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Research on Cognitive Processing Infiltration Reorganization Thinking by Using SPOC Platform

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Abstract: One of the goals of education is to help students master the necessary cognitive tools and learning strategies so that they can think creatively. Deep learning is a kind of advanced learning, which is a form of creative learning composed of a series of cognitive processes and cognitive strategies. It requires learners to eventually form a structured and unstructured cognitive structure system and be able to flexibly apply it to specific situations to solve practical problems. Metacognition is the core of cognitive activities and plays a very important role in cognitive activities. Metacognition can promote deep learning, and deep learning can also promote the development of learners' metacognitive ability.
Keywords: SPOC; Cognizance; Thought.

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1. INTRODUCTION

In the teaching, the lecturer should consciously and purposefully infiltrate the training content of metacognitive knowledge and metacognitive strategy, enrich the cognitive experience of the students by creating situations, guide the students to strengthen information awareness, enhance information literacy, and extend recognition. Knowledge space, through information literacy and cognitive strategies (such as retelling strategies, fine processing strategies and organizational strategies) , actively regulate learning activities, effectively improve metacognitive ability.

Students with abundant cognitive tools are provided, including tangible cognitive tools (such as electronic interaction system, knowledge map, synchronization, wordpad, impression notes, etc.) and intangible cognitive tool (that is, the intelligence method), so as to adapt to different students' learning habits and cognitive style, to reduce the cognitive load and to improve cognitive processing. For example, the course knowledge map can provide effective learning support and navigation for the learning community, help the students master the overall structure of the course, timely study and diagnosis, reduce external cognitive load, and thus improve learning efficiency and quality. In the learning community discussion, the network node link in the knowledge map will promote the trigger of related knowledge points in students' mind, and stimulate students to express original ideas. Through consultation discussion, debate, students' understanding of knowledge and internalization can be deepened, unceasingly to the social interaction and to promote knowledge of derivative and let

all kinds of knowledge element to extend the knowledge network in your mind. In the end, the students form their own ideas through the relevant knowledge points and knowledge chains of knowledge maps, construct their own knowledge networks through “path finding” and “meaningful construction”, and select, improve and internalize the views of other members. Zhang Zhiyong believes that deep learning is a way of learning to improve students' self-learning ability, practical ability and innovative ability. Feng Rui and other people thought, deep learning emphasizes the knowledge to understand active rather than passive memory, emphasis on critical thinking rather than blindly accepting knowledge, emphasize the link between the old and new knowledge rather than in isolation, emphasize knowledge migration application, rather than as a response to the test. The essence of deep learning is the construction process of the meaning of structural and non-structural knowledge, as well as the complex process of information processing and processing. It is necessary to effectively integrate and finely process the activated prior knowledge and the acquired new knowledge. that is, from awareness and analysis to synthesis, application, assimilation and processing, the ultimate goal is to develop students' high-level thinking ability. In short, deep learning is an active inquiry learning method that requires students to carry out in-depth information processing, active knowledge construction, critical high-order thinking, effective knowledge transformation and migration applications, and practical problem solving, such as Figure 1 shows.

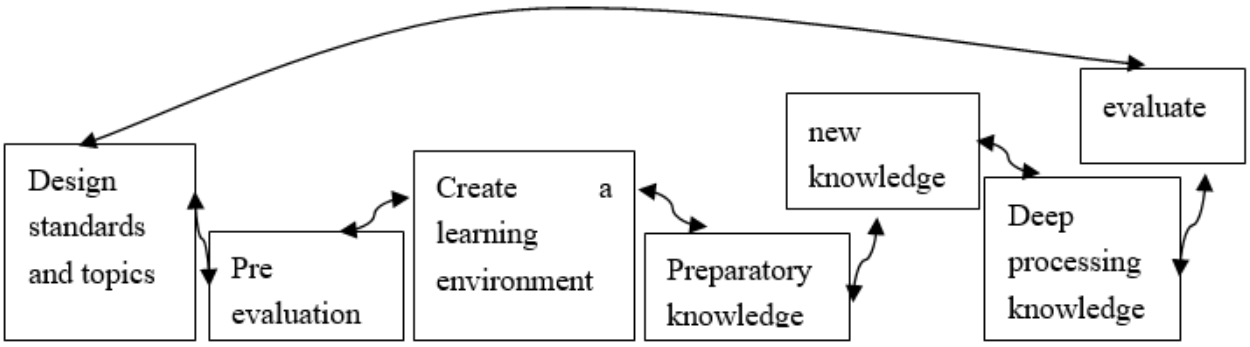

Figure 1. Deep learning route

2. THE INDIVIDUAL'S CONCERN FOR THE INADEQUACY OF HIS ORIGINAL EXPERIENCE IS THE FIRST CONDITION FOR THE RECONSTRUCTION OF COGNITION.

Critical thinking is one of the cognitive tools of knowledge representation and strategy selection in problem solving. In the course of learning, the students should urge the students to reexamine their knowledge construction and cognitive structure by using critical thinking in the establishment and reorganization of cognitive structures. Time sex and comprehensiveness. Teachers should strengthen the basic concept and theory teaching, promote the interaction of concepts and the transfer of principles, pay more attention to the transfer of learning methods, guide the students to use the analogy analysis of knowledge, realize knowledge structure, break through the thinking set, improve the ability of the transformation of graphic and text, and strengthen the training of variant training to promote the transfer of knowledge. Flexible transformation of abstract thinking and concrete thinking.

2.1 Strengthen training for trainees, provide stable fixation for new knowledge, and promote the transfer of new and old knowledge.

The main teachers should try their best to achieve the maximum capacity of thinking and the process of thinking in order to reflect the process of knowledge generation, development and migration.

2.2 Organization students write test questions, so that students through the experience from the passive test questions to the initiative to study the test questions, and then the process of writing test questions, constantly improve the ability to reflect, promote deep learning, promote knowledge transfer.

2.3 Use case induction method to cultivate students' ability to judge, synthesize and create information.

2.4 Enlightening deep reflection with SPOC platform to promote self interaction

Gardiner believes that human intelligence is pluralistic. In addition to language intelligence and mathematical logic intelligence, there are seven other kinds of intelligence, including introspection. Introspection, learning introspection, refers to the recollection and inspection of the previous practice or psychological activities of the subject. It is an important example of deep thinking. It is an important strategy to train the inquiry process of the advanced thinking ability, to comb the new information and to perfect the cognitive structure, and is one of the ability of the learners to develop the sustainable development. Reflective learning can promote the realization of deep learning. Reflection can improve students' metacognitive ability. The student group should guide students through the combination of learning and thinking, enhance the thinking process of problems, promote the composition of cognitive strategies, and ultimately achieve deep learning.

3. INTEGRATION OF MULTIPLE EVALUATION AND DEVELOPMENT TO PROMOTE LEARNING

Deep learning is a learning process from shallow to deep, and learning evaluation is an indispensable feedback regulation mechanism in the transition from simple learning to deep learning. Continuous evaluation and timely feedback can guide students to reflect deeply on learning problems, improve their cognitive structure, improve their learning methods and improve their learning quality. In the teaching of SPOC, the rational use of diagnostic evaluation, formative evaluation and summary evaluation can make the evaluation fully play the role of feedback, regulation and identification, and promote further development of deep learning and student activities. The methods of implementing the SA4 strategy in a student group are: (

3.1 With the help of spoc platform, we should pay more attention to the diversification and scientific rationality of evaluation methods.

Self evaluation, mutual evaluation and teacher evaluation are combined to conduct comprehensive evaluation. The student tutor should pay attention to the continuous evaluation and assessment of students' learning, and try to design a measurable explicit evaluation scale, continue to pay attention to the development of students' metacognition, and pay attention to the evaluation of the quality of thinking. The teacher classifies the tasks completed by the team members during the period of study, including stage tests, learning plans and experiences, video learning notes, experimental reports, discussion outlines and speeches (phonetics, text), PPT manuscripts, etc. as a record of group growth, the development evaluation of the group is carried out. (3) regularly upload fluidity and generative

learning resources, so as to provide students with an endless source of long-term deep learning. Generative resources can include digital stories, learning briefs, excellent case analysis, excellent course assignments, excellent experience, solid classroom silhouette and so on. (4) guide students' attribution training and learn to evaluate themselves correctly. To make appropriate attribution feedback for students' learning ability, effort level and learning outcomes, and increase students' confidence and motivation to continue learning.

3.2 SPOC platform depth learning environment

With the occurrence of learning and teaching activities, building a reasonable learning environment is an effective condition to promote the deep learning of SPOC platform. At present, the construction of the digital education environment is setting off a new climax. Speeding up the "network learning space for everyone" is the development direction of the construction of digital environment, and the construction of personal learning space on the Internet is the main way to realize the communication of the network space, and the final need to promote the design and implementation of the learning space of a person to promote. The effective occurrence of deep learning. Through the network space for everyone, the learners gradually evolve from simple Dan Buzhou and low cognitive operations to the creation and output of content and knowledge from simple network content transfer and replication, and understand the nature of learning activities is a dialogue initiated by the learners and other partners (experts), and builds up from the content consumer. Change into the concept of the role of the content creator, the habit from fragmented learning to connectivity learning, group cooperative knowledge construction, high level of thinking ability, attention to activity design and user experience. Only in this way can we truly promote the effective learning of SPOC platform. The theory of cognitive elasticity holds that the abuse of traditional teaching lies in the excessive simplification of the content so that the students' understanding of the concept is too superficial, which is not conducive to the learners to acquire advanced knowledge and to make flexible reasoning. One of the reasons for this phenomenon is that teachers are concentrating information in the most easily transmitted form in teaching. Therefore, traditional teaching filters out the complexity existing in most applied knowledge fields, which leads to students' shallow understanding of domain knowledge. In the personal learning space based on meaning construction, in addition to the high level of thinking, deep understanding, reflection and metacognition to promote deep learning, it is necessary to work hard in the environment, to provide a situational, integral and rich learning environment, to fully respect the learning experience and to restore the origin of knowledge. Come to the soil.

4. ANALYSIS OF THE SUPPORT PATH OF SPOC FOR DEPTH TEACHING

The support of SPOC in depth teaching is shown in the pre test support for understanding the former structure of the students, the support for the resources of the curriculum design, the emotional support for the construction of the learning community, the context support for the creation of the learning situation, the experience support for the rich curriculum vitae, and the support for the evaluation, as shown in Figure 2. Teachers rely on the school resources in the class as a unit, to build a SPOC platform to adapt to the learning needs of all the students in the class. Through the registration certification, all the students are included in the platform, and the teaching of various support of the platform is carried out.

4.1 Pre test support

Before the beginning of unit learning, the teacher designed some "micro operation" and "micro test" through the SPOC platform, so that students could answer them according to their own structure. In this process, the SPOC platform makes a statistical analysis of students' cognitive status, answer speed, difficult problems and so on, so that teachers can clearly understand the students' cognitive level, thinking level, learning needs and so on. This is the basis of the teacher's deep teaching design.

4.2 Resource support

Through the SPOC platform, teachers can not only obtain the "micro case" "micro video" "micro courseware" and "micro courseware" related to the teaching content, help themselves to understand the subject content and thought more deeply, and can also make and upload the learning content suitable for their class students through the SPOC platform, such as the thinking map, the relationship network and so on, to assist the students. More efficient understanding of the content of learning. At the same time, teachers can also choose and integrate a variety of resources on the platform, according to the curriculum standards, teaching objectives, the former structure of the students and the recent development zone, and so on to design a teaching plan with knowledge, interest, rationality, regularity, gradient and tension.

4.3 Emotional support

Deep teaching needs to build a learning community as an extension of the learning community in the classroom field. Teachers can build a SPOC based virtual learning community through the SPOC platform. Set common vision, carefully design research themes, formulate corresponding contracts, guide students to actively carry out dialogue, consultation, cooperation and other deep interaction. SPOC's platform Forum, social networking sites and other interactive platforms help teachers and students and students to share knowledge anytime and anywhere by their own super space-time, convenience and effectiveness. In the process of common face and solution, teachers and students experience success, gain development, and create a sense of belonging to the common body. At the same time, teachers can find "free" students on the edge of the community through the tracking and recording functions of the SPOC platform. Through the analysis of the "free" causes of such students, they can carry out guidance or "rescue" activities to help them enter the community's environment and become active participation in community activities. The person.

4.4 Situational Support

In depth teaching, it is necessary to change the state of "deboundary" and "dedomain" of knowledge in traditional teaching, to restore the background and situation of knowledge, to change the single teaching transfer of knowledge, to present multidimensional representation of knowledge, to let students experience multiple variations of knowledge and to construct the connection between knowledge and life. This requires teachers to create real or simulated situations in teaching. Relying on the technology of virtual simulation, video production and editing, and 3D effect in information technology, SPOC platform provides a variety of support for the creation of teaching situation, which makes it possible to visualize, background and situate knowledge.

4.5 Experience support

Students' deep learning is a kind of "U" learning process. They should undergo the process of knowledge reduction and sinking, experience and inquiry, reflection and floating. Therefore, in depth teaching, we should pay attention to students' personal experience of going through a complete curriculum resume. The SPOC platform, with its virtualization, intelligence, visualization, simulation, super space-time, boundary free characteristics and the technical advantages of the Internet of things, cloud computing, artificial intelligence, can provide students with "5R" immersion experience (real training project, real job role, real work process, real working condition, real work) Stress, giving students certain roles and identities, allowing students to immerse themselves in the scene and stimulate their intrinsic interest, learning motivation and cognitive conflict.

5. EPILOGUE

SPOC's evaluation support for in-depth teaching, in addition to the aforementioned pre-test support, also includes tracking, recording, statistics, analysis, and detection and evaluation of learning outcomes. It can provide a series of assessment support for teaching process, such as diagnostic evaluation, formative evaluation and terminal evaluation, according to teaching needs. Among them, in terms of formative assessment, deep learning emphasizes the learning process of high input and immersion, immersion of learning on the one hand, refers to the learner on the depth of the learning process of investment, on the other hand is on the depth of knowledge in process of immersion. The SPOC platform can track and record the student's learning process, reflect the student's interaction frequency, learning status, and cognitive level, and help teachers understand the students' learning and regulate their learning behavior. In terms of summative assessment, the limitations of paper and pencil tests SPOC breaks the traditional teaching, through a variety of ways such as display, experimental design, situational test and multivariate main body such as teachers, peer, such as their own, to explore students' mastery of unstructured knowledge, tacit knowledge acquisition and the change of cognitive schemata, in order to evaluate the students' cognitive level.

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