



EXPLORING ICT EDUCATION POLICIES AND TEACHING PRACTICES IN AUSTRALIAN AND VIETNAMESE HIGH SCHOOLS

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Abstract

This paper explores similarities and differences of teachers' views of quality policies and teaching practices in ICT education between Australian and Vietnamese secondary schools. Two secondary schools were selected (one from Yenbai province, Vietnam, and one from Sydney, New South Wales state, Australia) and, for this study, two principals and three ICT teachers were interviewed. Classroom teaching and assessment practices were observed, and principals and teachers' views about quality policies and teaching in ICT education were obtained through interviews and extensive discussions. In the final, we discuss some distortions and differences between realities and views and give some suggestions of improvement of ICT professional development and policies.

Introduction

Information and Communication Technology (ICT), as a subject, has been introduced in schools and transformed teaching and learning in order to provide innovative strategies to improve educational attainments (Anderson & McGreal, 2012; Kozma & Vota, 2014). Entering in the 21st century, teachers and students are requested to be prepared to achieve complex ICT skills in order to improve their learning capacity in resourceful ways (Kozma & Vota, 2014). In the context of growing amounts of information being achieved, transferred and transformed with increasing efficiency, educators around the world are increasingly concentrating on reshaping ICT policies and teaching more effective (Ubulom, Enyekit & Onuekwa, 2011). In this sense, ICT is a subject common to the curricula of many countries such as Australia and Vietnam, but with quite different implementations and rules within various ICT educational contexts (Kozma, 2011). In Yenbai School, for the ICT curriculum, immovable curriculum and textbooks were implemented by the Vietnamese Ministry of Education and Training (VMOET, 2006) decision from 2007 to now. Yet, no feedback or updates ever followed up. By contrast, for the Sydney School, the implementation of the Digital Education Revolution (DER), an educational project designed to build an adequate digital infrastructure for all primary and secondary schools across the country, was generally positively implemented (Australian Government, 2013) and every year the ICT policies, infrastructure and curriculum are attempted to be evaluated and updated by the Board of Studies Teaching and Educational Standards (BOSTES), the New South Wales state educational organization for teacher professional development and accreditation.

The goal for this study is to compare and explore quality policies and teaching practices of ICT as a school subject in senior secondary education in these two countries. This research reports a comparative case study exploring the views about the quality teaching of ICT in one secondary school in New South Wales, Australia, and one secondary school in Yenbai Province, Vietnam. The study is based primarily on the teachers' understanding and opinions of quality policies and teaching in ICT education and their perceptions of quality teaching of this curriculum. The findings of this study are applied to views on ICT teacher professional development, ICT teaching, policy and assessment practices in the two countries at the senior secondary school level.

This research outlines the results of two case studies based on a comparison of ICT policies and teaching in the two secondary schools from Vietnam and Australian. The study investigates similarities and differences in the way the principals and the ICT teachers view of quality of ICT policies and teaching between the two schools and cautiously compares and questions these views in the two countries. In this context, a comparative case study of the ICT education in Australia and Vietnam will address the following research questions: What are the current ICT teaching views about quality ICT policies and teaching in New South Wales and Yenbai secondary schools? What are the dissimilarities between these views and realities? From this comparative research on the theory and the practice of quality ICT policies and teaching in Sydney School and Yenbai School, solutions are proposed to improve the quality of ICT teaching in senior secondary schools in both Australia and Vietnam.

A Theoretical Framework in ICT Policies and Teaching in Australia and Vietnam

The new generations that has grown up with ICT has developed intuitive means of absorbing and exploiting the capacities that ICT offers, sometimes to the bewilderment of the older generation (Anderson & McGreal, 2012; Okolocha & Nwadiani 2015; Scardamalia & Bereiter, 2014). Therefore, ICT teachers need to have enthusiasm about ICT subjects to empower their students and teach them relevant content and skills. They need a high level of confidence and expertise, both in terms of their specialist knowledge and practical skills and their understanding of effective learning in the subject (Ubulom, Enyekit & Onuekwa, 2011). ICT teachers experienced huge challenges because ICT was a new learning area with content permanently updated (Potgieter, 2004), in which the teachers are neither formal trained to master the specific ICT knowledge, nor trained pedagogical strategies (Ankiewicz, 2003; Engelbrecht, Ankiewicz & De Swardt, 2007). As such, they are not sure of what the curriculum, administration and community expect of them.

Recent research studies in comparative education are increasingly making aware the need to examine instructional practices in the classroom in order to improve ICT policies, teaching, and learning. The Second Information Technology in Education Study program (SITES) shows that as is globally accepted, the computer in ICT education enters the classroom in order to enhance the quality and effectiveness of so-called traditional teaching promote students' motivation in learning and provide people with computer skills to carry out

productive learning (SITES-Module 1, 1999; UNESCO, 2008). However, the research found that ICT lessons always remain challenging, as teachers and students uncreatively use software and ICT devices, so that ICT is rarely used for obtaining relevant information in instruction (UNESCO, 2008).

The following aspects were viewed by the New South Wales Department of Education and Communities (2010) gives three major aims for its ICT strategy plan: (a) Provide an innovative, agile and cost effective information technology service that enables and enhances the delivery of quality education; (b) Promote, develop and provide the ICT environment and initiatives that facilitate, foster and improve teaching and learning to meet individual student needs; and (c) Develop and ensure the assignment of appropriate inputs, decision rights and accountabilities to ensure appropriate investment in ICT and encourage desirable behaviour in its use. Unfortunately, there were no documents available in Vietnam for ICT education. This might be explained by the current practices that specify certain deadlines without trying to be accountable and show concrete approaches. As such, it is important to discuss views about good ICT policies and teaching and compare with current practices.

Methodology

This research is a qualitative research based on two case studies. Two high schools (one from Australia and one from Vietnam) were selected for case studies. One high school in Australia was chosen from New South Wales and one high school in Vietnam was chosen from the Yenbai metropolitan region. The selection of the two schools for the study was based on access, location and background of the researcher, and a unique relationship and comparability between the two cities. The schools were chosen to illuminate particular differences and similarities between educational settings relevant for exploring the quality of ICT teaching. Sydney School was selected as a large metropolitan school in Sydney in New South Wales. Yenbai School was similar to Sydney School in Yenbai Province in Vietnam. The data collection was from classroom observations, interviews and ICT curriculum and policies documents. Views of ICT policies and teaching at the Sydney School are presented first, summarized from observational data records of ICT lessons for two different areas (software and hardware curriculum sections). Classroom observations were followed by a detailed interview regarding the ICT lessons, to represent the general approach adopted at Sydney School. A similar approach was done in Yenbai school, where classroom observations and interviews were done with the principal and two ICT teachers.

The Sydney School Case Study

Sydney School was founded in 1885, and now is fully coeducational with classes from Kindergarten to Year 12. The parents and community acknowledge the school's high standards of education. The Sydney School report (2012) stressed the role of ICT in learning. The principal of the Sydney School emphasized the role of ICT for each teacher and student: "Using ICT will develop each student's feeling of self-worth, the importance of good communication, fostering a love of learning, an appreciation of cultural diversity and a desire to respect and help others" (Principal, interview, April 20, 2014).

Short Description of the Principal and the ICT teacher

George (the pseudonym of the Sydney School principal) has a record of over 10 years' experience as a teacher and has a Master of Education degree. He noticed the importance of ICT teaching and learning in an increasingly connected world where students will move into technology-rich workplaces. The principal intends that, in his school, learning and teaching with technology could happen anytime, anywhere. This statement suggests that outcomes-based education plays a key role in teaching and learning practices at Sydney School. The principal also indicated that the school policy aims to develop students as outstanding citizens through its commitment to excellence in a safe and caring environment. Sydney School shows that technology is an important part of the school learning experience. From Kindergarten to Year 12, teachers are continuously finding new ways to integrate the latest and most age-appropriate technologies into their classrooms, in a way that complements and builds upon the school curriculum. Moreover, in the Sydney School, the principal said the teachers are encouraged to share innovative technology practices.

John (the pseudonym of the Sydney School ICT teacher) has taught at the School for more than 10 years. His ICT secondary school teaching preparation was obtained through in-service training. John understand when and how to use technology for quality learning. John had to learn a great deal of ICT during his in-service courses. Apart from the main element of computer programming, he studied database design; curriculum assessment, graphics, and information systems. With changes to the curriculum, he took further training at university or at school. When interviewed for this research, John indicated that he taught ICT to classes to Years 9, 10, 11 and 12, with class sizes between 16 and 30 students. In accordance with BOSTES (2012) requirements, the teaching of ICT subjects in Sydney School is as follows: Year 10, Information Software and Technologies; Years 11 and 12, Software Design and Development. Different from other subjects, ICT was taught in a computer room exclusively designated for this purpose. The computer room/classroom was a learning space decorated with colourful pictures on the walls, along with timetables and classroom rules. There were 27 computers arranged in two rows connected to the internet.

Beliefs about the Quality of ICT Education

The Principal perceived the role of the ICT education as providing a practical and efficient way to improve their learning and day-to-day practices. He believed that good ICT education required teachers to have a comprehensive vision for the future of learning with ICT. Specifically, when students studied using the internet, Sydney School wanted them to be able to access relevant online information, to disseminate and evaluate its relevance, and use it in innovative ways. As far as social and ethical issues in handling technology were concerned, the School aimed to have students conduct themselves with integrity and respect in dealing with other learners and indeed with experts in the field that they might encounter. As well, ethical aspects of the use of ICT were explicitly made by the principal. In principal's view, a particularly significant learning strategy relates to the use of the iPad, even it was quite challenging at the beginning. On a daily basis, all students from Year 5 to Year 12 are required to bring a 32 GB iPad to school. These iPads have by no means simply a symbolic use.

Students, considers George, need to be taught how to present and publish their ideas from all key learning areas in a variety of formats. They must be able to manage their own learning, using their personal device and online tools and resources. They are expected to be able to safely publish and present their ideas and learning online in a way that highlights their skills and abilities, while respecting copyright and acknowledging sources. These were the reasons why these Apple devices were introduced and heavily used in the school. As well, new devices and software packages were introduced. For instance, George indicated that, recently, the school had introduced Schoology, a cloud-based learning management system, a configurable social network software for educational and social bookmarking software called Diigo, and several Google educational applications that students can use at school.

George emphasized the need for school investment in building a sound ICT infrastructure, linking hardware, networking, software maintenance, upgrading, and documentation. The school has engaged a technology team in order to maintain an adequate ICT infrastructure. The school has surveyed teachers and students every semester in order to obtain feedback about ICT issues. Moreover, Sydney School has established policies and procedures that are developed continuously and used consistently. In addition, teachers and students are surveyed every semester about infrastructure at the school. The principal believed that the school should make use of the new technology-enabled avenues for learning. For this purpose, he set four objectives for student learning: (a) Extended emphasis on Internet use to a K-12 Digital Literacy Scope and Sequence, as a vast learning resource that would map skill development throughout the period of pre-university schooling; (b) Students need to remain permanently engaged in an increasingly connected technology-rich world, as ICT will play an important part for obtaining employment in the future; (c) Students need to know how to present their skills and abilities, through the school's digital-citizenship programs and policies, in order to become employable, and (d) Students need to develop digital competency, including the use of personal devices and online tools and resources, as a crucial element of higher education and the work situation that will follow.

George wanted teachers to improve in their ability to know when and how to use technology for quality, learning, teaching and efficient administration. He believed that every teacher was at a different place in their ability to know when and how to use ICT. For success to occur, the school would need to provide adequate support for each teacher, in order to help her or him learn and grow. In addition to this, the principal considered that the amount of time devoted to technology focused on professional learning needed to be substantially increased. He wanted effective and innovative practices to be shared within the school among all teachers. Furthermore, he wanted these ideas to be shared widely and freely with colleagues in other schools as well. John confirmed the continuing effort to improve ICT in teaching and learning. He discussed aspects of collecting feedback from teachers and staff, in order to improve the use of ICT in teaching and learning:

I'm always trying to improve the way I do things. I gather feedback from students at the end of a unit. I assess my own teaching and I assess the work students have completed and the level of expertise they have developed. (John, interview, Apr. 5, 2014).

The Case Study of Yenbai High School, Vietnam

Yenbai School, established in 1957, is one of the largest public high schools in Yenbai Province. The Yenbai School curriculum contains 13 subjects, one of them being Computer Education. In line with the general practice where high schools decide on the number and content of streams on the basis of student preference and prevailing school circumstances, the Principal of the Yenbai School, called in this study as Mr. Khoa, explained that Yenbai School offered the Basic Strand with 19 classes, and the Natural Sciences Strand with 12 classes (Natural Sciences is an academic program requesting more advanced classes and a higher number of hours than the Basic Strand). With all Vietnamese high schools, students studied only one ICT subject in both strands, a major difference from the New South Wales senior secondary curriculum. As well as, the principal explained that “for all teachers, teaching and assessment must strictly accord with the requirements of the syllabus and textbook content” (Khoa, interview, Apr. 14, 2013). Mr. Khoa acknowledges the immense role that teacher play for this school: “the teachers’ knowledge and conduct play an important role in the school’s quality of teaching and learning and the reputation of the school” (Khoa, interview, Apr. 14, 2013).

Short Description of the Principal and the ICT teachers

Khoa spent over 20 years teaching mathematics and 10 other years in educational management. After eight years, as Deputy Principal at two different high schools, he was appointed Principal of Yenbai School in 2011. Principal Khoa commented about ICT education at Yenbai School, saying that ICT teachers must be professionally competent, dedicated to students, and fair. The ICT teachers were also expected to involve themselves in guiding students to achieve practical results. Principal Khoa saw the rationale for upgrading ICT teachers skills in Yenbai School in terms of effective deployment of the education workforce, enhancing management expertise in the educational field, and evaluating principal and teacher professional standards according to VMOET (2006).

Ha and Nga, male and respectively female ICT teachers, were teaching ICT at the Yenbai School for more than ten years. Ha had 18 years of experience in teaching and initially, he was a secondary mathematics teacher. Ha had graduated from the Ho Chi Minh City Pedagogical University in mathematics (a four-year course) in 1992, and from 1995 to 1996 studied ICT at Ho Chi Minh City Polytechnic University. To improve ICT teaching and learning, Ha has joined VMOET mandatory week of in-service training formed part of Ha’s 2004, 2005 and 2006 VMOET major ICT Teacher Certificates, his 2007-2008 Practical Training Certificate, and 2012 Professional High School Certificate. In this school year, Ha taught ICT to one class of Year 11 students and five classes of Year 12. Nga had 15 years since she started teaching and was from the beginning an ICT educator. Nga graduated from the University of Natural

Sciences in 1999, and received in-service training in ICT. She has been teaching ICT at Yenbai School since 2004. Nga for her part had a 2005 Hanoi National Education University Educational Research Institute Practical Training Certificate and a 2007-2008 Practical Training Certificate. In this school year, Nga taught 11 different ICT classes in semester one (three Year 10 classes, three Year 11, and five Year 12). In semester two, she taught eight different classes (three Year 11 and five Year 12 classes). Each of them taught in large classes comprised of 38- 48 students; a class period lasted 45 minutes.

Beliefs about the Quality of ICT Education

Principal Khoa saw the rationale for upgrading teacher skills in Yenbai School in terms of effective deployment of the education workforce, enhancing management expertise in the educational field, and evaluating principal and teacher professional standards according to VMOET (2006). Yet, Yenbai School does not have yet a detailed strategy to improve the quality of teaching and learning that complies with either the Ministry of Education or the Provincial Department of Education and Training another point of difference from Sydney School. While the Sydney School principal, George, emphasized the importance of sharing the ICT knowledge and innovations, Khoa explicit approached sharing the knowledge.

The Principal of Yenbai gave a pragmatic view of the ICT education. In his view, technology needs to be involved in various learning areas such as scientific inquiry and social sciences. It involved meaningful use of standard applications and covering general issues such as processing information, file structure and folders, as well as knowledge about operating systems. Computer operations relate to industry and to life in general, and informatics generally requires general manipulative skills rather than specialized knowledge. It follows that ICT policies and teaching require a high degree of flexible thinking from teachers. An ICT concept can have various definitions and various interpretations. Teachers need to focus on what student assignments teach about software knowledge and user skills, as well as their application to other school subjects, and ultimately the use of informatics after graduation. In this way, ICT as a subject contributes to a high-level intellectual reasoning and accurate, critical and disciplined work habits. As he explained:

In our school, each teacher has a syllabus and a textbook for the ICT subject, and is required to follow these. For all teachers, teaching and assessment must strictly accord with the requirements of the syllabus and textbook content (Khoa, interview, Apr. 14, 2013).

The principal offered many suggestions about improving the quality of ICT teaching and learning. Khoa suggested that teachers needed to improve their ICT teaching by taking four major steps: (a) understanding the purpose of the ICT subject; (b) identifying the content of ICT subject; (c) improving the organization of the classroom and computer lab, and (d) improving evaluation and testing skills. The two teachers from the Yenbai School identified individual study and classroom observation as the two main approaches to in-service professional development at Yenbai. Both referred to their individual online individual study

work. Interviews showed that the two teachers emphasized the need for careful lesson design with clear objectives and planned activities. From the above content requirements, the researcher found that Ha and Nga gave their thoughts regarding the subject of ICT, learning and working with educational facilities, appropriate use of common software, exploitation of information using the Internet, understanding how to program, and knowing basic Pascal programming language. It was noticed that the teachers did not frequently check the students' level of understanding. While both teachers realistically acknowledged that the great majority of students did not understand programming concepts, they did not slow down their pace and did not give easier programs. At the end of class observation, they reckoned that only three students from a class of over 40 in total adequately understood the programming exercises in the Pascal language. Nga, for instance, noticed that her students needed more time to practice on computers.

While the principal had a very pragmatic view on ICT students, both Ha and Nga emphasized the importance of mastering software programming, in order to become future ICT professionals. For them, if students have a high level of knowledge in programming, it was highly probable to work in an ICT field in fancy uptown jobs. Therefore, they saw their mission as providing as many as possible future ICT specialists. Similar to the principal Khoa, both ICT teachers were not involved in exchanging new information with other teachers. Classroom observations made it clear that teaching and learning practices at Yenbai School were heavily influenced by the textbooks' content. Assessments and lessons were found to be highly structured and followed a rigid sequence. The two teachers interviewed indicated that they were required to follow the requirements of the syllabus and that teaching and assessing were based on the content of textbooks reflecting the syllabus. As such, at times, there was a great difference between what they felt was good teaching and what the current practices requested. In the final section of this paper, we will discuss contradictions between the views and practices of quality ICT policies and teaching.

Final Discussions

In this concluding section, we will outline differences between their views of good ICT policies and teaching, describe some contradictions between views and practices, and provide some recommendations. A case study of each of two representative schools, Sydney School and Yenbai School, has been carried out through observation, interviews, and document analysis. Representation in both cases needs to be seen in terms of validity and generalizability. Although qualitative research methods might be perceived as difficult when one tries to generalize the results collected from the two case studies from the two countries, this research asserts that qualitative methods are vital to be deployed to study the complex aspects of different national educational systems such as Australia and Vietnam.

Overall, the teachers and principals unanimously had a positive attitude towards the increasing role of ICT in education. However, it is worth noting at this point numerous differences that need to be cautiously analyzed in order to avoid making simplistic or stereotypical generalizations. It is important to emphasize the differences between sharing

ideas among ICT teachers. While in the Sydney School, both principal and teacher were freely exchanging and encouraging other people to share ICT learning materials, the Yenbai School principal and teachers did not have any effort of sharing and exchanging ICT teaching experiences. It might be that Vietnamese teachers were more secretive with their own ICT curriculum materials, as these resources were very rare and difficult to obtain. As well it might be the competitive attitudes prevented them to exchange the ICT education information with their peers. In contrast, there were too many learning items online in Australia, so that the ICT teacher was freely exchanging them in order to adapt to the new curriculum updates and improve students' knowledge.

At the Sydney School, John explained his constant efforts of adapt his techniques to student learning needs and use these to improve his ICT pedagogical strategies and skills. He considered assessment as relating mainly to the teacher's sense of professional responsibility in educating students, rather than focusing on the students' efforts or parental factors. The teacher should teach comprehensively and well. It was noticed that, at the Yenbai School, it was to push students to achieve better academic results. At the Yenbai School, although both teachers interviewed recognized the importance of assessment in their teaching, they saw the main purpose of assessment as being to check students' ICT learning in order to stimulate student motivation to improve achievement levels. This relates to the Vietnamese tradition where teachers attribute achievement to students' motivation and where parents deeply respect and support teachers. As an extension of this notion, the two Yenbai School teachers mentioned that local education department administrators considered student achievement as the most important indicator of teaching accountability. However, it was not seen any local or provincial approach of handling the results of assessments. In a different path, at the Sydney School, the focus of assessment was to improve teaching practices.

Most information available to them on student learning was derived from classroom observation and homework. Major factors hindering them from trying out new methods of ICT assessment recommended by the new syllabus, in their view, were lack of resources and inadequate professional training opportunities. The interview data suggested that teachers in both Australian and Vietnamese high schools do not have sufficient professional training in ICT field, despite attending in-service training courses. It also became apparent through observation at Yenbai School and through available information on the actual state of teaching across New South Wales schools, that pedagogical knowledge alone does not guarantee that teachers will be able to implement recommended assessment practices in their classroom routine. This lack of opportunities for professional development in the ICT curriculum was reported in Statements of Learning for ICT at Australian Schools (Curriculum Corporation, 2006).

The interview data show that especially in Vietnam, the principal and ICT teachers did not create and promote specific local policies to improve quality of ICT teaching and learning in the school. Instead, the government agencies had general policies that the individual principals and teachers had to follow them in very rigid and undifferentiated ways. As such, they could not afford to explicitly design a local school policy for ICT educational quality.

Further, the schools themselves did not have any follow-up method or assessment criteria to gauge the level of achievement by ICT students after graduating from school. To make a comparison at this point: the content in the Vietnamese syllabus was much more difficult than that of Sydney School, and what was expected of students at similar age levels in Vietnam was much greater than in the Australian case. It is important to note that at the Sydney School teachers had the freedom to update his teaching activities with novel lesson ideas and innovative teaching practices. The use of textbooks at Yenbai School was also very different from that at Sydney School: Yenbai teaching followed a fixed prescribed content and sequence, whereas Sydney School teachers planned and taught lessons using a variety of texts, materials, and strategies.

The Sydney School principal, George, hoped that as the students moved from school to university and into the world of work they would have a high level of digital competency. Similarly, the Yenbai School principal, Khoa, believed that the most important contribution of ICT was its supporting role in all areas of school management and in the development of human knowledge through fast and efficient forms of communication. As well, it was a distinct perception of the role of programming in ICT curricula so that for principals and ICT teachers, the role of learning programming was viewed different. For instance, both principals were not so concerned of school alumna becoming ICT specialists, while all the three teachers were interested to. The principals were interested mainly that students make sure they achieve the basic knowledge required to use ICT, while the ICT teachers were interested to see their students being capable of designing ICT devices and software in the future. Yet, this study has observed that actual official emphasis in Yenbai School has been marked by a strong public determination to succeed in becoming an ICT professional and programming skill emphasis, things difficult to achieve due to diverse material and pedagogical barriers. In contrast, we noticed that, at the Sydney School, it was not a strong emphasis on programming skills.

Communication and interaction between the two systems is not only possible but this research asserts that it is entirely natural and desirable. It is likely that comparative studies such as this can, out of diversity and difference, derive valuable lessons on the direction of ICT and the purpose of education. Differences in ideological foundations of each educational system, whether explicit or logically extrapolated, are likely to influence the perception of those within each system and needed to be kept in mind in observing characteristics of each system through reference to educational documents, interviews and observations of classroom practices in two different sociocultural systems. The aim then is to achieve a fair comparison of two quite dissimilar systems of ICT education. This was carried out by an analysis that pointed out common elements and similarities, on the one hand, and clear differences, on the other. The question of representativeness is particular important when it comes to both schools. Therefore, there might be limitations to the comparisons, but in this research, a theoretical, curricular and sociocultural justification for a fair comparison was obtained through our studies. As such, it is important to reflect on the dreams of quality ICT policies and teaching. It is important to study the differences between the target of achieving them and

the present realities. All in all, we believe that this study might help to improve the ICT outcomes and design more realistic paths of achieving them.

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