

PART IV SUMMARY AND RECOMMENDATIONS

This part contains two chapters: a summary of the findings from this Study which addresses the five research questions specified and a set of recommendations on policy adaptations on the basis of the research findings and on planning for the review of the ITEd implementation by 2003.

CHAPTER 4.1 SUMMARY

This section is not an executive summary of this report. Each chapter contains its own summary of findings which is not repeated here. However, this chapter attempts to collate the findings from various chapters to address the 5 research questions set down in chapter 1.1.

Research Question One: How have schools taken advantage of the various ITed initiatives provided by the government at the system level? What variability can one observe there?

The research findings from this study reveal that there are three key foci in the ITed initiatives of the government during the period of review. These foci are: ICT infrastructure (access and connectivity), resource support and teacher enablement. The priority for infrastructure is to provide schools with a high student:computer ratio with good connectivity in the form of centralized multimedia computer rooms. The teacher enablement component includes the expectation that all teachers will reach a basic level of technical competence by 2001 and that most teachers will be able to develop multimedia resources using authoring packages and webpage development tools, while a small portion of the highest level of “IT-enabled” teachers who would be fluent in network administration and technically highly competent in IT. The resource support includes both human and funding supports to schools for ITed coordination and for building up teamwork in school level IT activities, as well as the setting up of the RSS and ITERC to provide support to schools. Other incentives include Pilot, Multimedia Learning Centre (MMLC) and Information Technology Coordinator (ITC) schemes for schools of different readiness in IT initiatives. QEF has also been contributing greatly to the enhancement of access through the provision of MMLC and Millennium Multimedia classrooms, and of resource support through funding to extend the number of beneficiaries of the ITC scheme.

This section reviews how schools take advantage of the various initiatives, especially those in these three areas.

Access and connectivity

Since 1997 the Hong Kong SAR Government established its first IT policy and provided schools with computers and IT related equipments and software, the Hong Kong schools have gone a long way. The study shows that the hardware, software and networking infrastructure provisions in Hong Kong schools have been greatly improved in comparison to the situation in 1998 as documented in the results of the SITES-M1 study. In the present study (chapter 2.1), many more teachers' own computers and students either own their computers or are allowed to use the computers, and most of these computers are connected to Internet. One interesting feature is that, among the IT peripherals, video projector has become the dominant

peripheral in schools. Pilot schools have an exceptionally high availability of hardware and peripherals. With the overwhelming provisions, diversity of implementation in pilot schools was found in terms of hardware deployment and resources distribution. However, the situation of hardware and resources planning in other schools was found to be quite homogeneous, indicating the modeling effect of the pilot schools in this area is limited.

Teacher enablement

Most teachers in the study have participated in some form of training scheme related to IT techniques and in-house training seems to be the most popular format particularly in the secondary schools. In teacher development, the most preferred mode of training is “workshops and demonstrations” and the least preferred mode is “conferences and seminars”. About half the teachers obtain IT knowledge from newspaper features. Over 70% of the teachers indicate that their use of computers in teaching is mainly preparing teaching notes and course materials. Many teachers are keen to learn to communicate with students over email, but not many feel the need to learn Internet for collaborative work with other schools. Teachers are in general satisfied with their portfolio assessment. When they need help in IT, they usually get support from friends, family, and from their school.

Regarding level of IT competence, most teachers in both primary and secondary schools are able to master word processing, spreadsheet, presentation software and Internet usage skills and regarded them as most important. On the other hand, most teachers (primary and secondary) are less familiar with advanced multimedia and web site design and regard them as least important. This suggests that most teachers have already reached the BIT level of IT competence as specified by the ED. From the teachers' perspective, it is questionable whether the advanced technical IT skills are important to teaching and learning. Most teacher development courses were conducted in a traditional didactic mode of training, and we could not find the sensitivity of pedagogy or the promotion of different ways of using IT in different subjects.

Curriculum and resource support

From SITES-M1 to the present study, the provisions of hardware and resources have been apparently improved. It is perhaps not surprising the major obstacles or difficulties concerned by the IT coordinators and teachers have been changed from support and resources to instructional software and teacher competence.

The results clearly demonstrate that students want more provision of computer access though they are generally satisfied with the existing support or assistance from the schools, libraries or Education Department. This points to the issue whether students can really benefit from the hardware provisions in the schools.

Over half of the primary and secondary teachers visited the ITERC or Teacher Centre. All ratings for the courses on IT in education or resource/support services provided by the Education Department or related organizations in general are satisfactory (greater than 3). The top three popular services attended or visited by secondary and primary teachers are

HKEdCity, ITed Web and TSS, suggesting a certain demand in useful web-based resources and technical support services.

Community-wide culture

About one-third of teachers attended exhibition or conferences. Primary principals have the higher attendance than secondary in the activities or exhibition offered by other schools, the Education Department or commercial organizations. Regarding collaboration culture, it focuses only on local. In general, secondary schools have the higher rating than primary in collaborating with local schools, organizations or tertiary institutions. This points to the need for more promotion of such culture among schools.

Regarding sharing culture, over 70% of teachers reported positively in sharing their experience with other teachers in the use of IT for teaching and learning. However, the sharing focused on the sharing of resources and expertise. Paradoxically, in terms of the perception on the impact of IT on themselves, teachers have relatively low rating in the following items: “increases my social circle”, “increases opportunities to work with teachers from other schools”, “increase the opportunities to work with external organizations” and “enhances communications with parents”. The findings indicate that the teachers have a reserved view on the impact of IT. On the other hand, the views of students were found to be more open and positive.

Research Question Two: What impact has the implementation of ITed made on teaching and learning in schools, especially in terms of formal classroom learning?

The impact of ITed on teaching and learning

The findings suggest that in both the primary and secondary schools, the longer exposure and engagement in computer usage is helpful to students in building up a habit of using IT in school and life. The picture is less clear on resources. In the secondary schools, while the Pilot schools that are given the largest resources still have an edge over others in computer usage in subjects, it is less certain among the other category of schools. Within the non-pilot schools, those which have support from QEF, and those which do not have outside support do not perform noticeably worse than those schools which have MMLC, ITC or both. In the primary schools the scene is very different. When measured in the computer usage in subjects, both the Pilot and ITC schools performed better than those that do not have ED support. Unlike the secondary schools, the differences between the Pilot and ITC primary schools are small.

One interesting phenomenon is that although there are clear behavioral differences in computer usage among students of different category of schools, we do not see a marked difference in their attitude. One could of course argue that internalization of a value takes a long while. After all, the exposure to computer usage in Hong Kong schools is relatively short. A more plausible reason which is supported by the findings in this study is that although there is quantitative difference in computer usage, the teaching method in the different classrooms

is very similar. It is evident that the reform of pedagogy due to the implementation of ITed is unclear (chapter 2.2, 3.3 and 3.4.). There has not been, in our view, a paradigm shift in teaching and learning as advocated in the Five-year Strategy.

Research Question Three: How have teachers' and students' competence and attitudes changed since 1998?

In the study, both teachers and students are asked about their competence in IT skills. The majority of teachers expressed confident of basic IT skills, such as word processing, use of spreadsheets, presentation software and Internet usage. But they are least certain about advanced multimedia design and webpage production.

In 1998, as reflected in the results of SITES-M1 (Law et al, 1999), the vast majority of teachers felt that they were not adequately trained on various aspects of IT in education, and the only IT skill they had was word processing. Also, in 1998, the percentage of teachers received IT skills training was quite low (around 25%). The present findings show that there has been a marked improvement in the teachers' IT skills since 1998.

The pattern of the students' IT skill is similar to the teachers. The students reported that they were most proficient in computer search for information using the Internet, followed by the skills in Word Processing and Spreadsheet and computer presentation. In Word Processing and Internet search, the higher form students are more proficient than the lower forms. On the other hand, the least proficient IT skills reported by the students are the more sophisticated skills including Multimedia software design, graphics and website designs.

Research Question Four: Is there any relationship between the profiles of teacher competence and attitudes and the different kinds of impacts observed in terms of classroom implementations?

In the SITES-M1 study (Law et al., 2000), we found that teacher competence closely linked to the expository pedagogical approach. However, the relationship between the profiles of teacher competence and attitudes and the different kinds of impacts observed in terms of classroom implementations is not clear in the present study. The findings in the study show that the majority teachers have acquired the basic IT skills in teaching, but many teachers still perceive their role mainly as providers of knowledge, rather than as facilitators guiding students to find out knowledge themselves as advocated by the Five-year Strategy. While in using IT in lessons, most teachers employed the computer software and peripherals for demonstration, which suggests a direct teaching pedagogy, leaving little time for students to engage in their own work or in project work.

Research Question Five: What kinds of visions and implementation strategies have emerged in different schools in Hong Kong? How do these different visions and strategies relate to different implementation outcomes at the classroom level?

It was proposed in the Five-year Strategy that IT in teaching and learning should promote curriculum renewal and change in the school. Nevertheless, the vision for paradigm shift could not be clearly found among the schools in the present study. The analysis of school documents and plans (Chapter 3.3) shows that schools do not fully grasp this message, nor do they have a good understanding of the meaning of “developing lifelong learning abilities in students”. The most popular aim for implementing IT, as reflected in the school plans, was to use ICT as a tool to enhance the ability of teachers to present information effectively/interestingly. There is a lack of interest in the school aim to develop students’ information skills for IT.

The findings reveal that the most popular activities in schools are those using ICT as an expository tool for the teacher, which coincides with the finding of Law et. al. (2000). Many schools regard IT in education as an effort to technologize education - simply replacing chalk and board by multimedia presentations/animations.

The data shows that schools that have clear plans for using ICT in teaching and learning tend to set up computing facilities in both special rooms and different classrooms and to allow students to access the computing facilities after school-hours. Schools that had given more thoughts to the functions and composition of the IT team were better oriented towards supporting students to use ICT in their own learning, rather than just using ICT as a teaching tool in a centralized room with projection facilities, and were more likely to have a broad base of IT team membership that included teachers from non-technical, arts or humanities backgrounds. Likewise, schools that had history and background in curriculum innovation with a strong leadership were able to describe a much wider range of plans for teaching and learning activities using ICT. In the SITES Module 2 case studies, we saw examples of how teachers of these schools provided students with opportunities to work on projects with ill-defined questions. In these schools the teachers had undergone a role change from knowledge providers to facilitators who enable students to take up learning in their own hands. This is clearly a breakthrough, although this is still only isolated instance rather than a wide spread practice.