

How to Improve Community Resident Autonomous Learning Based on Virtual Learning

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[Abstract] Community resident learning is the main part of lifelong education. In the times of mobile internet, virtual learning is becoming increasingly important. Currently, there exist several problems in community resident autonomously virtual learning that influence learning quality. In order to solve the problems of community resident virtual learning based on the theories of connectivism, constructivism, humanism, and distributed cognition, we investigated how to increase community resident autonomous virtual learning ability.

[Keywords] community resident; virtual learning; autonomous learning

John Dewey, in his book *Democracy and Education*, introduced the idea of “learning community” in teaching. He thought that learning was getting knowledge and abilities by interactive activities of mind and emotion among learners and that a person's learning can't be separated from interaction with environments. With the rapid development of mobile internet technology and smart terminals, people's ways of studying were greatly changed; there are more channels to receive information, and studying time is becoming more and more fragmented. People studying more rely on networks and more and more people use virtual studying platforms, such as MOOC (Massive Open Online Courses), WeChat, QQ, Weblog and so forth, go to virtual learning communities to learn (Li & Xue, 2015).

Communities are basic units of societies, and people collect in some regional spaces. People residing in communities are called community residents. People in modern life, from growing to developing, depend on communities and are restricted by the community environment. In all developing phases of life, people will receive all kinds of education, including not only school education but also society education, but also formal education and informal education.

Virtual learning is one important means of lifelong learning for community residents in modern society. It is one kind of online learning. The network platform is its interactive interface. Within it, learning groups, interactive environments, and existing relations constitute a virtual learning community. Learning groups in internet communicates exchange and share all varieties of learning resources. A learning community comprises remote school education, which includes college network education with records of formal schooling, college network open courses, all sorts of network schools, online learning websites, weblogs, BBSs (Bulletin Board System), and so forth. The Harvard University Internet open courses, Tencent QQ forum, Baidu post bar, Sina Blog, Tencent WeChat and MOOC Cloud classrooms provide shared platforms of knowledge. In recent years, massive online open courses have become fashionable in the world. Virtual learning breaks the restrictions of time and space, helps people construct shared information resources in greater ranges, promotes human culture propagation and civilization communication, and powerfully drives social development.

The United States and other developed nations, in the 1970s, proposed the concept of autonomous learning. In the 1990s, American scholar B.J. Zimmerman synthesized opinions of all kinds of school thoughts and greatly developed autonomous learning theory (Chen, 2013). Autonomous learning is one kind of modern learning means besides traditional reception learning. In this learning method, learners are the principle part of learning and realize learning objectives by learners' independent analysis, searching,

practice, query, and creation. According to different taxonomies, there are several sorts of modern community resident autonomous learning. By content, community resident autonomous learning can fall into classifications of education background, technical ability, relaxation, and entertainment. By form, it can be individual or collaborative. By function, it can be formal or informal. By studying media, it can be online or offline. Online learning is one important method for community residents.

In this paper, we organize the content as follows. In Section 2, we will analyze the current situation and existing problems of community resident virtual learning. In Section 3, community resident virtual learning autonomy training strategy will be put forward. Finally, the conclusion will be given.

Current Situation and Existing Problems of Community Resident Virtual Learning

We have come into the times of lifelong learning. Community resident learning is the core content of lifelong education. However, the complexity of community residents easily make community education only in form. Residents' autonomous learning is the focus problem. Mr. Wei Hu, in the book *Make Learning Become One Living Way*, mentioned that in the times of information, knowledge updating time is shorter, and lifelong learning becomes more and more important. One Indian engineer noticed on airplane flights that after lights were turned off, those who played with iPads and didn't sleep were, by and large, Chinese. They were playing games and watching movies, but no one was reading. This occurred not only in flight, but also in long-distance buses, metros, and urban buses; a lot of children, youths, and middle-aged adults are addicted to games, films, and movies. Development of online education and social networking services are making education activities more flexible and convenient. It can stimulate learners' interests and promote collaborative learning. Although to some extent, virtual learning has more advantages than traditional education, the autonomy of virtual learning is confronting a lot of challenges.

With more abundant network learning materials and quick development of social networking, people depend more on network learning. In 2014, the authors investigated five typical communities in Shanghai; the statistics showed that, on average, each person spent more than three and a half hours online, and on holidays, it was longer (Li, Xue, & Li, 2014). Some persons surf the internet for the sake of searching learning materials and watching network teaching videos, or if they are in virtual communities, study, exchange, communicate, and share learning resources. However, people in virtual learning communities can't do what they want to do in the course of all studying. Seeking massive information often makes learners lose heart.

The era of big data derives from massive information and its explosive increase of the internet. In the beginning of the 21st century, the global data quantity was about several EB (exabyte), which is tens of thousands of times the total of books in the world. In the present age of mobile internet, the internet of things and smart mobile equipment, such as smart phones, will produce more data, and global data quantity has rapidly expanded to the level of ZB (zettabyte). How much is the "big data" on earth? International Data Corporation (IDC) showed that in 2011 global data was 1.8 ZB or so. If we use DVD compact disks of 9GB to store them, the total height of all needed CDs would exceed two hundred sixty thousand kilometers, about two-thirds the distance between the earth and the moon. Moreover, in the age of big data, with the rapid development of mobile technologies and social contact media, new interactive means are being constructed. Therefore, the scale, speed, classification, and complexity are far beyond the cognition and response ability of human brains. On one hand, people need to study by virtual learning. On the other hand, people hope computer intelligent systems will help human beings think about and solve problems (Li & Xue, 2013).

For example, people search for required information from massive information datasets. Previously, artificial rules usually were used. Nevertheless, when to some extent data are accumulated, the system with the kind of artificial rules can't exactly understand learners, so it can't provide people with personalized services and has many disadvantages.

Because cognitive systems, during intelligent interaction with people, provide people with all kinds of supporting information, lots of structured and non-structured data have to be analyzed for the sake of

processing obscure information and finding inherent relevance and trends. So, cognitive systems are not limited by predefined rules by experts any longer, but people on their own learn concepts from big data, analyze concepts and mine relations among them, and construct big data models of scaled and intelligent machine learning.

Virtual learning is faced with not only the hardness of big data cognition, but also by obstacles from software and hardware, reality, and reliance on learning resources, differences of languages and culture, acknowledgement of society and psychology, and conflict from responsibility and obligation. Furthermore, it will face the problem of how to increase low learning efficiency. So, if learners can really make autonomously virtual learning come true, there are still many open problems to solve.

Community Resident Virtual Learning Autonomy Training Strategy

Educators' destination is to have learners acquire innovative education where they get knowledge by themselves from passive types of education in which they are required to learn; that is to say, learners can autonomously study. Compared with traditional education, virtual learning has lots of advantages, such as no restriction of space and time, flexibility, convenience, and higher autonomy. However, the autonomy of virtual learning needs to be cultivated.

Scenario Establishment of Constructivism

In the field lifelong education, community resident autonomous learning focuses on the interior quality of learning, which is different than remote studying and passive learning from teaching. The theory of constructivism is the main theoretic foundation of autonomous learning. The learning theory of constructivism suggests that learning is the course of constructing internal psychological expression on learners' own and underlines the autonomy, situationality, and sociality of learning. That is to say, learning patterns should focus more on learners' construction and organization of knowledge; it is stressed that knowledge should be constructed by mutual interaction between cognitive subjects and objective settings, and all kinds of influential factors in learners' learning environments should be researched.

In the era of the mobile internet, in order to trigger community resident learning autonomy, software and hardware platforms for autonomous learning must be set up to establish scenarios for autonomous learning. People usually attach importance to accumulation of software resources (information content), but neglect construction of technical support for learning platforms.

Virtual community learning needs multimedia technology to integrate graphs, text, audio, and video. Virtual reality technology is required to implement interaction, such as the representation of reality by special input-perceiving equipment and some multi-dimensional output equipment. It also requires network communication technology to efficiently collect information from learners in real time to break the restriction posed by place, time, communications, and exchanges among learners. Therefore, virtual learning relies on the development of network and electronic communication technology and on the maturity of some core technology, such as bandwidth, video quality, and guarantee of online sharing tools. However, incompatibility among technology decreases residents' learning interest, also; for example, smart phones not supporting Android system can't log in WeChat. Similarly, mobile internet equipment not supporting Android system can't log in to MOOC cloud classrooms supporting Android system. Even if smart phones with Android systems are used, since operating systems are not compatible with installed applications by users, configuration for core functions may not be compatible, and equipment providers have no updating strategies. This will lead to large losses of mobile learners.

Current virtual community learning platforms have some shortcomings, such as incompatibility between PC operating systems and mobile platforms, between Ios (mobile operating system from Apple Corporation) and Android systems, deficiencies in mobile learning experiences, and shared functions. Most of them solve the problem of video playing across terminals by using HTML 5. Virtual learning communities should provide similar scenario creation and learning experiences, like PC platforms, to make mobile learning terminals have not only functions of video playing, but also functions of exchange, group discussion, exercises, and voting for the purpose of free shifts between desktop systems and mobile

systems. By integrating WeChat public platform open interfaces, in WeChat friend circles, people can share course content. Relying on large-scale users of WeChat and other social contact platforms, functions from interactive answer questions based on WeChat public service and discussion learning based on WeChat grouping, community resident learning autonomy can be promoted; this provides community residents with free community Wifi to use.

Connectivism Resource Integration

Connectivism was proposed by Canadian scholar George Siemens and was the product of the age of the digital network. Connectivism suggests that learning is not just the personal psychological activity of learners, but one of connection procedure and one learning model's adapting to current social structure changes. Because social structure is changing, people's needs and learning means are changing, as well. In the times of networks, knowledge is increasing in exponential order and exists in fragments. Individual knowledge reserves and management space are contradictory with the explosive increase of knowledge. Thus, ways of knowledge acquisition are more important than mastery of knowledge. So, studying is where knowledge connects, recombines, and recycles different types. In addition, connection studying is of society and driven by interests. Connectivism provides community residents with ways and methods for autonomous learning. Connectivism, derived from the age of digital network, suggests that knowledge exists in multiple channels, and ways of acquiring knowledge are much more important than mastering knowledge. In order to promote sustainable learning, it is needed to cultivate and maintain connection (Yin, 2002).

Community residents have common characteristics with social groups: groupment, distributivity, and autonomy. As connectivism shows, in the course of virtual learning, community residents' individual knowledge and relations form one small network, which is integrated into all kinds of organizations and structures whose knowledge is connected, changed, expanded, and further transmitted to individual networks that serve personal and continuous learning. Thus, organizers for community resident learning should provide community residents necessary services, such as learning resources, learning platform tools, and relevant connection service.

First, integrate learning resources. On one hand, provide community residents with appropriate needed learning resources with all kinds of majors for autonomous learning. On the other hand, based on overseas excellent learning resources, provide Chinese online learning services that suit community residents. For example, Coursera, one of three MOOC giants in the world, released the project plan of crowdsourcing, The Global Translator Community (GTC), and agreed with cooperators to make captions for Coursera courses to help learners of non-English-speaking countries more conveniently use their MOOC. Second, provide learning tools and platforms. By using mobile communication technology, multi-media technology, and relevant IT technology in the age of big data, (MOOC, Facebook, and so on), provide community residents with network learning connection platforms, learning tools, and other suitable software and hardware equipment. Third, optimize internal and external networks to reinforce connection service. The following three connections should be noted: connection among virtual learning platforms, such as the one among schools, families, communities, and museums in order to develop free connection of learning settings; interaction between people and machines, such as mobile inter-connection for increasing human-machine collaboration; inter-connection among persons, such as setting up community resident virtual learning networks by the WeChat group, QQ group, WebBlog, and Email to promote networking communication in the process of teaching and studying.

Decentralized Construction of Distributed Cognition

In the middle 1980s, Robert Maynard Hutchins et al. from the University of California proposed the concept of distributed cognition; he thought that knowledge exists in different positions, and cognition is distributed in brains and external environments, especially in the structure and time of society and culture, and he stressed that learning resources should be decentralized. Virtual learning communities are learning collections in which physics, society, and culture are of distribution. Their learning individuals, personal learning time, learning resources, and environment are of distribution, as well. Their knowledge

dissemination complies with sociology distribution cognition theory. It permits mentors, learners, and learning contents to be distributed in different non-centralized positions and makes teaching and learning independent of time and space. It makes real open education, lifelong education, and universal education possible and is an efficient road to increase development of learning society. It underlines non-centralization of resources, eliminates prestigious teachers' absolute authority, changes the traditional teacher-centered pattern into a learner-centered one, and makes learners have more initiative and autonomy. It focuses on scenarios, construction, cooperation, and exchange, and it provides students with individualized learning schemes to make learning not dependent on top teachers and classrooms. Learners are resource providers and receivers. For example, a MOOC has several innovations in online education. Learners who are distributed can share rich, distributed course resources. In the distributed learning, learners own more initiative and accelerate shifting from "want me to learn" to "I want to learn." This is updating of learning ideas.

Big data overturns famous teacher effects. Community resident learning organizers necessarily need self-adaption to meet learners' requirements. Thus, it is required to distribute educational resources to sufficiently guarantee education fairness.

Humanistic Content Pushing

Humanistic learning theory originated from Abraham Harold Maslow's self-actualization and Carl Rogers's personality ego psychology and learner-centered self-actualization education. Humanism suggests that human beings own learning potential in their blood and anticipation of self-actualization, educational fundamental objectives are to guide learners' self-actualization, and educational key aims are to enlighten learners' souls to have them liberated and discover and go beyond themselves.

Differences among community resident individuals, particularly the difference among learning abilities, learning styles, and learning strategies, make personal learning procedures have large differences. Besides, different community residents have different learning requirements. One learner may have different learning needs in different learning stages. Therefore, teaching content and methods with "one size fits all" is not suitable for all community resident learning. One means of solving the problem is community resident autonomous learning. Thus, community education should fully respect learners' personalities and individuality. Learning content should be designed according to students' potential and personality development. It should be done to consider learners' psychological sensing and behavioral habits. Furthermore, more importing of new technology, new tools, and new concepts provides diversified learning resources.

Social Identification and Stimulation

Low cost and investment, social identification, and having learners acquire experiences of successful learning, benefit cultivating learners' interests and increasing learners' initiative and autonomy.

Encourage community residents to join in virtual learning community for free education. There is difference between cognition and knowledge for community residents. Traditional education has higher requirements of enrollment, tuition, and learning cycles, and makes community residents shrink back at the sight. Online education based on MOOCs is one good choice, as online virtual learning materials are abundant, getting materials is convenient, prices are low, and learning time is selected by the individual. It pretty well suits community resident autonomous learning.

Construct virtual learning testing and certificate stimulation schemes. Community residents finish online virtual learning, pass related examinations, and are eligible to get corresponding academic certificates or non-academic certificates. This can stimulate community residents' enthusiasm for virtual learning. The United States integrates training, evaluation, and promotion and stimulates the public's efforts of autonomous learning.

Study in order to apply and increase sense of social identity. Our society is composed of communities and should make each social member fully sense the dignity of existence. Besides setting courses for different majors, some courses on psychology and laws should be involved. Study is for applying. Encourage old persons on their own intention to participate in some social work to do their

contribution. Let them feel that they are useful. Increase their sense of social belonging and sense of social identity. The kind of sense of belonging and identity is the source of social public spirit and is the root of establishing a learning society. Having the kind of sense of belonging and social identity, each community resident's potential ability can become conscious of autonomic learning with some possibility.

Conclusion

Learning only once in our life has become outdated. The theory of the storage battery told us that one high- capacity battery can only store limited electricity. Only by continuous charging is it possible and sustainable to keep releasing energy. Human beings' brains are one kind of high energy storage battery. Life is one procedure of studying. In the times of big data, the social network is incredibly growing, intelligence is increasingly increased, update periods of knowledge are becoming shorter and shorter, and new ideas and new knowledge are coming endlessly. Virtual learning, due to its advantages of quickly re-charging brains, is being loved by people of all ages and levels. Nevertheless, community resident virtual learning autonomy requires cultivation. Based on the current situation and the existing problems of community resident virtual learning, the authors discussed how to promote autonomy of community resident virtual learning, which is based on connectivism, constructivism, humanism, and the theory of distributivity cognition. With the development of information technology, lifelong learning and autonomous learning for community residents will be a main topic forever.

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