

Investigation about Participatory Teachers' Training based on MOOC

*Qing-Guo Zhou, School of Information Science and Engineering, Lanzhou University,
Lanzhou, China*

Shou-Chao Guo, School of Education, Lanzhou University, Lanzhou, China

*Rui Zhou, School of Information Science and Engineering, Lanzhou University, Lanzhou,
China*

ABSTRACT

In consideration of shortcomings of general teachers' training module, such as less chance, inefficiency, theory-practice gap and short duration, we expounds the concept and process of teachers' training module based on MOOC, discusses how MOOC platform promote collaborative teachers' training development and improve teachers' training methods and other issues in this paper. This paper proposes collaborative teachers' training model with analysis and argumentation on theory, performance and learning support both inside and outside the classroom, aiming for a reference for every education trainers.

Keywords: Collaborative Learning, Formative Tests, MOOC, Process Evaluation, Teachers' Training

1. INTRODUCTION

Education informatization is the utilization of information technology to facilitate diversification and improvement of education contents, methods, and forms. The teachers' training is the key of educational informatization (MA J.H., 2001). It is inevitable to promote teachers' professional development through a specific training, many countries carry out various forms of teachers' training programs, such as Singapore, UK, USA, Japan and so on. How-

ever, due to the traditional centralized training gives a higher priority to theory and less attention to practice, even the teaching content and teaching method are out-of-date, it is difficult to migrate training to teaching practice. With the popularization of internet, people began to consider using the internet to carry out teacher training. This presents an urgent requirement of network resources.

Massive Open Online Course, called MOOC for short, is a new pattern of online education. MOOC is considered to be a teaching

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mode, which consists of participation, feedback, discussion, evaluated examination and certificates. MOOC sends qualified education to all corners of the world through information and network technology, thus teachers would be involved in the people-oriented way of obtaining educational information, rather than computer-centric. MOOC today are a moving target -their form and function is shifting weekly, as course designers and platform providers around the world dream up new approaches to open online learning (Grover & Franz & Schneider, 2013). The major advantage of MOOC is that it provides not only resource management, learner management, teacher management and communication tools which are provided by other platforms, but also its unique learning and teaching process management which could be used to manage the implementation of teaching, teaching track, teaching evaluation and so on, in order to carry out a variety of interactive training activities to diversify the evaluation and reflection. In the other words, MOOC allows more and broader teachers to participate in the training, and improve the quality of teacher training at the same time. Moreover, with hand held, pervasive and wireless technology, it became possible for all the participants to connect their own computers or portable communication devices to the support system of real time and interactive distance classes (Bonakdarian, 2009).

2. PRESENT SITUATION OF TEACHERS' TRAINING

Based on previous investigation of teachers' training experience, using the research methods of literature date, questionnaires, on-the-spot investigation, expert interviews and other research methods, we find the following hazards in teachers' training:

First is the lack of continuity in training. On the one hand, it will take up some time for teachers to attend teachers' training, which may affect the normal teaching schedule. That leads to a situation that some teachers is unable to

go out to attend centralized training. On the other hand, the majority of teachers' training is still aiming at on-demand teaching, resulting in a lack of coherence in most of the contents. Therefore, they need a new approach to training, by which teachers would be able to receive new knowledge not far from the house.

Second is the low training efficiency. On the one hand, the principles of integrating theory with practice, giving lectures in light of the needs, and emphasizing practical results were not taken seriously, so training is not terribly helpful. On the other hand, the training is still carried out in a traditional classroom form which usually uses a cramming method of teaching. That often reinforces the erroneous concept of education of teachers, and cannot absorb the scientific concepts advocated. What's more, because of the slack management system and substantially all the teachers can get a certificate of completion which leads to a very low training efficiency.

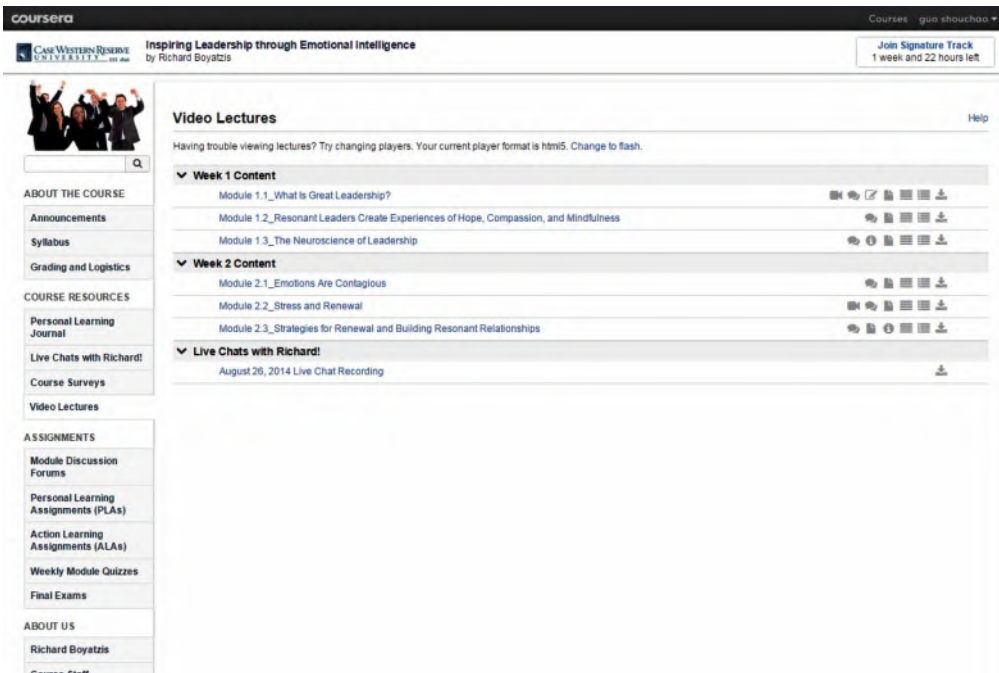
Third is lack of stable support in teachers' training. On the one hand, due to geographical and economic conditions, many schools can't get a high-quality resources of knowledge, and can't cultivate the ability to adapt to social development. On the other hand, especially in the western region, there is too few teaching training to meet the actual needs of teachers.

In addition to all the advantages of distance education, MOOC provides multi interaction, evaluation and many other functions. Thus teachers' training based on MOOC would be a prolific solution to these problems.

3. BRIEF INTRODUCTION OF MOOC

If learning is a process that happens when external information is transformed into internal knowledge, then the internet offers us a universe of possibilities. MOOCs is simply a well-structure, and expert driven option for open accessible learning opportunities (Schneider, 2013).

Figure 1. Interface on coursera



A Massive Open Online Course is an online course that aimed at unlimited participation and open access via the web. In addition to traditional course materials, such as videos, readings, and problem sets, MOOCs would include an interactive forum which helps build a community for students, professors and teaching assistants.

The core part of MOOC is social learning, a new way of learning, in which learners' activities are shared based on internet, in a word all in all, a ubiquitous media presence in the form of education. MOOCs are not only providing the opportunity to easily access learning resources but also include several technology features that support different important activities in the learning experience such as interaction, collaboration, evaluation, and self-reflection (Yousef, 2014).

Figure 1 is the interface on Coursera, which is also called Inspiring Leadership through Emotional Intelligence.

The platform includes ABOUT THE COURSE, COURSE RESOURCES, ASSIGN-

MENTS, ABOUT US and other items, and the main features include Syllabus, Personal Learning Journal, Module Discussion Forums, Live Chat, Weekly Module Quizzes, Final Exams and Meet up, etc.

Generally speaking, traditional online courses charge tuition, carry credit and limit enrollment to a few dozen to ensure interaction with instructors. The MOOC, on the other hand, is usually free, credit-less and, well, massive.

4. SUPPORT FOR TRAINING

At present, there are many universities, institutions and organizations to provide massive open online courses. One of the most popular is the Coursera, edX, Udacity, and so on, the whole world has tens of thousands of students participate in a variety of MOOC model of learning. There are tens of thousands of learners around the world to participate in a variety of learning MOOC model. For help and support

in school teachers' training with MOOC, they mainly are shown as the followings:

A. With a higher efficiency in Resources Sharing

In order to accommodate with different kinds of training, course videos would be able to download in MOOC platform. And these elaborate videos are all edited by their teachers. With multi options learner could choose to pause or fast forward during their watching. Combined with the forum and their assignments, learners could achieve a higher efficient study with cooperation with others.

B. Efficient interaction with learner during their study

It offered much more levels of interaction based on school teachers' training with MOOC. It includes: interaction between learners and learning resources which mainly consist self-study process such as watching videos, test and taking notes; interaction between learners and teachers which aims at the online and offline communication, forum discussions during the study process; interaction between learners which means the free chat and cooperation study. Learner would discuss, exchange opinions and cooperate in a study group. They can also do this via forum, e-mails and offline communication. With a stable learning group, all these interactions would offer a highly recommend support in further study for teachers who is currently separated with them in time and space area.

C. Individual development a learner could achieve

The professional development is ongoing learning process for teachers. That's a process with development and accumulation for their practical knowledge. Based on school teachers' training with MOOC, training on demand would be accessible. The learner is free to choose the coordinate training course based on their de-

mand. What is more, training with MOOC would be more similar to practical teaching. Learner is entirely able to apply their knowledge based on their experience and background. It promotes a combination between online and offline learning, a mixture learning between virtual learning and practical learning. That finally stimulates these learners learning through their whole life.

D. Regulation of management

In traditional school teachers' training, the manager remains single management style which leads to a less strict constraint for learners. And this is why most of the training achieve low efficiency. And based on MOOC, teachers would be able to supervise each learner's learning conditions via module discussion and mission progress. This not only offer multi services for learners, but also offer reference for process assessment. And due to this training only issue certificates to those learners who passing the examinations, the training efficiency gets a highly improvement. Training with MOOC also spares a lot of fees such as filed, transportation and accommodation. It has facilitated the management of training budget.

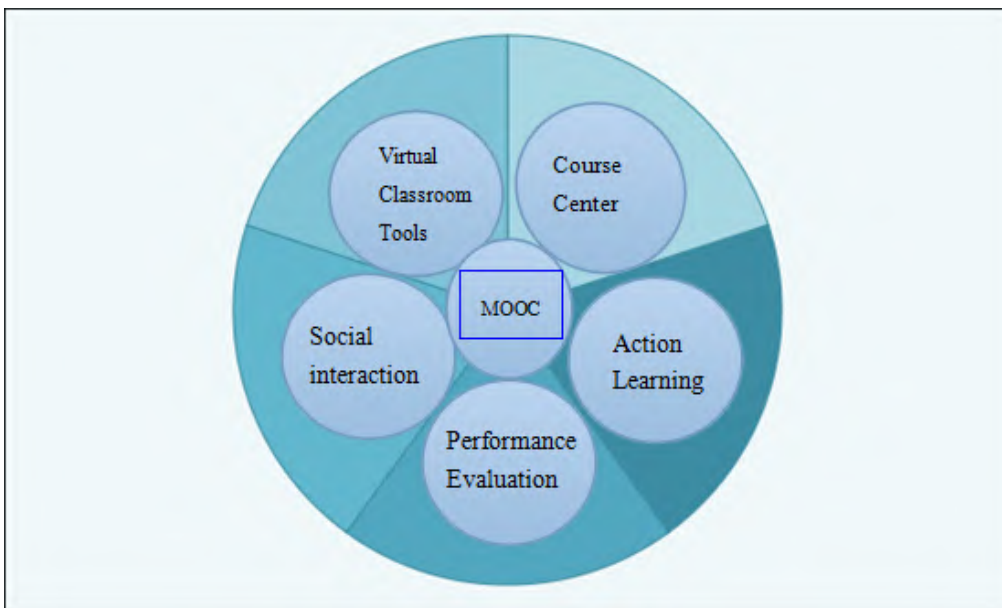
E. Process assessment

School teachers' training based on MOOC is a combination process of self-study and inter-study for learners. The assessment concludes two main parts: one is about the process assessment according to assignment, forum interaction and online test, and the feedback of learner's study situation is in time available for teachers; the other is an examination by the end of training. A comprehensive assessment is combined by these two parts.

5. TEACHERS' TRAINING BASED ON MOOC

In this section, we would like to illustrate the model.

Figure 2. Schematic drawing of teachers' training based on MOOC



Adult educator Noyelles points out that “for adults, their experience is themselves. In any case, when adults experience are ignored, they think it’s not reject their experiences, but reject them.”. Thus, according to the theory of adult education, the learners themselves are the most abundant learning resources should be fully utilized. If the learner had to be placed in a “be taught” position, the learning effect is often poor.

Collaborative learning refers to an instruction method in which learners at various performance levels work together in small groups toward a common goal. Collaborative learning based on MOOC refers to assist and support collaborative learning based on multimedia and network technology. Its elements include teachers, learners, learning resources, communication tools, and MOOC platforms. Constructivism, group dynamics theory and computer-supported collaborative learning provide a theoretical basis for participatory teacher training, which is based on network environment. Advocating participatory teacher training, arousing cognition conflict, showing

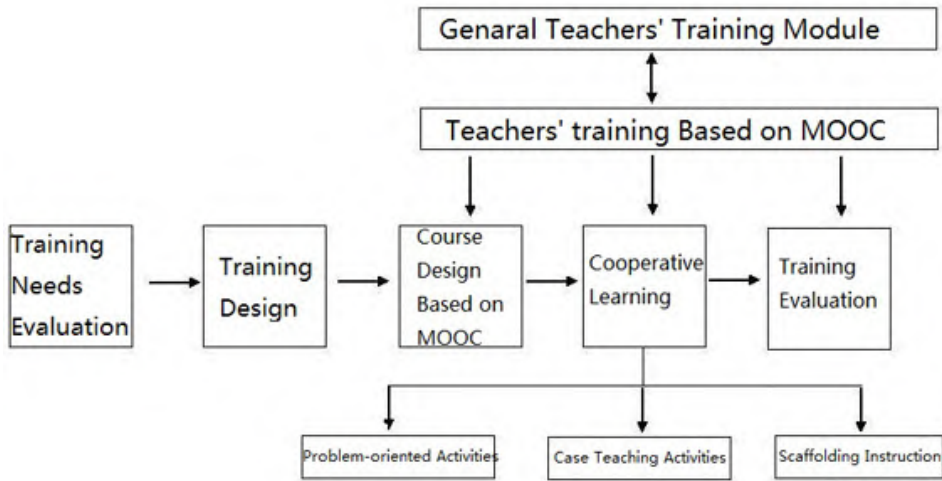
model example and tracing direction can be helpful methods.

According to difference between traditional online courses and MOOC, teachers' training based on MOOC can be carried out entirely. Participatory training is a popular model in teacher training practice, and many researchers have demonstrated that participatory training has played an active role in agricultural development projects (Narayan & Mundial, 1993). Participatory teacher training can really make a positive change in teachers' knowledge, behavior, attitudes, which is an effective teacher training model (Zeng & Du, 2007).

MOOC provides an online pass, and social media is the center of MOOC, moreover MOOC itself also provides a Q&A, discussions and other features on the same time. MOOC as a stable and efficient network platform, learners can choose different communication tools according to their own habits. The schematic drawing of teachers' training based on MOOC is as shown in Figure 2.

There are five dimensions in MOOC-based virtual learning environment: course center

Figure 3. Process of this model



dimension, virtual classroom tools dimension, social interaction dimension, performance evaluation dimension, action learning dimension. Course center dimension refers to courses related learning materials, resources and activities. Virtual classroom tools dimension refers to the forums, quizzes and other interactive online tools, and bookmarks, notes, email and other sharing tools. Social interaction dimension refers to a relatively stable learning community formed by blog, wiki, email and other tools. Performance evaluation dimension refers to process evaluation through the track of learner. Action learning dimension refers to MOOC break time and space constraints, so that teachers can practice according to their background and experience in the classroom and feedback to the learning process timely. Teachers will participate in training mainly through computers, and at the same time, according to their corresponding learning environment, through Wiki, YouTube, email, MSN, especially mobile phone and so on, so that teachers can attend training whenever and wherever, which also reflects the superiority of ubiquitous media. The process is as Figure 3.

The figure shows that teachers' training based on MOOC and traditional training promote each other. The most important is, teachers can participate in the training whenever and wherever.

The main processes include:

A. Training needs evaluation

According to system design principle, first, we should clear the training purposes based on analysis of demands. After analysis of demands, we should understand the characteristics of teachers' study. The main methods include questionnaires, interviews openness and so on.

B. Training design

According to requirements of teachers, we design the content and environment. The training includes theoretical knowledge and practical knowledge. Then we do out design under the consideration of differences in teachers' discipline, experience, and other factors.

C. Course Design

As suggested by most of the experts in ICT, wrapping ICT tools with the necessary elements to encourage teachers to use them as well as the necessary support during all stages of implementation is one main key for success(Riviou,2014).The course materials and testing will be published in the forum of MOOC. Reference to the traditional model of teacher training materials production methods, we make videos, documents, quizzes and other materials adopt the kinds of case-based learning and problem-based learning.

D. Cooperative Learning

Connectivist MOOCs do not necessary rely on specific platforms, as they often results from self-directed aggregation of resources and tools (Gillet,2013).MOOCs includes study groups, cooperative group learning and reflection. Team Learning is the basic form of participatory learning. Collaborative learning is inseparable forum the guidance of experts, who can guide the learners in learning by taking problem-based activities, case-based activities, and scaffolding instruction.

E. Training evaluation

The evaluation includes formative evaluation and summative evaluation. Formative assessment runs through the whole training process, consists of learning behavior, discuss, quiz and so on. Summative evaluation is mainly based on the deficiencies of the traditional teachers training, will be evaluated on what they learn.

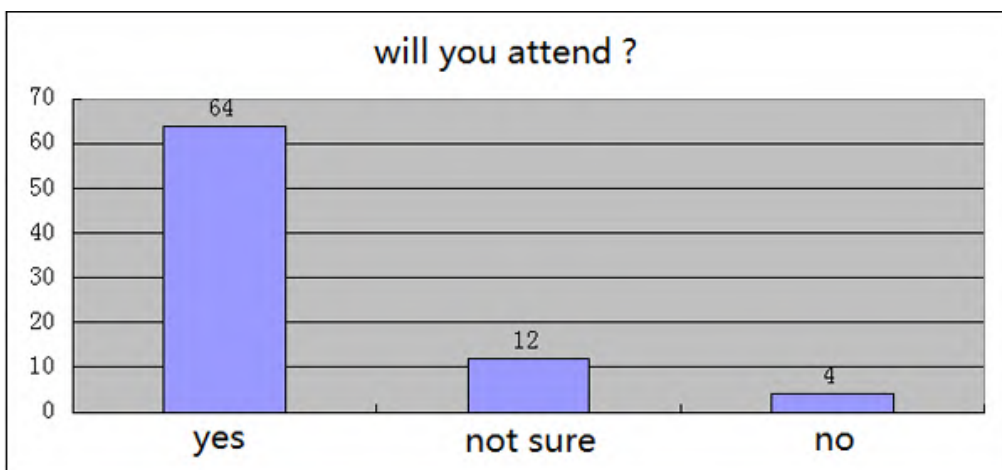
This module opens the door for a new kind of learning that occurs when learners have access to information anytime and anywhere.

6. THE CHARACTERISTICS OF THE MODEL

Because of advantages of MOOC, there are several prominent features in teacher training.

First is virtual environment for constructing knowledge. The low proportion of substantive users of chat makes it unexpectedly difficult to reach critical mass for an effective chatroom, even in relatively large courses (Coetzee, 2014). It is an assumption of the cognitive flexibility theory that knowledge can be acquired from various angle of information. Only in this way, can the knowledge be applied in the changeable and complex situation, without losing its value. MOOC gives teachers opportunity to reflect on themselves and collaborate with

Figure 4. Status of research



others. Although the learning environment and specific teaching situation are separate in time and scenes, teachers can still practice activities that they will meet in teaching.

Second is effective management platform for teachers' training. Teachers can conduct online discussion groups, share learning experience, design learning plans and campus activities offline. That let teachers interact with instructor, teachers and platform easily. This module highlights the importance of teachers, but not cramming education. Due to the separation of time and space, it makes the management of funds, room and other services more convenient.

Third is support for lifelong learning. Each course in MOOC platforms have relatively independent directory, so that teachers can understand the purpose of the course, schedule, and other information, thereby enabling the learner can easily complete their studies courses step by step. Unlike traditional teacher training, courses in MOOC is divided into many beautifully cut sections, which allow teachers carry on studying more efficiently. Different from the traditional teacher training, MOOCs are finely crafted resources. And these small fragments eventually carefully formed a complete knowledge system. MOOC stressed duplication and transfer of existing knowledge, so that learners can repeatedly participate in this course.

7. RESEARCH

We had conducted an investigation among teachers, who had participated in the CS4HS, and results were as Figure 4.

It can be seen that vast majority of teachers endorsed this approach. The reasons include free, discretionary study and practice, efficiency programs, practicable U-Learning and E-learning.

8. LIMITATIONS OF THIS STUDY

MOOC is currently mostly a replica of traditional online course, more than 90% of students

fail to complete the course. And MOOC focus on communication, discussion and training inspired thinking which brings great challenges to those teachers who accustomed to traditional teaching methods.

In an online course, students learn independently in the virtual environment without teacher's on-the-spot support. However, many students are addicted to the Internet which is filled with a plethora of shopping websites, online games, and social networks (Tsai, 2013).

And this module will increase the running cost of distance education, especially in the case that a lot of students join the same distance class in scattered remote sites. On the other hand, without additional instructors in the remote site, it is very difficult for the teacher to guide the students in computer system operation only by relying the communication by sharing video and presentation materials at the virtual classroom (He, 2011).

9. CONCLUSION

In this paper, we introduce the teachers' training model based on MOOC, then investigate its advantages. While the model, elements, and the relationship between elements of this module, especially the careful design, in-depth analysis of changes in the process has not yet get to the bottom. However, MOOC's effects can't be taken lightly. This new teachers' training model based on MOOC worth more time for a continue conduction and investigation.

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REFERENCES

- Bonakdarian, E. (2009). Merging worlds: when virtual meets physical: An experiment with hybrid learning. *Journal of Computing Sciences in Colleges*, 61–67.
- Coetzee, D., Fox, A., Hearst, M. A., & Hartmann, B. (2014, March). Chatrooms in MOOCs: all talk and no action. In Proceedings of the first ACM conference on Learning@ scale conference (pp. 127-136). ACM. doi:10.1145/2556325.2566242
- Gillet, D. (2013, October). Personal learning environments as enablers for connectivist MOOCs. In Information Technology Based Higher Education and Training (ITHET), 2013 International Conference on (pp. 1-5). IEEE. doi:10.1109/ITHET.2013.6671026
- Grover, S., Franz, P., Schneider, E., & Pea, R. (2013). The MOOC as Distributed Intelligence: Dimensions of a Framework for the Design and Evaluation of MOOCs. In *Proceedings of the 10th International Conference on Computer Supported Collaborative Learning* (pp. 16-19).
- He, A. (2011). Online Operation Guidance of Computer System Used in Real-time Distance Education Environment. [IJDET]. *International Journal of Distance Education Technologies*, 9(2), 40–51.
- Ma, J. H. (2001). Educational Informationizing and New-type Teachers' Training. *Theory and Practice of Education, China*, 1, 19–22.
- Narayan, D., & Mundial, B. (1993). Focus on participation: Evidence from 121 rural water supply projects. In Focus on participation: Evidence from 121 rural water supply projects.
- Riviou, K., Barrera, C. F., & Domingo, M. G. (2014, July). Design principles for the online continuous professional development of teachers. In Advanced Learning Technologies (ICALT), 2014 IEEE 14th International Conference on (pp. 727-731). IEEE. doi:10.1109/ICALT.2014.212
- Schneider, E. (2013,). Welcome to the moospace: a proposed theory and taxonomy for massive open online courses. In *AIED 2013 Workshop Proceedings Volume* (p. 2).
- Tsai, C. W. (2013). How to Involve Students in an Online Course: A Redesigned Online Pedagogy of Collaborative Learning and Self-Regulated Learning. [IJDET]. *International Journal of Distance Education Technologies*, 11(3), 47–57. doi:10.4018/jdet.2013070104
- Yousef, A. M. F., Chatti, M. A., Schroeder, U., Wosnitza, M., & Jakobs, H. (2014). MOOCs-A Review of the State-of-the-Art. In *Proceedings of the CSEDU 2014 conference* (Vol. 3, pp. 9-20).
- Zeng, Q., & Du, L. (2007). An Experimental Study of the Effect of Participatory Teacher Training. *Teacher Education Research*, 4, 51–54.

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