

A survey of online learning engagement of local normal college students in the digital age

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Abstract: Learning engagement, as a key factor to measure students' learning results, has always been a research focus in the field of education. With the continuous development of digital technologies such as artificial intelligence, the current situation of online learning investment of online learners has attracted more attention. As an important part of China's higher education system, local normal universities take the cultivation of local high-quality excellent teachers as the core. Through the investigation and research on the behavior, cognition, emotion and interactive engagement of local normal college students, it is found that students have shortcomings in the above aspects. Combined with the research results, feasible learning engagement strategies are proposed from the perspectives of students, teachers, majors and school development. It provides suggestions for the development of local higher education and the improvement of online education quality.

Key words: digital age; normal universities; online learning engagement; investigation and research

1 Introduction

Under the background of digital transformation of education, with the development and application of new information technologies such artificial intelligence, online learning has become the main way of learning. Learning engagement, as a key element to measure learning quality, plays a decisive role in students' online learning effect. Local colleges and universities are an important part of higher education in China, and the local higher normal universities are the bases for training future teachers. Relying on local governments, they assume the responsibility and mission for local economic construction and talent training quality. It is particularly important to explore the current situation of online learning engagement of local normal college students in the digital age.

2 Research design

2.1 Questionnaire preparation and design

Some scholars have studied online learning from different classification perspectives and compiled different scales. For example, Pascarella developed *American National Questionnaire on Learning Engagement in Secondary Schools* [1]. Dixson developed *National Questionnaire on Learning Engagement in College Students* [2]. Schaufeli developed *Learning Engagement Scale UWES-S* [3]. Li Shuang and Wang Changhua developed *Learning Engagement Scale* [4][5]. Some researchers divide learning engagement into behavioral, cognitive, and emotional engagement [6], while others analyze from behavioral, cognitive, emotional, and interactive engagement [7]. Kuth proposed that learning engagement is the practice and energy that students pay in activities [8]. Christenson believed that behavioral engagement is the action that

learners take in the process of online learning, actively participating and immersing themselves in the learning process [9]. Cognitive engagement is a cognitive strategy that learners adopt in the face of tedious learning. Emotional engagement refers to students participating in the emotional experience of being fearless of difficulties and optimistic in learning. Interactive engagement is the communication between students, teachers and students in the learning process.

Based on the above four dimensions, the questionnaire is designed in two parts. The first part is the basic information of students: gender and major. In the second part, 33 questions were prepared for specific projects, including behavioral engagement (9 questions), cognitive engagement (9 questions), emotional engagement (10 questions) and interactive engagement (5 questions). The scale was scored using five-point Likert scale, which was set as "completely disagree (1), disagree with (2), unclear (3), agree with (4), fully agree with (5)". A high score indicates a higher level of engagement in online learning.

2.2 Research object

The initial test subjects were students from two local normal colleges and universities. 80 questionnaires were randomly distributed, and 74 were collected with a response rate of 92.5%. After deleting invalid questionnaires such as short answering time (less than 15s), 68 questionnaires were obtained with an effective rate of 91.9%.

2.3 The reliability and validity test of the questionnaire

2.3.1 Reliability test

In order to verify the consistency of the results, Cronbach's alpha method was used to measure the reliability coefficients of behavior, cognition, emotion and interaction engagement, which were 0.952, 0.868, 0.871 and 0.949. When α is greater than or equal to 0.800 reliability, the description is very good. When α is greater than or equal to 0.900 reliability, the description is very ideal. Therefore, it can be judged that the questionnaire has good reliability and high internal consistency.

2.3.2 Validity test

To analyze the accuracy of the questionnaire, this paper used validity test. According to SPSS, we found $KMO=0.974$, $\chi^2=2079.947$, $df=528$, $P < 0.05$. It was a significant difference. Meanwhile, the cumulative explanatory variable was 86.52%. All the indexes conformed to requirement, indicating that validity test of the questionnaire is good.

2.4 The issuance of formal questionnaires

The questionnaires were officially distributed to 4 local normal universities. 476 questionnaires were distributed online and offline through paper questionnaires. Questionnaire star, link forms and 441 questionnaires were collected. Invalid questionnaires such as short answer time (less than 15s) were deleted, and 409 questionnaires were obtained, with an effective rate of 92.7%.

3 Investigation and analysis of online learning engagement

3.1 Descriptive statistical analysis

According to gender statistics, there were 196 male students and 213 female students, accounting for 47.9% and 52.1% respectively. According to the analysis of the number of subject samples, 175 people majored in literature and history, 135 in science and technology, and 99 in art, accounting for 42.3%, 33% and 24.2% respectively. There are fewer art students enrolled in normal colleges, so there are fewer art students in the sample.

3.2 Analysis on the current situation of online learning engagement

3.2.1 Current situation analysis of behavioral engagement

Behavioral engagement analyzes whether students participate in courses and online activities in a timely manner. The results showed that only 6.61%, 9.78%, 10.51%, 13.2% and 13.45% of the students "agree or strongly agree". Online

learning allows students to record the important and difficult knowledge taught by the teacher and regularly learn according to the materials provided by the teacher. However, few people complete the homework assigned by their teachers on time during online learning and activities. 23.72% of students can do online learning without doing things related to learning, 20.04% and 20.05% of learners will take the initiative to share resources with peers and teachers, and they can take the initiative to post or ask other learners for help when they encounter problems in learning. Generally speaking, according to the later interviews, the current state of behavioral engagement of local normal college students is not very optimistic.

3.2.2 Current situation analysis of cognitive engagement

Cognitive engagement is analyzed on whether or not students make plans and preview content and so on. The result shows that more than 50% of students can't make a good online learning plan. They are unable to make connections between old and new knowledge. What is more amazing is that 15.87% of the students can adjust their learning pace according to the self-evaluation results. To some extent, it can be seen that students' ability of knowledge processing and management of online courses is weak. 66.75% of students can learn knowledge through the Internet and get innovative ideas. 66.99% of learners will try to use comparative analysis and case teaching method to understand important concepts. As prospective teachers, normal university students will learn more teacher education, curriculum teaching theory and other related knowledge. Therefore, they should have a strong ability to understand theoretical chapters.

3.2.3 Current situation analysis of emotional engagement

Emotional engagement is analyzed on whether students are curious about the course and whether it makes them happy. 50% of the students hold a neutral attitude in emotional performance, about 30% of the students think "agree", and they are looking forward to online learning. This is in line with the current digital environment. Learners have computers, mobile phones and have better digital literacy. They often retrieve, screen and analyze information through the Internet in order to have a high sense of self-efficacy.

3.2.4 Current situation analysis of interactive engagement

Learners take the initiative to answer the teacher's questions, and can actively reply and share learning experience. Less than 20% of learners "agree" and "strongly agree", who can actively interact with each other, while close to 50% of students "disagree", who can actively participate in discussion and interaction. At some level, it can be found that local normal college students have weak awareness of active learning. The essence of online learning is that teachers and students are in a state of separation. More students are influenced by traditional teaching methods from childhood, and few learners actively answer questions.

4 Conclusion and suggestion

4.1 Research conclusion

The survey results show that: ① Behavioral engagement: the overall performance of students is poor, with many students unable to attend classes on time or complete online learning activities, and unable to effectively seek help for points that are difficult to understand and master in online learning. They are afraid of communicating and interacting with fellow teachers. ② Cognitive engagement: learners can learn and use the basic theory learning actively, and can create real-time content according to the learned content. However, more students have many problems in pre-class preview and planning, focused understanding of knowledge in class, review and practice after class, and are not strict in their self-requirements, and have unclear understanding of the nature of distance learning. ③ Emotional engagement: Compared with other aspects, about 30% of the learners still have expectations for online learning, hoping to participate in online courses and learning activities, and want to communicate with teachers and peers, which is consistent with the actual

starting point of online learning. However, we can also see that the remaining two-thirds of the students are not motivated enough to actively participate. ④ Interactive engagement: When learners face questions from teachers in the course discussion area, or encounter problems in their own learning process, it is difficult for them to independently consult, collaborate and communicate, and share ideas, and students' input level is low.

4.2 Countermeasures and suggestions

Based on the investigation of the current situation, this paper puts forward some specific strategies to improve students' online learning engagement in local normal universities in the digital age from the perspectives of students, teachers, majors and schools.

4.2.1 Behavior engagement level

Students should update their learning ideas and change their learning habits. The long-term teacher-oriented learning mode has made students overly depend on teachers and parents. In Internet society, learning materials, activities, courses and evaluations are presented in digital form. Therefore, learners should keep pace with the times, learn to search for resources and materials for effective learning through information-based learning equipment and tools, so as to improve their awareness and ability of independent learning, and concentrate on online learning. At the same time, students should carefully complete online learning tasks. It is normal to have confusion and problems in learning. We should not be afraid of problems when encounter them. We should move to adapt to the digital learning environment by searching through mobile phones and computers.

4.2.2 Cognitive engagement level

Teachers should strengthen the guidance of students' learning and promote the improvement of online teaching quality. In the physical classroom, teachers should change the teaching concept, pay attention to the application of blended teaching, flipped classroom, reflecting the "teacher-led, student-oriented" approach. Classroom teaching should not only transfer knowledge to students through teaching style, but also try to guide students' learning through online and offline methods and strengthen student supervision. Online learning allows students to take the initiative to choose courses, participate in activities and complete assessments through online learning, and offline learning can evaluate students' online learning content. According to the requirements of teachers, students make plans in advance, arrange the content of learning, and understand the important and difficult knowledge.

4.2.3 Emotional engagement level

The professional should regularly revise the talent training program and timely adjust the education and teaching content. Due to the rapid development of the Internet, the teaching content should be constantly modified. According to the requirements of schools on the basic knowledge and skills of teachers, curriculum settings should increase the diversity of content. Students should actively face the setbacks encountered in the learning process and take the initiative to participate in interaction, so as to deepen knowledge understanding and application in online learning environment.

4.2.4 Interactive engagement level

Schools should enrich digital resources to ensure teachers and students' teaching activity. Since teachers and students are separated during online learning, schools should introduce more new equipment and resources to give teachers more opportunities to access new teaching tools and seamlessly connect paper-based resources with electronic resources. Over time, students will gradually adapt to the online learning environment and use digital learning tools. In activities and homework assignments, teachers can set up peer evaluation to provide a specific evaluation system and students can participate in mutual evaluation after completing tasks. In addition, students can strengthen self-supervision to expand

horizons and enrich their knowledge. It is a good way to help understand how teachers teach and learn to improve students' self-efficacy. Moreover, it contributes to promoting the improvement of students' interaction level.

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Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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