlike father's education, the pattern is not completely linear. Students whose mothers had secondary education showed the highest mobile addiction, while students whose mothers had higher education showed lower addiction. This may be because mothers with secondary education may allow mobile phone use for study, communication, safety, and entertainment, but may not always have sufficient digital awareness to monitor the nature, duration, and purpose of mobile use. In contrast, mothers with higher education may be more capable of setting rules, checking online activities, guiding academic use, and identifying excessive or harmful mobile-use patterns. This finding is supported by Doo and Kim (2022), who found that parental smartphone addiction and negative parenting attitudes were related to adolescent smartphone addiction. Their study suggested that children's mobile-use behaviour is influenced not only by their own habits but also by parental behaviour and family interaction patterns. Yogesh *et al.*, (2024) also reported that parenting styles are significantly associated with smartphone addiction among adolescents. These findings support the view that mothers' education, awareness, and parenting practices may influence students' mobile addiction. However, the present finding differs from studies that show a simple negative relationship between parental education and mobile addiction, where higher parental education directly reduces addiction. In this study, students of secondary-educated mothers had the highest addiction, suggesting that the relationship between mother's education and mobile addiction is complex and may be influenced by supervision, digital literacy, family routine, and parent-

child communication. In the West Bengal context, this finding has special importance because mothers often play a central role in children's daily routine, study habits, discipline, and emotional support. In many Bengali families, mothers are closely involved in supervising children's education at home. Therefore, their educational level and digital awareness can directly affect how students use mobile phones. If mothers are not sufficiently aware of the addictive nature of social media, gaming, short videos, and late-night mobile use, students may develop uncontrolled usage habits. At the same time, mothers with higher education may be better able to distinguish between academic and non-academic mobile use. This finding highlights the need to include mothers in digital awareness campaigns, parent-teacher meetings, and counselling programmes. In West Bengal, such programmes should be delivered in simple language and should focus on practical strategies such as fixing study time, limiting recreational screen time, checking app use, encouraging outdoor activities, and maintaining open communication with children.

Overall, the findings of the present study show that gender is not a significant factor in students' mobile addiction, whereas father's education and mother's education are significant factors. This means that mobile addiction among students is shaped more by family background, parental awareness, and home supervision than by gender. These findings are relevant for West Bengal because smartphone use has rapidly increased among students for online classes, social networking, entertainment, and examination-related information. After the COVID-19 period, mobile phones became a necessary educational tool, but excessive and uncontrolled use has created risks for students' academic performance, sleep pattern, mental health, and social relationships. Therefore, the present findings suggest that mobile addiction should be addressed through a family-based and school-based approach. Teachers, parents, and students should work together to promote responsible mobile use.

### **Educational Implications**

The findings of the study have important educational implications for students, parents, teachers, school administrators, and policy makers. Since gender was not found to have a significant effect on mobile addiction, it is clear that mobile addiction should not be viewed as a problem of only boys or only girls. Both male and female students are equally vulnerable to excessive mobile phone use. Therefore, schools and colleges should organize digital wellness programmes for all students, irrespective of gender. These programmes should focus on responsible mobile use, time management, self-control, cyber safety, healthy sleep habits, and the negative effects of excessive screen time on academic achievement and mental health. The significant influence of father's education on students' mobile addiction shows that parental education and awareness play a major role in shaping students' mobile-

use behaviour. Students whose fathers were illiterate showed the highest level of mobile addiction, which suggests that parents with limited formal education may need special guidance regarding digital supervision. Educational institutions should therefore arrange parent awareness programmes, especially for parents from low-literacy backgrounds. These programmes should explain in simple and practical language how mobile addiction affects children's study habits, concentration, sleep, emotional balance, and social relationships. Schools should also guide fathers on how to monitor mobile use without creating conflict at home. The finding related to mother's education also has strong educational importance. Students whose mothers had secondary education showed the highest mobile addiction, indicating that partial education alone may not be enough to control children's mobile use unless it is supported by digital literacy and effective parenting practices. Since mothers often play a central role in children's daily routine, study supervision, and discipline, schools should involve mothers actively in digital awareness activities. Parent-teacher meetings can include short sessions on screen-time management, identification of addictive mobile-use patterns, and ways to encourage children toward study, reading, physical activity, and family interaction. The study also implies that digital literacy should become an essential part of school education in West Bengal. Students should not only be taught how to use mobile phones for learning but also how to avoid misuse. Teachers can help students understand the difference between productive and unproductive mobile use. For example, using a smartphone for online classes, educational videos, dictionary apps, or exam preparation is different from uncontrolled scrolling, gaming, chatting, and watching short videos for long hours. Such awareness can help students develop self-regulation and use technology as a learning tool rather than as a source of distraction. Another important implication is the need for a home-schools partnership. Since parental education was found to be significantly related to mobile addiction, teachers and parents must work together to control excessive mobile use among students. Schools can provide parents with simple guidelines such as fixing mobile-free study hours, avoiding mobile use during meals, keeping phones away before bedtime, checking app usage regularly, and encouraging outdoor games or creative activities. These strategies are especially useful in the West Bengal context, where many families may have access to smartphones but may not have enough knowledge about digital monitoring. The findings also suggest the need for counselling and guidance services in schools and colleges. Students who show signs of mobile addiction, such as poor concentration, sleep disturbance, irritability, decline in academic performance, social withdrawal, or excessive dependence on mobile phones, should receive timely counselling. School counsellors and teachers can help such students develop healthier routines, set realistic screen-time limits, and improve self-control. Group counselling sessions may also be useful for creating peer awareness about the harmful

effects of excessive mobile use. In the West Bengal context, these implications are particularly important because smartphone use has increased rapidly among students after the expansion of online learning. In many rural and semi-urban families, the smartphone is the main digital device for education, communication, and entertainment. Therefore, banning mobile phones completely may not be practical. Instead, educational institutions should promote balanced mobile use. Students should be encouraged to use mobile phones for academic purposes while reducing unnecessary use of social media, gaming, and entertainment platforms. The study further implies that teacher training is necessary. Teachers should be trained to identify behavioural signs of mobile addiction and to integrate technology meaningfully into classroom teaching. When teachers use digital tools in a planned and purposeful way, students can learn that technology is mainly a support for learning rather than a tool for constant entertainment. Teachers can also assign activities that require limited and meaningful mobile use, such as educational searches, online quizzes, or digital assignments, while discouraging unnecessary screen exposure.

Finally, policy makers and educational authorities should develop structured guidelines for healthy mobile phone use among students. These guidelines should include school-level rules, parental responsibilities, student responsibilities, and counselling support. Awareness materials may be prepared in Bengali and other local languages so that parents from different educational backgrounds can understand them easily. Community-level campaigns through schools, colleges, panchayats, and local organizations may also help spread awareness about mobile addiction and digital discipline.

## CONCLUSION

The study concludes that female students showed slightly higher mobile addiction than male students, but the difference was not statistically significant. Therefore, gender cannot be considered a major influencing factor of mobile addiction in this study. However, both father's education and mother's education were found to have a significant influence on students' mobile addiction. Students whose fathers were illiterate showed the highest mobile addiction, suggesting that low paternal education may be linked with lower digital awareness and weaker supervision of mobile phone use. Similarly, students whose mothers had secondary education showed the highest mobile addiction, indicating that mother's education and home monitoring also play an important role in students' mobile-use behaviour. In the West Bengal context, these findings are highly important because many students come from families where parents may have limited digital literacy, even though mobile phones are widely used for both academic and non-academic purposes. Hence, prevention of mobile addiction should not focus only on students; it should also include parents through

awareness programmes, counselling sessions, and school-based guidance. A balanced approach is needed where students are encouraged to use mobile phones for learning and communication, while excessive use for entertainment, gaming, and social media is controlled. This will help protect students' academic progress, mental health, and overall well-being.

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