The New Ecology of Teacher Education Curriculum Integration in the Era of "Internet+" Based on Intelligent Thinking

Sun Li, Zhang Hanwen*

Changchun University of Chinese Medicien

*Corresponding author:Zhang Hanwen

Keywords: "Internet+"; teacher education curriculum; integrated development

Abstract: Abstract: Driven by the constantly updating and upgrading of information technology, "Internet +", as an important link element, is gradually linked to the internal mechanism of teacher education curriculum and its overall transportation. It has become an integral part of the operation of teacher education curriculum in the network age. The integration development presents the increasingly complex development characteristics from information technology to network environment to intelligent world. In the "Internet+" era with intelligent thinking as the core, the integrated development of teacher education curriculum will inevitably form a new technical rationality driven by the cultivation of core qualities. And finally it will promote the development of a new ecology on teacher education curriculum aiming at cultivating the students in the context of intelligent education.

"Internet+", as an important related factor for the integrated development of teacher education curriculum, is gradually linking to the internal mechanism of the curriculum at present and its overall fortune with integrated factor groups, showing complex development features from information technology to network environment to the intelligent world. In the current stage of information technology, the Internet reflects the application value of instrumental innovation in the teacher education curriculum; online and offline contextual transformation can generate a new fusion model for teacher education curriculum in the networked curriculum environment; in the intelligent world covered by the information network, the future education concept that transcends modern education will lead to fragmentation and intelligent integration of courses [1], thereby promoting the formation of a new ecology for the open integration of teacher education curriculums.

1. Information technology and model innovation

In the basic education field where Internet learning is the most active, information technology not only changes traditional curriculum concepts and teaching models, but also enhances teachers' information technology literacy. It has become an important indicator of teacher professional development and also an inevitable requirement for the innovative development of teacher education curriculum. With the gradually increasing requirement for the information technology ability of secondary school teachers, there is deepening exploration on the integrated development of teacher education curriculum and information technology application. It involves various aspects, including the integration of information technology and course content, networked curriculum design, changes in teaching and learning methods under Internet technology, and so on. At the same time, it presents a trend of rapid expansion of information technology with a variety of curriculum models such as distance education and online learning.

The application of information technology has its two-sidedness in the teacher education curriculum. On the one hand, it can be effectively applied into education and teaching under the guidance of educational theories and methods and promote the transformation of educational technology, which will bring greater efficiency and flexibility to the teacher education curriculum. On the other hand, informatization technology, together with educational technology, faces the

  DOI: 10.25236/eeaet.2020.005

torture and restriction of humanistic rationality on technical rationality. Max Weber believed that technical rationality is a rational form that rises rapidly with the development of modern science and technology; it focuses on the usefulness of things for a particular purpose and the effectiveness of such functions, expressed as the rational construction and choice of purpose and means; in terms of the teacher education curriculum, it is the pursuit of teaching skills, system knowledge and teaching methods [2]. In the 1980s, in the teacher education curriculum of some developed countries such as the United States, this technical rationality positioned the teacher as a technical and value-neutral behavior manager; science and technology was regarded as the solution of problems in teacher education, while the moral and ethical issues in the process were blurred [3]. The teacher education curriculum pursuing technical rationality may generate many problems. For example, the curriculum is also increasingly simplified while it is constantly being technicalized; the education life of teachers is reduced and alienated; the integrity, richness and humanity of teacher development are lacking; the content and form of the curriculum are becoming increasingly rigid.

Critical reflection and value judgment on technical rationality can help to eliminate the blindness and misunderstandings of the application of information technology, which will promote the teacher education curriculum to be close to the development goal of developing comprehensively, caring individual and cultivating practice-oriented talents. Since the mid-1990s, the teacher education curriculum has entered a new period of integrated development with a new round of education reform and the advent of Internet age. Humanistic education has become a mainstream discourse, characterized by giving attention to the dignity and value of students, advocating communication, understanding and dialogue and strongly opposing instrumental rationality and knowledge control.

At the same time, post-modern cultural thought themed with rethinking modernity rises and spreads around the world. Post-modern education is dissatisfied with authoritative control rationality and opposes all unequal order based on “center”. In this context, scientific rationality is criticized; knowledge certainty is questioned; the leading role of teachers becomes a symbol of authoritarian coercion, and theoretical indoctrination is regarded as spiritual oppression [4]. The curriculum in the postmodern paradigm is seen as a combination of determinism and randomness, with unlimited possibilities in the current boundary line [5]. This kind of curriculum view is based on the discourse of subject understanding, communication, generation and construction, which constitutes a new concept of the integrated development of teacher education curriculum.

By promoting the curriculum reform and innovation with humanism as the value orientation and information technology as the method, it realizes the transcendence of modernist technical rationality. In the innovative development of teacher education curriculum, the application of information technology presents the possibility of multiple value forms. In the operational procedure, the convergence of information technology can not only bring more convenient and diversified means of innovation to educators, but also give full play to the leading role of teachers in education and teaching. In addition, it can bring greater autonomy and flexibility to learners, thereby giving birth to a student-centered curriculum innovation model. The integration of information technology into the teacher education curriculum should break the ways of technology application under the traditional curriculum concept and integrate it deeply into the overall operation. This convergence, along with the full emergence of the network technology environment, will also develop into a new model. Therefore, it is feasible to make full use of the role of the network environment in curriculum optimization and integration, so as to create a new integrated development form of teacher education curriculum.

2. Integration of network environment and situation

While bringing disruptive changes to most industries, informatization technology also poses huge challenges to the modern education model. With the acceleration of the overall migration of teachers and students to a networked environment in the 21st century, the teacher education curriculum is constantly evolving to generate new forms of integrated development. The so-called networked environment generally refers to a system in which multimedia computers distributed in different locations are interconnected to realize the sharing of software, hardware and network

culture, and it covers some basic elements such as facilities, resources, platforms and communication tools. From the perspective of teacher education curriculum, the networked environment usually refers to the combination of the network resources of the curriculum and the network platform.

Although it emphasizes the physical components of the networked environment, its fusion mechanism has evolved from the subject-user dominance of technology application to the subject-interaction of multi-dimensional context. Through the multimedia display of information, networked transmission and intelligent processing, it presents its unique course characteristics like learning situation simulation. The interaction of the subjects in the networked environment makes the integrated development of the teacher education curriculum more diverse, richer and more complex, thus generating new technical rationality. The new technical rationality taking cultivating core attainments as the internal quality is the transcendence of instrumental technology rationality and now becomes the driving force for integrate development of curriculum in the network environment. Teacher education curriculum in this aspect reflects the concept of contextual integration which adapts to the development of the networked environment. It fosters and supports the participation of the learning community, creating a communicative and developmental curriculum that is different from traditional learning styles. It is a kind of developmental rationality in which education generates a new life mechanism after the stage of instrumental rationality and value rationality.

For the teacher education curriculum in the networked environment, both concepts have their own one-sidedness: the former ignores the existence significance of value, ethics and morality, while the latter may lead to the “I-centered” power alienation. Developmental rationality is a kind of communicative rationality, which reflects mutual understanding, communication and sustainability among multiple subjects. Adhering to the ecological education concept of harmonious symbiosis and integrating into the application of information technology, the developmental rationality can be regarded as the ideal situation for the integrated development of teacher education curriculum in the networked environment. It refers not only to the physical environment in which network resources and network tools work, but also to the learning atmosphere of interconnection. Therefore, it is a fusion situation involving non-physical forms such as the motivation state of learners, relationship across time and space, teaching strategy of teachers, and so on. The contextualization process of teacher education curriculum can not only deconstruct the flat and fragmented knowledge of traditional curriculum models, but also gather networked environmental elements to realize the diversified and symbiotic development. With the emerging of “Smart Class” and “Flipped Classroom”, information technology based on Internet of Things, cloud computing and big data can build a learning environment that integrates physical environment and virtual environment to meet individualized learning needs; this personalized learning marks the true arrival of the learner-centered empowerment learning era [6].

In the “flipped classroom”, the teacher-student community of the teacher education curriculum can realize remote dialogue and contact through the across-time-and-space links, interactive display and live streaming supported by the “smart class”. It creates a teaching situation that is different from the traditional learning form and then forms a communicative and developmental curriculum model, providing support and help for students to learn independently, exchange reflection and interact with their teachers. This development situation is not only the auxiliary application of information technology in the traditional classroom, but also a subversion of the traditional thinking mode of the teacher education curriculum based on the networked environment. It truly brings out the main role of the learners and learners can engage in learning driven by partnerships and interests. In addition to gaining a sense of belonging and identity by sharing creations and resources with each other, they can also provide feedback and judgment for others. In the context of interactive learning in a networked environment, learners are the implementers of their own education, and it is easier for them to find a balance between the characteristics of the network environment and integrate other elements into the process of their learning [7].

The networked environment is providing unprecedented opportunities for teacher education

curriculum, but it still faces many contradictions in the modern education system. For example, there are contradictions between the rapid growth of knowledge and limited learning time, between the flat and fragmented subject knowledge and the level and comprehensiveness of teacher education, between the lag of textbook knowledge and the advancement of technology development, between the uniformity of class teaching and openness of the networked environment, etc. These multi-coexistence phenomena will inevitably lead to subversive changes in the old thinking paradigm, generate or activate endogenous fusion mechanisms, thereby creating a new pattern, namely the integrated development of teacher education curriculum in the “Internet+” era.

3. Intelligent world and smart education

Today, instead of saying that the Internet is technology or an environment, it is better to say that it is a world. As the world's second largest economy, China has the largest communications network and the largest number of Internet users in this world.

The world of “Internet+” is an open entirety in which various elements are interconnected. The mobile phone network connects the human world; the Internet connects the virtual world, and the sensor network connects the physical world. By 2020, the ratio of the physical interconnection business to the existing people interconnection business will reach 30:1, and the next trillion-level information industry will be the interconnection of things. Some experts predicted that sensor networks would be widely available in 10 years, allowing perceptual information to cover all places under the ubiquitous wireless network [8]. In addition to a networked environment, the development of information technology will also construct an intelligent world. In this increasingly intelligent Internet world, the teacher education curriculum is only a small wisdom field that is included in it. Only when it is closely integrated with this intelligent world can it maintain its vitality and energy.

The aggregation of various elements in the intelligent world has fostered a new spirit of intelligent innovation and change, which supports and nurtures a new form of teacher education curriculum towards “smart education”. This may weaken the educational value of teacher authority and intensify the tension between teachers and students [9].However, while dissolving the status of teachers' “knowledge hegemony”, it also encourages them to create intelligent teacher-student relationships as a member of the learning the community. Teachers need to establish a concept of “smart curriculum” that transcends modern education, highlight the wisdom and new identity values that they should possess as the curriculum organizers, and construct a curriculum development model with the goal of educating people in the intelligent world. In this sense, teachers are still the leaders of courses, and their leadership is more reflected in the creation of meaningful learning situations and common goals as well as cooperation activities between teachers and students. As Dewey said, the reason why teachers have the right to become educators is that they know the real needs and development possibilities of students. They are wise leaders in the school community and can create appropriate educational contexts to stimulate students' curiosity and reflection thinking.

“Internet + education” is exactly a process of reconstructing the education and teaching mode with virtue of Internet thinking and sharing spirit on the basis of respecting and maintaining the core orientation of educating people [10]. This direction of education will no longer take theoretical education as the only goal. In other words, people should be equipped with the wisdom of connecting and reintegrating in the complex intelligent world. Educating people is the core content of teacher education curriculum. In the “smart class” supported by the intelligent world, it is more necessary to recognize the dual education standards and requirements that aim at the cultivation of people's core literacy, and it is also needed to be aware of the complexity and continuity of the relevant curriculum for the future teachers. At present, primary and secondary students presents an exploding trend in online learning. Therefore, the goal orientation of the integrated development of teacher education curriculum should be re-examined, because the shift from standardized copy to re-recognition is an interpretive and creative process.

One of the challenges that the teacher education curriculum faces in the intelligent world is the change in the learning model and goals of learners. The schools, majors, classes, disciplines and textbooks, as well as the standardized and efficient models and goals of modern education, will be

affected. The informal or non-traditional learning goes beyond the so-called formal curriculum. So some scholars claim that the concept of standardized courses that pre-package everything has died out. What learners need today is real-time learning and on-demand learning. Workflow learning has become a model for information transmission in the 21st century. Another understanding is that the teacher education curriculum is the carrier and medium of meaning interconnection activities; it is necessary to guide learners to build multi-faceted, multi-form, rapid and profound meaning interconnection, and to cultivate their ability in this aspect is the vocation of teacher [11]. Whether it is workflow learning or the development of meaning connectivity skills, teacher education curriculum is likely to surpass the basic methods of modern education, such as campus shackles, class teaching, subject boundaries, textbook resources, and so on. Hawking once predicted that the 21st century would be a century characterized by complex science. It is the hope of the rebirth of education to make the education theory and practice say goodbye to “simplification” and restore the original “complexity spirit” and “continuity spirit” of educating people.

In the intelligent world where education is open to the public, the control of education power is undergoing a major transformation. There is a need to reflect and reorganize the teacher education curriculum that participates in the distribution of education power from a higher perspective. Heidegger once described the essence of art as the relationship between the “land” and the “world”. He believed that every work exists in a relationship; it establishes a world and creates the land, and at the same time, the truth emerges in the process of completing the conflicts between the two. This process is also the one creating the poetry of arts. In terms of shaping the spirit and embodying the value of life, the principle of teacher education curriculum is similar to that of art works. Both of them are to build the foundation for educating people in the fusion of the land and the world. According to Heidegger, “land” disillusions all purely computational badgers, although those badgers cover themselves with an illusion of domination and progress in the form where it is a scientific and technological objectification of nature [12].

In the final analysis, the overall development of the teacher education curriculum is in a complex relationship network between the “land” and the “world”. “Land” is the life foundation and situation for the integrated curriculum development. All the complexity and continuity are rooted in it and also return here, and the process is the life journey in which the “land” opens to the “world”. This is a process that the subjects absorb from and integrate with others from a multi-dimensional perspective based on the main spirit of curriculum development; and it is also a life-growth process that activates the elements of curriculum development and forms the linkage of elements and overall advancement [13]. The complexity of the integration of teacher education curriculum in the Internet age lies in the generative nature of its education. It is a regression open system characterized by the evolution and developmental growth of a generating entity and a new force. After all, it is to be open to the ideal world and the real, and then create a new ecology of life growth in the process of education and development.

In the evolving and integrated development, the distinctive feature of the teacher education curriculum in the “Internet+” era is the rapid increase of related factors, and it is open and trans-disciplinary, which is different from the traditional courses. The higher the diversity of the knowledge ecosystem, the stronger the vitality and the strain; and the more nodes there are between different kinds of disciplinary knowledge, the stronger the vitality of its growth, exchange and use [14]. In order to realize the integrated development of the teacher education curriculum, the first thing is to have intelligent thinking and know how to acquire, share, interact, apply and generate knowledge. Then learning subjects can transform it into curriculum actions, and then generate wisdom in the common growth of teaching and learning. In fact, the integrated development of teacher education curriculum is far from ideal wisdom education. Its relationship with “Internet+” is still in the state of trying to combine “understand” and “apply”, and contradictions between technical rationality and value rationality still exist. This makes us have to continuously explore the new ecology to link with life ontology and the integrated development of the teacher education curriculum in the “Internet+” era.

Acknowledgement

Research on the influnence of APT teaching based on university students autonomous learning ability JGJX2020B13 Jilin Higher Education Asociation

References

[1] Yang Zhicheng. The Existence and Time of “Future Education” [N]. China Education Daily, 2017(6):28.

[2] Chen Shijian. Historical Perspective and International Comparison of Teacher Education Curriculum Theory [M]. Beijing: People's Education Press, 2011: 52-53.

[3] Liu Jing. Historical Analysis of American Teacher Education Thoughts in the 20th Century [M]. Beijing: Beijing Normal University Press, 2009: 268-269.

[4] Wang Benlu. 30-year Education Reform in China [M]. Beijing: Beijing Normal University Press, 2009: 114.

[5] William E. Dole, *et al*. Chaos, Complexity, Curriculum and Culture [M]. Translated by Yu Jie. Beijing: Educational Science Publishing House, 2014.

[6] Curtis J. Bunker. The World Is Open: How Web Technology Is Revolutionizing Education [M]. Translated by Jiao Jianli. Shanghai: East China Normal University Press, 2011.

[7] Lynne Schrum. Educational Technology for School Leaders [M]. Translated by Ren Xiaomei. Shanghai: East China Normal University Press, 2015: 92.

[8] Wu Gang, *et al*. Frontier Report of Global Network [M]. Beijing: Tsinghua University Press, 2014: 449.

[9] Huang Qingli. The Loss and Reconstruction of Teacher Authority [J]. Teacher Education Research, 2016(5): 21.

[10]Chen Hao. The Connotation of “Internet Plus Education” and the Integration of Internet and Traditional Education [J]. Journal of Shaanxi Institute of Education, 2016(11): 9.

[11] Liu Yunsheng. Analysis of the Great Reform in Education under the Background of “Internet+” [J]. Research in Educational Development, 2015 (20): 11.

[12] Martin Heidegger. Holzwege [M]. Translated by Sun Zhouxing. Shanghai: Shanghai Translation Publishing House, 2014: 30-31.

[13] Du Juan. Problems and Reflections on the Integration of Teacher Education Curriculum in the Perspective of Integration [J]. Education Review, 2016(12): 103.

[14] Li Zhihou. Research on Critical Threshold of Teaching: from the Consideration of External Conditions to the Exploration of Internal Problems [C]//Wang Jiayi, *et al*. New Progress in Contemporary Curriculum and Teaching Research -- Li Bingde's festschrift for the 100th Anniversary of His Birth. Beijing: People Education Press, 2012: 281.