Classroom Reform and Innovation in Higher Vocational Colleges from the Perspective of Classroom Learning Behavior

Jing He[1], Ting Luo[1], Sida Zhu[2]

[1]Vocational Education, Foshan Polytechnic, Foshan, Guangdong, China

[2]Pedagogy, The Education University of Hong Kong, HK, China

Abstract: In recent years, more and more attention has been paid to students' classroom learning behavior in higher vocational colleges. Most of the existing literature interpret students' classroom learning behavior from the perspective of students' learning motivation. Based on the analysis of students' classroom learning behavior and classroom teaching, from the perspective of classroom teaching and the background of big data era, this paper puts forward three important links of reform and innovation in higher vocational classroom learning, teaching, and evaluation to improve students' classroom learning behavior and promote students' learning effect.

1. Status and analysis of the problem

In recent years, there has been widespread attention to the learning behavior of higher vocational education students, and there has been an increase in the number of reviews and studies on the phenomenon of students' inattentiveness and playing with mobile phones in the classroom. In the article "Investigation of the phenomenon of mobile phone playing in the classroom of college students and the solution of countermeasures", Mr. Malan mentioned: "The classroom has become a continuation of the extra-curricular time for college students to play mobile phones, and some public classes have even become "hard-hit areas" for students to follow dramas and watch live broadcasts. In an article entitled "Survey on the Current Status of Classroom Learning Behavior of Highly Vocational Students and Research on Educational Countermeasures" [1], Mr. Wang Xiuhong said, "The survey found that many students lack initiative in learning and do not love to study and attend classes. It is common for more than 50% of students to consider their classroom learning to be generally motivated, they are more passive in the classroom and do not have their insights [2]. Teacher Li Jinye mentioned in "Educational Countermeasures for the Study of Classroom Misbehavior of Higher Vocational Education Misbehaviour such as talking in class, eating, playing with mobile phones, reading extra-curricular books, etc. is repeatedly prohibited [3]. The survey data show that the number of people playing with mobile phones in class reached 70%, the proportion of people who sleep a lot in class reached 33.01%, and the proportion of students who read extracurricular books a lot in class reached 39.3%."

There is also a wide range of suggestions on how to effectively regulate students' classroom learning behaviors and curb mobile phone play in the classroom, and more than 150 articles on learning behaviors and attitudes of students in the senior classroom have been reviewed from CNKI. Most scholars have analyzed the classroom learning behaviors and attitudes of high-ranking students by attributing students playing with mobile phones to "the popularity of smartphones or the impure motivation of students to learn". For example, Mr. Yu Hongli mentioned in the article "Study on Learning Psychology and Learning Behavior of Highly Vocational Students": "According to the survey and research findings, students lack clear learning motivation, and this kind of learning motivation, which is not established to master knowledge, is very fragile and therefore cannot be sustained [4]. At the same time, teacher He Jinjin (2010) also mentioned that "the rapid development of modern information technology and the sharing of Internet resources have facilitated the learning of college students, but also brought negative effects. Many college students spend their time on the Internet after school, and some of them have developed a bad mentality that belittles classroom

teaching and is too lazy to think independently" [5].

In response to the emergence of the phenomenon of senior students playing mobile phones or not paying attention in class, schools to curb students playing mobile phones in class are also constantly innovative measures, which can be described as a hundred arguments, but this phenomenon does not seem to have been effectively alleviated because of the school's more measures, this "persistent disease" seems to be a problem for many schools. Many reasons affect students' classroom learning behavior, and of course, two very important factors are the "prevalence of smartphones (in the age of big data) and the impurity of students' motivation. But can we analyze and mitigate this problem from another perspective besides motivating students and correcting their learning attitudes? The popularity of smartphones in the age of big data is a reality that cannot be changed as a school or teacher, and while it is possible to develop classroom discipline or systems related to not being able to carry a cell phone in the classroom, its inherent psychology affected by this era is difficult to address through simple systems and discipline. Therefore, this paper analyzes and reflects on the context of the big data era and the classroom teaching model from the perspective of whether it is possible to reform the innovative classroom teaching model to improve the concept of classroom learning behavior of high school students and conduct related analytical research.
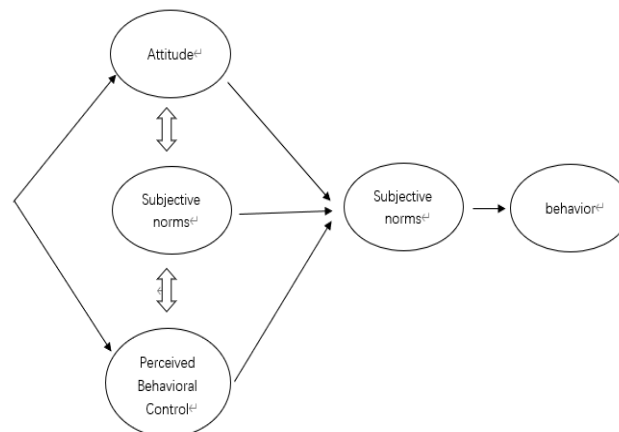
2. Relevant theoretical analysis

Figure 1 Theoretical model of planned behavior diagram. [6]

There is currently no fixed explanation for students' classroom learning behavior it can be studied either directly or indirectly from the students' learning attitudes, interests, needs, motivations, and habits. While behaviorist psychology holds that human behavior is the result of environmental shaping and that thinking is the result of interaction with the external environment, leading to the theory of linkages between external stimuli and behavioral responses, cognitive psychology, in contrast to its view, holds that behavior is the result of epiphany after cognitive linkages are established, i.e., cognitive structures produce behavioral outcomes [7]. The Theory of Planned Behavior (TPB) states that "behavior is a combination of behavioral intention and perceived behavioral control. Behavioral intention is determined by a combination of attitude, subjective norms, and perceived behavioral control. Attitudes, subjective norms and perceived behavioral control interact" (see Figure 1).

Many scholars have shown research on classroom learning behavior in college students from the CNKI literature. For example, Wu Li-Cui (2016) believes that learning behavior is the visible external activities of students in the learning process, such as the posture, hand and face when thinking, and the mouth shape, eyes and posture tendency when listening to lectures [8]; Wang Juan-Juan and Li Hua (2010) believe that the classroom learning behavior of college students refers to the learning attitude and learning style of college students in the classroom learning process, reflecting the learning spirit of college students' independence, cooperation and active inquiry; Liu Xiao-Hua and Zheng Ping (2010) turn the study of learning behavior to study learning needs, motivation, attitude and habits, etc. And there are many studies on the relevance of classroom teaching as an important part of

students' classroom learning behavior. For example, Mr. Wang Xiuhong mentioned in the article "Survey on the Current Status of Classroom Learning Behavior of Senior Students and Research on Educational Countermeasures" that "the high or low quality of teachers and the teaching style and level of teachers are important reasons to influence students' classroom learning behavior" [9]; Mr. Li Jinye mentioned in the article "Exploration of Educational Countermeasures for Classroom Learning Behavior of Senior Students" that "the school curriculum lacks practicality and the single teaching format of teachers, and classroom teaching is boring, resulting in the occurrence of students' classroom absence and early withdrawal and other behavioral disorders" [10]; Mr. Yu Hongli mentioned in the article "Research on Learning Psychology and Learning Behavior of Senior Students" that the countermeasures to solve the problems of learning psychology and learning behavior of senior students also mentioned the need to improve the overall quality of teachers and promote teachers' motivation to teach and change teaching mode. Chen Li also mentions the social environment, teacher charisma and teaching methods as important factors influencing the learning behavior of high school students in "Influencing Factors and Improvement Strategies of High School Students" [11]. Songlin Li (2005) "Classroom teaching is the unified activity of teacher's teaching and student's learning, for the convenience of theoretical analysis, classroom teaching behavior is divided here into teacher's teaching behavior and student's learning behavior." It is also suggested that "learning behavior is the sum of the activities of learners who choose a variety of means to achieve a learning outcome, guided by a certain motivation, while teaching behavior is the sum of all the actions of the teacher that cause, maintain or facilitate student learning, that is, the supportive, service and instructional activities of the teacher to facilitate the completion of learning behavior" [12]. Therefore, from the school's point of view, students' behavior in the classroom, especially learning behavior, is inextricably linked to the environmental context, and the classroom perspective should focus on students' performance as the core to improve the various problems that students may have, returning to the school's educational distance - the classroom.

3. The relevance of classroom teaching reform

Zhong Qiquan (2014) of East China Normal University said, "The core of educational reform lies in curriculum reform, the core of curriculum reform lies in classroom reform, and the core of classroom reform lies in the professional development of teachers. "The classroom is the starting point and the landing point for reform, and educational change cannot be achieved without the school classroom, and the effectiveness of a quality classroom for teaching and learning is evident. Classroom reform and innovation in colleges and universities are also underway, but in the midst of it, many problems are still the main factors that interfere with the reform process. For example, some institutions neglect the cultivation of students' abilities, require each student to attend school with high-level standards, deviate from the original purpose of education and teaching, and do not focus on the cultivation of students' employability; in addition, the pursuit of students' employment rate, neglect the training of students' skills, put too much energy into society, neglect the importance of school education. At the same time, in the implementation of the policy, too much emphasis is placed on "classroom teaching" and "test scores", and the lack of communication between teaching and learning leads to a poor understanding of "vocational competence" and a lack of understanding and transparency among students. Multi-layered needs that make it difficult to achieve student growth goals.

At the same time, the rise of Internet algorithmic technology, artificial intelligence, has made an explosive leap forward in human data capabilities. The world was presented to me with a clarity never seen before. Big data will gradually penetrate every field of our life and work，and is quietly influencing and changing our life and way of thinking, which also means that big data has become an important symbol of the new era. Education, as an important part of social activity, will also have a significant impact on this big data, and the audience and organizers of education are bound to change. In recent years, research on Big Data + Education has gradually become a research hotspot, and CNKI can search more than 8200 related articles by keywords of Big Data + Education alone, while Big

Data + Education can select more than 100 related literature. The application and emergence of artificial intelligence in education may come sooner than we expect, as Xiaomi Lei Jun said at the Fourth World Internet Congress in 2017, "The AI technology revolution may start with a breakthrough or two, and then cover all aspects of life, penetrating faster and faster". According to relevant sources, in 2017 artificial intelligence robots took the mathematics examinations of the higher education examinations. In April and May 2018, the Ministry of Education formulated and released the Action Plan for Artificial Intelligence Innovation in Higher Education and the Action Plan for Education Informatization 2.0, respectively, it can be seen that this aspect is gaining attention. Although we now dare not imagine how big the future changes brought by big data and artificial intelligence to education, we have been unconsciously in the big data era is the classroom teaching reform is a reality that must be faced.

4. Reflections on classroom teaching reform and innovation

4.1 Positive shift from a single classroom to a pluralistic classroom

It can be predicted that there will be significant changes in the field of education in terms of teaching and learning models, reorganization of assessment systems, educational decision-making, application of big data in education, etc. And the classroom as the main channel and frontier of talent cultivation expropriation, the trend of classroom reform in the context of big data will also make a significant change in the context of big data educational change. In the context of big data, the classrooms where schools are already dominant will be hit hard, and "big data" is helping us to generate new models of education management. "There is less and less classroom instruction, more and more online instruction, less and less face-to-face instruction, and more and more human-computer interaction. The interprofessional, inter-institutional, and cross-border curricular collaboration will be increasing, in a form that has broken away from the classroom in the traditional sense. Although Internet-based learning is still in its infancy and most of the learning content on the Internet is now based on existing courses, mainly on "teacher control" rather than "learner control", most of the mobile learning is still at the level of "knowing" or "understanding" as the "goal" of knowledge, and does not reach the level of "analysis" or "synthesis and evaluation". But with the breakthrough of 5G technology and artificial intelligence, with the support of big data, the future will be able to effectively break the current trend of self-paced learning to blended learning. The content and forms of learning will also become diverse. "There is less and less classroom instruction, more and more online instruction, less and less face-to-face instruction, and more and more human-computer interaction. There will be an increasing number of interprofessional, inter-institutional and cross-border curriculum collaborations. Soon, the "cloud classroom" model based on big data will become a major learning model provided by schools to students, and the traditional single classroom will be transformed into a multi-classroom model.

4.2 Classroom learning paradigm shift underway

With the support of big data, the paradigm of classroom learning has begun to change, and the popularity of multimedia has led to the expansion of educational resources and the emergence of various educational models in the school business, which has undergone many educational changes, and the traditional school-centered learning model cannot adapt to the demands of personalized learning in the future. The "cloud classroom" is not only a virtual learning space, but also a new classroom learning paradigm, the traditional learning students' attendance, learning behavior, assignments and examinations and a series of other behaviors need to be carried out under the guidance of the teacher within a certain space and time frame, and the teacher also relies mainly on his own experience and observed information to judge the students' academic development, such judgment is unable to explore the students' complete learning process and the learning situation, only a relative evaluation results. In the era of big data, every learner is a terminal in front of "big data", whether online learning or offline learning, as an open "cloud classroom" course platform can "record the length of time a learner observes a learning video, the number of repetitions of a piece of

knowledge, accelerate the number of dragged in or directly skipped", and automatically provide the learner's learning progress and learning data, through the data can be analyzed to learners' choice and use of multimedia courseware, to master a concept, principles and laws need to spend time and effort. The learner's learning trajectory and learning outcomes can form a clear learning map presented to us. This paradigm shift in classroom learning will promote greater learner motivation for self-directed learning, while this paradigm shift in learning will lead to a greater focus on learning outcomes for both learners and educational organizations. Therefore, the classroom learning mode of cases, group discussions and research-based tasks with the assistance of information technology may better reflect Dewey's classic view of "education is growth" in education, which is worth exploring and practicing.

4.3 The philosophy and content of classroom teaching are changing

The traditional school-centered philosophy of curriculum instruction is a mapping of the times, but does this model match the ideas that tell development today? As a result, educators need to change the way they educate and improve the way they think about education when the new data age comes to the fore. With the advancement of technology in the new era, a variety of education models have entered vocational colleges and universities and combined with the concept of cultivating skilled talents in vocational colleges and universities, each institution should seize the opportunity to innovate the education process, change the previous superficial content such as employment rate and student attendance rate, use technological equipment to deepen knowledge and skills to the real needs of each student, and based on cultivating special talents, pay attention to the quality of students and develop innovative talents. Tracking down the individual student, offering a personalized curriculum system to meet the multifaceted knowledge requirements of the student, fully integrating the student's skills and classroom knowledge to achieve the ultimate goal of integrating the student's comprehensive abilities. The diversification of classroom activities comes from the progress and development of the times, and the two are closely related, but the long-term development of both is still inseparable from the growth of learners, and only a constant infusion of talents can ensure the continuous development of the times, thus forming a quality cycle.

The characteristics of the big data era are not only the richness of course learning resources, but more importantly, the presentation of these course resources will also become rich and colorful, and forms that cannot be achieved by traditional courses can become reality with the support of big data, artificial intelligence and AR technology. Therefore, the big data era will be followed by major changes in course content, the arrival of the 5G era, pictures, videos, AR and other intuitive course content may become a substitute for the traditional relatively abstract teaching content. The courses will also be presented in the form of online course resources such as catechism, micro-courses, open video courses, resource sharing courses and so on. Structured course content, fragmented knowledge, and diverse forms may become the dominant form of course content in the era of big data.

4.4 Big data will promote the changes in classroom teaching methods and evaluation

The core of classroom reform should not stop at the student level, and teachers' teaching should be given equal importance. The focus of teaching has undergone several shifts, but the constant is what is taught, i.e. what is taught to students? What is the content that students really need? Although students have a certain degree of discernment due to their cognitive and age deficiencies, it is still the teachers who dominate the process from instructional design to measurement. The phenomenon that teachers with high teaching standards do not necessarily teach students with high standards, is also an issue worth thinking about in the current teaching reform. The era of big data has placed new demands on the teacher function, and the focus of teaching has once again changed, affecting a range of activities in teaching and learning, thus raising the demands on teachers to a new level. Teachers in the context of the big data era teach students not only knowledge, but more importantly how to learn knowledge, teachers need to collect and analyze computing functions through data information based on learning objectives and teaching content, detect students' current cognitive status, learning history, learning preferences, objective factors, learning objectives and other data information, and based on this data information, develop targeted learning service strategies. At the same time, through an offline seminar, case and scenario classroom learning, online teaching platform, online guidance

and question and answer, make reasonable suggestions to students, realize the effective combination of online and offline classroom learning task-based teaching methods and diversified teaching strategies, stimulate students to learn the problem, cooperate with students to complete the learning tasks, make the course more personalized and humanized.

From the point of view of educational assessment, a single test result cannot replace the final ability of students. In vocational institutions, students' ability, especially professional skills, cannot affect the learning of students' skills courses because of the performance of individual subjects, which is not only a delay in the growth of students but also a disregard for talents. The assessment should not be limited to the campus level, the ability of students under the multi-vision is a kind of mapping of the talents in the big era, the traditional knowledge-based talents in the comprehensive evaluation will gradually decrease in weight, as the change implementer teachers need to pay more attention to the comprehensive ability of students, the assessment of students should not be limited to grades and scores but needs to be based on multiple abilities, such as: cognitive and metacognitive. In addition, there should be a variety of assessment methods. In today's era of technological development, the popularity of cloud platforms and learning software needs to be applied to campus life promptly, so that teachers can observe students' learning and living conditions from multiple perspectives, analyze students' comprehensive conditions through the collection of information from online and offline platforms, and then realize the arrangement of new teaching methods and content, and again with the help of multiple devices, to realize the comprehensive development of students, on the basis of upgrading school facilities, to maximize the ability of students, through the transformation of teachers, to realize the common development of teachers and students, driving the comprehensive development of the school, thus making continuous progress in the era. The value-added assessment system in Tennessee, USA, uses value-added assessment methods to analyze each student's academic progress through a multi-year tracking analysis of student achievement in areas such as language arts, math, and science, and uses this as a basis for assessing district, school, and teacher effectiveness [1]. As the pace of the times continues to advance, the use of advanced technology to analyze the problems in school education is gradually accepted, the accuracy compared to the traditional is widely recognized, and the popularity of online platforms can also be used to predict the effectiveness of teaching, enabling teachers to make timely corrections to possible problems, to ensure that school education is in order.

5. Summary and Recommendations

The development of Internet algorithm technology and artificial intelligence has greatly promoted the application of big data, and education in this big data is bound to have significant impact and change. The classroom as the main battlefield of talent training, but also the core of educational development and reform, will certainly show the demand for change and the blueprint for change earlier, as the so-called "spring water warm duck prophets" education changes or changes from the classroom began. The era of big data requires new ideas and ways of thinking, or from this perspective there is a different vision for correcting students' learning attitudes and behaviors and promoting student learning outcomes. Of course, many factors affect students' classroom learning behavior, and the reform and innovation of teachers' charisma and teaching methods can improve students' classroom learning behavior to a certain extent, but it is difficult to curb or achieve the ideal state, so we still need to analyze students' classroom learning behavior from multiple perspectives, and through multiple measures of analysis and guidance may have a good result.

Acknowledgements

References

[1] Ma L. Investigation of cell phone playing phenomenon in college students' classroom and countermeasures to solve it. Reading and Writing (Journal of Education and Teaching), 2017, 14(04): 49.

[2] Wang X.H. A survey of classroom learning behaviors and educational countermeasures for high-ranking students. Mechanical Vocational Education, 2015, 07: 53.

[3] Li J.Y. Exploration of educational countermeasures for learning misbehavior in the classroom of high-ranking students. 2014, 11: 201-202.

[4] Yu H.L. A study on learning psychology and learning behavior of higher vocational students. Education Teaching Forum, 2014, 46: 85-86+75.

[5] He J. Learning psychology and learning behavior of high school students and its influencing factors. Journal of Henan Institute of Education (Philosophy and Social Sciences Edition), May 30, 2010.

[6] Ajzen I. The theory of planned behavior. Organizational Behavior and Human Decision Processes, 1985:179-211.

[7] Fu W. Wang W.R. A comparison and evaluation of behaviorist and constructivist views of teaching and teacher-student roles. Comparative Education Research, 2000.

[8] Wu L.C. A study of classroom learning behavior of college students. Education Teaching Forum, 2016, 44: 50-51.

[9] Wang X.H. A survey of classroom learning behaviors and educational countermeasures for high-ranking students. Mechanical Vocational Education, 2015, 7: 53.

[10] Li J.Y. Exploration of educational countermeasures for learning behavior misconduct in classroom of high school students," 2014, 11: 201-202.

[11] Yu H.L. A study on learning psychology and learning behavior of higher vocational students. Education Teaching Forum, 2014, 46: 85-86+75.

[12] Li S.L. The behavior analysis of classroom teaching. Education Theory and Practice, 2005, 07: 48-51, 2005.