ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

Evaluation in Teaching and Learning in China's Higher Vocational Colleges

Han Jiayu[1,a,*], Rhoda Tique[1,b]

[1]*Graduate School, University of Baguio, Baguio, Philippines*
[a]*20240013@s.ubaguio.edu,* [b]*rhodatique@e.ubaguio.edu*
**Corresponding author*

Abstract: *With the rapid digital transformation of education, especially after COVID-19, online learning has become central in China's higher vocational colleges. This study examines the online learning experience and satisfaction of students at Shaanxi Polytechnic University through questionnaires and interviews. Guided by established learning theories, it analyzes how institutional and behavioral factors influence learning outcomes. Results show that students find online learning accessible and content clear but express concerns about weak teaching strategies and limited interaction, leading to moderate satisfaction. Enhancing interactivity, digital infrastructure, and pedagogical design is essential to improve quality. The findings offer insights for reforming vocational education in the digital era.*

Keywords: *Online Learning, Higher Vocational Education, Learning Platforms, Digital Pedagogy*

1. Introduction

China's higher vocational education (HVE) plays a key role in developing skilled workers for its industrial upgrade. As demand for technical talent grows, Higher Vocational Colleges (HVCs) face scrutiny regarding instructional quality and learning effectiveness. Research on online learning in this sector is vital for improving teaching quality and fostering innovation.

Although online learning offers flexibility and convenience, challenges such as weak attention, monotonous content, and limited teacher–student interaction affect outcomes. Online learning includes both digital platforms and resources, allowing synchronous or asynchronous participation (e.g., MOOCs).

Recent studies highlight both achievements and shortcomings. Wu Daguang et al. (2020) found that large-scale online teaching during COVID-19 exceeded expectations[1], while Zeng (2020) noted improved interactivity via digital tools[2]. However, Zhao (2020) argued that online teaching still supplements rather than transforms traditional instruction[3]. Chen et al. (2023) warned that heavy reliance on digital media may weaken critical thinking[4].

Globally, evaluation in vocational education has evolved to align with labor market demands and technological advances. Germany's dual system emphasizes formative assessment and stakeholder engagement (Pilz & Li, 2020) [5], while Australia integrates tech-based evaluation to enhance engagement (Pan & Jiang, 2024) [6].

In China, studies (Zhou et al., 2023[7]; Xiang, 2021[8]; Cao, 2021[9]) show that teacher competence, student behavior, and engagement strongly affect satisfaction. Poor interaction, passive learning, and weak self-control result in low effectiveness. Sun and Guo (2020) emphasized integrating online and offline teaching, with shared responsibility among teachers, students, and institutions[10]. According to Sun (2020), improving online education demands a joint effort: teachers must adopt innovative teaching strategies, students should develop self-directed learning skills, schools must provide support systems, and platform providers need to offer personalized services[11].

In summary, improving online learning in vocational colleges requires stronger pedagogy, technological integration, and collaboration among all stakeholders. Combining online and offline methods supported by data and institutional systems can enhance engagement and outcomes.

This study aims to assess students' satisfaction with instructional strategies, digital resources, and content delivery in order to identify effective evaluation approaches and inform policies that align with

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

national and global standards.

2. Objectives of the Study

To assess students' satisfaction with online learning resources, instructional strategies, and content delivery.

To identify the key challenges impacting the effectiveness of online learning.

To propose evidence-based measures for enhancing the overall quality of online teaching and learning.

3. Methods

3.1 Study Design

This study adopts qualitative method, to comprehensively investigate the actual situation and challenges of students participating in online learning in higher vocational colleges. The qualitative method was chosen in order to gain a deeper understanding of students' experiences, perceptions, and interactions in online learning environments.

3.2 Sample/Population of the Study

The participants were students from Shaanxi Polytechnic University, a nationally recognized higher vocational institution with a well-established online education system. The university's participation in national apprenticeship and MOOC programs made it a representative case for this study.

Purposive sampling was applied to select students who had completed at least one semester of online learning, while those with insufficient experience were excluded to ensure data accuracy. A total of 100 students voluntarily participated and completed the questionnaire. All procedures followed ethical standards, including informed consent and confidentiality protection.

3.3 Data Collection Instruments

A structured questionnaire is utilized, comprising three sections: Demographic Information – course enrolled, subjects taken online, and duration of online learning; Satisfaction Measures – closed-ended items evaluating satisfaction with instructional strategies, educational resources, and content delivery; Open-Ended Items – designed to capture personal insights and deeper reflections related to the study's second objective.

3.4 Data Gathering Procedures

After obtaining approval from the university administration, the researchers distributed the questionnaire via WeChat links to ensure convenient and secure participation. The three parts of the questionnaire corresponded to the two core objectives of the study. After data collection, all responses were collated, screened, and coded for further statistical and qualitative analysis.

3.5 Data Treatment and Analysis

The result of the study was treated using statistical methods like frequency, percentage and mean. On the current situation of Online learning, Frequency was used and its percentage. The satisfaction with online resources, strategies and delivery of content, mean was used. As for the open-ended questions, responses were arranged according to the most common answers to the least ones. After the statistical analysis, the researchers did the interpretation and analysis of data according to the result of the study.

4. Results and Discussion

This portion shows the result of the study on the current situation of students along the satisfaction

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

on the strategies, resources and delivery. The following are the detailed presentation on the result of the study.

4.1 Analysis of Satisfaction with Online Learning Resources

This section evaluates student satisfaction with online learning resources based on six survey items (Q6–Q11), focusing on aspects such as accessibility, quality, and overall experience. The detailed statistical results of students' satisfaction with online learning resources, including accessibility and quality indicators, are presented in Table 1. The satisfaction with online learning resources (Q6–Q11) yielded average scores ranging from 2.70 to 3.17 on a 4-point Likert scale. Although the results suggest moderate satisfaction, accessibility and consistency of resource quality emerged as key concerns.

Table 1: Student Satisfaction with Online Learning Resources: Accessibility and Quality Indicators

Item	Sub-Dimension	Mean	SD	Interpretation
Q6	Resource Availability	3.04	0.76	Satisfactory
Q7	Quality Description	3.12	0.68	Satisfactory
Q8	Resource Quality Satisfaction	3.17	0.82	Satisfactory
Q9	Ease of Access	2.77	0.73	Satisfactory
Q10	Access Satisfaction	2.70	0.76	Satisfactory
Q11	Overall Resource Satisfaction	2.76	0.76	Satisfactory

Satisfaction Rating Criteria: Mean ≥ 3.5: Very Satisfactory;2.5 ≤ Mean < 3.5: Satisfactory;1.5 ≤ Mean< 2.5: Unsatisfactory; Mean < 1.5: Very Unsatisfactory.

Most students relied on smartphones (95%) and laptops (85%) for online study, which made them vulnerable to technical barriers such as poor dormitory network connections, low device performance, and inconsistent platform compatibility. Network congestion during peak hours and limited hardware capabilities were frequently mentioned as key obstacles.

According to Bandura's Social Cognitive Theory (1986) [12], self-efficacy—the belief in one's ability to perform a task—plays a central role in sustaining learning motivation. The technical and infrastructural barriers observed in this study reduced students' perceived control over learning, weakening self-efficacy and leading to decreased engagement. Repeated buffering, login errors, and resource inaccessibility often resulted in frustration and passive learning behaviors.

Despite these challenges, students rated the content structure and clarity relatively high. This reflects a compensatory mechanism of outcome expectancy—the belief that consistent effort can still lead to success even in imperfect conditions. Nevertheless, the imbalance between "high-quality content" and "low accessibility experience" reveals a critical weakness in the online learning ecosystem.

To improve self-efficacy and align with Bandura's triadic reciprocal determinism, institutions should address both technical and behavioral dimensions simultaneously. Expanding bandwidth, optimizing platform design for mobile use, and offering affordable hardware support can reduce environmental constraints, thereby restoring students' confidence and motivation to learn.

4.2 Analysis of Satisfaction with Online Learning Strategies

Among the three core dimensions measured in this study, online learning strategies emerged as the only dimension with an overall rating in the "unsatisfactory" range. Items Q12–Q17 addressed key aspects such as classroom interaction, instructional strategy design, student feedback, frequency of participation in interactive activities, and overall strategy satisfaction. The summarized findings regarding students' satisfaction with online learning strategies, focusing on interaction and feedback mechanisms, are shown in Table 2. Of the six items, five scored below 2.5, reflecting structural deficiencies in the implementation of instructional strategies within current online teaching practices in higher vocational education. In the interviews, one instructor stated, "With 200 students in an online class, effective interaction is nearly impossible—after I finish lecturing, the session is over" (R78). A student also remarked, "All we do is check in; nobody asks whether we actually learned anything" (R12). These quotes underscore the loss of negotiated meaning and the weakening of the teacher's mediating role, as described in Mead's interactionism.

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

To explore the underlying causes and guide meaningful improvements, this section employs George Herbert Mead's Interaction Theory, focusing on the core issue of *interactional absence* in online instruction.

Table 2: Analysis of Student Satisfaction with Online Learning Strategies in Higher Vocational Education

Item	Sub-Dimension	Mean	SD	Interpretation
Q12	Satisfaction with Classroom Interaction	2.23	0.71	Unsatisfactory
Q13	Effectiveness of Teaching Strategies	2.34	0.82	Unsatisfactory
Q14	Satisfaction with Teaching Strategies	2.64	0.87	Satisfactory
Q15	Frequency of Participation in Activities	1.93	0.80	Unsatisfactory
Q16	Satisfaction with Activities	2.09	0.70	Unsatisfactory
Q17	Overall Satisfaction with Strategies	2.49	0.86	Unsatisfactory

Satisfaction Rating Criteria: Mean ≥ 3.5: Very Satisfactory;2.5 ≤ Mean < 3.5: Satisfactory;1.5 ≤ Mean< 2.5: Unsatisfactory; Mean < 1.5: Very Unsatisfactory.

4.2.1 Lack of "Meaning Negotiation" in Instructional Strategy Design

According to Mead (1934), the essence of learning lies in the self-construction that occurs through symbolic interaction with others[13]. This process relies on dynamic feedback loops between teacher and student and among peers within the instructional environment. However, both observational and interview data from this study suggest that many online courses still adopt pre-recorded lecture formats or closed-content delivery without real-time interaction mechanisms.

Three major deficits were identified: Displacement of the "Generalized Other". In asynchronous formats, teachers' instructions lack personalization and responsiveness. Students cannot perceive individual acknowledgment from the instructor and thus fail to internalize the "perspective of the other"—a core function of Mead's generalized other. Failure to Activate "Self-Awareness". The low mean scores for activity frequency (1.93) and activity satisfaction (2.09) indicate a breakdown in creating a responsive social space. Without a "social response field," students are unable to construct their Me through dialogic feedback with their I, impeding identity regulation and self-reflection. Learning becomes isolated and desocialized. Absence of "Joint Attention". In most online classrooms, participation is reduced to simple check-ins and content viewing. There is no shared interpretive space for discussion or joint engagement, which is essential for co-constructing meaning.

These findings suggest that current instructional strategies lack a *mechanism of meaning negotiation*. Students have limited opportunities to engage in mutual understanding, reflect on divergent perspectives, or internalize knowledge through dialogical processes. As a result, teaching devolves into one-way information transmission without opportunities for deep cognitive construction.

4.2.2 Regression of Teacher Function: Mead conceptualizes teachers as social mediators who scaffold learning by organizing meaningful experiences and providing timely feedback

However, survey and interview responses reveal significant regression in this role. In elective courses, instructors do not participate in follow-up interaction after recording the content. In mandatory courses, lectures are predominantly monologic, with limited Q&A or discussion.

Teachers often fail to redesign instructional workflows for the online format, merely replicating offline content without considering the need for interactive logic. In the absence of *mirror feedback*, students cannot detect conceptual misunderstandings or engage in social comparison, weakening the effectiveness of teaching and diminishing satisfaction.

4.2.3 Disconnection between Interaction Design and Learning Motivation

Interaction, from the perspective of Interaction Theory, is also a key pathway to stimulate socially situated learning motivation. The low frequency and satisfaction scores for interactive activities indicate a failure to activate students' internal drive to engage. Three main problems were noted: Lack of Collaborative Structures: Most courses do not implement group work or discussion forums. Monotonous Interaction Formats: Interactions are limited to surface-level tasks (e.g., check-ins, multiple choice), with few open-ended or discussion-based activities. Detachment from Assessment: Participation in interactive tasks does not influence course grades, providing no incentive for engagement. These shortcomings imply that interaction has not been transformed from a formal requirement into a motivational mechanism. This contradicts the fundamental premise of Interaction Theory, which posits that meaning formation is dependent on the social context and behavioral

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

feedback.

4.2.4 Proposed Improvements for Online Learning Strategies

To address the identified deficiencies in online learning strategies, such as limited interaction, insufficient teacher feedback, and monotonous interaction formats, the following improvements are proposed:

Enhance Interaction Design and Teacher Engagement: Course designers should develop interactive online teaching modules, utilizing real-time interactive tools such as discussion forums and live polling systems, to foster immediate communication between students and teachers. Teachers are encouraged to set specific interactive sessions after class through virtual office hours or live Q&A sessions to actively address students' questions.

Diversify Interactive Formats and Incentives: Teachers should incorporate open-ended discussion activities, providing more opportunities for students to express and reflect on their own perspectives, thereby cultivating critical thinking and self-directed learning skills. They should link participation in interactive activities to course grading, clearly defining evaluation criteria to incentivize active student participation and enhance intrinsic motivation.

Conduct Specialized Training for Teachers' Online Teaching Skills: Institutions should regularly organize specialized training for teachers to enhance their ability in designing effective online instructional strategies and utilizing interactive technologies, thereby improving overall online class quality and interactivity.

4.3 Analysis of Satisfaction with Delivery of Content

This section analyzes six questionnaire items (Q18–Q23) related to students' satisfaction with the delivery of online learning content. A detailed distribution of students' satisfaction scores for clarity, pacing, and learning outcomes in online content delivery is provided in Table 3. The average scores across these items range from 2.88 to 3.06, indicating an overall level of satisfaction. Among them, clarity of content delivery (2.96) and content pacing (3.02) received relatively higher ratings. Meanwhile, students' perceived achievement of learning expectations reached a mean of 3.06, surpassing both overall resource satisfaction (2.76) and overall instructional strategy satisfaction (2.49), as well as the overall satisfaction with content delivery itself (2.96).

Table 3: Student Satisfaction with Online Content Delivery: Clarity, Pacing, and Learning Outcomes

Item	Sub-Dimension	Mean	SD	Interpretation
Q18	Clarity of Content Delivery	2.96	0.73	Satisfactory
Q19	Satisfaction with Content Delivery	3.05	0.73	Satisfactory
Q20	Achievement of Learning Expectations	3.06	0.69	Satisfactory
Q21	Satisfaction with Learning Outcomes	2.88	0.71	Satisfactory
Q22	Satisfaction with Content Pacing	3.02	0.73	Satisfactory
Q23	Overall Satisfaction with Content Delivery	2.96	0.64	Satisfactory

Satisfaction Rating Criteria: Mean ≥ 3.5: Very Satisfactory; 2.5 ≤ Mean < 3.5: Satisfactory; 1.5 ≤ Mean< 2.5: Unsatisfactory; Mean < 1.5: Very Unsatisfactory.

4.3.1 The Core Contradiction: Outcome Satisfaction and Superficial Engagement

To better understand the findings, George Siemens' Connectivism Theory offers valuable insights. Connectivism views knowledge as distributed across networks of information nodes, where learning occurs through activating and connecting these nodes.

High satisfaction with clarity and pacing reflects China's strong digital infrastructure, especially the widespread use of 5G, which enables smooth streaming of multimedia content. According to Siemens (2005), technology is not just a delivery tool but a core part of the learning structure[14]. Easy access to these "external nodes" enhances students' perception and initial processing of knowledge. Additionally, the flexible pacing of elective courses (mean = 3.02) supports personalized learning, allowing students to study according to their own cognitive rhythms—an essential tenet of Connectivism.

However, a gap exists between content quality and perceived learning outcomes. Although content satisfaction was moderate, students rated their achievement of learning expectations higher (3.06). Interviews revealed that many students define learning success by course completion and credit acquisition, not deep understanding. This reflects a "minimum satisfaction model," where extrinsic

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

motivation—earning credits—overshadows genuine engagement.

Within the Connectivist framework, this behavior shows weak activation of knowledge nodes and poor internal linkages. Students focused solely on outcomes tend to overlook meaningful content connections, leading to fragmented learning. In essence, while the infrastructure enables access, true learning remains limited when motivation is driven by short-term results rather than by actively engaging in knowledge construction.

4.3.2 Recommendations for Improving Content Delivery

Despite students' overall satisfaction with content delivery, deficiencies were noted in knowledge internalization and intrinsic motivation for deep learning. In line with Siemens' Connectivism Theory, the following suggestions are proposed:

Design Tasks to Activate Knowledge Nodes: Institutions should develop interactive tasks that encourage students to connect and integrate knowledge across different thematic areas, fostering deeper exploration and active participation within the knowledge network.

Promote Deep Learning and Intrinsic Motivation: Teachers should incorporate Project-Based Learning (PBL) and case-based teaching methods into content design, enhancing students' investigative learning of real-world problems, thereby stimulating intrinsic motivation and deepening knowledge comprehension.

Establish Personalized Learning Pathways: It is recommended that platform developers develop more personalized learning paths and resource recommendation systems based on students' cognitive rhythms and preferences, allowing flexible scheduling of study progress, thus further enhancing learning efficiency and satisfaction.

4.4 Overall Satisfaction and Key Influencing Factors

An analysis of 19 core survey items shows that vocational students' satisfaction with online learning is moderately satisfactory, with an overall mean score of 2.94 out of 4—just above the "satisfactory" threshold. Only 21% rated their experience as "very satisfactory," while most gave cautious or lukewarm approval. Over half (51%) log in at least once a week, suggesting that content update frequency and platform access significantly influence satisfaction.

These findings align with Bandura's Social Cognitive Theory, which highlights the interaction of personal, behavioral, and environmental factors. Three key dimensions emerged:

Teaching Resources: Students rated content quality and clarity favorably. However, limited access due to poor networks and inadequate devices weakened self-efficacy and reduced motivation.

Instructional Strategies: This area received the lowest ratings. The lack of real-time interaction and feedback led to passive learning and minimal social engagement. Drawing on Mead's Interaction Theory, such limited engagement hinders identity formation and social learning.

Content Delivery: While clarity and pacing were praised, students were mainly extrinsically motivated, focusing on earning credits rather than understanding content. This reflects Siemens' Connectivism, which stresses the importance of meaningful engagement across learning networks.

Overall, although accessible resources and flexible pacing support surface-level satisfaction, deeper issues persist. Limited motivation, technical barriers, and weak social interaction challenge the effectiveness of current online learning models in vocational education. Addressing these structural and pedagogical gaps is essential to foster reflective, self-regulated learning and long-term educational success.

Findings show that students' overall satisfaction with online learning is moderate, significantly influenced by platform update frequency and connectivity stability. To optimize the platform experience and continually enhance student satisfaction, the following recommendations are suggested:

Enhance Platform Stability and Update Frequency: Institutions should establish a robust content update mechanism and more stable server infrastructure to ensure platform reliability and effectiveness under high-frequency usage conditions, enhancing the continuity and satisfaction of students' online learning.

Develop Student Online Communities: Institutions should create dedicated online learning communities, such as study forums or social media groups, to promote peer learning and collaboration

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

among students, thereby increasing the social aspect of learning and motivation for sustained participation.

Implement Integrated Online-Offline Teaching Models: Institutions should encourage course teams to integrate online content effectively with face-to-face sessions, reinforcing online learning outcomes through offline interactions, thereby improving student engagement and course satisfaction.

5. Conclusions and Recommendations

5.1 Conclusions

Based on the analysis of 100 valid questionnaires, this study identifies four major factors that jointly determine the effectiveness of online learning among students in Chinese higher vocational institutions.

First, teaching resources are generally of high quality and well-organized, yet students experience difficulties in access due to unstable networks and limited devices. These issues reduce their sense of self-efficacy and weaken motivation for continuous learning, as explained by Bandura's Social Cognitive Theory.

Second, instructional strategies suffer from insufficient interaction and delayed feedback. The absence of meaning negotiation and reciprocal communication leads to passive learning and the objectification of learners, consistent with Mead's Interaction Theory.

Third, content delivery demonstrates appropriate pacing and clarity but is largely driven by extrinsic motivation such as credit acquisition rather than intrinsic understanding. This results in superficial satisfaction and weak cognitive integration, aligning with Siemens' Connectivism Theory.

Finally, platform use and learning frequency remain stable, but the lack of collaborative mechanisms restricts deeper engagement and peer learning. Overall, while content quality and scheduling flexibility are satisfactory, the sustainability of online learning remains constrained by limited interaction, insufficient student-centered pedagogy, and infrastructural barriers.

5.2 Recommendations

To overcome these challenges and enhance the overall quality of online learning in higher vocational colleges, several practical and targeted recommendations are proposed.

At the policy level, institutions should provide device subsidies for low-income students, upgrade dormitory network bandwidth, and establish professional technical support teams to ensure stable access and prompt troubleshooting.

In terms of instructional practices, teachers should integrate collaborative learning activities, adopt interaction-based assessment systems, and receive regular training in online pedagogy and interactive design. Establishing scheduled virtual office hours and designing engaging online modules can further enhance teacher–student communication.

For student development, schools should encourage reflective learning through online journals, organize non-credit competitions to cultivate intrinsic motivation, and design personalized learning pathways that adapt to individual needs and learning rhythms.

Regarding teaching innovation, integrating online and offline teaching modes is crucial. Blended courses should combine face-to-face lectures with online Q&A or discussion sessions, while continuous improvement of platform stability and update frequency is necessary. Creating online student communities can also strengthen peer collaboration and sustain engagement.

Through these coordinated actions across institutional, instructional, and technological levels, higher vocational colleges can establish a more interactive, equitable, and sustainable online learning environment that fosters both engagement and long-term learning success.

Acknowledgement

I want to sincerely thank Professor Rhoda, a respected professor at the University of Baguio, for her constant support, knowledgeable advice, and insightful comments during the course of this project. Her

ISSN 2522-6398 Vol. 8, Issue 12: 44-51, DOI: 10.25236/FER.2025.081207

support and guidance have been crucial in helping me improve the caliber and direction of my research. I also want to express my profound gratitude to the Shaanxi Polytechnic University administration and professors, as well as the student participants who so kindly gave of their time and insights to this project.

References

[1] Wu Daguang & Li Wen.(2020). Phased characteristics of large-scale online teaching in Chinese universities: An empirical study based on a questionnaire survey of students, teachers and educational administrators. Journal of East China Normal University (Educational Science Edition)(07),1-30.
[2] Zeng L W. (2020). Effect and influencing factors of teaching under the background of epidemic prevention and control -- based on a survey of universities in Guangdong Province. Exploration of Higher Education (07),85-91.
[3] Zhao Aimei.(2020). Investigation and research on blended teaching in higher vocational colleges. Vocational Education Forum (06),71-76.
[4] Chen, X., & Fu, N. (2023). Problems and countermeasures of online learning in higher vocational colleges from the perspective of students. China Vocational and Technical Education, (10), 32–36.
[5] Pilz M, Li J (2020) Comparative vocational education research: Methodological challenges and conceptual developments. In: Pilz M, ed. Comparative vocational education research: Enduring challenges and new approaches. Springer. 1–18.
[6] Pan T, Jiang L (2024) Tech-enhanced learning: Evaluating general education in vocational colleges through technology integration. Asia-Pac Educ Res. 34:1245–1255.
[7] Zhou Jian, Yang Xue & Dai Ruixiao.(2023). Research Status and Prospect of College students' online learning effect in the digital Age: Visualized analysis based on CiteSpace. Information Systems Engineering (12),125-128.
[8] Xiang Cong, Chen Xiaoping & Lu Kaicong.(2021). An empirical study on the effect of online teaching in universities and its influencing factors. Chinese University Teaching and Learning (Z1),93-99.
*[9] Cao, L. (2021). Survey and suggestions on the effectiveness of online teaching in higher vocational colleges. *China Higher Education Research, (03), 67–72.*
[10] Sun Miantao & Guo Ling.(2020). Discussion on the limitations of online in-depth teaching -- a perspective of in-depth teaching of subject knowledge. Fudan education BBS (06), 47-54.
[11] Sun Y Q. (2020). Problems and improvement strategies of blended teaching in higher vocational colleges. Vocational and Technical Education (26),54-57.
*[12] Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory. Prentice-Hall.*
[13] Mead, G. H. (1934). Mind, self, and society. University of Chicago Press.
*[14] Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2(1), 3–10.*