A study on inquiry-based learning in a primary school through librarian-teacher partnerships

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1. Introduction

This case study investigates into the role of the school librarians and their collaboration with other subject teachers in guiding primary four (P4) students through inquiry-based learning (IBL) group projects. To maximize the learning supports that students can get from doing the projects, the researchers of this study promote a close partnership between the school librarian and three other kinds of teachers (General Studies, Chinese, and Information Technology / IT) who can contribute to P4 General Studies' group projects. The study tries to understand: (1). the effectiveness of the librarian-teacher partnership approach in helping students to learn from their project works, and (2). the issues and challenges encountered by students and teachers in the process of implementing such teaching and learning model.

2. Literature review

Harada and Yoshina (2004a, b) and Donham, Bishop, Kuhlthau and Oberg (2001) have shown the benefits for students to move from rote to inquiry learning. However, "the norm in many classrooms remains teaching practice that results in rote learning and regurgitated facts" (Harada and Yoshina, 2004b, p. 22). Harada and Yoshina might mainly be describing the situation in the U.S., but this is in fact a worldwide problem. Like many other parts of the world, rote learning is still the dominant way of teaching

and learning in Hong Kong primary schools. Harada and Yoshina (2004 a) and Kuhlthau (1994, 1997, 2003) have also revealed how school librarians and teachers can work together in guiding students' inquiry learning. Yet, no research can be found on the role of Hong Kong school librarians in this inquiry-based learning approach at the primary school level.

Schools in Hong Kong are undergoing lots of educational changes in recent years. For instance, local educators have started to introduce the inquiry-based learning approach in primary schools. The Hong Kong SAR Government's Education and Manpower Bureau puts inquiry-based learning as the first emphasis under the new General Studies curriculum for primary schools with objective of "creating more learning space by removing obsolete content, allowing more time for inquiry-based learning" (Education and Manpower Bureau, 2004). In the past, school libraries do not exist in many Hong Kong primary schools. But now, every primary school has a library staffed with a full-time school librarian due to a change in government's policy. Since primary school librarianship is a rather new development in Hong Kong, most primary school librarians are still exploring the role they play at schools. A search in several educational related databases (Eric, Web of Science, EBSCOhost, and ProQuest) showed that very few academic research have been published on school librarianship in Hong Kong.

In light of the above review, the research is also an attempt to study the effects of implementing an inquiry-based learning model through librarian-teacher partnerships on students' development in basic skills (e.g., information literacy, reading and writing) in a Hong Kong primary school.

3. Research design

Taking a case study approach, this research examines all P4 students of a local school. The instructional design involves two phases of inquiry-based project learning with lessons/tasks offered by four kinds of teachers. Eight dimensions of students' improvement were established for the project learning.

3.1 Sampling

The research investigates four classes of P4 students of about 30-40 students per class, with a total of around 140 students. Twenty-seven parents agreed to be interviewed via telephone; and the sample also include ten teachers (the library teacher, general studies teachers, Chinese teachers and the IT teacher) and the principal.

3.2 Instructional Design

Based on the models and guidelines created by Harada and Yoshina (2004a, b) and Kuhlthau (1994, 1997, 2003), the school librarian and teachers in this study worked together to guide P4 students in working on projects that involved information research

from printed sources and Web sources in a period of six months. Within this period, students were asked to do two projects in two phases. The first phase was from Nov 27, 2006 to Feb 9, 2007 (10 weeks, excluding the holidays). To synchronize the curriculum that the school has planned to cover for the period, students chose a topic under the theme "The Earth". Phase two carried another general theme "The History of Hong Kong and China" and it ran from late March 2007 to May 30, 2007 (9 weeks). Students were given much freedom to choose any topic to work on under the two general themes in both phases.

General Studies teachers

All four General Studies teachers spent two of their classes (one 50-minute and one 30-minute) every week to implement the inquiry based learning approach into the students' projects. These teachers would guide the students in their continual efforts on building an individual portfolio and a group portfolio for their projects. Both portfolios mainly contain information sources relevant to the students' projects. The General Studies teachers focused on the subject aspect and research process of the projects - whether students were asking appropriate questions for the projects, classifying information found sensibly, and selecting suitable materials to be included in their project presentation, which could be in the form of Power Point, drama or cartoon, etc.

The school librarian

The school librarian ensured that students would be well equipped with information literacy skills they need to search, locate, and use relevant information sources for the project. She also tried to provide access to a range of resources in a variety of formats like books, web-resources and newspapers clippings to meet diverse needs and interests. She also arranged for a "block loan" of 200 books for the project from the Hong Kong's Central Library. In both phases, a few library sessions (in collaborating with General Studies teachers) were offered to students to enhance their information literacy skills. This involves the use of the library, searching WiseNews (a news database), the Web, the school library catalogue and the public library catalogue.

Chinese teachers

The four P4 classes' Chinese teachers focused on the development of students' reading comprehension and writing ability. These teachers devoted seven classes (50-minute each) in seven weeks in phase 1 (and six in phase 2) on "drilling" students in their reading and writing ability. In both phases, an article related to the project theme would be given to the students and students would learn to underline the main points of the article and then write some remarks about it. To increase students' interest in the tasks in phase 2, six videos clips were shown to students before asking them to work on the articles which are closely related to the videos. Besides class work, students were asked to search and read three or more articles (or books) related to their research topics and wrote a weekly research journal (seven for phase 1 and six for phase 2) as homework.

The IT teacher

The IT teacher who is responsible for equipping students' with IT literacy skills was needed for the projects. The teacher spent a number of classes (30 minutes each) in each phase to teach students the use of a Chinese hand-writing device, Chinese inputting methods, Microsoft PowerPoint, the use of Microsoft Excel in plotting graphs, and other relevant IT skills.

Eight dimensions for students' improvement

Through working on the tasks assigned by different teachers and the school librarian, it was expected that students should improve in the eight dimensions described in Table 1.

Table 1. Eight dimensions for students' improvement.

1. ***Reading comprehension*** – students are supposed to search/read an abundance of materials for their projects during the Chinese and General Studies lessons. As a result, they should learn more vocabularies and attain a higher level of ability in reading comprehension after working on the two projects. This will be measured by a pre and a post reading test.
2. ***Writing Ability*** - students should also attain a higher level of writing ability through various writing tasks for their group projects. Students should write faster, longer and better (e.g., an increase in the use of vocabularies) by the end of the projects.
3. ***Information literacy*** – students' skills in searching for relevant information, locating, evaluating, and using sources should be sharpened because of the projects. Students should become familiar with a greater variety of sources, better in searching for relevant sources, and be able to locate the sources faster by the end of the projects.
4. ***IT skills*** – students should become familiar with the use of PowerPoint, writing pad for Chinese-input, and have good knowledge of Chinese inputting methods (e.g., 九方輸入法 and/or 簡易輸入法) and Excel.
5. ***Subject knowledge*** – students should gain a good understanding in the subject areas that they conduct their research. They should experience a growth in the vocabularies relating to their projects.
6. ***Social and communication skills*** – students should experience an increased ability in social skills such as sharing, listening, taking turns and assisting others through working with their group members in the projects.
7. ***Presentation skills*** – through preparing the PowerPoint file with texts, graphics, sounds, and/or videos for their projects, students should gain in their ability to present information in multimedia formats. They will also learn the skills of doing a formal presentation of their project findings.
8. ***Research skills*** – students will enhance their investigative skills and problem-solving capabilities through working on the two projects. For example, they should become more skilled in asking questions and better in organizing their ideas for the projects.

4. Findings and Discussion

This paper focuses its analysis on the data collected from all P4 students at the local school, who all participated into the study and totaled 141 of them, and 27 parents, 10 teachers, and the principal through surveying and interviews.

Table 2 shows the topics selected by the students for Phase 1 of their inquiry-based learning projects.

Table 2. The titles adopted by the students in Phase 1.

Title	Student*
1. Water	16
2. Air pollution	16
3. Water pollution – effects on daily life	7
4. Air pollution – Diseases	6
5. Air pollution – Lung	6
6. Global warming	6
7. Deforestation	6
8. Air	5
9. Concept of environmental protection	5
10. Plants	5
11. Animals	5
12. Wastage	4
13. Wastage treatment	2
Total:	89

*Only some of the students indicated their project titles

Table 3 presents the average scores assigned by students and parents on their views on various things (whether the project is enjoyable, whether the project helps a student improve in his/her reading ability) in regards of the inquiry-based projects.

Table 3. Comparison of parents' and students' responses on the inquiry-based project after the interview/survey.

Interview/Survey Questions	Parents	Students
1. Enjoyment of doing the project[a]	4.0	3.8
2. Level of difficulty of the project[b]	3.5	3.3
3. Parental support[c]	2.4	2.7
4. *Information Literacy*[c]	*3.7*	*3.6*
5. *Reading Interest*[c]	*3.1*	*3.5*
6. *Reading Ability*[c]	*3.3*	*3.5*
7. *Writing Ability*[c]	*3.2*	*3.5*
8. *Computer Literacy*[c]	*3.4*	*3.3*
9. *Knowledge of the research topic*[c]	*3.6*	*3.9*
10. *Communication skills*[c]	*3.4*	*3.7*
11. Overall support from the school[c]	3.7	3.7

Notes:
[a] The respondents were answering according to a scale of 1-5, with 1 as 'not enjoying' and 5 as 'enjoying very much';
[b] The respondents were answering according to a scale of 1-5, with 1 as 'very difficult' and 5 as 'very easy';
[c] The respondents were answering according to a scale of 1-5, with 1 as 'the lowest' and 5 as 'the highest'.

4.1 Enjoyment of doing the project

Table 3 shows that students on average finds it enjoyable (3.8 out of 5, with 5 as "very much so") to engage in accomplishing the inquiry-based project. And from the observation of the parents (4.0 out of 5), they even perceive their children as having a higher degree of enjoyment than the children actually exhibit in the interview. During the interviews, some parents shared with the researchers some interesting encounters with their kids while doing the project, for instance, a father (parent 8) helped in folding papers and drawings, going up the mountains to look for insects like ladybugs with his son as a way to explore the research topic which both he and his son enjoyed very much. There is also another mother (parent 26) saying that her son enjoyed so much so that he couldn't help using the PowerPoint to compile the presentation files till five o'clock in the morning.

4.2 Level of Difficulty

On average, the level of difficulty of the students' projects is appropriate as suggested by the students themselves (3.3 out of 5, with 5 as "very easy"). The major type of difficulties encountered by the students dealt with their information search which

they could finally solve. As commented by students of class1, "Sometimes we have found a lot of information but do not know how to evaluate or analyze them. Sometimes the information found is useless, while some are repeated.", "(At last), we would classify the information, read the search results carefully before selecting them, and discard those repeated ones." And the parents even found the project slightly easier than the students did (3.5 out of 5).

4.3 Parental Support

Both the parents (2.4 out of 5, with 5 as "a lot") and the students (2.7 out of 5) indicated that minimum parental support was offered to the students during the process of conducting the inquiry-based projects. For instance, parent 1 revealed that they "will only offer help upon request made by their children, and (for example) when the child couldn't find certain kind of information, the parent will teach the child to search online, e.g. yahoo, or on websites that were recommended by teachers." Slightly different is that the students perceive themselves as receiving more support from their parents than the latter think.
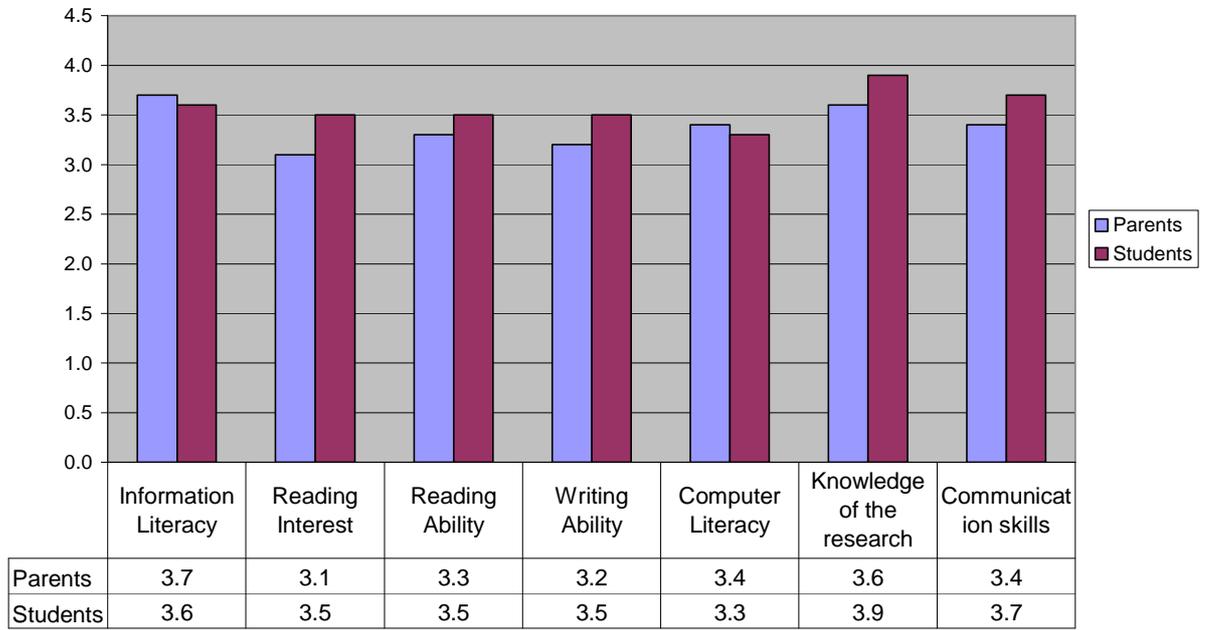
4.4 Improvement in various abilities

Chart 1 shows that students thought that they have gained the most improvement concerning their knowledge of the research topic and communication skills; whereas the parents thought their children have learnt the most in terms of information literacy skills and also knowledge of the research topic.

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[1] To protect the privacy of the respondents, the class titles have been changed.

Chart 1. Level of perceived improvement in 7 areas of students abilities

	Information Literacy	Reading Interest	Reading Ability	Writing Ability	Computer Literacy	Knowledge of the research	Communication skills
Parents	3.7	3.1	3.3	3.2	3.4	3.6	3.4
Students	3.6	3.5	3.5	3.5	3.3	3.9	3.7

4.4.1 Information Literacy

The consistently positive sets of data from the parents and the children (3.7 out of 5 for parents, and 3.6 out of 5 for students, with 5 indicating "the highest" improvement) indicated that the children have shown improvement in finding suitable information for their projects with greater ease and in higher speed. As commented by a student in class E, "Sometimes I do not enjoy having IT lessons, and I find the searching process very troublesome as it involves typing in searching words and printing out the search results. But now, with the use of WiseNews, I can easily retrieve information about my project topic." It differs slightly (0.1 point out of 5) as the parents perceived their children as having a higher increment of improvement on information literacy than the students thought so.

4.4.2 Reading Interest

While both data exhibits that the students became more interested in reading after doing the inquiry-based project, the parents (3.1 out of 5) expressed a lesser increment of the reading interest of their children than the children themselves did (3.5 out of 5). During an interview with the students, students in class F revealed that, "After we have finished our homework, during holidays and in our leisure time, we have since been to the library together to find and read books." A student in class E revealed that, "Normally I do not really enjoy reading, but after I started working on this project, I find the books interesting as they are relevant to my group project topic, and I just want to keep reading them."

4.4.3 Reading and Writing Abilities

The responses from the children are consistently positive on these two items (3.5 out of 5 for both items) which reflected their perceived improvement of their language proficiency in terms of reading faster and writing with a broader base of vocabularies. For instance, an interviewed student in class H responded that, "the books we read (for the project) have many new vocabularies. We know how to use some new vocabularies when working on compositions, and we do not have to rely on our parents to double check our homework for us." Besides, the practices of writing Chinese weekly research journal and also the in-class writing exercises every week also help train students' writing skills. As commented by a student in class E, "It (the journal) is getting easier as time goes on. And I used less and less time for writing it. Previously I have to use one hour for writing only couples of sentences, but now, since the teachers have taught us the way in writing the journals, I am able to finish the piece of work in about one hour." The positive responses from the parents (3.3 out of 5 for reading; and 3.2 out of 5 for writing) also endorsed the improvement of their children in these aspects only that it differs in their perceived extent of how much the students have improved. The parents perceived the students as having a lesser extent of improvement than the students did.

4.4.4 Computer Literacy

Chart 1 suggests that the students have achieved much in terms of their computer literacy skills (3.4 out of 5 for parents; and 3.3 out of 5 for students). Yet, this is the

ability which the students perceived themselves having the greatest room for improvement as compared to the other six kinds. This may have been due to the limited time allocated to IT training for the students at school since the normal IT lessons only occupy 30 minutes per week. And of the IT skills that the students are expected to master by the end of Phase 1, (refer to Table 1) Chinese word-processing skills are the one set of skills that the students had showed relatively little improvement, according to both the parents and students themselves. For instance, a class F student said that, "(we're not really familiar (with Chinese input). Sometimes we cannot type the (Chinese) word." Normally, it takes longer time for one to master the skills of Chinese word-processing. Therefore the respondents' lower rating on computer literacy was understandable. Nevertheless, some students did demonstrate much improvement regarding the use of Chinese inputting methods and PowerPoint.

4.4.5 Knowledge of the Research Topic

This is the ability in which the students perceived themselves as having the greatest improvement (3.9 out of 5). During the interview, the students were eager to show to the interviewers what they have learnt from doing the project. For instance, a class E student doing the project with the topic of "Water Conservation" said that, "Sometimes we do not know how to treasure the use of water, but now we are able to know more about it, say, we can use the water for watering plants after rinsing rice."

4.4.6 Communication skill

This is the aspect of which the parents and the students exhibited some degree of difference (3.4 out of 5 for parents; and 3.7 out of 5 for students). During the interview, the students in class F expressed that inquiry-based learning offers more chance for them to communicate with their counterparts at school, "For this learning project we would discuss as a group during lessons. However, for normal lessons we would not discuss as a group, but rather, as a class…And we've improved our speaking ability because we communicate a lot with our group members while working on the project." While the students thought that they have mastered better communication skills through doing the projects, some parents were not sure about it when they were being asked during the interview. After all, it was difficult for the parents to observe the interaction between the students as they did most of the discussions at school.

Overall speaking, Chart 1 suggests that the students thought they achieved a greater extent of improvement in all aspects concerned (except for information literacy and computer literacy) than their parents thought so.

4.5 Support from school

Students were surveyed (see Appendix 2) on their perceived helpfulness of the assignments/ teaching/ guidance given by the teachers in General Studies/ Chinese studies/ IT and the school librarian in equipping them to do the inquiry based learning project, in improving their ability in reading comprehension, writing, information literacy, and IT skills.

Support from four kinds of teachers

Table 4 shows that students on average found the various kinds of assignments, teaching, and guidance from the four kinds of teachers helpful in equipping them for the inquiry learning project, and in improving their reading and writing abilities, and in sharpening their information literacy, and IT skills.

Table 4. Helpfulness of various kinds of assignments, teaching, and guidance

Questions	Students' average rating*
1. Helpfulness of General Studies assignments	3.6
2. Helpfulness of Chinese Studies assignments – reading skills	3.7
3. Helpfulness of Chinese Studies assignments – writing skills	3.7
4. Helpfulness of teaching/guidance from school librarian	3.6
5. Helpfulness of teaching/guidance from IT teacher	3.5

Notes: *The respondents were answering according to a scale of 1-5, with 1 as 'not at all' and 5 as 'very much so'.

Students' perceived helpfulness from the four kinds of teachers was very similar to one another with a little bit lower rating given to the helpfulness of the teaching/guidance from the IT teacher in equipping them with IT skills (e.g., keyboarding, the use of PowerPoint) needed for the project. As explained earlier that students only received 30 minutes of instruction from the IT teacher a week and so it is understandable why the perceived helpfulness from the IT instructions was marginally lower.

Overall support from the school

Table 3 shows that while both the parents and the students (3.7 out of 5 for both parents and students, with 5 being "the highest") agreed that the school has offered an appropriate amount of help throughout the completion of the project, some parents did offer their opinion on what the school could further do in order to facilitate the learning of the students. For examples, parent 14 remarked that "it would be better if the school can provide a venue for them to do the project, e.g. library – better than going to other students' homes only – may be difficult to match all of the groupmates' availabilities."

And parent 1 commented that, "more in-depth explanation on the topic is preferred because student couldn't find out the relevant information at the beginning."

4. 6 Parents' opinion on whether to have the Inquiry-based Learning (IBL) again

All the interviewed parents revealed their positive support to having the inquiry-based learning again for their children in the future and the reasons for their support are summarized in Table 5.

Table 5. Parents' opinion on whether to have the IBL again.

Reasons	Number of parents
1. Acquire knowledge outside textbooks	12
2. Interactive and relax learning method	5
3. Improve students' communication skills	5
4. Improve students' sense of responsibility	5
5. Think independently	5
6. Improve Chinese	3
7. Increase learning interest	2
8. Good for students	2
9. Improve their writing skills	1
10. Improve computer skills	1
11. Students become more confident	1

Among the various points mentioned above, most of the parents supported having the IBL for their children again because they thought this mode of learning enables the children to acquire knowledge outside textbook. The parents also made remarks about the effects that were brought to their children through doing the project, which were also encouraging. For instance, as reported by parent 14, there was an 'increase in child's confidence (because of the) positive feedback from teachers (which are really) great encouragement (to the kids)."

There were some parents who commented that the inquiry-based learning helps facilitate the all-round growth of the kids in various aspects. For example, parent 1 thought that "the child becomes more active, independent and knows how to take care of others. These will all help the personal growth of the child in the long run." And "through doing the project, the child becomes more active and responsible about their learning. Children also learn how to communicate with each other and discuss the project together which make them less subjective and more tolerant." Parent 2 even attributed the positive change of her daughter to the doing of the project, "The child was relatively slothful before, but she becomes more scrupulous and respectful about school work after doing this project now. The child did the project with ease and joy and she would share her experiences of visiting the elderly and museum with parents."

4.7 School librarian's role

Table 6 shows the kinds of tasks done by the librarian for the projects.

Table 6. Actual Contribution of the school librarian.
1. held discussions with the concerned subject teachers regarding the whole process of inquiry based learning and the coverage of time of the project;
2. decided what she had to teach the students before they can work on the project after considering the base of knowledge of the target students, like understanding what they have learnt before;
3. provided relevant resources, by borrowing books from the public library and searching relevant information on the Internet, collecting relevant newspaper clips;
4. prepared two worksheets; one for General Studies and one for the library class. The one for General Studies was like a guideline for the teachers of the four classes;
5. gave lectures during the joint-class lessons, teaching the students how to work on the project;
6. facilitated the provision and availability of the school library as a place for information search and group discussions.
7. created a webpage containing hyperlinks linking to various information relevant to the topic on which students were doing

The librarian believed that her role in regard of the students' doing of the project "is to provide the relevant knowledge, like how to work out the process of inquiry based learning. It is also my role to provide technical support, by teaching students how to find resources through various pathways. Also, it is my role to provide some resources for students, including books, newspapers, magazines and websites."

5. Conclusion

The above study showed that the librarian-teacher partnership in guiding students through the inquiry-based learning project to be an effective way in promoting the learning qualities of the students in various aspects. It was found that students enjoyed doing the project and did not find it difficult. Most importantly, they have made notable improvement regarding the seven abilities mentioned above. The Education and Manpower Bureau (EMB) specifies three goals for primary 4 students related to inquiry-based learning: (1). students will conduct hands-on and minds-on inquiry with an open mind, (2). connect what they have learnt in school to daily life through project learning and develop basic knowledge, and (3). investigative skills and problem-solving capabilities in science and technology. It can be concluded that the inquiry-based learning case in question has fulfilled the many of the goals laid down by the EMB.

6. Acknowledgements

7. Appendices

Appendix 1

A research on an implementation of the inquiry learning approach into Canossa Primary School's P4 General Studies' projects

<u>Telephone Interview for Parents of P4 students</u>

<u>Background</u>
- The inquiry learning project is offered through the General Studies course. To maximize the support that your child can obtain, we bring in the school librarian and teachers in Chinese and IT as well.

- In this project, the GS teacher will focus on guiding students to do the research while the Chinese teacher will train students in reading and writing abilities. The school librarian and IT teacher will equip students with information literacy and IT skills needed.

- As you may have noted, your child needs to find 3 or more articles / books every week for this project and use them to write a research journal.

<u>Questions:</u>

1. How much do you think your child enjoy doing the inquiry project?

Not at all				Very much so
1	2	3	4	5

2. From your perspective, how difficult did your child find the inquiry learning project?

Very difficult				Very easy
1	2	3	4	5

If your child did encounter difficulties, how did he/she manage to overcome them?

3. How much help did you offer your child when he/she was doing the project?

None				A lot
1	2	3	4	5

If any, what kind of help did you offer?

4. Does the project help your child improve in the following aspects?

Aspect	None				A lot
	1	2	3	4	5
Ability in finding information (e.g., can find relevant articles/books more easily)					
Interest in reading (e.g., read more books/articles)					
Reading ability (e.g., read faster, can identify the main points of articles more quickly)					
Writing ability (e.g., can write with a wider base of vocabularies)					
Computer related skills (e.g. PowerPoint, Chinese word processing)					
Knowledge about the research topic					

Improvement in other aspect(s) as a result of working on the project:

5. Do you find the overall support from school sufficient in equipping your kid with the knowledge and skills to tackle the project? (e.g., the talk on inquiry-based learning for parents, broad loan from public library)

Not at all				Very much so
1	2	3	4	5

Comments?

6. Do you think that it is advisable for the school to keep organizing inquiry-based learning project/activity(s) for the students in the future?

Yes / No

Why or why not?

Appendix 2[2]

Inquiry based learning at Canossa: questionnaire for all P4 students

Class: _____

Name: _____

Please answer the following questions based on your experiences from Phase I of the project.

1. What topic is your group working on for the inquiry learning project?
   _____

2. Do you enjoy working on the inquiry learning project?

Not at all				Very much so
1	2	3	4	5

3. How difficult did you find the inquiry learning project?

Very difficult				Very easy
1	2	3	4	5

4. How helpful do you find the assignments from General Studies in equipping you to do the inquiry based learning project?

Not at all				Very much so
1	2	3	4	5

5. Do you find the in-class assignments from Chinese Studies helpful in improving your ability in reading comprehension?

Not at all				Very much so
1	2	3	4	5

6. Do you find the in-class assignments and the weekly research journals from Chinese Studies helpful in improving your writing skills?

Not at all				Very much so
1	2	3	4	5

7. How helpful do you find the teaching/guidance from the school librarian in equipping you with information literacy skills needed to find and evaluate relevant sources for your project?

Not at all				Very much so
1	2	3	4	5

8. How helpful do you find the teaching/guidance from the IT teacher in equipping you with IT skills (keyboarding, the use of PowerPoint, etc.) you need for your project?

Not at all				Very much so
1	2	3	4	5

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[2] Some parts of the questionnaire not related to this paper are omitted.

9. Do you find the overall support from school sufficient in equipping you with the knowledge and skills to tackle the project? (e.g., broad loan from public library and the joint class activities regarding this project)

Not at all				Very much so
1	2	3	4	5

10. How much help did your parents offer when you were working on your project?

None				A lot
1	2	3	4	5

11. Does the project help you improve in the following aspects?

Aspect	None				A lot
	1	2	3	4	5
Ability in finding information (e.g., can find relevant articles/books more easily)					
Interest in reading (e.g., read more books/articles)					
Reading ability (e.g., read faster, can identify the main points in articles more quickly)					
Writing ability (e.g., can write with a wider base of vocabularies)					
Computer related skills (e.g. PowerPoint, Chinese word processing)					
Knowledge about the research topic					
Communication skills with other students					
Presentation skills (Verbal)					
Research skills (e.g. ability to ask questions)					

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