

# **FACTORS INFLUENCING ONLINE LEARNING ADAPTABILITY IN CHONGQING COLLEGE OF MOBILE COMMUNICATION STUDENTS DURING THE EPIDEMIC**

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## **ABSTRACT**

This research aims at examining the Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students during the study Epidemic, the sample of which is Taro Yamane formula, has a reliability level of 95% and an error of less than 5%. Therefore, the sample group consists of 357 students majoring in communication engineering of Chongqing Mobile Communication. Research tools include: this study adopts the literature research method, establishes the hypothesis model of influencing factors according to the relationship between influencing factors, and analyzes the hypothesis of each influencing factor by statistical analysis through the compilation and collection of questionnaires. The results of this study show that: through the collation and analysis of questionnaire survey results and interview data, the specific reasons for college students' maladaptation to online learning during the epidemic period are summarized, including poor course information quality and poor learning environment. This research plan puts forward the corresponding intervention strategies from the level of teaching, teachers and learning environment, so as to better carry out online learning in colleges and universities.

**Keywords:** College Students, Online Learning, Online Learning Adaptability, Learning Environment

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## INTRODUCTION

In 2020, the world's new coronavirus epidemic has suffered varying degrees of destruction at home and abroad, and the traditional economic model and teaching model have been seriously affected, and many countries have also suspended classes and implemented national class suspension policies. In order to ensure the safety between teachers and students and the normal development of teaching activities, online education has played a key role in ensuring the safety between teachers and students. "Uninterrupted teaching" has been advocated nationwide, and schools at all levels have actively organized online teaching activities, solving the dilemma that traditional teaching activities cannot be carried out during the epidemic. It fully demonstrates the significant advantages of autonomy, interactivity and openness of online learning. By June 2021, the number of Internet users in China has exceeded 1 billion, reaching 1.01 billion, of which 325 million are online education users, accounting for 32.1% of the total number of Internet users in China, and forming the world's largest digital society with the highest penetration rate of Internet applications. Subsequently, Italy, Japan, South Korea, the United States and other countries have also used the Internet to complete the transformation of offline education to online education, and most of the school education in the world has changed from offline education to online education. Although network teaching cannot completely replace offline teaching, it will gradually become an indispensable teaching method in the future college education. Changing learning patterns during the pandemic pose certain challenges for university students and teachers. Whether students can fully adapt to the online learning model, and how teachers can better implement online teaching, are worthy of in-depth discussion. Under the far-reaching influence of digital technology, "Internet +" has had a huge impact on people's lifestyle and learning mode, and the vocational education mode has also changed from offline teaching mode to offline collaborative development mode. In the era of educational information, "Internet + vocational education" seems to break the original vocational education model, further strengthen the effective integration of information technology and vocational education teaching, promote the sharing of high-quality vocational education resources, and promote vocational education to serve lifelong learning. Understanding the adaptability of college students to the network teaching platform is helpful for teachers to find out the practical problems and needs of college students more deeply, and has very important practical significance for improving the quality of college education and building modern vocational education information system. At the same time, with the rapid development of the Internet society, many new majors related to the Internet have appeared, which requires college students to continuously strengthen the independent study of new majors and new technologies. With the continuous development of college education and teaching practice, college students still have many problems in the process of network learning. Especially in the network learning environment with the increasing number of students, diversified course content and numerous teaching resources, the difficulty of students' adaptation has increased significantly, and some students may have problems such as anxiety and poor academic performance. This will directly affect the effect of students' online learning. Therefore, it is urgent to solve the problem of college students' adaptability to network learning. It is necessary to deeply study the influencing factors of college students' adaptability to e-learning, analyze the obstacles of e-learning adaptability, and find out the countermeasures to improve college students' adaptability to e-learning, so as to cultivate their healthy mental state. This is of great practical significance to the future development system of students in Chongqing College of Mobile Communication. Whether learners adapt to online learning affects the effect of online learning. In order to understand whether learners adapt to online learning, a large number of studies compare the differences in student learning outcomes between online learning and face-to-face classroom learning.

## LITERATURE REVIEWS

### **Relationship between Factors of Influencing Online Learning Adaptability Students during the Epidemic.**

In 2010, Figlio conducted a comparative study on the learning outcomes of students taking economics courses in two learning modes: face-to-face learning and online learning. The study found that students with the highest grade point average had a harder time adapting to an online learning environment. A subsequent qualitative study conducted by Jaggars in 2012 found that students generally preferred online learning over face-to-face learning. However, it should be noted that the difficulty of the course content will affect students' learning style preference, that is, when they encounter difficult courses, they will prefer face-to-face learning. For simple courses, they prefer to take online courses. Learners' learning adaptability is also affected by many factors, which is the result of the comprehensive action of many factors. Back in 2000, Volery, based on the results of a survey of 47 college students in an online management course at an Australian university, identified three key factors affecting Relationship between Factors of influencing online learning adaptability students during the epidemic .learner's prior experience with technology. Subsequently, Soong et al. found that the skills of educators and learners, the mindset of online learning, and the level of collaboration are the key factors that affect the success of learners in online learning after multiple case studies. His research has improved the influencing factors of online learning adaptability from the aspects of learners' self-factors and teachers' factors. Therefore, the following four hypotheses are developed in this study:

**H1: There is a significant relationship between the Teacher teaching employed by teachers during the epidemic period and the students' adaptability to online learning. It is hypothesized that effective teaching methods positively influence students' adaptability to online learning.**

With the change of learning environment and learning style, students' learning ability and autonomy should also be improved, and teachers' professional knowledge and teaching professional ability should be put forward higher requirements. Cohen et al. investigated, analyzed and interviewed the factors affecting the learning quality of middle school students in the MOOC learning environment, and found that teacher factors and course resources factors were the main factors, and then proposed to improve teaching by teachers and providing quality course resources in schools. Wang, a foreign scholar, mentioned that teachers create a relaxed and good learning atmosphere and teaching environment for students in the teaching process, which can make students have a better sense of learning self-efficacy. Some studies have found that teachers with good teaching skills and rich professional knowledge can significantly affect students' learning motivation. Zhang Chenglong, discussed that teachers' teaching has a significant positive impact on students' blended learning adaptability in the process of carrying out MOOC.

**H2: The teaching methods utilized by educators on the Chongqing College network teaching platform during the epidemic period are associated with variations in students' adaptability to online learning. The hypothesis that well-designed teaching methods enhance students' adaptability to online learning.**

Relationship between network teaching platform and Online Learning Adaptability

According to the existing research, online learning has been expressed in different ways, such as network learning, online learning, distance learning, etc. No matter which way of expression, the core definition is to conduct network teaching or learning through the Internet or mobile phone terminals. Hiltz, a foreign scholar, is the first scholar to mention the concept of online learning. He believes that online learning is to put the learning content or course homepage in the network space to form an online learning space that everyone can share and achieve face-to-face learning results. Later, Professor Anderson, an expert in distance education,

systematically elaborated on the issue of online learning in his published books, believing that online learning means that learners acquire learning materials in cyberspace, interact with teachers and other learning personnel, and gain knowledge and learning support in the process, so as to promote personal growth and development. At first, in China, this new learning mode is called network learning. Teachers and students use the Internet to access network learning resources and carry out network dynamic interaction and online virtual learning activities. Network teaching platform is a third-party medium for teachers' teaching and students' learning. The poor communication between teachers and students on the platform leads to the distraction of students' attention, and the learning effect is greatly affected. When students use the network platform to learn, if they can feel the stability and fluency of the platform teaching, and rich learning resources can promote their individual learning, it will effectively promote their learning motivation and learning adaptability, so as to get better learning results.

**H3: The quality of curriculum information and its delivery by teachers at Chongqing College during the epidemic period influences students' adaptability to online learning. The hypothesis posits that higher curriculum information quality correlates with improved student adaptability to online learning.**

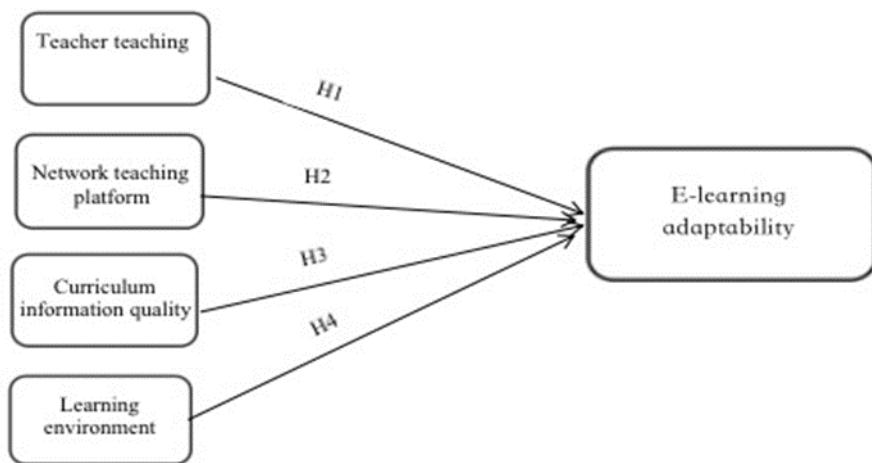
Relationship between online course information quality and Online Learning Adaptability Course information quality includes course quality, course content relevancy and course design flexibility. Higher course information quality can meet the online learning needs of college students, so as to obtain better online learning results during the learning period on the network platform. Different learners have different demands on the course content. Some learners have a faster ability to accept knowledge and can learn new courses and review what they have learned efficiently. On the contrary, students with weak learning ability need teachers to slow down the class progress timely and review the lessons they have already taught frequently. The course quality based on the network teaching platform refers to the information quality of the course content that can meet students' demand for knowledge acquisition and communication under certain teaching objectives, including the learning content of teaching audio and video, PPT, pictures and other course resources presented by teachers through the Internet. It also includes course resources such as communication tasks and question-and-answer assignments published by teachers on the teaching platform. Learners also have different needs for the presentation of curriculum information content, and the rich and high-quality curriculum information content is easier to improve students' learning motivation. The present research also shows that the quality of curriculum information has a key influence on learning adaptability.

**H4: The learning environment created by teachers at Chongqing College during the epidemic period significantly affects students' adaptability to online learning. The hypothesis that a conducive learning environment contributes to higher levels of student adaptability to online learning.**

Relationship between Learning environment quality and Online Learning Adaptability Zhang Ronghua et al. studied the correlation between primary school students' online learning adaptability and parents' home-school cooperation ability and family support ability, and found that family learning support, life support and home-school cooperation can all positively predict students' learning adaptability, while family emotional support can negatively predict students' learning adaptability. By using the multiple linear regression method, Zhou Beibei et al. found that the conflict between teachers and students negatively predicted the adaptability of online learning, and this negative prediction effect was the largest, followed by intimacy and support, and proposed relevant measures such as giving play to the leading role of teachers. Wang Xiaoping studied the relationship between learning adaptability, academic emotion and learning engagement of middle school students in e-learning, and found that learning adaptability and classroom academic emotion have a direct impact on learning engagement,

while self-determined motivation, as a mediating variable, has an indirect impact on learning engagement. By using the learning engagement Scale and the Adjustment Scale for college students, Li Zhiyue et al. found that the learning engagement level of nursing college students in the process of online learning is low, the learning adaptability is above the medium level, and the online learning engagement and learning adaptability are in a moderate positive correlation. Luo Zheng et al. measured the relationship between learning adaptation and mental health of students in the information environment through self-designed questionnaires, and found that students at the middle level of learning adaptation had poor mental health, while students at the two levels of learning adaptability had better mental health, because students who were extremely unfit for the information learning environment chose to escape. So that they are in a good state of mind. From the literature review,

From the literature review, the conceptual framework can be drawn as shown in Figure 1



**Figure 1** Conceptual Framework

## RESEARCH METHODOLOGY

The research study on the Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students during the Epidemic Researcher study by mixed method is quantitative and qualitative research. Using the questionnaire is an instrument to collect information from the sample to be studied and in-depth interview. The subjects of the study were Chongqing College of Mobile Communication all the students of Chongqing College of Mobile Communication in 2021, a total of 3380 people. The sample group is Chongqing College of Mobile Communication Engineering. The size was determined by calculating the Taro Yamane sample size (Taro Yamane, 1967) at the reliability level of 95%, and the error is less than 5%. From the results will get the sample size = 357.67 people. Therefore, the researcher has determined the sample size in this research as 357 people. The questionnaire design of this study is to comb and analyze the questionnaires about online learning adaptability of domestic and foreign researchers, and to determine the measurement dimensions of college students' online learning adaptability in combination with the research hypotheses previously combed. This research questionnaire is divided into two parts, Part 1 is to investigate the basic situation of students, including gender, grade, major, daily Internet use time, Internet age time, and the frequency of learning online courses. Part 2 studies the influencing factors of online learning adaptability during the epidemic period, including teacher teaching, online teaching platform, course information quality, and learning environment. By referring to the mature scale compiled by relevant researchers and combining with the learning characteristics of college students during the epidemic period, the

questionnaire structure and sources of influencing factors of college students' adaptability to online learning during the scale consists of 5 dimensions and 17 questions. Likert's five-point scoring method is adopted, namely, completely inconsistent (1 point), not very consistent (2 points), uncertain (3 points), basically consistent (4 points), and very consistent (5 points). Before using this instrument for data collection, we systematically conducted project-objective consistency (IOC) and reliability tests on this questionnaire through Krumbach's alpha method. The total reliability coefficient of this questionnaire on factors affecting college students' adaptability to online learning is 0.95, indicating that the overall reliability of this questionnaire is good. The correlation between the modified items and the total number is higher than 0.4, and the Cronbach coefficient after deleting the items is smaller than the original reliability coefficient, indicating that the homogeneity of the questionnaire items is high. In terms of data analysis, frequency distribution, percentage value, mean (X), standard deviation (S.D), Pearson correlation, The data obtained from the questionnaire were analyzed by using a ready-made computer program divided into four parts as follows: Part 1 data on respondents' status using frequency distributions and percentages. Part 2 The Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students during the Epidemic in 5 areas using mean X and standard deviation (S.D.) criterion. Mean interpretation is classified by item and combined. All aspects are as follows: Mean 4.51-5.00 means the Most agree, Mean 3.51-4.50 means the Agree, Mean 2.51-3.50 means the Moderate, and Mean 1.51-2.50 means the Disagree, Mean 1.00-1.50 means the Least agree. All the details are portrayed in the following section.

## RESEARCH RESULTS

### Respondents' Profiles and Studied Variables

In the data analysis, the researcher has presented the results according to the purpose of the research by dividing the presentation into 3 parts as follows:

Part 1 Demographic data analysis: Part 2 Level of significant of the Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students during the Epidemic Data analysis: Part 3 The result of data analysis

### Part 1 Demographic Data Analysis

#### 1) Gender

Table 4-1 The respondents are majoring in communication engineering in Chongqing Mobile Communication. Among the students who participated in the questionnaire, 125 were boys (about 35%) and 232 were girls (about 65%).

#### 2) Year

In terms of Year, 166 Year 2 (46.5%) and 191 Year 3 (53.5%), considering that freshmen in higher vocational colleges were in the stable period of the epidemic, most students were exposed to less online courses, so only sophomores and juniors were surveyed.

#### 3) Daily Internet duration and network age

There are 158 students (about 44.2%) who use the Internet for 6 hours a day, 135 students (about 37.8%) who use the Internet for 4-6 hours or more, and 57 students (about 16%) who use the Internet for 2-4 hours and 7 students (about 2%) who use the Internet for less than 2 hours. At the same time, the online age of more than 5 years of students, 188 people (about 52.6%), 2 to 5 years of students are 123 people (about 34.4%). The reason can be seen that with the arrival of the era of network technology and big data, the number of Chinese netizens and the time of using the network are also increasing year by year. Most students have opened information technology courses during primary school, which accelerates students' cognition of network knowledge and brings great convenience to students' life.

4) Frequency of learning online courses every month The frequency of vocational The frequency of vocational students learning online courses every month is 4-8, reaching 42%,

25% for 8-12 times and 12 times, and 17.6% for more than 12 times. The frequency of learning online courses every month is mainly concentrated in these three sections. During the outbreak of the epidemic, vocational students receive online courses at home, and the frequency of learning online courses every month will also increase.

### **Part 2 Level of Significant of the Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students During the Epidemic Data Analysis.**

1) Calculates the mean, standard deviation and variance of the four variables in the scale respectively. The average score of the online learning adaptability of college students is 3.27, the online learning adaptability of college students during the epidemic period is generally at a medium level. Students have a certain degree of learning enthusiasm to adapt and learn the course. From the point of view of the average score, the quality of course information has the lowest score, which is lower than the average score, indicating that compared with offline learning, the content of online courses cannot be fully mastered and adapted to, and students are not satisfied with the course content setting, followed by the learning environment and teacher teaching.

2) Confidence analysis of formal questionnaire influencing factors of online learning. As in the original questionnaire, Cronbach coefficient is still used to measure the reliability of each dimension and the total dimension of the questionnaire. At the same time, combined reliability (CR) is increased to further test the reliability of the questionnaire. Combined reliability represents the internal relationship and consistency between items. The Cronbach coefficient and combined reliability of latent variables are both above 0.7, indicating that the reliability of the formal questionnaire is good.

### **Part 3 The Result of Data Analysis**

Correlation analysis is generally used to study the relationship between variables. To better understand the Factors Influencing Online Learning Adaptability in Chongqing College of Mobile Communication Students during the COVID-19 pandemic During the Epidemic, a correlation analysis was made between various dimensions of online learning adaptability and learning adaptability of Chongqing College of Mobile Communication students. The Pearson correlation coefficients among teacher teaching, network teaching platform, curriculum information quality, learning environment and learning adaptability were 0.346, 0.399, 0.473 and 0.513, respectively, and all reached the level of 0.01 with significant positive correlation. Therefore, there is a positive linear relationship between teacher teaching, network teaching platform, curriculum information quality, learning environment and learning adaptability, and there is also a significant positive correlation between the four variables. There is a moderate correlation between curriculum information quality and learning adaptability, and a weak correlation between the remaining variables and learning adaptability. Among these four variables, learning environment has the largest correlation coefficient, followed by curriculum information quality and learning attitude, indicating that there is a significant correlation between learning environment, curriculum information quality, learning attitude and learning adaptability. Teacher teaching, network teaching platform, curriculum information quality, learning environment four aspects. These four aspects are regarded as independent variables, and the adaptability to online learning is regarded as dependent variable, and the correlation degree of the two is analyzed. The table shows that external (environmental) factors are positively correlated with the adaptability to learning, and the order according to the correlation coefficient is: learning environment > course information quality > Network teaching platform > Teacher teaching.

## DISCUSSION & CONCLUSION

At present, human beings are in the era of information and intelligence. The continuous impact of the novel coronavirus epidemic makes “Internet + vocational education” a trend of college education and teaching reform. College students' adaptability to online learning is the key to measure the quality of online learning. Based on cognitive development theory, social learning theory and constructivism learning theory, this study explores the influencing factors and effects of college students' adaptability to online learning during the epidemic period through a questionnaire survey, and further summarizes and explores the deep causes affecting college students' adaptability to online learning. And put forward relevant strategies to improve the network learning maladjustment affecting college students. Through relevant research, the following conclusions are drawn:

- 1) Determine the factors affecting students' learning adaptability in online learning environment during the epidemic. This study first summarizes and combs the theoretical basis, predecessors' influencing factors on learning adaptability and the learning characteristics of college students during the epidemic period, mainly from teacher teaching, network teaching platform, course information quality and learning environment, proposes the hypothesis relationship of influencing factors, and builds a model of influencing factors on college students' online learning adaptability during the epidemic period.
- 2) To test the influence of college students' basic information on learning adaptability variables. This study further analyzed the learning adaptability of college students by using independent sample T test and one-way analysis of variance, and mainly explored the differences of online learning adaptability of college students in gender, grade, major category, online time, online age, and frequency of learning courses during the epidemic period. The results show that there is no significant difference in e-learning adaptability among students with different gender and frequency of e-learning. There are significant differences in online learning adaptability among college students of different grades. College juniors are more adaptable to online learning than college sophomores. There is no significant difference in online learning adaptability among college students with different online duration per day. However, multiple comparison by LSD method shows that students who spend more than 6 hours online per day have significantly higher learning adaptability than students who spend 2-4 hours online per day. There are significant differences in the learning adaptability of college students with different online age. The adaptability of college students with more than 5 years of online age is significantly higher than that of students with 1 year or less online age.
- 3) Put forward the adaptive intervention strategy of college students' online learning through the questionnaire survey results, the influencing factors and functional relationships of college students' adaptability to online learning during the epidemic period were obtained. Students of different majors in different colleges and universities were interviewed, and the deep causes of students' poor adaptability to learning were summarized. Finally, based on the learning theory, intervention strategies to improve the adaptability of college students to online learning are designed from the level of students, teachers, schools and learning environment, hoping to provide guidance for college students to adapt to online learning.

This research has completed the initial research objectives, but with the deepening of the research, some deficiencies have been found. Due to the limitations of time, realistic conditions and personal abilities, further exploration and improvement will be carried out in the future. The object of empirical research is relatively simple. The questionnaire survey and interviews in this study are only for college students, and no in-depth interviews are conducted with college teachers and parents. Therefore, the causes of college students' maladaptive learning and countermeasures are not comprehensive enough. Lack of empirical research on intervention strategies. Based on the results of questionnaire survey and interview, this paper proposes intervention strategies to improve students' learning adaptability. However, due to the

limitations of time and practical conditions, intervention practices are not carried out on the online teaching platform, so as to further test the effectiveness and scientific city of intervention strategies.

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