

The impact of eLearning on China Education and Research Network (CERNET)

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Introduction

Many countries realised the importance of adopting ICT in their education sector to make them more competitive in the so called 'Global Village'. And in China, there are some measures and actions carried out by the central government to boost ICT in its education sector. The project of CERNET (which is short of '**China Education and Research Network**') is built as the major infrastructure and it is the first nationwide education and research computer network in China.

In December 1993, the China Education and Research Network (CERNET) project started to be planned. The CERNET project is funded by the Chinese government and directly managed by the Chinese State Education Commission. At present, more than 100 universities and other high universities, middle schools, primary schools and other education and research entities are connected to CERNET. It links to the global Internet and became a major part of the Chinese Internet community. Recently, commercial Internet projects are also carrying out in China. The Ministry of Post and Tele-communication will start providing commercial Internet service very soon. Other Chinese companies will also consider joining the commercial Internet market. Although after 25 years' growth, the Internet is getting into the commercialization process, due to the lack of Internet experience in China, CERNET has its unique and irreplaceable status among all the Internet competitors in China. CERNET is believed to greatly

improve the education and research infrastructure in China and train network experts as well as experienced network end users. In other words, it will help to boost China's education, research and economic developments. The main objective of the CERNET project is to establish a nationwide education and research network infrastructure to support education and research in and among universities, institutes and schools in China using the up-to-date telecommunication and computer techniques. And Project-initiatives like these are in accordance with the expressed official educational policy in China, where active student learning is emphasised as an important goal (MOE, 2002).

The focus of this report

As it has been argued that computer capabilities promise to improve both the quality and the extent of the learning experience (Woodhouse & McDougall, 1986), the project in this report also attempted to develop a learning community based upon computer technology. The main question in this report was whether it would be possible to obtain better learning quality and increased student activity, and to what extent this would depend on different approaches to using technology in the learning process.

More specifically, it is also concerned with the organisation of this project and whether it has been achieving success during its implementation in the previous stages. The author is going to examine the

organization structure by gathering the official information of CERNET and then compare it with that of CERNET's homogeneous project being adopted in other countries. Judging from evaluation given by users at all levels, teachers and students through interview and questionnaire, finally it will arrive at a conclusion of its efficiency and influence.

Literature Review

The conceptual framework of eLearning process

Adopting new communication technologies has the potential to fundamentally alter the teaching and learning transaction, and it is particularly important that our ideals are clear. eLearning has become the protagonist for change in education sector, but the plot needs a purpose. In this section, the themes that underpin the theoretical framework for eLearning are elaborated.

Philosophical perspective

The dominant issue in education today is not to access more information. In fact, making sense of the quantity of material they are exposed to is a serious challenge for students. It is impossible to meaningfully assimilate all the information in even the narrowest of subject areas. Because of this information explosion, and the accompanying advances in communications, new approaches are required. The goal is to give students the abilities and strategies required to manage this overwhelming breadth and depth of information. In working towards this goal, educators began to realize that the only long-term solution was to construct an educational environment in which students would not only learn, but where they would learn to learn. In this regards, the focus of education is shifting to the development of critical thinking and self-directed learning abilities that can serve the

individual over a lifetime. The desired outcome of education, then, becomes the constructing of coherent knowledge structures that accommodate further learning, not the assimilation of specific bits of information. Ultimately, education must prepare students to be continuous learners—once the rhetoric of high education but now the hallmark of the knowledge age (Garrison and Anderson, 2003).

The foundational perspective of this book reflects a 'collaborative constructivist' view of teaching and learning. It is recognition of the inseparable relationship between personal meaning making and the social influence in shaping the education transaction. This unified process recognizes the interplay between individual meaning and socially redeeming knowledge. The recognition of these two interests is crucial in constructing a theoretical framework through which we can understand and apply eLearning for educational purposes (Garrison and Anderson, 2000).

Philosophically, this collaborative constructivist (i.e., transactional) perspective is associated with the work of John Dewey. For Dewey, society and the individual cannot exist separately, nor can one be subordinated to the other (Dewey and Childs, 1981). To understand education is to understand this interplay between personal interests and experience and societal values, norms and knowledge. This interplay is manifest in the transaction between teacher and student.

The philosophical perspective incorporated in the assumption of collaborative constructivism defines the educational transaction. More specifically, collaboration and constructivism correspond to teaching and learning responsibilities in an educational experience. The teaching and learning transaction is a coherent representation and translation of the dynamics of a collaborative and constructive educational experience.

Methodological considerations

The choice of Guangzhou

Most of the empirical researches have been conducted in universities in Guangdong Province, China. This was the first province in the People's Republic of China to develop a market economy. Its social and economic development has accordingly been one step ahead. Nearly two decades of reform and Open Door policy have brought Guangdong's rapid and profound development, which, in turn, will promote Guangdong's openness to the world even more deeply and comprehensively in the future. As the capital city of Guangdong, Guangzhou is the economic, cultural and political centre of Guangdong Province. A majority of Guangdong universities are located in Guangzhou. Universities there normally have better qualified academic staff and research facilities than those in other regions within Guangdong, and are thus considered better and more productive academically. The experience of Guangzhou universities in confronting ICT developments is, therefore, well worth academic attention.

In this research, methods of 'Focus Group', 'Interviews', 'Case Study', and 'Questionnaire' are involved to demonstrate the mechanisms that link with computer networks, learning and their cultural settings. The study of computer network in educational institutions will ground its research in a unit of analysis that allows me to observe the actual process by which cultural setting and cognition shape and are shaped by computer networking tools.

Case Studies

The term case study means different things to different people, and this is often a source of confusion and misunderstanding (Collis & Hussey, 2003). The case itself may take many forms, although the focus of inquiry is usually small in scale, as

exemplified by the classic case histories documented in clinical psychology, or the detailed accounts of small-scale societies undertaken in anthropology. Not only are case studies frequently characterized by micro level research but are also typically descriptive and qualitative in nature. As an approach to research, case study, however, has much to offer in terms of both theory and practice. The choice of case study in this research is based both on its own nature as well as the specific attributes of the research. Another important reason for employing case studies in this research is that it provides a basis for the closer integration of theory and practice. As noted above, this study on CERNET's application stems from practice, and aims to be of theoretical and practical significance.

A collective case study of educational institutions at all different levels will be conducted: including universities and colleges, vocational and technical institutions, secondary schools as well as primary schools. As the main target group of CERNET project is the universities and colleges, and computer networks are mainly built to cater for higher education development, as a consequence, cases studies chose in this research are primarily higher education institutions. The sample of universities and schools at each level is chosen based on the degree of project integration reported in the official document. Case study research is the most appropriate methodological tradition, given that the purpose of the study emphasises the context of computer network use. To gather accounts of different realities constructed by various groups and individuals in different environments, both qualitative and quantitative methods are drawn upon: observations of network based lessons, face to face interviews with the principals and the school network coordinators, focus group interview with students and teachers, questionnaires for teachers and students,

samples of students' work based on the utilisation of CERNET. And I would also observe the application of CERNET in certain number of universities and schools by an empirical approach. By taking a research diary, every time I am planning to spend 3 to 5 days in each of the chosen 5 universities and 5 schools and observe the frequency of use of CERNET in classrooms, libraries, teacher offices and student dormitories. And I could also require students and teachers there to fill in the questionnaire which is another methodology involved in my research.

Results

Demographic analyses

The results of the research were based on the final 120 valid completed questionnaires. 70 out of 120 participants belong to 10-23 age group, 20 out of 120 are the age cohort 24-39, 10 out of 120 are 30-35 years old, and the rest 20 people are above 36 years old. From the data, most of respondents are the young generation, which are expected to show much more enthusiasm to the newly-emerged stuff.

With regard to the occupation, the proportion of respondents who are students stands at 71% (85 out of 120), 21% of them are teachers (25 out of 120), 2% of them are educationalists (3 out of 120), the rest 5% belong to others (7 out of 120). As the majority of participants are students, the choices they indicate will show the prevalence and direct effects of CERNET project, of which students group is designed as the largest beneficiary.

The overwhelming majority (87%) respondents are teaching or studying in higher education institutions (104 out of 120). And the rest 13% come from other research institutions (16 out of 120). At present, the application of CERNET programme still remains at the higher

education level, the data obtained here should reflect the teaching and learning outcomes based on ICT delivery.

Familiarity with Internet

When being asked about the length of using Internet, most of the respondents show an amazing familiarity with Internet: 35% of them have used it for more than 3 years and 29% have used more than 2 years but less than 3 years. And 33% of them have used Internet as a tool for more than 1 year but less than 2 years. Only 3% of them have used it less than 1 year. In general, people have already mastered the basic skills of surfing on the Internet, which in turn, enables them to obtain the up-to-date news and information whilst keep in touch with friends.

Purpose of using Internet

What do people mainly use Internet for? 37 out of 120 respondents (31%) say that they are doing research; 16 out of 120 (13%) say that they use Internet for the purpose of entertainment; 41 out of 120 (34%) say they use it as a information provider and other 12 people (10%) say it helps them to connect with others, whilst the rest 14 people leave this question blank. The data shows a relatively low percentage of people primarily use Internet as their study or research companion. Recently, more and more reports claim that the students' indulgence of Internet games affect their normal study seriously. The statistics here should be taken as an alert to promote the usage of Internet as a tool to serve for education in schools and colleges other than for entertainment.

The next question is to test the percentage of respondents use Internet for the purpose of education. 67% (80 out of 120) of them shows a positive answer for that. While being asked the frequency of visiting website, of the 79% (95 out of 120) of all respondents who say they surf on the Internet daily, 8% of the previous proportion

are hanging on the net all day. A further 5% use the Internet at least once a week whilst another 7% use it monthly.

Perceptions of expenditure on education

Respondents were asked how much they are willing to spend on themselves or their families education on Internet (a form of eLearning). More than half of them are interested at this new form of learning delivery and would like to spend normal or above average spending on it while another half feel a bit reluctant to spend on it or feel hard to say.

Prevalence of campus website and the purpose of use

The infrastructure of campus website appears to reach at a universal level. 96% (115 out of 120) of the respondents say that their colleges or universities have already had a campus website and only 4% (5 out of 120) say that there is no campus website in their schools. As the campus website is a stimulus to boost the popularity of CERNET among students, data shows that there is a solid basis for CERNET development across schoolyards.

The previous 115 respondents said how much they think their colleges or universities have invested on the construction of campus website: 17% (20 out of 115) say that their schools have invested a great amount of money on it; 32% (37 out of 115) say that their schools have invested some money on it; 23% (28 out of 115) say that they do not think their schools have invested a lot on it; a further 27% (30 out of 115) say that they can not realised.

Being asked the main purpose of campus website, 47% (55 out of 115) participants say that it serves for the purpose of educational administration, a further 5% (5 out of 115) say it is for teachers' lesson preparation, another 11% say (12 out of 115) that it is cater for external exchanges, the rest 7% (8 out of 115) reckon it is for student

study. From the study, it seems that there is an urgent need for local educational institutions to promote their campus website for the purpose of student study.

Barriers of ICT development

Looking at the main barrier in term of ICT development at campus: 13% (16 out of 120) of respondents say that it is financial constraints; 22% (26 out of 120) of them think that the lack of technicians and professions blocks the way for further development; 31% (37 out of 120) of them say it is because of the lack of enthusiasm among teachers; the rest 26% (31 out of 120) say it is because the students are not interested at it .

Awareness and usage of CERNET

Awareness of CERNET is at a high level from the study. 67% (80 out of 120) of people were aware of CERNET project and have ever visited its website, while they were asked about the frequency of their visits to this website and their utilization of the resources provided,

Conclusion

A socio-cultural approach towards the study of computer networks in education rejects the view that computer network assisted learning can be studied in isolation, or as a single variable in the learning environment holding all other things constant. One must take the global trends, national and local socio-political and socio-cultural contexts into consideration to better evaluate CERNET's influence upon students learning outcome. This proposal argues for a holistic approach to study the chosen field by adopting a broad perspective. It proposes a theoretical framework based on the research activity as a unit of analysis.

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