

The Educational Technology Ability Construction of Middle School Teachers from the Perspective of Distributed Cognition and Knowledge Management

Xiang Qianchen, Mao Tao

China West Normal University, Nanchong, 637001, China

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Abstract: With the rapid development of science and technology and Internet technology, many highly interactive network media have emerged and become popular. In this context, people's various work behaviors and learning activities need to build a valuable and meaningful interactive remote collaboration responsive framework, so that the aggregation of knowledge can be faster at this time, which can produce more impact on decision-making. Great support. Distribution is based on the need for cognition and knowledge management theory. From the perspective of distributed cognition and knowledge management theory, this paper studies the specific methods of middle school teachers' educational technology capacity building, which is of great help for innovating middle school teachers' educational technology training methods and promoting the improvement of middle school teachers' educational technology level.

1. Introduction

Our country pays great attention to the cultivation of teachers' personal professional literacy ability, and the promotion of the new curriculum reform also has higher requirements for teachers' personal ability and teaching level. In addition to teachers need to learn independently and improve their own abilities, they also need to carry out a series of trainings, topics or projects, so that teachers can feel rewarded. Therefore, it is necessary to change the traditional teacher training methods and methods, introduce new teacher education thoughts and teaching theories, follow the latest developments and development directions of sociology and pedagogy, use the latest achievements of network technology, and actively explore and discover how to improve secondary schools. A new way for teachers to educate technical capabilities. Distributed cognition and knowledge management theory mainly uses computers, network technology and high-tech interactive network media to build an educational technology training framework with strong value and significance, which promotes the steady improvement of middle school teachers' educational technology capabilities.

2. Overview of Related Theories

2.1 Distributed Cognition

Distributed cognition originates from cognitivism, and it is more of a new theory that takes into account the full picture of cognition. Traditional cognitive concepts are mainly based on local phenomena, using the internal information of the brain to analyze and process the individual level, which has led to the lack of attention to some of the current factors. Therefore, distributed cognitive theory emerged. The theory of individual to cognition is not limited to individuals, but within the individual, between individuals, environment, society, media, artifacts, culture, and time. Functional systems to explore and explain cognitive phenomena. This theory also comes from the remote collaboration and education conducted by humans in the process of applying computers, which emphasizes the systemic nature of the environment and cognitive subjects. In addition, distributed cognition is a kind of cognitive activity, which is aimed at the process of information processing from the external characteristics of things to the internal [1].

2.2 Knowledge Management

Knowledge management mainly refers to the management process in which social organizations identify, acquire, develop, analyze, preserve, and communicate knowledge based on the knowledge resources they already have. Members in the organization need to contribute their accumulated knowledge to the greatest extent. , And in this process can also share other people's knowledge. The knowledge possessed by teachers includes tacit knowledge and explicit knowledge. The explicit knowledge can be learned by means of words, databases, and books; tacit knowledge is knowledge that cannot be quantified and difficult to communicate with. Such knowledge requires personal insight and practice to obtain. The knowledge management of teachers is a process of helping to make tacit knowledge explicit, transforming and utilizing the knowledge and information resources and individual command ability acquired by such groups as teachers.

3The principle of educational technology capacity building for middle school teachers from the perspective of distributed cognition and knowledge management

2.3 Accurate Positioning

When building the capacity of middle school teachers' educational technology, it is necessary to accurately position the teacher's educational technology, and it is required to clarify the relationship between different elements, so as to ensure that this type of training can fully mobilize the enthusiasm of middle school teachers to participate in it, and Bring out the value, function and role of artifacts.

2.4 Everything Starts from Reality

The identity of a teacher in the process of receiving educational technology training is both a teacher and a student. Such a dual identity requires teachers to actively participate in the application of educational technology to teaching practice. It is required to take into account the thinking concepts of developmental learning and inquiry learning, so that they can actively participate in learning, so that they can deeply understand and understand the value and connotation in the process of receiving training.

2.5 Pay Attention to “Artifacts”

Artifacts are an important part of the distributed cognitive theory. Therefore, when constructing the educational technology capacity building system for middle school teachers, we must pay attention to the openness, initiative, subjectivity, resources, cooperation and difference of teachers participating in it. . These outstanding features are closely related to “artifacts”. The use of artefacts can encourage middle school teachers to fully develop their own resources and exert a strong subjective initiative, and then they can communicate and collaborate in time [2].

2.6 Combination of Theory and Practice

The ultimate goal of improving the educational technology ability of middle school teachers is to apply this ability to teaching, improve teaching efficiency and teaching quality, and use this ability to solve problems encountered in the teaching process. Only by applying this theory in actual teaching, can this theory play a huge role and value.

4The enlightenment of distributed cognition and knowledge management theory to the improvement of middle school teachers' educational technology ability

2.7 Thoughts on the Construction of Middle School Teachers' Educational Technology Ability from the Perspective of Distributed Cognition and Knowledge Management

First of all, we must regard middle school teacher education technology training as a collective informatization teaching design process, requiring all teachers to be divided according to different subjects and subject chapters, and there are two or more teachers to design teaching plans. After the design is completed, select high-quality teaching plans with room for improvement, and refine and improve them, so as to build a high-quality informationized teaching plan resource library, which can promote the transformation of distributed collective cognition into cognition Resources [3].

Moreover, the resource library can be used by teachers from all over the country to discuss and analyze these teaching plans, and further improve the problems existing in them, so as to provide good help for middle school teaching; in addition, in order to improve the actual results of training, it is necessary Middle school teachers can actively participate in communication and communication, and apply their own teaching examples to the construction of educational technology. Each middle school teacher needs to analyze the cases brought by teachers.

2.8 Pay Attention to the Distribution of Cognition of Middle School Teachers' Educational Technology Training Work

The improvement of middle school teachers' educational technology ability is inseparable from the development of training, which is generally organized by the educational administrative department and guided by teachers. The school-based or class-based units are used to create scenarios, and modern computers and networks are used to build collaborative learning systems. , To encourage teachers, students, cognitive tools, artifacts and the environment to form a learning system to analyze the representation and development of cognitive things. It requires that the knowledge related to educational technology be transmitted to each individual in many ways, and promotes the individual's education The common progress of technological cognition; in addition, in order to promote the benefits of the distributed cognitive system among individuals to each individual, it is necessary to pay attention to the methods used by middle school teachers in the process of knowledge dissemination to promote information The transformation of internal and external representations is smoother; finally, a network platform must be built. This platform is mainly a multi-functional platform for the management of trainers, display of training results, communication, and discussion. This platform can ensure middle school teachers the learned education technology-related knowledge and cognition can be smoothly transformed and spread [4].

The construction and improvement of the educational technology ability of middle school teachers are ultimately to be applied to actual teaching to improve teaching results and teaching efficiency. Therefore, from the perspective of the distribution of middle school education technology training work, it is to let middle school teachers carry out the process of collective informatization of lesson preparation, so that the development of training work is more valuable and stimulating. Some teachers have high educational technology and can use information technology more proficiently in the teaching process. Therefore, the development of educational technology training can promote teachers to improve and perfect the existing educational technology knowledge system. Transform the existing training into a collective lesson preparation activity, and let the middle school teachers use modern educational technology and concepts to carry out teaching design according to the different stages or chapters of the teaching content of different subjects, so as to collect all subjects modern educational technology for design The teaching plan package is a good help for building an informationized teaching design resource library. For teachers, the training process can be transformed into a collective informatization teaching design, so that middle school teachers can become active recipients and creators of educational technology.

2.9 Transform Distributed Cognition into Distributed Cognitive Resources

The theory of distributed cognition mentions that in the functional system of individuals, artifacts and environments built, middle school teachers who participate in it are encouraged to continuously improve their own cognitive level of educational technology. However, it should be noted that different individuals, artifacts, environments, and other factors may cause changes in the functional system. Therefore, it is necessary to transform those unstable cognitive distributions into stable and dominant distributed cognitive resources. The establishment of a long-term and effective resource library will promote the steady improvement of the educational skills of middle school teachers and use them flexibly in teaching [5]. Therefore, it is necessary to build a resource library of information teaching design in middle schools. As mentioned in the previous article, the process of transforming the process of educational technology capacity building into the collective lesson preparation process of informatization education design can collect informatization teaching plans designed by teachers themselves, and each teaching subject or chapter consists of two or more

People design, from the crowd can select more meaningful and valuable design lesson plans. Moreover, these designs can be standardized and improved through the strength of the organization, and then they can be built into a resource library of teaching plans for middle school informatization that has a strong effect and effectiveness; the resource library must be free and open to middle school teachers, and middle school teachers are required to be able to In the process of applying and practicing these teaching plans, problems are found, and these problems are communicated and fed back on the corresponding platform to continuously improve and expand the teaching plans. In this way, unstable distributed cognition forms an explicit and stable distributed cognition resource, and guarantees that its collective cognition can be expanded outwards, and also provides a good resource library and interactive communication for middle school teacher's platform.

2.10 Strengthen the Explicitness of Tacit Knowledge

At present, the knowledge possessed by middle school teachers mainly exists in the form of tacit knowledge, and teachers mainly use methods that are practiced in actual teaching situations to accumulate experience. Such experiences cannot generally be expressed and displayed in language, and there is no way to quantify the communication. Teachers need to use their own tacit knowledge to carry out corresponding teaching work. The richness and application status of their tacit knowledge play a decisive role in the professionalism of teachers. However, in the daily work and study of teachers, teachers do not pay attention to the degree of aggregation and explicitness of teachers' tacit knowledge. Therefore, it is necessary to carry out in-depth excavation and integration in the capacity building of educational technology. You can use SECI methods of mutual transformation between explicit knowledge and tacit knowledge. In addition, it should be noted that most of the tacit knowledge is basically displayed in the teaching practice scene, so it is necessary to pay attention to and share such knowledge in time, using collective wisdom to make this part of tacit knowledge explicit [4].

Therefore, when constructing the educational technology of middle school teachers, the teaching practice process of middle school teachers can be displayed in the form of video, and these teachers can be organized to communicate and analyze, and then help tacit knowledge to become explicit knowledge. Video network needs to be applied. New network technologies such as, short videos and so on are used for video recording of the teaching site. This method can better help the dissemination and sharing of these tacit knowledge among middle school teachers.

2.11 Focus on the Exchange and Analysis of Teacher Practice Cases

Educational technology training for middle school teachers is more to enable teachers to meet the standards of their abilities, and more abilities and knowledge mastery need to be exercised and cultivated in teaching practice. Therefore, the capacity building of educational technology should not only be regarded as the transmission of explicit knowledge, but should be regarded as a place for the development of informatization teaching practice. After the completion of the construction, middle school teachers cannot stop learning, and they should make their abilities meet the educational technology standards [6]. Therefore, after setting up a basic educational technology learning system, middle school teachers need to conduct in-depth exchanges on various teaching cases to understand the development direction and knowledge structure of each teacher; and compare the teacher's ability before and after the construction of the educational technology ability training system, allowing teachers to deeply reflect on their own growth.

3. Conclusion

Carrying out the educational technology capacity building of middle school teachers from the perspective of distributed cognition and knowledge management is to truly realize the goal of teaching training, and at the same time guarantee the actual quality effect of training middle school teachers. Mainly by paying attention to the distribution of cognition of middle school teachers' educational technology training work, strengthening the explicitness of tacit knowledge, paying attention to the exchange and analysis of practical cases, and transforming distributed cognition into

distributed resources. Only by using these methods can teachers' educational technology ability be steadily improved. However, in the training process, we also need to pay attention to the fact that to build a huge resource pool of teaching plans requires the participation of all parties and the support of social forces.

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