Part B Project Summary

Project Title: *(Please fill in the blank)*	**Project Number**
Pedagogical Use of IT and Learning Outcomes: SITES 2006	*(For office use)***2004/0842**

Name of Organization: Division of Information & Technology Studies, Faculty of Education, The University of Hong Kong

(1) Goals:

SITES 2006 is an international comparative study of pedagogical practices and use of ICT. The overarching goals of this project are to benchmark the implementation and outcomes of the Hong Kong IT in education policy against international data and to provide research-grounded insights for schools and teachers to evaluate their IT integration for teaching and learning. The specific objectives are:

(i) to provide internationally benchmarked indicators on the extent of IT integration in schools and its impact on pedagogy and students' learning outcomes in Hong Kong schools;
(ii) to identify through an examination of the international data the strategic factors that are found to be most important in bringing about the effective integration of IT in education in different countries to provide input to policy-makers and school leadership for fine-tuning and improvement of policy and implementation strategies at the system and school level in Hong Kong;
(iii) to evaluate students' ability to make use of IT in complex problem solving.
(iv) to disseminate the research findings in formats that would be most helpful to teachers, principals and policy-makes in the integration of IT in Hong Kong schools.

(2) Targets:

Expected number of beneficiaries: All principals and teachers in primary and secondary schools as well as policy makers, curriculum developers, teacher educators, members of various education-related committees and the wider education community in Hong Kong.

(3) Implementation Plan:

(i) Duration: 44 months

(ii)Process/Schedule:

May, 04 – Aug, 05	Pre-pilot
Sept, 05 – Dec, 05	Pilot
Jan, 06 – Apr, 06	Refinement of instruments
Apr, 06 – Aug, 07	Main data collection
Sept, 07 – Aug, 08	Data cleaning, analysis and write-up of research report for HK component of the study
Sept, 08 – Mar, 09	Compilation of report that includes international findings, dissemination workshops/ seminars

(iii) Collaboration with other parties/partners:

Collaborators: Centre for Information Technology in Education (CITE), University of Hong Kong.

(4) Products:

(i) Deliverables/outcomes:

(1) An overall report of the SITES2006 HK main study findings and international comparisons.
(2) ONE tailor-made report to EACH participating school, indicating its IT implementation status against international benchmarks.
(3) A report on the international pilot online student performance assessment on the use of ICT for complex problem solving, focusing on HK students' performance in relation to other participating countries, with implications and recommendations for future development.

(ii) Dissemination of deliverables/outcomes:

(1) Events for the dissemination of the findings and the above deliverables as in formats that would cater for the interests and needs of different groups of stakeholders so as to improve the integration of IT in Hong Kong education
(2) Seminars/workshops to report findings of the international pilot study on online performance assessment and to provide suggestions regarding more effective assessment methods.

(iii) Sustainability of project impact:

(1) the overall research report will provide recommendations at both system, school and teacher levels that can be taken up to further improve the use of ICT in supporting learning and teaching within the context of the education reform in Hong Kong.
(2) the tailor-made report provided to EACH participating school containing its IT implementation status against international benchmarks for school improvement would help schools to focus in strategic directions and planning for IT integration for the next several years.
(3) the dissemination events will also provide opportunities to educators to discuss and make recommendations on the basis of the research findings to improve the integration of IT in education in Hong Kong.
(4) the research findings would help to monitor and understand the status of IT implementation in Hong Kong since the announcement of the "Empowering Learning & Teaching with Information Technology" strategy in Jul 2004. Relevant findings should be timely provided to inform formulation of policy beyond 2007. The findings would be helpful in evaluating the effectiveness of the government strategy in terms of student learning and providing international benchmarked indicators on how Hong Kong stands in relation to other countries, identifying gaps and making recommendations on the way forward.

(5) Budget(grouped items):

Staff Costs	$1,764,087
Services	$160,113
Equipment	$50,000
General Expense	$286,000
Contingency	$5,500
Total	**$2,265,700**

(6) Evaluation:

1. The Study need to meet stringent quality control criteria demanded by the IEA and this will be reported in both the International and Local Reports.
2. The HK SITES2006 steering committee with membership from principals, teachers, teacher educators and policy makers will advise on and monitor evaluation procedures.
3. Evaluation data will be collected on the various deliverables and dissemination activities.

Part C Summary on Grant Sought

Annex II

10. Please provide a summary on the grant sought using the format at Annex II.

Project Title: *(Please fill in the blank)*	**Project Number** *(For office use)*
Second Information Technology in Education Study 2006	**2004/0842**

Part C Summary on Grant Sought

1.	Breakdown of Budget Items		Expenditure	Grant Sought from QEF
	(a) Staff Cost		$	$ 1,764,087
	(b) Equipment		$	$ 50,000
	(c) Services		$	$ 160,113
	(d) Works		$	$
	(e) General Expenses		$	$ 286,000
	(f) Contingency (for project period over 1 year)		$	$ 5,500
	(g) Others (Please specify.):		$	$
2.	Total Expenditure		$	
3.	Income	(participation fee, sale ...etc)	$	
4.	Contribution	(by applicant, other sponsors, participating schools, etc)	$	
5.	*Grant Sought*	*(Round up to the nearest hundred dollars.)*		$ **2,265,700**

2004/0842

Part D Project Details

Please use separate A4 sheets to provide project details covering the following areas:

Needs and Applicant's Capability

(a) Background: Evaluation of the present situation that leads to the need for this project

About SITES 2006

"Second Information Technology in Education Study 2006" is a continuation project of 1998/0019 and 1999/2752 (*SITES; Second International Information Technology in Education Study, the Hong Kong component*). SITES is an international comparative study, which consists of 3 modules carried out in succession, organized by the International Association for the Evaluation of Educational Achievement (IEA). With the generous support from Quality Education Fund (QEF), Hong Kong took part in both M1 (1998/0019) study and M2 (1999/2752). SITES 2006 is an international survey project to compare pedagogical practices and the use and impacts of IT for teaching and learning. This study can provide relevant data to benchmark the implementation and outcomes of the Hong Kong IT in education policy with international data. In addition, there will be an international pilot on online performance assessment of students' ability to make effective use ICT for complex problem solving.

Present Needs in Hong Kong

Hong Kong's first 5-year IT in education implementation plan was completed in November 2003 and the government has just launched its second IT in education strategic plan, "*Information Technology in Education – Way Forward*". The primary policy goal in the new strategic plan is *Empowering Learners with IT* with 6 strategic goals for its implementation, including *Empowering Teachers with IT, Enhancing School Leadership for the Knowledge, Enriching Digital Resources for Learning Age, Improving IT Infrastructure and Pioneering Pedagogy Using Technology, Providing Continuous Research and Development and Promoting Community-wide Support and Community Building.*

Goal 6 in the plan, *Providing Continuous Research and Development*, articulates the importance of research-grounded support to monitor and support effective IT implementation in Hong Kong. More specifically, it is important to (1) evaluate what Hong Kong has achieved so far by understanding the extent and impact of IT has made to Hong schools and classrooms, particularly in comparison with international data; (2) identify factors that contribute most to effective integration and translate the findings into practical recommendations for policy makers, (3) provide principals and teachers with research grounded input to the school-based IT in education policy and implementation process and (4) to pilot performance assessment methods for evaluating the state of achievement of the primary policy goal, *Empowering Learners with IT.*

Addressing research and development needs: SITES 2006

Participation in SITES 2006 would help Hong Kong to fulfill the above research needs in achieving more effective IT implementation, with the added advantage of having the results benchmarked against international data.

Importance of this project to government

The research findings from SITES 2006 would provide internationally benchmarked indicators for the government to understand better how Hong Kong stand in relation to other countries. These benchmarks would be valuable international comparative data in evaluating the effectiveness of government policies and providing suggestions on its improvement. In addition, its tentative optional component, the online performance assessment study, can help to collect information for understanding the students' learning outcome and ability. In short, SITES 2006 helps to (1) provide research data to monitor the implementation of the second five-year plan; (2) provide information to policy makers to support policy and strategic adjustments to improve implementation and (3) contribute to the evaluation of the second strategic plan for IT in education in Hong Kong.

Importance of this project to schools and teachers

The deliverables and dissemination activities are tailored to help schools and teachers to identify the

status of implementation in the use of ICT for teaching and learning against international and local benchmarks and pathways for further improvement based on the research findings. These include (1) a tailor-made report to EACH participating school, indicating its IT implementation status against international benchmarks, (2) seminars/workshops on students' performance assessment in using ICT for complex problem solving.

(b) In case of school, how the project would become part of the school's strategic development

In this case, the applicant is not a school, but a main goal of this project is to support schools in their strategic planning and development.

11 Capability

(c). Readiness of the applicant organization for undertaking the project

The applicant, the Division of Information and Technology Studies (I&TS) is an academic division within the Faculty of Education, University of Hong Kong. Its staff members, including the Division Head and the project leader for the present proposal provides guidance and leadership to various large scale research projects related to IT in education hosted under the Centre for Information Technology in School & Teacher Education (CITE). In this project proposal, CITE will collaborate with the applicant to provide research support to the project. CITE has conducted Modules 1 and 2 of SITES successfully under two previous QEF grants. I&TS is fully ready for conducting SITES 2006. CITE has strong expertise, experiences and track records in conducting both qualitative and quantitative, local and international comparative research in the field of IT in education, and in the dissemination of research findings for professional and leadership development purposes. Following is a list of related studies conducted by CITE:

- Second International Study on Information Technology in Education – Module 2 (SITES M2) (Sept 2000-Aug 2003) http://sites.cite.hku.hk
- Second International Study on Information Technology in Education – Module 1 (SITES M1) (Sept 1998- Aug 2000) http://sites.cite.hku.hk
- Preliminary Study on Reviewing the Progress and Evaluating the Information Technology in Education (ITEd) Projects (Dec 2000 - Dec 2001)
- The Influence of IT on Youth (Nov 2000 –Nov 2001)
- Self-directed Learning with Information Technology Scheme (SLITS) (June 1998 - August 2000) http://slits.cite.hku.hk
- WORLDMAKER – introducing the fascinating world of learning through simulations and model making (July 1999-June, 2001) http://worldmaker.cite.hku.hk
- An integrated approach to bridging the digital divide through supporting the development of e-Educational Leadership (July 2001-March 2004) http://acec.cite.hku.hk
- Building Learning Communities through Project Work and Knowledge Construction (July 2001-Aug 2003)
- Hub schools for establishing knowledge building communities (June 2001-August 2004) http://lcp.cite.hku.hk
- Investigating the formation of knowledge building communities in technology supported environments (Sept 2001-August 2004) http://lcp.cite.hku.hk
- Establishing a scalable network of knowledge building schools (Sept 2004 - Feb 2005) http://lcp.cite.hku.hk

(d). Other Factors for project's success

Hong Kong SITES M1 & M2 were both steered by a strong committee with members from different institutional and professional backgrounds, including government officers, principals, teachers and university researchers. A steering committee with membership that include principals, teachers, teacher educators and policy-makers will be formed and regular meetings would be held to advise on and monitor the project. Same as M1 and M2, SITES 2006 would continue to work closely with the ITE Section of EMB in ensuring the project effectiveness, by having government officer in our steering committee. We have started the work of setting up steering committee for SITES 2006. The following are the principals/teachers/government officers who have kindly agreed to sit on our steering committee (further membership to be confirmed):

• Mr. FUNG Ka Ching	Principal, S.K.H. St Michael's Primary School
• Mr. Thomas MAN	Vice Principal, Diocesan Girls' School
• Mr. NG Hok Ling	Dean of Academic affairs, Lutheran School for the Deaf
• Mr. SHE Mang	Principal Education Officer, EMB
• Mr. Paul SHUM	Vice Principal, Yan Ping Industrial & Commercial Association Lee Lim Ming College

• Mr. YAU Yat Heem	Principal, The Hong Kong Chinese Christian Churches Union Logos Academy
• Mr. YIP Chee Tim	Chairman, The Hong Kong Association for Computer Education

Project Description

(e). Goals and objectives

Goals:

SITES 2006 is an international comparative study of pedagogical practices and use of ICT. The overarching goals of this project are to benchmark the implementation and outcomes of the Hong Kong IT in education policy against international data in the short term and to provide self-evaluation assessment tools for schools and teachers that will continue to be able to use after the completion of the project to monitor their own effectiveness in their IT integration for teaching and learning and to learn from international experience applicable school-based pathways for further improvement. The aim of the study is three-fold:
(1) to evaluate the extent and impact of IT in schools and classrooms on learning and teaching practices,

(2) to identify the factors that contribute most to the effective integration of IT into learning and teaching, particularly those involving student-centered pedagogical practices, and

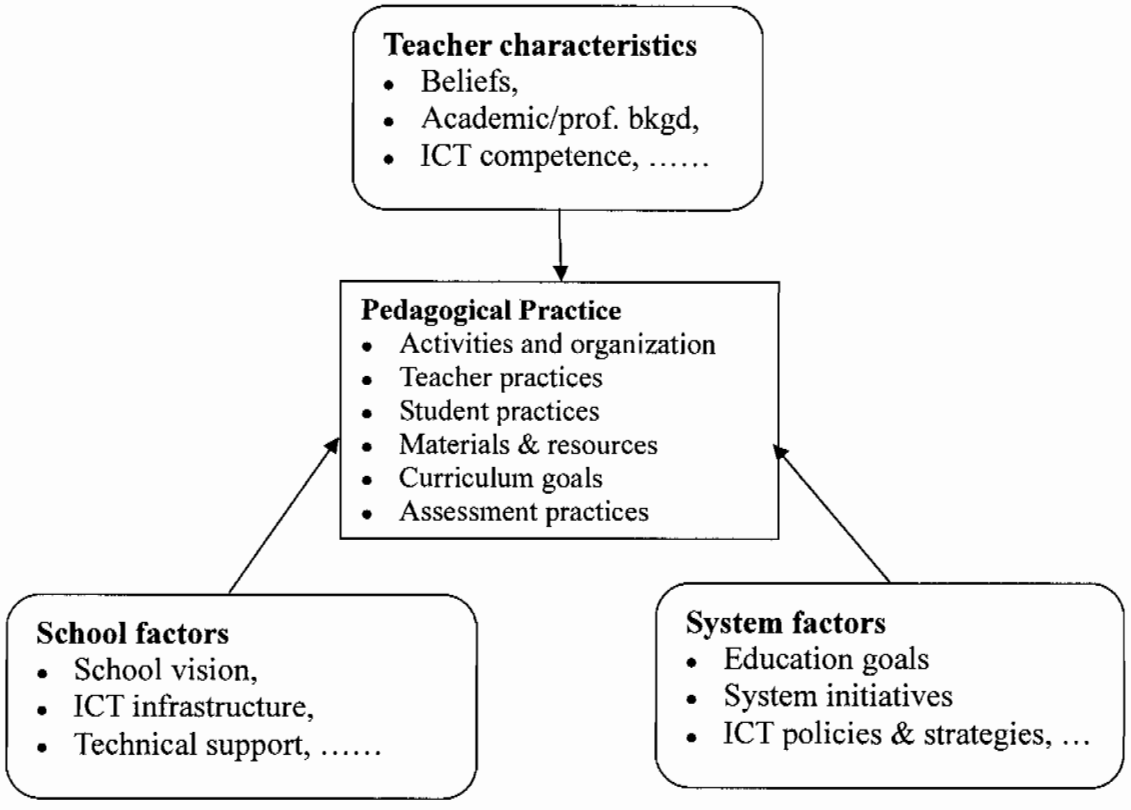
(3) to evaluate students' ability to make use of IT in complex problem solving. The overarching goals of this project are to benchmark the implementation and outcomes of the Hong Kong IT in education policy with international data and to provide assessment tools for schools and teachers to conduct self-evaluation of the status of their IT integration for teaching and learning.

Project Objectives:

The specific objectives for this project are:
(1) to provide internationally benchmarked indicators on the extent of IT integration in schools and its impact on pedagogy and students' learning outcomes in Hong Kong schools;
(2) to identify through an examination of the international data the strategic factors that are found to be most important in bringing about the effective integration of IT in education in different countries to provide input to policy-makers and school leadership for fine-tuning and improvement of policy and implementation strategies at the system and school level in Hong Kong;
(3) to evaluate students' ability to make use of IT in complex problem solving;
(4) to disseminate the research findings in formats that would be most helpful to teachers, principals and policy-makes in the integration of IT in Hong Kong schools.

Study Framework: international survey component

It is proposed here that the key conceptual domains are pedagogical practice, teacher characteristics, school factors and system factors. The diagram below is preferable to the concentric ovals in that (1) the system factors need not act through the school (e.g. centrally provided professional development opportunities for teachers, system level curriculum guidelines, etc.), (2) the study can probe perception about system factors through teacher questionnaires in addition to school level questionnaires.



In terms of the literature, NCES has made the most extensive efforts in evaluating teaching practice through surveys as it has started this in the early '90s. The approach that has been used were largely items asking for frequency or importance in the six areas listed in the pedagogical practice box.

Research questions

RQ1: What are the pedagogical practices adopted in schools and how is ICT used in them?

This question finds out what are the popularity of various pedagogical approaches adopted by teachers generally and how important is the use of ICT in realizing the different approaches. It is suggested that we design two kinds of item stems for the six conceptual categories within the domain "pedagogical practice":

1. How often/how important are the following in your teaching practice?
2. How frequent/how important (critical/important/optional/unimportant) is the use of ICT in accomplishing each of the following?

One approach we would like to try is to see if we could develop a kind of scale for various pedagogical approaches based on the response profiles. We are hopeful that we can achieve this based on the cluster analysis we have conducted on the M2 coding we did. However, we do need to do some pre-prepilot to find out whether this is feasible at all. If we could achieve this, then we could compute the perceived importance of ICT for the various activities with different pedagogical orientation and compare the most preferred pedagogical orientation with the pedagogical orientation with the higher perceived importance of ICT use. The difference or identity of these two orientations would be very valuable information.

RQ2: How is ICT used in supporting and enhancing learning and teaching?

This question tries to find out about the features of pedagogical practices that actually make use of ICT, and the kinds of ICT that are being used.

The approach to this question would be to ask:

Think of your most recent experience you had in using ICT in achieving your teaching objectives (including the use of ICT for teaching or for supporting students' learning).

1. Indicate whether each of the following activities (this will include teacher practices, student practices and assessment practices) were involved in that experience, and whether ICT has been used.
2. Indicate the types of ICT that was being used at that occasion and who was actually using it (students, teachers or specific groups of teachers/students).
3. The key functions played by ICT in the practice (if applicable) and the importance of these functions to the quality of the practice outcomes.

Theoretical Framework for the international option: online student performance assessment

Defining the scope and approach for the performance assessment component

The most important decision regarding the design of the study is to define the specific learning outcomes that we would want to assess. This should be considered within the three curriculum dimensions that are generally associated with ICT use in schools:

1. Learning to use ICT – basic skills in using ICT
2. Using ICT to learn more effectively – using ICT within subject domains
3. Learning to learn with ICT – information handling and evaluation for authentic problem solving, collaboration, etc.

Dimension 1 Learning to use ICT

This is generally considered to be a low level curriculum goal and the SITES community would not approve of conducting a performance assessment component with this as the primary objective. However, it is also commonly recognized that a student's level of competence within this dimension is a pre-requisite for achieving the curriculum goals in the other two dimensions. Without assessing students' learning outcome within this dimension, it would be difficult to interpret differences in students' learning outcomes to inform policy and practice. It is thus proposed here that the PA component will include an assessment of students' ICT skills. This should not be difficult to design as there are a number of "ICT driving skills" tests used in many countries. We could consider and select/build on these existing tests. Perhaps a working group to develop the test instrument for this component can be formed from interested NRCs that have knowledge/experience of such tests in their own countries.

Dimension 2 Using ICT to learn more effectively

While this may be one important reason for ICT to be introduced in the school curriculum, it is not considered to be appropriate in the context of this PA component to include this as one of the assessment goals. First of all, the ability to use ICT to learn more effectively is very much dependent on the learners' background knowledge and understanding of the subject matter to be studied. It is not possible to make inference about the ICT specific aspects of the learning outcome in this context without also assessing the students' learning outcomes in the subject domain tested. In fact, PISA 2006 will be conducting a PA component to assess students' ability to use ICT effectively in handling science tasks. The SITES 2006 PA would not assess learning outcomes within this dimension

Dimension 3 Learning to learn with ICT

This is the most important curriculum goal for this PA component as it is in line with the major curriculum reform goals put forward by ministries in recent years in many countries. This goal with its attendant varieties of specific outcomes is not only relatively new but also gives the context for the call for emergent pedagogical practices as it is expected that implementing the use of ICT within traditional pedagogical processes would not lead to the development of such learning outcomes effectively. It is argued here that this dimension is the most important within the general concept of digital literacy for the 21st century.

There have been a number of very exciting research projects conducted in this area in the last few years and the November 2003 issue of Assessment in Education (Special issue on 'Assessment for the Digital Age', Angela MacFarlane (ed.)) provides an introduction to a number of different approaches that have been taken in this area. Examining current work in the area, there are generally two broad approaches to the assessment:

- As a compendium of smaller tasks each targeting a small set of skills (e.g. the worldclass arena project, Ridgway & McCusker 2003[1]). The advantage for this approach is that the tasks can be more constructed, administered & interpreted. The downside for this approach, however, is that the tasks would have to be rather textbook-like and cannot easily test the complex use of technology for solving complex tasks when the tasks are created within more authentic settings.
- As an open-ended complex task. Within this orientation, there is still a range of possibilities along the authenticity/complexity dimension. Possibly the TRE task ('Problem Solving in Technology-Rich

[1] Ridgway, J. & S. McCusker (2003) 'Using Computers to Assess New Educational Goals'. In *Assessment in Education*, Vol. 10, No. 3, November 2003

Environments', in R.E. Bennett et al. 2003[2]) is midway between the WCA & the SRI tasks. It should also be noted that both in the TRE or SRI tasks, there is a subject-specific knowledge base involved.

It is the suggestion here that a task with sufficient complexity in workplace settings that are relatively similar in all countries and easily understandable by 13-yr-olds. A workplace setting rather than the more common academic problem solving contexts is chosen so as to eliminate as far as possible the need for students to make use of substantial knowledge and skills in specific academic subject domains. As mentioned, this is not a full research proposal and we have not defined the specific abilities to be measured within this dimension. However, we wish to communicate a better sense of the kind of tasks that could be used for assessment within this dimension by including a fictitious assessment task described below.

An example PA task

This example task is set within the context of the travel and tourism industry and has two components. This context is chosen because it is expected that this industry will be present in all countries, albeit their scale and sophistication may differ. Also, it is an industry where interactions and collaborations with clients and business partners via the internet are mandatory nearly everywhere in the world. The knowledge base for this industry is not generally present in school curricula but the context is sufficiently familiar to students in most parts of the world. Furthermore, as an industry that is truly global, many of the websites and internet-based services in this country are very similar around the world. These websites and internet-based services are thus less culturally bound than some other industries, making it easier for the development of assessment tasks and associated resources.

The first component is to be completed by students individually. The student's family (4 members) is planning for a summer vacation. There are different demands and interests posed by the different family members. Further, there are constraints on the budget and the vacation period for the family members. The student is asked to come up with 2 vacation plans for the family to decide.

The second component is to be completed by students working collaboratively online in groups of 3 – 4 members. The context is that the students belong to a team in a multinational company providing travel services. Students would receive an instruction from the manager to work with a small team of colleagues to write up a proposal to bid for a contract to organize a company annual staff convention for a large multinational corporation with offices around the world. The team has to work within tight time constraints to produce a proposal, a budget and a presentation to the client. In accomplishing the second task component, the task demand is similar to the first component but requires that the students can effectively communicate and collaborate with peers via electronic communication and to present information succinctly, clearly and attractively. Within the assessment setting, the students will be working with real peers who are also students participating with other students who are being assessed at the same time, but they would only be interacting with them via assigned identities and would not know who they were exactly collaborating with.

[2] Bennett, R.E; Jenkins, F; Persky, H. & A. Weiss (2003) 'Assessing Complex Problem Solving Performances'. In *Assessment in Education*, Vol. 10, No. 3, November 2003

(f). Targets and expected number of beneficiaries

The intended audience for this project includes all principals and teachers in primary and secondary schools as well as policy makers, curriculum developers, teacher educators, and members of various education-related committees and the wider education community in Hong Kong. The specific benefits are detailed as follows:

(g) Extent of teachers and principals' involvement in the project

The project will try to get teachers and principals' involvement in various ways:

1. SITES 2006 will setup a steering committee with principals and teachers as its members. Regular meetings would be held to monitor of the project. We have started the work of setting up steering committee for SITES 2006, following are the principals/teachers/government officers who have kindly agreed to become our steering committee members (there are still others waited to be confirmed):

• Mr. FUNG Ka Ching	Principal, S.K.H. St Michael's Primary School
• Mr. Thomas MAN	Vice Principal, Diocesan Girls' School
• Mr. NG Hok Ling	Dean of Academic affairs, Lutheran School for the Deaf
• Mr. SHE Mang	Principal Education Officer, EMB
• Mr. Paul SHUM	Vice Principal, Yan Ping Industrial & Commercial Association Lee Lim Ming College
• Mr. YAU Yat Heem	Principal, The Hong Kong Chinese Christian Churches Union Logos Academy
• Mr. YIP Chee Tim	Chairman, The Hong Kong Association for Computer Education

2. Teacher and school questionnaires would be sent to about 400 secondary schools. Apart from only surveying the international study target population, who are the Maths and Science teachers, the Hong Kong component would broaden the study population to also including humanities subject teachers.

3. Various methods will be used to increase the level of involvement of and benefits to members of the education community through this project. The specific benefits ensuing from the outcomes of this project are:

   (i) <u>For policy makers and curriculum developers</u>:
   - The data collected by SITES 2006 will be conducted in the midst of the Hong Kong second five-year IT implementation plan. This will provide continuous data for the HKSAR government to monitor and understand the state of ITEd implementation in HK.
   - The study is an international comparative study that compares the indicators of IT implementations of different countries. IEA studies are known for their rigor in sampling and research design. This comparative information would be extremely valuable in providing us with benchmark information on to what extent HK has implemented IT successfully.
   - The international survey component of SITES 2006 helps to develop measurable indicators on the extent and impact of IT in schools. These indicators would be valuable international comparative data in evaluating the effectiveness of government policies and providing suggestions on its improvement. The research data collected across different countries in SITES 2006 would provide internationally benchmarked indicators for the government to understand better how Hong Kong stand in relation to other countries and to fine-tune the implementation strategies accordingly.
   - The findings provide input to the process of continuous review and improvement in curriculum, in terms of goals, content and implementation

- The online student performance assessment international option in this research will introduce state-of-the-art methods of assessment that will be valuable to policy-makers in considering alternative methods of student assessment, particularly in the area of assessing ICT-related abilities.
- Results from the international online student performance assessment option will provide helpful information for understanding Hong Kong students' ability to use IT in complex problem solving in comparison to other countries.

(i) For school principals and teachers:
The deliverables and dissemination activities are tailored to help schools and teachers to identify the status of implementation in the use of ICT for teaching and learning against international and local benchmarks and pathways for further improvement based on the research findings. These include:

- a tailor-made report to EACH participating school, indicating its IT implementation status against international benchmarks which will help school leadership to understand the school's strengths and weaknesses against local and international benchmarks and to improve on policy and implementation strategies at the school level;
- seminars/workshops on findings from the international optional performance assessment of students' ability to use ICT for complex problem solving which will be open to all teachers and principals and will be helpful to them in learning about Hong Kong students' achievement profile as well as new alternative modes of assessment.

(h) implementation plan with time-line

The chart below shows the time and action plan of the project. As shown in the chart, the evaluation of previous work and the according adjustment of following work would be done at every stage by various means, for example, by (1) conducting pilot to test the validity and reliability of the research instruments or having research meeting with ICC. On top of these, regular steering committee meetings (with principals and teachers as its member) would be held for monitor the project progress).

Time	Action	Feedback loops for reflection and enhancement
		Regular Steering committee meetings for progress monitoring
Dec 04 – Apr 05	• Maintain communication to prepare for full participation	
May 05– Aug 05	• Formation of steering committee	
	• Meeting(s) with International Coordination Centre (ICC) to refine the design of the research methods and instruments	
	• Conduct Pre-pilot	
	• Translate instruments	
	• Design assessment questions	
Sept 05 - Dec 05	• Contact school teachers and principals for their information for random sampling	
	• Random Sampling	
	• Instrument preparation (Printings, printing of labels, logistic arrangement)	
	• Conduct Pilots (About 50 schools will be participated in the pilots; the participating schools will complete the principal questionnaires, technical questionnaires and teachers questionnaires for the projects. As for the teacher questionnaires, the Maths, Sciences and humanities teachers would be the study population)	
	• Analyze pilot data	
	• Meeting(s) with International Coordination Centre (ICC) to discuss pilot data and review research methodology and as a interim review of the research progress	
Jan 06 – Aug 06	• Refinement of instruments according to the pilot study	
	• Contact school teachers and principals for their information for random sampling (About 400 secondary schools will be participated in the pilots; the participating schools will complete the principal questionnaires, technical questionnaires and teachers questionnaires for the projects. As for the teacher questionnaires, the Maths, Sciences and humanities teachers would be the study population)	
	• Random Sampling	
	• Instrument preparation (Printings, printing of labels, logistic arrangement)	
	• Setting up online data collection platform (if the SITES community decides to collect data through online means)	
	• Conduct Main Study	
Sept 06 –Aug 07	• Main Study (SITES International)	
	• Meeting(s) with International Coordination Centre (ICC) to discuss data analysis, review of the research progress and dissemination plans	
	• Data cleaning and analysis of main study data	
	• Work with international study centre and other national coordinators of other countries in refining the data analyzing methodology and to conduct analysis on data at national, school and classroom level	
Sept 07 – Mar 09	• According to the analysis results of the international study, conducting further analysis particularly in relation to the effectiveness of IT implementation in Hong Kong.	
	• Work closely with EMB to explore meaningful and effective dissemination activities	
	• Compilation of report	
	• Presentation and dissemination of outcomes, organization of press release and seminars	

(i) expected deliverables and outcomes

The main products of the project include:

(1) an overall report of HK study and international findings

(2) ONE tailor-made report to EACH participating school, indicating its IT implementation status against international benchmarks.

(3) Seminars/workshops which report the findings of the pilot study of online performance assessment and provide suggestions regarding more effective assessment methods.

(4) Events for the dissemination the findings in formats that would cater for the interests and needs of different groups of stakeholders so as to make the best use of the research findings to improve the integration of IT in Hong Kong education

(j) budget with detailed breakdown; whether there are matching contributions or other sponsorship and if so, the details

Item	Sponsorship	Amount (HK$)
Staff Costs		
1 Project Manager for 40 months, 31625 pm* (First 12 months: $31625 x 12 = $379500 second 12 months: $33206 x 12 = $398472 third 12 months: $34867 x 12 = $418404 last 4 months: $36610 x 4 = $146440) • the assistant research officer would play the role of the project manager. The duties of this position include the project administration, ensuring research progress, contacting school and SITES ICC, data analysis, organizing dissemination activities and compiling report. • Qualifications: a master's degree or equivalent, with experience of research project management and good knowledge in sophisticated quantitative data analysis methods		1,342,816
1 Research Assistant II for 35 months, 11353 pm* First 12 months: $11353 x 12=$136236 second 12 months: $12037 x 12=$144444 third 11 months: $12781 x 11=$140591 • the research assistant II would be providing assistance in conducting the projects, for example, to conduct data collection, data entry, data cleaning, assisting the organization of dissemination activities • Qualifications: a bachelor's degree or equivalent		421,271
Services		
Web hosting and Maintenance • for project website, as a way in disseminating the details of the project to the public		8,800
Web design and media capture • for project website, as a way in disseminating the details of the project to the public		15,000
Helpers for technical support, data collection, data entry and dissemination activities (Hourly rate, about $42 per hour) • As this study involves the collection of questionnaires from over 400 secondary schools in Hong Kong, it can be anticipated a lot of part-time helpers on hourly rate basis will be needed for assisting the data collection and data entry. In addition, as it is possible that the project will be using online data collection method and also tentatively a performance assessment component for the project, helpers for technical support will be needed as well.		36,313
Application development for online resources of the project • This project will involve many tasks which may involve the extensive use of online technology, for example, online data collection and performance assessment. This item is budgeted for the cost of the corresponding application development		100,000
Computer Equipment & licenses		
2 set of desktop computer with software, printer and fax modem		12,000
A server with software and peripherals for the assessment platform		20,000
Analytical software and other computer software for processing data and website creation		18,000
General Expense		
International Participation Costs for main study (US$ 10000 per year, 4 years)	312,000 (From Microsoft)	
International Participation Costs for optional study (US$ 10000 per year, 2 years)		156,000
Attendance costs for 4 NRC meetings • ($7000 (airfare) + $ 5500 (hotel and expenses)) x 4 trips		50,000
General expenses for organizing surveys and dissemination activities, such as postage, printing of questionnaires, stationeries, photocopying		80,000
Contingency		5,500
		2,265,700

*Provision for an inflation rate of about 5% per annum is made for salary costs in this budget costing (MPF included)

Project Impact

(k) evaluation parameters and method

There are 2 broad aspects of quality assurance for this project:

(1) One important criteria for the quality of this research is whether it can meet all the stringent quality control criteria demanded by the ICC(International Coordination Centre), including the formation of the national/regional expert panel, the case selection and translation standard in order that the data from Hong Kong can be included for international comparison in the International Report. To allow the ICC to monitor and assure the quality of the research as it is conducted in participating countries, Hong Kong has to fulfill the following tasks demanded by ICC:

- To coordinate with the ICC on the design of research instruments and the online assessment platform for study.
- To attend the workshops held by ICC on both data collection and data analysis.
- To conduct pilot tests in which they try out data collection and analysis techniques and report on these to the ICC.

(2) To ensure the project relevancy to schools' and teachers' need, SITES 2006 will setup a steering committee with principals and teachers as its members. Regular meetings would be held to monitor of the project. We have started the work of setting up steering committee for SITES 2006, following are the principals/teachers/government officers who have kindly agreed to become our steering committee members (there are still others waited to be confirmed):

• Mr. FUNG Ka Ching	Principal, S.K.H. St Michael's Primary School
• Mr. Thomas MAN	Vice Principal, Diocesan Girls' School
• Mr. NG Hok Ling	Dean of Academic affairs, Lutheran School for the Deaf
• Mr. SHE Mang	Principal Education Officer, EMB
• Mr. Paul SHUM	Vice Principal, Yan Ping Industrial & Commercial Association Lee Lim Ming College
• Mr. YAU Yat Heem	Principal, The Hong Kong Chinese Christian Churches Union Logos Academy
• Mr. YIP Chee Tim	Chairman, The Hong Kong Association for Computer Education

(l) how the project would benefit the education sector as a whole

- The data collected by SITES 2006 will be conducted in the midst of the Hong Kong second five-year IT implementation plan. This will provide continuous data for the HKSAR government to monitor and understand the state of ITEd implementation in HK. Through surveys of principals, technology coordinators, teachers, and students, SITES 2006 will identify trends in the classroom use of IT since SITES M1. It will also examine the extent to which various IT policies and practices are being implemented in schools, the extent to which it is being used to change the curriculum, and how it is altering teacher pedagogical practices and student classroom activities.

- The study is an international comparative study that compares the indicators of IT implementations of different countries. IEA studies are known for their rigor in sampling and research design. This comparative information would be extremely valuable in providing us with benchmark information on to what extent HK has implemented IT successfully.

- The international survey component of SITES 2006 helps to develop measurable indicators on the extent and impact of IT in schools. These indicators would be valuable international comparative data in evaluating the effectiveness of government policies and providing suggestions on its improvement.

- The design and conduct of SITES 2006 in HK can be tailored in terms of sampling and instrumentation to provide information input to policy where feasible, while still ensuring that the design will be compatible and acceptable to the IEA. In order for this to be possible, close liaison with government officials from the very early stages of planning and design is necessary.

(m)how the outcomes of the project can be sustained beyond the completion of the project

The outcomes of the project provide insight for the following parties, which can sustain the project impact after the completion of the project:

(1) For policy makers:

- The international survey component of SITES 2006 helps to develop measurable indicators on the extent and impact of IT in schools. These indicators would be valuable international comparative data in evaluating the effectiveness of government policies and providing suggestions on its improvement. The research data collected across different countries in SITES 2006 would provide internationally benchmarked indicators for the government to understand better how Hong Kong stand in relation to other countries and to fine-tune the implementation strategies accordingly.

- The online student performance assessment will introduce state-of-the-art methods of assessment to policy makings in seeking more effective assessment methods in understanding students' ability in making use of IT in complex problem solving.

(2) For Hong Kong Schools:

- To sustain and enhance the project impact, ONE tailor-made report to EVERY participating school, indicating its IT implementation status against international benchmarks. Each report provides useful information to its respective school in evaluating the extent of IT integration in schools, which helps school leadership in fine-tuning and improvement of policy and implementation strategies at school level.

(n) dissemination/publicity methods

For applications on the theme 'Research on Assessment for Learning' from tertiary institutions, please see separate section in the Explanatory Notes (paragraphs 34 to 36) for the special/additional requirements.

With the steering committee which involves principals and teachers as its committee, SITES 2006 will strive for everyway to make the best use of the findings and to seek for various means to disseminate the research findings, including face-to-face events as well as online methods. The team will also develop relevant materials, on the basis of the research findings for schools and teachers. Following is a summary table of the project products and dissemination activities.

	Deliverables	Disseminating Format
1	an overall report of HK study and international findings	Publication
2	ONE tailor-made report to EVERY participating school, indicating its IT implementation status against international benchmarks	The report will be mailed/emailed to schools. Seminars will be held to help schools in the interpretation and use of the school information in the reports.
3	Seminars/workshops which report the findings of the pilot study of online performance assessment and provide suggestions regarding more effective assessment methods.	Face to face event(s)