Information Technology Usage in Metro Manila Public and Private Schools

by

Maria Mercedes T. Rodrigo

ISBN: 1-58112-180-6

DISSERTATION.COM

Parkland, FL • USA • 2003

Information Technology Usage in Metro Manila Public and Private Schools

Dissertation.com
USA • 2003

ISBN: 1-58112-180-6
www.Dissertation.com/library/1121806a.htm

Information Technology Usage in Metro Manila Public and Private Schools

by

Maria Mercedes T. Rodrigo

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

Graduate School of Computer and Information Sciences
Nova Southeastern University

2002

We hereby certify that this dissertation, submitted by Maria Mercedes T. Rodrigo, conforms to acceptable standards and is fully adequate in scope and quality to fulfill the dissertation requirements for the degree of Doctor of Philosophy.

_____ _____

Steven D. Zink, Ph.D. Date
Chairperson of Dissertation Committee

_____ _____

John Scigliano, Ed.D. Date
Dissertation Committee Member

_____ _____

Ma. Emma Concepcion D. Liwag, Ph.D. Date
Dissertation Committee Member

Approved:

_____ _____

Edward Lieblein, Ph.D. Date
Dean, Graduate School of Computer and Information Sciences

Graduate School of Computer and Information Sciences
Nova Southeastern University

2002

An Abstract of a Dissertation Submitted to Nova Southeastern University
in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

Information Technology Usage in Metro Manila Public and Private Schools

by
Maria Mercedes T. Rodrigo

August 2002

Both public and private schools in the Philippines are using information technology (IT) as a tool to improve teaching and learning. While both government and private sector initiatives indicate national commitment to IT in education, there is little up-to-date information on how extensively the Philippines are using computers and for what purposes. The researcher's goals were to determine the extent to which Metro Manila public and private schools used IT and to determine how these results compared with analogous data on schools in other developing and developed countries. The researcher gathered data with mail-in questionnaires adapted from the International Association for the Evaluation of Educational Achievement (IEA), onsite visits, and follow-up telephone interviews. The researcher also compared her results with those from IEA-surveyed countries.

The researcher determined that actual uses of IT did not meet schools' curricular goals. Although school officials wanted IT to individualize instruction, promote active learning, and improve student achievement, in actual practice, schools used computers to teach computer literacy, productivity tools, and programming.

In terms of infrastructure, the researcher found that schools in Metro Manila had the poorest student-to-computer ratio in comparison to schools in IEA-surveyed countries. Metro Manila students' access to peripherals was also poor. Software selections were limited to productivity tools. Students in Metro Manila primary schools, like their counterparts in IEA-surveyed countries, had limited Internet access.

A comparison of results from public and private schools revealed that public and private schools shared many educational goals regarding the use of IT. However, the realization of these goals was uneven. Private schools had been using computers for a greater number of years than public schools. Private schools had lower student-to-computer and

student-to-printer ratios. They also had greater Internet access. Furthermore, private schools tended to expose their students to computers at practically all educational levels.

The study provided baseline data that was not previously available. The researcher identifies the need for similar studies with greater geographic scope or of a longitudinal nature, deeper investigations of curricular gaps or policy issues, and the development of instructional software for Filipino-specific subject areas.

Acknowledgements

My heartfelt thanks to my committee chairperson, Steven D. Zink, Ph.D., for shepherding me through the entire dissertation process. Without his guidance and support, I would never have completed my studies.

I thank John Scigliano, Ed.D. and Ma. Emma Concepcion D. Liwag, Ph.D. for graciously agreeing to be part of my committee and lending their expertise to this endeavor. My thanks to W. J. Pelgrum, Ph.D. for giving me permission to use the IEA's survey instruments and for providing me with a basis for comparison of my results.

I would not have been able to conduct my research and finish my studies without the cooperation of government and private school officials. My thanks to Fe A. Hidalgo, Ph.D.; Pablo M. Antopina, Ph.D.; and the National Capital Region district superintendents of the Department of Education, Culture, and Sports for endorsing the administration of my survey instrument. I thank the Ateneo de Manila University, specifically Rev. Fr. Bienvenido F. Nebres, S.J.; Anna Miren Gonzales-Intal, Ph.D.; Antoinette P. Angeles, Ph.D.; Fabian M. Dayrit, Ph.D.; and John Paul C. Vergara, Ph.D. for my faculty development grant. Thank you to the hundreds of school officials and faculty who so kindly and generously gave of their time to respond to my surveys, interviews, and calls.

Thank you to the faculty and Distance Library Services of Nova Southeastern University. They provided me with access to a universe of learning and literature that was previously beyond my reach.

For their interest, inspiration, encouragement, prodding, assistance, and advice, my thanks to John Aiso; Nanette Bautista; Margie Blodgett; Ces Bulos; Anne Candelaria; Queena Lee Chua, Ph.D.; Ma. Assunta Cuyegkeng, Ph.D.; Paula Doherty, Ph.D.; Mark V. Escaler; Ma. Regina E. Estuar; Ma. Celeste Gonzales, Ph.D.; Pablo Manalastas, Ph.D.; Jo B. Mariano; Joselito C. Olpoc; J. Arlyne Santos; Eduardo Sevilla; Helen St. Aubin, Ph.D.; Ma.Thelma H.Tan; Edwina Teosejo; Victoria Tinio; Twyla Treanor; and Violet B. Valdez, Ph.D. I thank Arlene Encarnacion and Ruby Raguindin for their logistical support. Thank you to Karen B. Cardenas for suggesting this line of research ages ago. My thanks to Fr. Arturo Borja, S.J. for remembering me in his prayers.

Finally, thank you to my parents for providing me with the means to pursue further studies. Most especially, thank you to my husband Redg and my daughter Socorro for their patience and love.

Table of Contents

Appendixes

List of Tables

Tables

List of Figures

Figures

Chapter 1

Introduction

Both public and private schools in the Philippines have turned to information technology (IT) as a tool to improve teaching and learning. Filipino educators and government officials hope that the use of IT in schools engages learners and individualizes instruction (Angara, 1997, p. 8), increases Filipino teachers' effectiveness by providing them with technological support (Ramos, 1997, p. 4), and creates a computer-literate and hence more globally competitive workforce (Angara, p. 8).

Government and private sector initiatives to adopt educational technology abound. Both the Senate and the House of Representatives of the Philippine legislature routinely considered bills instituting computer literacy and the use of computer-aided instruction at all levels of education (see Philippines H.R. 1688, 1998; Philippines S. 614, 1998). Other bills would have mandated the installation of computer equipment in all public schools (e.g. Philippines H.R. 2068, 1998). Lawmakers have even considered offering tax incentives to private individuals and corporations who donated computers to educational or research institutions (Philippines H.R. 6287, 1999). Others proposed that the government raise school computerization funds by levying an additional 7% tax on all cellular phone calls (Philippines H.R. 8278, 1999).

The executive branch of the Philippine government has been implementing IT in education programs of its own. In 1996, the Philippines Department of Education, Culture, and Sports (DECS) initiated a P375[1] million modernization program for the benefit of Philippine secondary schools. Seventy-five percent of the funds were used on hardware and software procurement while the remaining 25% was spent on staff training (Rosas, 1998, pp. 2-3). In May 1997, a nationwide program to computerize 97 state colleges and universities (SUCs) and 168 private schools was launched with a budget of P300 million (Philippines, National Information Technology Council, 1997, p. 39). DECS also established a Center for Education and Technology (CET) whose functions included the development and production of local multimedia instructional materials, training of DECS personnel, and showcasing of a "school of the future," with state-of-the art multimedia hardware and software (Philippines, Department of Education, Culture, and Sports, August 30, 1996). In an interview with this study's researcher, DECS Undersecretary for External Affairs Victor Andres C. Manhit (personal communications, September 19, 2000) elaborated on the executive branch's PCs for Public High Schools Project. The objective of the P600 million project is to equip 1,000 public high schools nationwide with 20 computers each. Finally, the 1999/2000 national budget gave DECS P210 million to equip 325 schools with computers and train 4,000 teachers (M. Abcede, personal communications, July 17, 2001).

The private sector has also ventured to establish IT in schools. Sixty-eight percent of private schools with computers acquired their machines though outright purchase (New

[1] P denotes Philippine Pesos; US$1.00 is approximately P52.00.

Educational Technologies [NET] Foundation,[2] 1996, p. 49). Others obtained their equipment through leases and donations. In February 1999, Citibank, N.A.-Philippines granted US$100,000 to establish computer laboratories in secondary schools (Philippine Business for Social Progress [PBSP], 1999, p. 2). By July 1999, Citibank and its implementing arm, PBSP, constructed computer laboratories in four high schools around the Metro Manila area (p. 3).

Statement of the Problem

Despite substantial worldwide investments in IT—the United States alone spends approximately US$6 billion or 2% of the total education budget on IT for instructional use (Moursund, 1998/1999, ¶ 1)—there is little data about how schools are using computers (Litvin, 1998, ¶ 10). The emergence of IT in education has happened so quickly that the extent to which technology has actually infused schools is not known (Pelgrum & Anderson, 1999a, p. 1). The United Nations Educational, Scientific, and Cultural Organization (UNESCO) observed that the extent to which schools are purchasing educational software is undetermined (United Nations Educational, Scientific and Cultural Organization, 1998, p. 87). The proliferation of software advertising suggests that software developers regard schools as serious markets, however, no study has ascertained what software schools buy and how schools use software products. Although technology is regarded as essential, a study funded by the U.S. federal government revealed that most colleges do not know and have not bothered

[2] The New Educational Technologies (NET) Foundation is a non-stock, non-profit organization. Its members are schools dedicated to using IT to improve teaching and learning. Among the Foundation's objectives is to guide both the public and private sector in the use of IT for education.

to find out how their technology resources are being used (Jacobson, 1996, ¶ 3-4). As a result, faculty and administrators tend to make large investments of time and money in IT without sufficient data regarding problems, solutions, and achievements associated with IT interventions (Ehrmann, 1999, ¶ 2).

This lack of information, regarding IT usage and education as a whole, is particularly acute in developing countries. The poorest and least-educated countries tend to have unreliable education data. Educational researchers in these countries generally collect data on inputs such as teachers, students, classrooms, and expenditures (Puryear, 1995, p. 86). Researchers tend to ignore substantive issues regarding IT implementation and its effect on people and work processes (Montealegre, 1999, IT implementation in LDCs, ¶ 4). No information on educational processes, curriculum, teaching procedures and other educational quality indicators is systematically collected (Puryear, p. 82). Buchmann and Hannum (2001, Social factors and processes, ¶ 5) note that there is a lack of qualitative educational research in developing countries. Hence, an understanding of the effects of educational processes and organization on learning in third-world contexts is limited. Fuller (as cited in Buchmann & Hannum, School factors and processes, ¶ 5) noted that, while researchers in the US and Europe have explored factors that affect learning, developing countries have not yet charted similar research avenues.

Data that could help determine how scarce educational resources should be distributed or how effectively they are being used are simply not available (United Nations Educational, Scientific, and Cultural Organization, 2001, The need for better

monitoring, ¶ 2; Puryear, 1995, p. 82). Decision-makers therefore base educational policy on imprecise data or purely political considerations, rather than rigorous, empirical analysis and evaluation of educational outcomes (Puryear, p. 84).

In this study, the researcher investigated the problem of a lack of documentation regarding the extent of IT usage in Philippine public and private schools. While government and private sector initiatives indicated national commitment to IT in education, neither congressmen nor DECS officials knew whether existing computers in schools were being used for educational computing (Philippines, House of Representatives, Committee on Education Proceedings, May 5, 1997, p. 65; Rosas, 1998, p. 4). Indeed, the extent to which Philippine public and private schools were using IT was largely unknown.

Without data of this kind, there was little basis for policy formulation. IT equipment tended to be purchased without terms of reference and distributed indiscriminately. For example, members of the Philippine private sector have berated DECS for choosing hardware that is incompatible with educational goals – multimedia-incapable machines, for example, for computer-aided instruction (CAI) applications (Philippines, House of Representatives, Committee on Education Proceedings, May 5, 1997, p. 19). At times, computers have been provided to provincial schools that have no buildings, electricity, or security (p. 74). Some congressional representatives wonder whether the computers reached the intended beneficiaries—the students—or whether they were reserved for teacher use (p. 65).

Goal

The researcher’s goals were to determine the extent to which Metro Manila public and private schools used IT and to determine how these results compared with analogous data on schools in other developing and developed countries. At least two Philippine studies attempted to gather data regarding schools' IT usage. Roxas and Marinas (1989) examined the availability and use of IT in Philippine schools while the New Educational Technologies Foundation conducted a similar survey in 1996 (these reports will be discussed in greater detail in Chapter 2). Both reports indicated that computer use was limited. However, detailed, current data regarding computer usage in Philippine schools were scant.

On an international level, the IEA is currently engaged in a three-module information and communications technology study (Pelgrum & Anderson, 1999a, p. 3). Module 1, undertaken from 1997 to 1999, was an international survey of school principals and technology coordinators at the primary, lower secondary, and upper secondary levels. Module 2, begun in 1999 and completed in 2001, focused on case studies of innovative pedagogical practices using IT. Module 3 is a survey at the school, teacher, and student levels and is scheduled for completion in 2005. Among the objectives of the IEA surveys is to determine and explain the differences in IT-related practices within and between countries. The researcher adapted Module 1's methodology and instrumentation for her study. Module 1's data served as the baseline for comparison of the researcher's results. Module 1 is further discussed in Chapter 2.