Computers in Human Behavior 63 (2016) 229–239

Contents lists available at ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

Full length article

Research on the effects of cloud-based pedagogy for creative talents: A case study on Chinese High School

Jingying Wang [a], Yaozhong Lv [b], Min Jou [c, *], Jingbin Zhang [a]

[a] Capital Normal University, No. 105, North Xisanhuan Rd., Haidian District, Beijing, 100048, PR China
[b] School of Foreign Languages, Qingdao University of Science and Technology, Qingdao, 266061, PR China
[c] Taiwan Normal University, 162, Section 1, He-Ping East Road, Taipei, 10610, Taiwan

ARTICLE INFO

Article history:
Received 10 April 2016
Received in revised form
10 May 2016
Accepted 13 May 2016

Keywords:
Case study
Cloud-based pedagogy
Creative talents

ABSTRACT

Training of creative talents during K-12 education affects the future of a nation. As a result, researchers in China and other countries give special attention to the field of pedagogy. This paper evaluated an experimental class of Beijing F High School as the case study, and performed an empirical study on cloud-based pedagogy for training the creative talents, a quantitative study based on the 6 basic aspects of Tyler's theory, a qualitative study using ethnography for classroom observation that included interviews of teachers, students, and observers, and employed a sequential mixed research method used for data collection and analysis. Results demonstrated that cloud-based pedagogy in the creative-talent class of Beijing F High School focused on objectives in its orientation, the curriculum content, implementation and development reflecting the richness, regression, correlation, and rigor of postmodern curriculum. By using the accelerated and enriched cloud-based curriculum and focusing on the Talent Search Model, the Beijing F High School was able to gain rich experiences in the training of creative talents in Chinese K-12 education.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

In order to protect their political and economic interests when integrating into the global economy, many countries adopted various ways to control the flow of productive factors across borders. Amongst these productive factors, the flow of talents or skilled professionals was most difficult to control. Therefore, countries around the world, especially the developed nations, have adjusted their national talent resources development strategy and initiated effective measures for the training, absorption, and introduction of talented professionals especially those with skills pertaining to the high-tech industries.

Many countries, especially the developed nations, invested dedicated resources in professional education to constantly improve upon their own strengths and comprehensiveness competitiveness for science and technology. Primary and secondary schools play a key role in the entire process by acting as the starting point of high-tech talents and skilled professionals and hosting talent training programs targeting gifted children who demonstrated remarkable performance in terms of intelligent development or special talents in certain aspects (Heller, Monks, Subotnik, & Sternberg, 2000). Most developed countries also adopted a large number of strategies for training talents during K-12 education and launched long-term research projects that evaluated various training modes.

In China, education for gifted and talented children included top-notch training for creative talents. *The Outline of China's National Plan for Medium and Long-term Education reform and Development (2010–2020)* pointed out that China's future and national development would depend on skilled and talented professionals. Education would be an important aspect for every student and should be aimed at actively promoting student development. Education regulations should be respected together with the students' personal physical and mental development in order to provide personalized instruction for each student. Other measures included in the Plan also included diversification of academic systems, improving the availability of high quality resources, and various enhancements to training methods so as to meet the needs of different students while exploring means for identifying and training creative talents. During the 2010 National Working Conference on Education, former Premier Wen Jiabao said that science

* Corresponding author.
E-mail address: joum@ntnu.edu.tw (M. Jou).

http://dx.doi.org/10.1016/j.chb.2016.05.038
0747-5632/© 2016 Elsevier Ltd. All rights reserved.

and technology have become the decisive factor in determining national competitiveness. The primary missions of education reform and development in the new era were to fully implement the party's education policy, to innovate methods for talent training, to improve the sophistication of talent training programs, to encourage personalized development based upon the students' aptitude, to promote every student, and to generate more top-notch creative talents.

Cloud technology is still a relatively new phenomenon for education, but many school districts in well-developed provinces in China have already paved the way for introducing cloud technology in K-12 environments. Some of the measures include providing extensive Web 2.0 applications for learning, curriculum management, and professional development. These applications include online courses, mobile cloud, Maker education, and virtual lab. Cloud computing is highly practical in creative talents education for both instructors and students as this technology allows teachers and students to access powerful services and massive computing resources, including useful and free applications, services, and tools, wherever and whenever they were needed (Jou & Wang, 2013). Generally, the online learning environment would be suitable for offering opportunities for reflection and other abilities beneficial to creative talents, and was useful for students trying to construct individual creative knowledge and critical thinking if suitable learning services and online curriculum settings could be employed to help them concentrate upon learning and guiding their engagement in reflection and thinking practices (Lin, Wen, Jou, & Wu, 2014). K-12 education serves as the starting point and a crucial phase for creative talents training, during which cloud-based learning environments and development of creative knowledge and skills could be used to help students think critically, raise their awareness of innovation, and build a solid foundation for their creative personality in the future.

2. Literature review

This paper reviewed 3 types of curriculum settings for talents education during elementary and secondary education in a number of developed countries, namely the Intellectual Tendency Training Model, Comprehensive Training Model, and Activity Tendency Training Model. These 3 models also covered a total of 9 sub-models (VanTassel-Baska, 2000).

The Intellectual Tendency Training model consisted of the Structure of Intellect Model (SOI), the Models for Talents Unlimited and Talents Unlimited to the Secondary Power (TU^2), and the Multiple Intelligences Model. In 1967, Guilford, an American psychologist, proposed a model "organizing Intelligence along three dimensions", claiming that human intelligence was composed of 3 multi-factor dimensions of intelligence content, intelligence operation and intelligence product. This model became widely used for student assessment or during in-service teacher training to observe and measure the student's intelligence. Researchers employed this model to select children in kindergarten demonstrating certain potential and identified different cultural backgrounds amongst some pupils. The mental model in teacher education was mainly embodied in teachers' training, and included materials such as teaching of mini-cases and free play model for special guidance provided for the selected students (Guilford, 1967).

TU^2, on the other hand, was based on Guilford's research on intellectual properties. In the late 1960s, Taylor, an American curriculum expert, and his colleagues emphasized the development of the students' diverse talents and sought means of improving the development of potential energy. TU^2 was proposed to help teachers identify the student's creativities and encourage their development. This model then became widely used in developed countries. Compared with other models, TU^2 did not distinguish between students and identify creative potential of children in practice (Taylor, Ghiselin, Wolfer, Loy, & Bourne, 1964).

The Multiple Intelligences Model was built upon studies conducted by the American psychologist Gardner on multi-dimensional intelligence. In 1983, Gardner proposed seven distinct intelligences to which he added an eighth intelligence in 1995. These eight intelligences include verbal–*linguistic*, logical–*mathematical*, *visual–spatial*, musical–rhythmic, bodily–*kinesthetic*, *interpersonal*, intrapersonal, and naturalistic. The Multiple Intelligence Model has been used in the curriculum setting at schools for the talented to determine the students' individual differences for the purposes of curriculum planning and education development and to assess relevant teaching strategies (Gardner, 1983, 1995). Course materials were based on multiple intelligences that had broad appeal for educators, because they can be applied to any learner for any discipline or learning level.

The Comprehensive Training Model included the Talent Search Model and the School Enrichment Model (SEM). The Talent Search Model, created in 1971 by Stanly, the founder of the developmental psychology, is an education model guided by the theory of individual differences. Results based upon tracking studies that span more than 20 years showed that this curriculum model was able to accelerate the learning of mathematics, science, and humanities subjects while contributing to the students' capacities. This highly targeted model provided personalized guidance according to the students' actual performance, problem-solving tasks that allow students to learn at their own pace, and processes helping children with different characteristics to achieve full development. The Model won universal praise in the United States and its derivative models were promoted in Europe and Asia. The main principles included using reliable and challenging testing tools to examine the students' verbal and mathematical reasoning ability so as to discern the students' learning levels; adopting diagnostic testing to set an appropriate level of challenge in special classes while using normative teaching methods; employing accelerated teaching processes during class for core academic fields as well as promoting other forms of accelerated teaching such as accelerated learning methods and learning tools, and stressing the flexibility of all courses in schooling (Stanley, 1993).

Renzulli, an American psychologist, created the three-ring model of enrichment in the mid-1970s and later developed the "*Revolving Door Identification Model*". In the mid-1970s, he established the "*School wide Enrichment Model*" for all students to develop creative behaviors. The steps to implement the model are as follows: (1) a pool of 15%–20% of the student population is selected as candidates using intelligence and achievement test scores; (2) nominations by parents, peers, and self-interviews of students assessed by creative potentials and personality characteristics; (3) assessment of the candidate's interest, ability, learning styles, compacting and adjusting their regular curriculum, avoiding repetitions of acquired knowledge, allowing students more time to engage in more challenging activities and to participate in learning activities of the three-ring model of enrichment. The model exhibited two features: (1) combining identification of talented children with their education. Children were identified not by tests and achievements but by a series of practical and dynamic investigation that involved learning, activities, and research. This approach ensured that children with different creative potentials would not be left out; (2) the classroom - activity - research education cycle would ensure that the children's creative potentials and advantages were fully demonstrated, promoted, and developed. Such learning and exploration were designed to maximize students' potential (Renzulli & Reis, 1994), avoid negative impacts made by excessive emphasis on "birth", and transform schools into

Download English Version:

https://daneshyari.com/en/article/6836612

Download Persian Version:

https://daneshyari.com/article/6836612

Daneshyari.com