

# Analysis of Mobile Phone Dependence among Students in Higher Vocational Institutions

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**Abstract.** Students' motivation for using mobile phones is mainly entertainment, followed by a sense of achievement and finally social interaction. Mobile phone dependency is a real problem for students in higher vocational institutions and accounts for up to 90% of the population. Students' mobile phone dependence is influenced by their motivation to use, and the result is that the individual is physically and mentally impaired, which has some negative impact on their social functioning. In tests of students' mobile phone dependence, the results are out of control > avoidance > wariness > inefficiency. Three ways of intervention are recommended: by actively guiding students in the scientific use of mobile phones, by strengthening control over classroom order management and by establishing a harmonious teacher-student connection through mobile phones.

## 1. INTRODUCTION

Smartphones are used throughout people's lives due to science and technological advancements which are important for people in learning and in life [5]. Smartphones have changed lifestyles [1]. Its intelligence [7], convenience [10], and entertainment [9] bring people endless pleasure. This has boosted smartphone use.

The potential links between Chinese university students' mobile phone dependence and their mental health (subjective well-being, anxiety, depression), as well as university adjustment [14]. Mobile phone addiction can cause insomnia, anxiety, and depression in college students [13]. Between September 2020 and January 2021, a study of medical students in Hyderabad, India, found that too much mobile phone use was linked to poor sleep quality, which raised the risk of physical and mental disorders as a result of their studies [4].

Actually, in today's world of smartphones, people are threatened by their smartphones, creating a problem of "mobile dependency" that cannot be ignored.

## 2. LITERATURE REVIEW

A study on mobile phone addiction found high levels of addiction among university students using an online questionnaire [2]. A cross-sectional study with undergraduate students from a medical college in West Bengal, India, helped researchers understand their level of engagement and dependence on mobile phones [3]. Social and recreational motivation were good predictors, and withdrawal, compulsion, and emergence were signs of addiction [11]. The researcher found that maintaining contact and monitoring the management were the main

reasons for mobile phone use [8]. Higher education students should prioritize their studies. Due to the relaxed learning atmosphere and lack of autonomy in higher education institutions [6], many students develop "mobile phone dependence," which affects their studies and lives [12]. In this paper, we discuss the motivation for mobile phone dependence among students in higher vocational institutions and conduct a mixed-methods study. At the same time, theoretical analysis and empirical tests are conducted from multiple perspectives in the general environment of mobile phone dependence in higher vocational institutions to enrich the study of mobile phone dependence among students in higher vocational institutions in theory and to propose corresponding countermeasures in practice.

## 3. HYPOTHESES

Given the lack of a clear definition of 'mobile phone dependence' in China and abroad, and the small number of relevant studies, it is only in recent years that research on it has become a popular topic of study. This paper is dedicated to addressing the three key questions of identifying students' motivations for using mobile phones; testing the significance of motivation on dependence; and testing the effectiveness of the intervention.

Based on these questions, the specific hypotheses proposed in this study are

H1. Mobile phone dependence is a pathological disorder that manifests itself in the form of uncontrolled behavior in terms of hours of mobile phone use per day by students, the number of times they use them per week, and the duration of their daily immersion.

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H2. Mobile phone dependence is influenced by motivational factors that lead to physical and psychological impairment of students, which in turn affects their social functioning.

H3. Mobile phone dependence can be intervened behaviorally by guiding students in the scientific use of mobile phones, controlling classroom order and establishing teacher-student contact methods through mobile phones.

## 4. STUDY DESIGN

### 4.1 Participants

In this study, 20 students from different majors at a higher vocational college in Shijiazhuang were interviewed about their mobile phone dependence. The study used stratified sampling to send out 200 online questionnaires by major, and 190 valid questionnaires were returned, for a 95% recovery rate. SPSS 21.0 analyzed the data results.

### 4.2 Research Methodology

I. Using qualitative research methods, 20 students from higher vocational institutions were interviewed to determine "mobile phone dependence." The interview questions included: (1) How much do you think you rely on your mobile phone? (2) What do you do with your mobile phone? (3) What are the reasons why you cannot let go of your mobile phone? (4) How does this affect your study and life? (5) Is there anything else you would like to add about the use of mobile phones?

II. A survey of 200 students from this university, stratified sampling of students by major, was used to quantify mobile phone dependence. Using of the MPAI scale, compiled by Leung and Wing Chi of the Chinese University of Hong Kong, consists of 17 questions and measures loss of control, wariness, avoidance, and inefficiency. Cronbach's alpha coefficients for the four dimensions are 0.84, 0.83, 0.87, and 0.81.

III. Based on the questionnaire results, we identify educational interventions for mobile phone dependence. Four classes were randomly selected. There were no statistical differences between the experimental and control groups' demographic variables. Before the classroom intervention was implemented in the experimental class, students' mobile phone dependence was pre-tested. A post-test was administered two weeks later to compare the pre-test and post-test results. If students' mobile phone dependence scores dropped, the intervention was successful.

## 5. RESULTS

### 5.1 Results of qualitative analysis

90% of students interviewed felt dependent on their phones. 5% of students considered their phone dependence "mild." Another 5% of students said they

were "moderately" mobile phone dependent. Interviewees said they use WeChat (90%), Tik Tok (90%), and games (85%) daily. Over 90% of students are unable to put their phones down because of their fun nature of them. 25% of students prefer to communicate on their mobile phones because of social barriers. 60% of students said their mobile phone dependency affected their studies and lives. Only 10% of students said their studies and lives weren't affected.

100% of interviewed students felt "mobile phone dependency" was a problem. Over 50% of students wanted school leaders to monitor the problem more closely. 70% of students said they were afraid to seek help from teachers and professionals because of their face, so they would choose to avoid it. Happily, 25% of the students said they would seek professional help from teachers in the future.

### 5.2 Scale analysis results

Based on the data collected from the questionnaire, this study used a five-point scale to rate students' dependency levels, and the test results are shown in Table 1.

**Table 1.** Scale test data (Photo credit: Original)

	<b>M</b>	<b>SD</b>
Uncontrolled	4.35	1.495
Guardedness	3.67	1.156
Avoidance	3.85	1.258
Inefficiency	3.58	1.086

According to the data in Table 1, we can find that the average score of students in higher vocational colleges is the highest in the dimension of loss of control.; secondly, avoidance; again, guardedness; and finally, inefficiency. This means that the length, frequency and immersion of students' mobile phone use are longer and more frequent than the average student, who spends a lot of time on their mobile phones.

**Table 2.** Specific distribution of mobile phone dependency (Photo credit: Original)

<b>Variable</b>	<b>Category</b>	<b>N</b>	<b>Percentage</b>
Gender	Male	91	53.22%
	Female	80	46.78%
Specialities	Liberal Arts	42	24.56%
	Science	46	26.90%
	Art	40	23.39%
	Aviation	43	25.15%
Age	18	65	38.01%

	19	76	44.44%
	20	25	14.62%
	21	5	2.93%
Grade	Grade 1	105	61.40%
	Grade 2	60	35.09%
	Grade 3	6	3.51%

According to Table 2, 171 students in higher vocational institutions had mobile phone dependence problems, accounting for 90% of the valid subjects. The number of students with mobile phone dependence was higher among male students than female students; in terms of majors, there was no difference in the number of students in the four different categories; the majority of students were 18 and 19 years old; and a higher percentage of students were in lower grades than in higher grades.

### 5.3 Interventions

#### 5.3.1 Presentation of Interventions

Based on quantitative and qualitative analysis of mobile phone dependence, we found that it exists as a psychological disorder in students in higher vocational colleges and affects their physical and mental health. This paper proposes solutions for mobile phone use, classroom management, and teacher-student relationships.

(1) Actively guide students to use mobile phones scientifically

For students who are addicted to mobile phones, it may be difficult for them to focus on the classroom in the short term. Therefore, teachers should take reasonable measures and adopt scientific methods to allow students to use mobile phones to participate in classroom teaching without affecting their learning, and guide students to use mobile phones scientifically and turn "passive" into "active". The use of mobile phones in the classroom should be scientific so that students can become 'passive' and 'active'. For example, in a 45-minute lesson, students are given 10 minutes to look up information on their mobile phones, while the rest of the lesson is spent with the teacher explaining knowledge and student discussions. At the same time, tutors can organize class meetings and write simple and popular classroom quotes on the dangers of mobile phone dependency to raise students' awareness and help them use mobile phones properly.

(2) Strengthen the control of classroom order management

The study found that the school rules and regulations did not focus on the issue of mobile phone dependence, which led to students ignoring the use of mobile phones in the classroom. Over time, the classroom atmosphere deteriorates and teachers become exhausted. School administrators can improve the rules and regulations by adding mobile phone dependency to the discipline

handbook and creating strict penalties to improve the order and environment in the classroom. Teachers can also create a mobile phone storage area in the classroom. Collect the phones before class begins. This can prevent students from playing with their phones uncontrollably due to lack of self-awareness.

(3) Establishing harmonious student-teacher contact through mobile phones

Many students who are new to university find it difficult to adjust to school life and are prone to feelings of isolation, so they rely more on their mobile phones. Some students with social difficulties find it difficult to have face-to-face communication with their teachers. Even when they need help, they miss opportunities because of communication difficulties. Teachers can set up psychological help groups with psychology teachers to provide online 1V1 counseling. Use mobile phones to improve daily student communication and strengthen the connection between teachers and students.

#### 5.3.2 Validation of the intervention

**Table 3.** Experimental data (Photo credit: Original)

			N	M	SD
Experimental group	Class 1	Pre-test	45	58.62	1.493
		Post-test	45	41.74	0.693
	Class 2	Pre-test	47	57.63	1.369
		Post-test	47	42.79	0.586
	Class 3	Pre-test	46	56.39	1.3823
		Post-test	46	43.89	0.629
Control group	Class 4		49	59.72	1.584

Table 3 shows that in the pre-test and post-test, class 1 of the experimental group's mobile phone dependence score dropped from 58.62 to 41.74, and the difference in average score was obvious; the figure for class 2 dropped from 57.63 to 42.79; the difference between the pre-test and post-test results of class 3 was significant. Experiments prove Hypothesis 3.

## 6. CONCLUSION

More than 90% of college students interviewed feel dependent on mobile phones. WeChat, Tik Tok, and games were the most used daily functions. The inability to control themselves becomes a motivation for them not to put their phones down. Only 10% of students said their daily life and studies weren't affected by mobile phone dependence, while the rest said they were. The results show H2.

171 of the 190 students in higher vocational colleges in this study have mobile phone dependence, accounting

for 90%. This indicates that mobile phone dependence is a common problem among students. The problem with mobile phone dependence is mainly in the form of uncontrolled use of mobile phones. Although the three dimensions of escapism, guardedness, and inefficiency are also reflected, the data of uncontrollability is more prominent. Higher vocational students use their phones longer, more often, and for longer periods than the average student, proving hypothesis 1.

This paper proposes countermeasures from three perspectives: mobile phone use; classroom management; and teacher-student connection and tests their effectiveness over a 2-week period. The test data before and after the experiment showed a significant decrease, so the intervention worked. Actually, mobile phone dependence affects students in higher vocational colleges and requires student, teacher, and school cooperation.

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