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Applying Embodied Cognition: Exploring a New College English Teaching Paradigm of Open Universities

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Abstract

Teaching paradigm of higher education not only directly represents the overall appearance and practical level of teaching, but also reflects the quality of qualified personnel cultivation in essence. The innovation and optimization of teaching paradigm, thus, has become the logical premise and necessary path for open universities to fulfill its mission of high-quality development. However, the existing college English teaching paradigm of open universities is still in the state of disembodied cognition paradigm, which has become a hindrance to deepen teaching reform, and leads to the quality problems unsolved in a long run. In view of this, we should apply the latest cognitive science as guidance and the three aspects of paradigm as the analytical framework to remold the existing paradigm from the perspective of the metaphysical aspect, the sociological aspect, and the constructive aspect respectively. In the metaphysical aspect of paradigm, adopt embodied cognition as the epistemology of English teaching. In the sociological aspect of paradigm, insist principles of embodiment, situation, enactment and dynamic on the methodology of English teaching. In the constructive aspect of paradigm, incorporate embodied cognition in current main teaching modes, i.e., "Intelligence^{+}" teaching, blended teaching, multimodal teaching. The above-mentioned three aspects serve as a systematic and organic whole in striving to improve teaching quality, and ultimately facilitate a shift from the view of " the disembodied" to "the embodied".

Key words: Open universities; Embodied cognition; College English; Teaching paradigm

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The primary goal of the transformation and development of open universities is to establish an effective teaching quality assurance system. Teaching quality, referring to the level of education and the degree of teaching effectiveness, is affected by both visible and invisible factors. Visible factors involve teaching systems, teaching objectives, and teaching resources, teaching methods, teaching organization forms and teaching processes; while invisible factors are those playing a dominant role but hiding behind visible factors, like teaching paradigm or teaching philosophy. Existing English teaching reform of open universities place more emphasis to visible factors, but less to invisible factors, least to teaching paradigm. This paper, therefore, attempts to study a logic and practical path based on the latest cognitive science, i.e., the embodied cognition to innovate and optimize current College English Teaching Paradigm of Open Universities (Teaching Paradigm hereafter).

1. THE INEVITABILITY OF TEACHING PARADIGM SHIFT IN THE NEW ERA

1.1 In Line With the Developing Trend and Requirements of Modern Cognitive Science

Since the 1960s, due to the rapid development of cognitive linguistics, cultural anthropology, philosophy, robotics, and artificial intelligence, there has been a significant

change in the field of cognitive psychology, which is called postcognitivism. Since then, embodied cognition has become a new focus of teaching and represents a new orientation of modern education development. Accordingly, open universities should keep pace with advance of cognitive science, comprehensively reflect and examine current teaching paradigm, and explore something new.

1.2 In Accordance With the Requirements of College English Teaching Reform

"College English Curriculum Requirements" (2020 edition) pointed out that teaching methods and approaches call for changes in a shift from a teacher-centered pattern to a student-centered pattern, in which the ability to use the language and the ability to learn independently are cultivated in addition to language knowledge and skills, and also to lifelong education, geared towards cultivating students' lifelong learning ability. Moreover, open universities are shifting from academic degree compensation teaching to knowledge compensation teaching, from quantitative expansion to qualitative improvement (Jing, 2020). Taking into account new requirements, Teaching Paradigm, which is rooted in the concept of lifelong education, should follow a shift from cultivating traditional students to cultivating "lifelong learners" and provide fully individual-oriented and effectively diversified learning services for learners. This shift strongly confirms that the innovation and optimization of Teaching Paradigm is a must, to a certain extent, a breakthrough.

2. REFLECTION ON THE CURRENT TEACHING PARADIGM

2.1 The Concept of Teaching Paradigm

The concept of paradigm was put forward by Tomas Kuhn, who stated that paradigms, which provide exemplar that can be imitated for scientific research, are recognized scientific achievements that provide typical questions and answers to communities of practice over time (Kuhn, 1996). Masterman clarified Kuhn's 21 paradigm concepts and introduced three aspects of paradigm, i.e., the metaphysical aspect of paradigm, the sociological aspect, and the constructive aspect (Masterman, 1970).

Accordingly, paradigm is a research program composed of laws, theories, and applications.

Teaching paradigm is the most basic definition or basic explanation about teaching. Teaching Paradigm refers to the sum of theories, models, methods, and experiences gradually formed in the development of English teaching in open education. An independent Teaching Paradigm, formed by means of abstract and structured scientific synthesis and generalization of English teaching experience in open education, reflects a series of consensus or consensus beliefs held by English teachers and researchers. In terms of types, Teaching Paradigm can be divided into theoretical construction paradigm and experience summation paradigm. The former is the discipline community norm of theory research experts. The latter is the common experience explored, created, and refined by English teachers in open education. In terms of aspects, the paradigms include the epistemology of teaching, the methodology of teaching, and the specific teaching mode to realize the above two. The epistemology of teaching belongs to the metaphysical aspect of paradigm, which mainly refers to the theoretical orientation and value orientation of Teaching Paradigm. The methodology of teaching belongs to the sociological aspect, which mainly refers to the basic methodological principle, but not specific method. The specific teaching mode belongs to the constructive aspect, which mainly refers to the concrete method and operation model used in the English teaching process. Scientifically distinguishing the paradigm types and aspects is the basis and prerequisite for us to examine existing paradigm problems and determine the advancement of reform clearly and objectively.

2.2 English Teaching Reform by the OUC

The OUC promoting college English teaching reform has experienced a change from beginning with the course of English for general purpose (EGP), namely copying the textbooks of full-time universities,to attempt the reform of English for specific purposes(ESP) since 2013, which set English courses to meet the specific needs and purposes of learners. Starting from the fall of 2017, 16 kinds of integrated media teaching materials, including English for the Humanities, English for Technology and Engineering, English for Administration and English for Business and Commerce, have been introduced, including paper teaching materials, text teaching materials, mobile digital teaching materials, and supporting network core courses. The reform has realized the transformation from static teaching materials to three-dimensional information teaching materials. The main purpose is to cultivate adult learners' ability to use English in a specific working environment.

From the spring semester of 2018, the OUC started a pilot project of college English multimodal teaching mode reform on the basis of reform of teaching resources. By 2020, the pilot project has been carried out in 24 OUs and its branches in three batches, and been completed in December 2020. In April 2021, the OUC issued the Notice on Promoting the Experience of OUC College English Multimodal Teaching Mode Reform, and the Implementation Plan of the Pilot Experience Promotion of College English Multimodal Teaching Mode Reform of Open Universities (2021 version). The pilot project "relies on the course teaching team, integrates various teaching resources and creates a three-dimensional

learning space", adopting blended teaching, online teaching and mobile teaching respectively. The main researchers advocate the pilot schools to build an OPEN model of English teaching and learning: O stands for Oral English, and teachers should actively carry out oral training activities to improve students' listening and speaking ability; P stands for Practice, and teachers should attach importance to diversified interactive activities; E stands for Evaluation, and teachers should do a good job in the design of formative assessment and summative assessment. N stands for Net, that is, the school should explore the professional development of teacher work team and students' group-learning network (Liu & Wang, 2020). The practice of multimodal reform emphasizes the deep integration of teaching, artificial intelligence and other emerging technologies.

Through continuous exploration and innovation, the OUC is striving to promote a paradigm of integration of college English teaching with modern educational technology and to explore a learner-centered teaching model, attaching importance to the creation of real situational activities and environment-building activities, so that teaching and learning can be combined through practice. However, changes in the teaching model by no means call for changes in teaching methods and approaches (constructive paradigm) only, but, more importantly, consist of changes in teaching philosophy and practice, i.e., the epistemology paradigm and methodology paradigm. Open universities are experiencing challenges via deepening the English teaching reform according to the three aspects of paradigm as the follows.

2.3 Reflection on the Current Teaching Paradigm

2.3.1 Challenges in the Metaphysical Aspect

The macro understanding of open universities as a new type of university is not accurate in the transition from the quantity extension development to the connotative high-quality development. Specifically, English teaching has long been dominated by the orientation of academic degree compensation teaching, where exam-oriented teaching taking the mainstream position. As a result, the disembodied cognitive paradigm has long guided teaching practice. In addition, the research and innovation of English teaching has not kept up with the development of cognitive science, which causes serious problems like the superficial application of modern educational technology in teaching and the separation of teaching goals from the actual needs of society and learners.

2.3.2 Challenges in the Sociological Aspect

First, a methodology aimed at obtaining a higher education degree seriously affects the quality of English teaching. Second, a methodology of social adaptation leads to a passive state of teaching, and adult students' initiative has not been greatly released; Third, a methodology of students' individualized and autonomous learning makes the teaching process not get effective guarantee and the in-person lectures be of poor quality; Fourth, a methodology based on the single principle of English course ignores the highly interdisciplinary nature of modern education and the social demand for the development of comprehensive talents, which leads to low comprehensive application ability of students and low social adaptability. Last but the core, above methodologies with the main feature of "the disembodied" teaching give rise to serious deficiency of "the embodied" in English teaching.

2.3.3 Challenges in the Constructive Aspect

In multimodal practice, we find that if multimodal teaching is not well designed, it will easily lead to the accumulation or imprecision of resources, so that cultivation of English skills and of English thinking are still separated. If learners are not really cared for resulting in teaching and learning support services staying in the practice of technology orientation, the multimodal teaching will ultimately lead to the separation of methods and objectives. The evidences have been exposed in the reform, which is because, firstly, teacher-centered pattern, in which knowledge of the language and skills are imparted by the teacher in class only, is still the basic teaching method used by the majority of teachers, which attach little importance to the central position of students leading to low interest in learning and low active participation in the teaching process. Secondly, the teaching quality is difficult to guarantee and control since learners' learning motivation and cognitive basis often deviate from the requirements of autonomous learning, and learning support services needed for autonomous learning are seriously inadequate.

On the whole, the current Teaching Paradigm is still given priority to the disembodied cognitive paradigm. In specific, the current teaching service mode still sticks to the traditional service mode of TVRUs, far from reflecting the characteristics of openness. English language teaching and learning are, to a certain extent, free from the constraints of time or place, while, on the contrary, students are far away from the actual situation of problem occurrence and the application process of knowledge to solve problems, and the teaching as a whole shows a disembodied teaching status quo. It can be seen that Teaching Paradigm needs to abandon the ideological guidance of traditional cognitive science, and to build a new framework to solve the core problems on the whole. If there is no fundamental breakthrough in teaching philosophy, it is difficult to achieve long-term results.

3. THE THEORETICAL LOGIC OF EMBODIED COGNITIVE AS TEACHING PARADIGM

Above we have analyzed the inevitability of the innovation of and the challenges existing in current Teaching Paradigm. Next is to bring about a practical

path to optimize current Teaching Paradigm based on the second generation cognitive science, i.e., embodied cognition.

The theoretical connotation of embodied cognition is as follows.

3.1 The Process of Cognition is Essentially a Process of Embodiment

Experiments and researches in philosophy, psychology, neuroscience, cognitive linguistics, computer science and other fields have mutually confirmed the embodied characteristics of cognition, whose central belief is that cognition is a complex dynamic self-organizing system composed of brain, human body and environment (Hu & Ye, 2013). Cognition not only takes place in the brain, but also in the practice of physical and mental experience. Cognition is shaped in the process of interaction between the body and the environment.

3.2 Cognition is Activated by Mirror Neuron and Mirror Nervous System

Scientists first identified a type of visual motor neuron in the F5 area of the rhesus monkey's cortex, and named it mirror neuron because it mirrors the actions of other individuals. Mirror neurons, which map the actions of others and respond to the meaning of actions, are activated both in the observation phase (understanding the intention and language of actions) and in the execution phase. Subsequent experiments have shown that mirror neurons perform the same function in the premotor cortex of human brain, which makes up the mirror neuron system. Through it people can imitate others' behaviors and psychological states by comparing others' actions with their own experience, and conduct internal imitation, so as to achieve the recognition of others' actions and the empathy of behaviors. It can be seen from the experiment that cognition is a process in which we use our own body and action to understand the intention of others. Cognition occurs when the learner elicits the activity of the mirror neuron system by searching for relevant clues.

3.3 Metaphor is Embodied Learning that Produces High-level Linguistic Thinking

Lakoff and Johnson believe that abstract thinking is mostly metaphorical, and metaphor is not only a kind of linguistic imagination, but also deeply immersed in human thinking and action (Lakoff & Johnson, 1980). The language habit of using metaphor to express thoughts and organize meanings contains the embodied basis of human cognitive process. Cognition is not abstract but embodied. For example, fables and idioms often use easy-to-understand life events or physical and environmental events as metaphors to express profound life philosophies or abstract and complex concepts.

All in all, embodiment, situation, enactment, and dynamic consist of theoretical characteristics of embodied cognition. Teaching Paradigm, in the light of embodied cognition, should attach importance to the value of establishing a connection between learners' life experience and their living world and to promote learners' learning more deeply and meaningfully through sample imitation, social behavior, empathic arousal, physical participation, practical activities and embodied environment embedding. At the same time, embodied cognition reflects the research results and experience in the field of learning science. Applying embodied cognition as Teaching Paradigm requires understanding the operating mechanism of information processing system of learning science. The application should comprehend the three basic principles of learning science, which are dual channels principle, limited capacity principle and active processing principle (Mayer, 2020).

4. A NEW TEACHING PARADIGM IN THE LIGHT OF EMBODIED COGNITION

4.1 The Metaphysical Aspect of Paradigm

First, teachers and researchers should be guided to learn the latest progress of cognitive science. Conscientiously study its basic concepts and principles serving as a systematic and organic whole in striving to innovate and optimization Teaching Paradigm, and ultimately facilitate a shift from the view of "the disembodied" to "the embodied".

Second, teaching administration should ensure that a Teaching Paradigm in the light of embodied cognition can be achieved, efforts should be made to strengthen the guidance for and supervision of the teaching process. A system of faculty development should be established. Detailed, quantified and operable research on embodied English teaching should be attached importance to.

For this purpose, the following principles should be adhered:

4.2 The Sociological Aspect of Paradigm

4.2.1 Adhere to the Principle of Embodiment

Build embodied English environment assisted by artificial intelligence, scientifically design embodied teaching and learning activities according to English teaching objectives, and promote learners to make full use of embodied learning resources and related tools to achieve interactive experience in virtual space and real space. Therefore, open universities and its branches should speed up the construction of AI equipment and intelligent education service platform and encourage teachers to make effective use of Web multimedia and other teaching resources, and constantly improve the ability to carry out embodied cognitive teaching. Shanghai Open University provides a good example in this respect, with the use of 5G+ holographic projection technology to create holographic classroom and holographic lecture, MR technology to create immersive learning space, and

3D simulation and AR augmented reality technology to provide technical support for immersive learning space.

4.2.2 Adhere to the Principle of Situation

Emphasize that learning is on-site, connected, interactive and high-level. English teaching should focus on embodied interaction and contextual learning design to promote learners' life experience and in-depth interaction with outside world, and create embodied situations that return to life. Through the metaphor meaning expressed by the study on physical, social, cultural, and historical space, make the learners establish the connection between their own experience and learning content. Therefore, teachers should have the ability of optimizing and combining multimodal situation resources, which integrates various representational symbols to interact with each other and complement each other, as well as the ability of advanced retrieval and analysis. In addition, the teaching platform should provide high quality metaphorical resources and establish multimodal resource library with rich context for teachers to call.

4.2.3 Adhere to the Principle of Enactment

Cognitive process is enacted, nonlinear, chaotic and emergent (Hu & Ye, 2013). Therefore, English teaching should provide specific guidance and continuous support at different stages in the area of students' recent development. In specific teaching design, attention should be paid to how learners learn and how to support learners' learning (Ren, et al, 2020). The teacher's role of face-to-face coaching, though online is still the main mode, should be stressed. It could take the form of group work, focusing on checking students' independent learning, and providing due guidance and assistance for students. In teaching process, teachers should consider whether the tools or resources provided are valuable, learners are willing to use the resources, the assessments are diversified, learners' emotional experience is perceived, supported, and timely fed back, etc.

4.2.4 Adhere to the Principle of Dynamic

The principle of dynamic regards cognition as the result of the interaction between the learning subject and the external world. Teaching activities such as practice in English listening, speaking, reading, writing and translation should be conducted via a certain real dynamic environment. Teaching should be fully individual-oriented, taking into account students with different starting points. Self-assessment and peer assessment should be required to learners at regular intervals, to know about their own mastery of linguistic skills and regulate their learning behaviors on a timely basis. In addition, teaching should promote learners' active processing, and teaching activities should verify whether learners' enthusiasm can be aroused and learners' practical reflection can be stimulated.

The above-mentioned four principles serve as methodology guiding English teaching practice. For this purpose, the following teaching methods or modes should be promoted:

4.3 The Constructive Aspect of Paradigm

4.3.1 Promote Intelligence^{+} Online Teaching Mode

The extensive use of advanced information technology is encouraged, computer- and Web-based courses is developed, and students are provided with favorable environment and facilities for language learning. Make full use of the special function of AI tools in assisting learners with repeated language practice, especially with training in listening, and speaking abilities, reducing emotional anxiety by making learning process visible and also in assisting teachers in reducing repetitive meaningless labor to focus their energy on data analysis and individualized teaching. For example, AI tools like FIFedu.com, iWrite, pigai.com, etc. provide the whole process of learning with support, record and results; Moodle platform, MOOC, Cloud classroom, rain classroom etc. provide implementation platforms for Online English teaching. At the same time, always remember to take learners as the subject in teaching, be alert to the problems of ethics and alienation, and follow the three basic principles of subjective presence, embodied interaction and humanized empowerment (Wang & Zheng, 2020).

4.3.2 Promote Blended Teaching Mode

Embodied cognition should run through the whole process of blended teaching mode, which refers the mode of online leading and offline auxiliary should be differentiated and promoted each other. Teachers and students should adjust their physical state and be on the spot to carry out practical activities consistent with learning objectives. Teachers should distinguish which resources are pushed by the platform, which are solved by AI terminals, which are face-to-face key points and which are personalized sources, so as to realize online process monitoring and offline accurate teaching, and to create a truly highly engaging and personalized learning experience.

4.3.3 Elevate Multimodal Teaching Mode

In linguistics and related fields, the concept of modality has three definitions, i.e., the sense oragans in neuro system, the semiotic resources and the way of representing imoformation (Huang & Zhang, 2019). Thus, English teaching should adopt dual channel principle, integrating multi-resources, multi-media, multi-context, multi-platform tools and multi-environment to construct an embodied learning system, which is open, three-dimensional and interactive. In addition, English teaching should keep in mind two principles: one is the flexible use of multi-model. According to the actual embodied teaching situation, the modes are combined, constructed and disassembled. The other is that the inefficient use and abuse of multi-mode should be prevented in teaching. Teaching is designed of reducing extraneous processing,

adjusting essential processing, and promoting generative processing (Mayer, 2020).

4.3.4 Help Teachers Improve Learning Design Ability

Learning design should cover the whole process of teaching. Teaching activities should adopt learning sciences, new technology, and learning analysis (Feng, et al, 2020). In embodied teaching practice, learning design should include the design of learning scaffolding, the design of embodied learning community, where learners are given a clear role or identity, and a whole process of learning support services based on big data.

One example is that the English teacher arranges a layered English writing work that can be continuously improved and further explored, takes a semester as the timeline, and provides a learning scaffold. Learners are required to learn excellent works from AI software and other students, and then present and evaluate works in a multimodal way through the learning community. Other examples are to design a speech, dubbing, drama performance, picture book reading or other English learning activities which are close to the real world, where teachers (AI teachers, online teachers and offline teachers) and technology software play a role as "knowledgeable companions" to accompany and support learners, help establish support community, analysis and monitoring of student behavior data, provide accurate personalized and intelligent learning services, respond to the status of learners, and lead learners to self-directed learning.

5. CONCLUSION

College English is a required basic course for open universities students with the characteristics of large scale and wide range of influence. Its paradigm shift will accumulate rich practical experience and introduce new vision to contribute the overall teaching reform in open universities. The construction of a new teaching paradigm under the guidance of embodied cognition puts forward a new study field. In fact, the continuous reform of Teaching Paradigm is always a dynamic and long-term process, because the cognitive science is developing constantly and the cognitive characteristics of students vary. In the process of practice, English teachers and researchers should always have a sense of reflection, maintain a high degree of prudence and dynamic adjustment. The paradigm is only a broad framework, but the specific approach is changeable, because the situation of students' learning is changing anytime and anywhere, so we cannot use the framework to erase vivid education. Some suggestions need be omitted, some need insist, and some need replenish according to the student's situation and teaching effect, and some problems should be further discussed and refined and this paper tries to throw a brick to attract jade.

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