ISSN:2790-167X Volume-5-(2023)

Analyzing students' adaptability for online education

Ning Guo

Harbin University of Commerce, Harbin, 150028, China

Abstract. Due to the outbreak of the COVID-19 (a new type of coronavirus disease) epidemic, countries around the world have responded with online teaching and learning, and a large number of learning activities have been shifted to online teaching. However, the situation of students is different from that of offline teaching. Learning outcomes and adaptability are worth investigating and analyzing. Most students find it difficult to adapt to sudden online teaching and learning. This paper analyzes the adaptability of online teaching for high school students and concludes that online teaching for high school students under high academic pressure is not effective, and offline teaching instruction is recommended for them.

Keywords: Online learning, Data analysis, digital education, COVID-19.

1. Introduction

As a result of the pneumonia epidemic, a significant amount of learning activity has shifted to online instruction. Students are not adapting to online teaching activities. Some studies have concluded that online instruction differs from previous offline education and that students have difficulty adapting. The learning outcomes and adaptability of students to online instruction deserve investigation and analysis.

The lockdown policy and social distancing caused by the epidemic have led to the transfer of a large number of teaching online. All major schools have adopted online teaching. The effectiveness of the sudden mandatory online teaching is still affected.The learning results of online teaching students are not as good as those of offline teaching.[3]

It has a considerable impact on the students' course teaching mastery and the self-control of learning.[12]Online teaching is very different between the offline and the usual face to face teaching. The effect of online teaching for students is affected by the environment, and poor students cannot have electronic equipment suitable for online education, so they can not adapt to online teaching well.[2]Due to the tense environment of the epidemic, students' emotions have been affected, causing anxiety and confusion. As a result, their online teaching can not be carried out well, and their effect is not as good as the offline teaching.[13]

Due to network reasons and limitations of teaching methods caused by online teaching, online students cannot communicate with teachers in a timely manner to maintain effective learning, [1] and students do not adapt to online learning due to different learning devices. This paper points out that it is better to use paper-based reading than to use electronic screens for learning. [14]

It requires a great deal of self-control from the students. Most students are unable to maintain efficient learning.While the practical courses that students take cannot be conducted online due to problems with teacher instruction.

Online learning can also lead to a procrastination mentality among students, which affects learning efficiency.

This paper focuses on analyzing and suggesting factors that affect students' adaptability and learning outcomes in online learning.

2. literature review

As a result of the spread of COVID-19, a large number of schools have had to adopt mandatory online instruction. Online instruction offers new ways for students to learn and creates new opportunities for teachers, educational regulators, and educational institutions. There are a large number of courses from scholars in different fields available on the Internet, and schools use these

courses. In this paper, online teaching refers to students watching classroom videos of teachers at home using electronic devices such as computers or cell phones, while studying using electronic textbooks, taking notes using ipads, and completing assignments using electronic devices such as computers. [15] The main research subjects of this paper are high school and college students who do online learning.

Among them, questionnaires were administered to students Surveys and studies indicated that the flexibility and convenience of online courses appealed to students, while broadband connectivity issues in rural areas made it difficult for students to take advantage of online learning programs, and many practical courses could not be taught entirely online and required a hybrid model[2] .

Most studies are known to point out that students learn less effectively when using online learning systems compared to traditional learning[3].

There are many factors that affect online teaching and learning: the teaching platform used in online teaching, electronic courseware, and students' procrastination mentality.

The use of online teaching tools is important for the quality of online teaching, and teachers tend to consider three factors when choosing online teaching tools:1 ease of use, the support of the tool for teachers. 2 Perceived usefulness, matching the needs of the user 3 Subjective norms. [5]Teachers using online teaching also reward and punish mechanisms of organization, or mandatory mechanisms, which lead to better student participation in online classes.

In addition to the analysis of the tools of online teaching, it is important to study the psychology of the students.

Online classrooms require a high level of self-discipline from students, as teaching online without the supervision of teachers and peers can lead to delays in online students, resulting in inefficient learning. [6][7] The literature states that many students procrastinate due to online teaching, which leads to poor and ineffective online learning[8], however, this literature is rather one-sided because the psychological impact on students is complex.

First, students who stay at home for long periods of time are inevitably affected by their home environment and parental relationships on a regular basis, resulting in their inability to perform better in their courses. [16]

Second, because students are isolated at home, they do not have access to their classmates and teachers. As a result, they lack interpersonal communication and students are prone to anxiety in the absence of communication. This leads to their lack of motivation to carry out teaching activities, their inability to participate well in group teaching at school, and their inability to communicate well with teachers. As a result, they are not comfortable with online teaching. This has a considerable impact on the effectiveness of students' online learning .[12]

At the same time, due to the blockade and control of the epidemic, students are worried about the current social life, the health of their relatives and friends, and the uncertain future. As a result, they could not focus on the online teaching classroom, which made their online learning ineffective .[17]

In addition to instrumental and psychological influences, students' online learning ability might be related to gender and age.

In this paper, by comparing the motivation and learning of university graduate students in different grades, we can determine that the difference between men and women does not significantly affect students' online learning effectiveness.Meanwhile, the literature points out that students' adaptability to online education is different in different grades, so we can speculate that different learning backgrounds and different ages are important factors for us to explore students' adaptability to online education, but the article only explores students in the graduate student age group, so this paper will explore adolescent students with a more diverse age distribution, i.e., this paper explores middle school students, high school students, and college students for online instruction.[19]

3. Procedure and methods

A total of 1206 samples were collected using kaggle, 6 invalid samples were excluded, and 1200 valid data were collected. The characteristics of these data were classified and analyzed mainly in terms of age, learning adaptation level, use of tools, etc. The data was cleaned and analyzed using python, and the data was visualized and plotted as pie charts and bar charts to visualize the characteristics of the data.

4. Data analysis

Under the influence of the outbreak, many schools adopted the online teaching mode, in this mode, the data of this paper that many students on online teaching is very not adapt, from other literature, we conclude that different students adapt to different degrees, so this paper decided to analyze the adaptability of young students, to participate in online teaching students the use of different terminal equipment.Analyzing the adaptability of online teaching through data research

4.1 Analyze students' adaptability to online courses

The pie chart shows the level of students' adaptability. First, the largest percentage of students were moderately comfortable with online education, with 624 students believing that online education was not unacceptable. Second, 480 students found it difficult to adapt to online instruction, and they were more comfortable with the previous offline format than online instruction. Finally, only 96 students think they are more comfortable with online teaching and online learning. As can be seen from the pie chart, the students who participated in the statistics were in the middle to lower level of adaptability to online teaching, 92% of them were in the middle or poor level. (See Figure 1) We speculate that the poor adaptation may be due to students' "psychological anxiety" [12], or students' online learning electronic devices may cause students to be uncomfortable and ineffective in online teaching and learning.

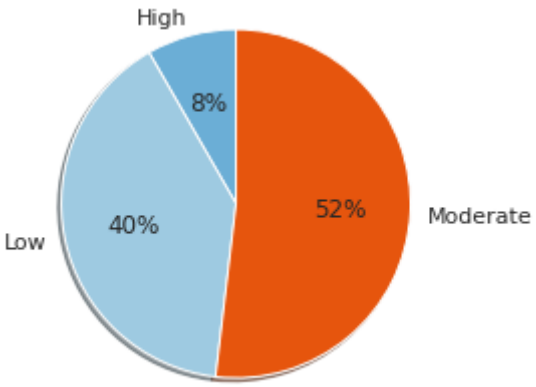


Fig.1 Adaptivity Levels Among Students

4.2 Analyze the relationship between students' online learning outcomes and age

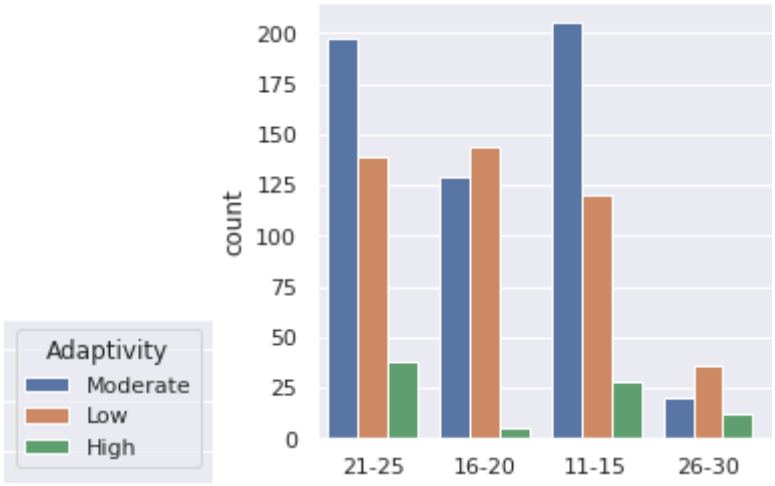
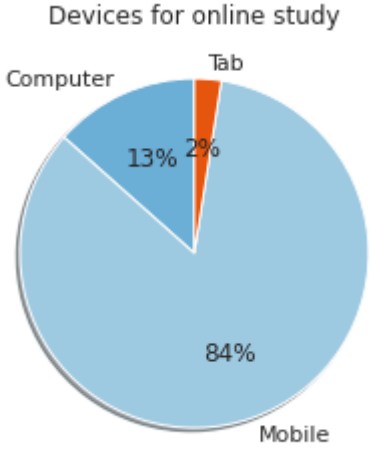


Fig.2 Adaptability of students of different ages

The problem of high school students' maladjustment to online learning is more serious than other age groups. Focusing on the data of the 16-25 age group, there are 280 students in the 16-25 age group, 275 of them are very maladjusted to online teaching and learning in general. Online teaching for students in this age group is very unsatisfactory.

The chart shows that the adaptation is not ideal for 16-20 years old. 16-20 years old is the group of high school students with high academic pressure. Due to the high academic pressure, exams and admissions, teachers need offline supervision and guidance. It is recommended that offline instruction be implemented for high school students whenever possible.

4.3 The relationship between online learning effect and equipment



There were 1008 students using cell phones as electronic mobile products for online learning and 192 students using computers as listening tools. Cell phones are mainly used as a learning medium, and the disadvantages of mobile terminals lead to poor online courses for students, poor adaptability to cell phones than the web screen is small, not conducive to online teaching interaction between students and teachers, ppt and pdf is difficult to see, many documents do not support cell phones, can not be opened, word is very small, can not run many teaching needs to use the program software, such as computer science students need to use in class Programming software, design students need to use drawing software, and mobile terminals can not use these software. And students can not effectively complete classroom assignments.

Many students use cell phones for online learning and few use computers, but students who use computers for learning are more adaptable and learn relatively well.

5. Conclusion

Therefore, it can be objectively seen that students are not well adapted to online teaching, and it can be inferred that the effectiveness of online teaching is not promising.

Most of them are not well adapted to electronic devices

Students lose the supervision of school teachers, which causes slackness and delays. 16-20 years old students learn poorly online. 16-20 years old are high school students with high academic pressure because high school students face great academic pressure and pressure from exams and admissions, and teachers need to supervise and guide them offline.

Students mainly use the cell phone terminal as the learning carrier, and the cell phone terminal screen is smaller. The disadvantage of the cell phone terminal leads to poor "online courses" for students, which leads to poor adaptation to online teaching.

6. Implications

First of all, Figure 1 shows that most students cannot adapt to online education.

Most students cannot adapt to online education. Since students cannot be supervised by their teachers in time, students slack off, which leads to a decrease in their learning ability, their inability to learn and master what their teachers have taught them, and ultimately their inability to cope with final exams. It can be inferred from the literature that it may be that most schools use offline exams to test the effectiveness of students' online learning, which will result in students' learning effectiveness not being fully demonstrated. [14] Therefore, it is recommended that schools adopt online exams if they use electronic textbooks for online learning. In the case of offline book learning, an offline paper exam is taken. This approach can be a better and more objective way to test students' learning effectiveness.

Second, Figure 2 points out very visually that high school students' online learning is poor because they are at the point where they are about to face the college entrance examination and need teachers' supervision. At the same time, they use e-learning and end up taking paper-based exams, which is very detrimental to them. Therefore, I suggest that prospective high school students should take offline instruction.

Finally, it can be concluded from Figure 3 that most students use cell phones as electronic mobile devices for online instruction and they are inefficient in learning. This points out that there are definitely many disadvantages of cell phones as a learning device. The cell phone screen is too small for students to see the teacher in the classroom, and it is not good for them to complete some document assignments that need to be done with a computer, and the social software, game software, and short video software on cell phones can lead to distractions in the classroom making students' learning attention drop, which leads to a significant decrease in students' online learning effectiveness. The quality of online learning for most students is affected by electronic mobile devices. Poor students, in particular, do not have access to electronic devices for online learning, nor do they have access to good electronic devices for learning. Therefore, we suggest that the government should unify the distribution of online teaching devices to students or distribute the electronic devices needed for online learning to poor students. At the same time, the relevant departments should cover the network to all areas and provide free internet for students.

Meanwhile, students can't adapt to online learning may be because some teachers can't learn to use online teaching equipment to teach and manage students, therefore, the state convenes excellent teachers to offer public classes so that rural students can also enjoy good education together.

References

[1] Aristovnik A, Keržič D, Ravšelj D, et al. Impacts of the COVID-19 pandemic on life of higher education students: A global perspective[J]. Sustainability, 2020, 12(20): 8438.

[2] Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021). Students' perception and preference for online education in India during COVID-19 pandemic. Social Sciences & Humanities Open, 3(1), 100101.

[3] Pye, G., Holt, D., Salzman, S., Bellucci, E., & Lombardi, L. (2015). Engaging diverse student audiences in contemporary blended learning environments in Australian higher business education: Implications for design and practice. Australasian Journal of Information Systems, 19.

[4] Basri M, Husain B, Modayama W. University students' perceptions in implementing asynchronous learning during Covid-19 era[J]. Metathesis: Journal of English Language, Literature, and Teaching, 2021, 4(3): 263-276.

[5] Lu, Q., He, Z., Huang, Q., & Xu, H. (2020, September). Research on Online Learning Tool Selection Based on User Online Learning Behavior. In 2020 The 6th International Conference on Industrial and Business Engineerin (pp. 91-93).

[6] Magalhães P, Ferreira D, Cunha J, et al. Online vs traditional homework: A systematic review on the benefits to students' performance[J]. Computers & Education, 2020, 152: 103869.

[7] Hong, J. C., Lee, Y. F., & Ye, J. H. (2021). Procrastination predicts online self-regulated learning and online learning ineffectiveness during the coronavirus lockdown. Personality and individual differences, 174, 110673.

[8] Rasheed R A, Kamsin A, Abdullah N A. Challenges in the online component of blended learning: A systematic review[J]. Computers & Education, 2020, 144: 103701.

[9] Hung J L, Zhang K. Revealing online learning behaviors and activity patterns and making predictions with data mining techniques in online teaching[J]. MERLOT Journal of Online Learning and Teaching, 2008.

[10] Bao W. COVID‐19 and online teaching in higher education: A case study of Peking University[J]. Human behavior and emerging technologies, 2020, 2(2): 113-115.

[11] Michinov N, Brunot S, Le Bohec O, et al. Procrastination, participation, and performance in online learning environments[J]. Computers & Education, 2011, 56(1): 243-252.

[12] Son C, Hegde S, Smith A, et al. Effects of COVID-19 on college students' mental health in the United States: Interview survey study[J]. Journal of medical internet research, 2020, 22(9): e21279.

[13] periodOdriozola-González P, Planchuelo-Gómez Á, Irurtia M J, et al. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university[J]. Psychiatry research, 2020, 290: 113108.

[14] Clinton V. Reading from paper compared to screens: A systematic review and meta‐analysis[J]. Journal of research in reading, 2019, 42(2): 288-325.

[15] Mayadas A F, Bourne J, Bacsich P. Online education today[J]. Science, 2009, 323(5910): 85-89.

[16] Chang W, Shi L, Zhang L, et al. The mental health status and associated factors among medical students engaged in online learning at home during the pandemic: a cross-sectional study from China[J]. Frontiers in psychiatry, 2021, 12: 755503.

[17] Odriozola-González P, Planchuelo-Gómez Á, Irurtia M J, et al. Psychological effects of the COVID-19 outbreak and lockdown among students and workers of a Spanish university[J]. Psychiatry research, 2020, 290: 113108.

[18] Torun E D. Online distance learning in higher education: E-learning readiness as a predictor of academic achievement[J]. Open Praxis, 2020, 12(2): 191-208.

[19] Tang Y M, Chen P C, Law K M Y, et al. Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector[J]. Computers & education, 2021, 168: 104211.