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On strategies for e-education development under ecological thinking paradigm

Yonghai Zhu^{a*}, Aiqun Zhang^a, Chuanxu Wang^a, Zhuming Nie^b

^aDepartment of Education Science, Huainan Normal University, Huainan, Anhui, 232038, China

^bCollege of Education Science, Nanjing Normal University, Nanjing, Jiangsu, 210097, China

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Abstract

The human thinking paradigm returns to the paradigm of ecological theory after going through the simple ecological theory, Reductionism and systematology. From the angle of thinking paradigm transformation, we can see that the development phase of e-education is: the focus is transformed from technically existent “Informationization of Education” and structurally existent “Education Information System” to the ecologically existent life “Informationization Education” – Life Education. So we raise the basic strategies for the construction of e-education under the ecological paradigm, which include emphasis on system ideas and methods of ecology as a guide, and life education as the core, and include thinking better of the role of people, education information environment, resource and activity, especially of the balance and harmony of education information ecology.

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1. Introduction

The thinking method is determined by the world view. It is the cognition method of the subject understanding the object, and it is the reflection of people’s practice method. In certain historic age, since the people’s practice methods are different, the thinking method will change, and the angle and starting point of viewing a thing, as well as the thinking horizon and theory context of analyzing a question, will differ (Wu, 2007).

2. The development of e-education under thinking paradigm transformation

2.1. Thinking paradigm transformation

Generally speaking, the author believes that there are four basic thinking paradigms in current world: 1) Simple ecological theory, 2) Reductionism (key factor theory), 3) Systematology, 4) Ecological theory (Xu & Meng, 2005).

* Yonghai Zhu. Tel.: 086-013955482885

E-mail address: zhuyonghai@gmail.com

The essence of the ecological paradigm is in line with the system paradigm, but the leading status of the ecological thinking paradigm shall be emphasized on the basis of system thinking paradigm. The main reason lies in that the ecological paradigm owns the following prominent features: firstly, care for the life, grasp the principal part of the system, and emphasize the purpose and value of the system; secondly, grasp and utilize the intermediate status of the material and energy, especially the information (resource); thirdly, grasp the relationship between the system (principal part) and the environment, and emphasize the environment's adverse effect on the system and its principal part; fourthly, emphasize the dynamic balance and ecological succession of the system.

2.2. The development of e-education under thinking paradigm transformation

The angles of viewing the development of e-education, that is Education Informationization or Informationization of Education in China, may differ, and different angles show the different sides of the development of informationization, but they prove the same development track. The author reviews the three forms (phases) in the research and practice of e-education field (Zhu & Liao, 2009).

2.2.1. Technical Existence

According to the CCW Research, in recent six years, China's total investment on the E-education has reached 159.27 billion yuan. Based on the large-scale construction, the hardware infrastructure level in the education field improved gradually, and the technical environment in the teaching has been strengthened. However, much infrastructure was eliminated and wasted. Along with the development of e-education, "Tech-centricism" is widely criticized and there is a increasing demand for the transition from blind investment on the technology to the systematic application of the technology.

2.2.2. Systematical Existence

As a tool and instrument, the technology is unable to exert its role of teaching and driving the education reform depending on its own characteristics. The information technology can only exert important role when it penetrates into other key factors, integrates with them gradually and rises to the systematic level. Professor Liu Rude believes that "It is required that the overall teaching system shall be reformed on the basis of information technology, making the teaching targets, contents, methods, forms and the school structure change fundamentally" (Liu, 1997). We can further enlarge the scope. In current phase, the main "functions" of the integration of information technology and courses, the establishment of virtual learning community, online learning organization and so on are building the "Education Information System Structure", that is, accelerating the upgrade and involvement of "Education System"; some researches may involve in the issue of "structure optimization".

2.2.3. Ecological Existence

Systematical existence is helpful in grasping the contents and methods of e-education, pointing out the issues of how to construct the E-education and what to be constructed, that is, the structural informationization upgrade and optimization of education system. But the upgrade and optimization of "system" itself is not the purpose; since human is the sole existing body – main body which owns the intrinsic value in the system, we must takes the realization of the value of main body as the basic rule for measuring the value and evolvement of the overall system. The informationization of technology and environment is only the issue of investment, but the informationization of human is a long-term procedure. Professor Ye Lan believes that "Technology... it directly and widely affects the human beings living in the information society, making their life practices marked with the characteristics of information age, and the information has become an important force which influences the life development of human being, showing the feature of life" (Ye, 2004). So, caring the development of human being of education in the e-environment or informationization environment becomes the necessary requirement of e-education. Ecology is a subject which studies the relationship between the living body and environment and among living bodies. Along with the current research's transition from system paradigm to the ecology paradigm, if reviewing the e-education from the angle of ecology, we can get back the thing which the education lacks in a long time – caring the human lives. So, as the purpose of education information system, people's life growth and development under e-environment becomes the sole focus of transition of education information system construction.

3. Strategies for e-education under ecological paradigm

The philosophy of ecological thinking paradigm's caring the life, environment and resource can be mapped to the field of e-education, so as to build an Education Information Ecosystem, which contains the three key factors like human, information resource and education information environment. Under the guidance of ecological thinking and method, analyze the relation, procedure and rule of the mutual effect among three key factors as well as the methodology thinking and value orientation of the overall ecological balance, further abstract the methods and strategies of education information ecology, and guides the healthy development of the e-education.

3.1. Emphasis on Systems and Ideas and Methods of Ecology as a Guide

Informationization is a complex project, overall ideas and overall considerations must be needed. With the use of ecological ideas, we can take such a complex artificial system as a whole, pay full attention and dig the existed objective organic relationship of every aspects, take elements like computer and internet, software, resources, personnel, methods and environment into integrated consideration and design the whole, so as to form harmonious ecology and effect the whole play.

3.2. Taking the life education as the core

During the procedure of e-education, the phenomenon of "seeing matters and not seeing people" often occurs. However, comparing with other factors like information technology and resources, human is the most active, important and fundamental factor in education information ecology and the procedure of e-education. One of the ecology's features is the property of life. So, the fundamental value orientation of Informationization Education is to research and handle the each key factor of e-education in the level of life, care the overall lives of the teachers and students and accelerate the overall development of the individuals.

3.3. Take environment as the context

The theory of Education Information Ecosystem tells us that the e-education emphasizes not only the technology and resource, but also the information environment integrating the policies, laws, standards and ethics about the education information. The education information technology which attracts extensive attention is only a component of the environment; it shall be melt in the ecology as a basic human literacy or instrument. E-education must create such a modern existing environment so as to care for the personality and hobby of each learner and consider the basic existing requirements like equality, dialogue, cooperation and assistance. So, we shall analyze the structure and function of the information environment in systematic thinking and explore the perfect and effective methods on information environment management through researching the key factors of the information environment and their effects on the people and social environment, so as to enhance the communication between people and information environment and achieve best status in the information environment.

3.4. Take resources as the link

Besides energy flows and material circulation, numerous information connections exist in the ecosystem yet, shown as various information resources. According to the view of "life view", each student participates in the curriculum as the unique life, this require we pay close attention to individual difference (cognitive not merely) and offer aggressive assurance of realization of each student "life". So utilize information technology offer life, contextual and opening resource to student, promote the information resources view to reach the transition of ecological resources views from single media's view to environmental resources view. Even we can bring students' lives world into the field of educational resources, bring social medias of masses into the realm of management and application of educational resources, from focus on "thing" and static construction of "storehouse", to dynamic platform and "people" construction; Give up traditional resources views emphasize importance of the single resources to studying, and seek ecological resource and non-linear way to solve problem, in the hope of resource,

people and environment coexistence growing and mutual reciprocity and mutual benefit, to promote the social practical experience of life by the instruction.

3.5. Take activity as the carrier

Broad education information activities include activities of education information and its production, dissemination, management and evaluation and others of the informationization products; in the narrow sense, they refer to the dissemination activities of teaching information. We are not isolated to discuss static education information eco-system, nor purely to explore single factor of education ecology, but to use educational information activity behavior as its focus, It emphasizes on the effective development and usage of educational information, and it promotes informationizational teaching methods into conventionality for the maximum benefit. In concrete education information activities, “we can combine a particular period of time, space, manpower and investment and other factors to form a concerted effort to produce aggregate effect of pulling the overall application. And at the same time, with basic guidance of application effect, to promote the organizational change under the guidance of effect is to promote the in-depth appliance of education informationization”. In educational information eco-system, its core concept is the human’s information activities under the support of environment.

3.6. Take balance and harmony as the feature

As a non-balanced ecological succession, the exchange of the inner system of education information ecology and external information begins to delay, the percentage of its elements and its sub-system is not balanced, its inner parts of structure or function or all decay, its behaviour is abnormal, all of which lead to the ecological crisis and information ecological imbalance, and mainly show for information overload, the monopoly of information and information pollution. Ecological imbalance can be said that is the human mind out of balance first of all. As a result, human beings must consciously (including through information policies, laws and regulations) control their informational behaviours, conduct information environment construction at the same time of developing and making full use of information resources, harmonize the relationship of systematic elements of information eco-system, so as to promote the balance of eco-system for the achievement of eco-system and education information ecology’s value for humans (Zhu & Zhang, 2008).

4. Conclusion

The human thinking paradigm returns to the paradigm of ecological theory after going through the simple ecological theory, Reductionism and systematology. From the angle of thinking paradigm transformation, we can see that the development phase of e-education is: the focus is transformed from technically existent “Informationization of Education” and structurally existent “Education Information System” to the ecologically existent life “Informationization Education” – Life Education. So these basic strategies must be conducive to the construction of e-education under the ecological paradigm, which include emphasis on system ideas and methods of ecology as a guide, and life education as the core, and include think better of the role of people, education information environment, resource and activity, especially of the balance and harmony of education information ecology.

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