

Research on Teacher-Librarian's ICT Education Skills using Pathfinder

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Abstract: In this paper, we studied the correlation between the teacher-librarian's ICT literacy, pathfinder and ICT skills. Pathfinders were marked and ICT skills were learned through questionnaire. The object of the study was to learn the correlation between teachers, those who make a good pathfinder, and those who can evaluate and make good use of ICT as adequate teaching materials in a classroom. It is naturally expected for them to get high marks. Information morals were related to class development. Various data (including the pathfinder) of the teacher capable of properly using and managing spreadsheets is easy to share with other teachers.

Keywords: Teacher-librarian, ICT literacy, Pathfinder

1. Introduction

The aim of this study is to learn about the factor on teacher-librarian ICT literacy. This article covers the overlapping areas of the school library and ICT education.

Most of the school libraries in Japan are NOT a Media Center. First, only 77% of all public school teachers were found to have ICT instruction capabilities [5]. Second, only 7% (elementary school)-10% (junior high and high school) of teacher librarians can instruct about information retrieval via the Internet or CD-ROM, and only 2% (elementary and junior high school) - 6% (high school) of them administrate computer and LAN in each school [11].

1.1 School Library and Teacher-Librarian

Pathfinder is used in many academic libraries in the field of Library and Information Science. This helps library users in their initial research needs by making them aware of the various resources available to them and how they can be used. It contains sources on information for librarians to strive and facilitate. Although pathfinders have traditionally existed as paper handouts, they are becoming increasingly popular in electronic form as so with most library websites, that provide advice on how to find information online [1].

For the teacher-librarian to become a pivot of the school there is need to coordinate education on libraries and information. Government guidelines to teach in Japan describes that a school library plays the role of an information center related to education and learning (at school), and a teacher-librarian helps introduce computers into teaching [2]. Shioya et.al [3] pointed out the connection of library and information education. However, now in Japan, most of teacher-librarian have not to do with on fulltime for library but have different roles; a classroom in charge.

1.2 IT Strategies in Japanese Government –ICT in Classroom-

The IT Strategic Headquarters of the Prime Minister of Japan [4] and his Cabinet proposed the following items as “New IT Reform Strategies” for ICT education. The movement, proposed by FY2010 focuses on “Improving IT facilities for all teachers and raising the level of academic skills for all students with IT” and “Prosperous living throughout life”. The specific highlights included:

- Improvement of IT abilities by teachers using a system evaluating a teacher's IT ability.
- Providing learning opportunities using IT backed by the goal for it to be designed for the student wanting to learn.
- Actively implement computers in various public facilities. These include libraries, etc. for public use of IT to support educational activities. Personnel shall also be assigned to those facilities to support educational activities using IT.

According to a survey conducted by MEXT Japan [5], it was found that 89% of public schools were connected to broadband network in September 2006, with 59% having LAN access in the classroom. Further, 77% of all public school teachers were found to have ICT instruction capabilities, with 97% having ICT operation skills. According to the study by the Japan Society for Educational Technology, many teachers expected that ICT

application in a class lead to better scholastic results in their students. Simply put, a teacher's ICT instruction capability was proportional to the scholastic ability of their students. This study also mentioned that teacher learned about the qualities of ICT in the classroom, only after they were capable of putting it to practice [6].

This study is a research about the relationship between teacher-librarian's ICT literacy, pathfinder and ICT skills.

2. Method

In Japan, Teaching plans are always conventionally used at teaching in class lessons or training out of classroom. It consists of some blocks, today's aims, arrangements, and assessments etc. in a lesson. Inspired from this, the method is constructed as follows.

Participants

A total of 60 persons participated of this study in the teacher-librarian course at a University. All were accustomed to using the PC, word processing software (MS Word, etc.) and search engines on the Internet, like Google and Yahoo!

Procedure

Firstly, participants were asked to answer the inquiries. Questions were on ICT readiness, which was the same as the inquiry for the research [7], and instruction capabilities with ICT, which was the same as MEXT [5]. The new checklist by MEXT [8] was not used since it was released after our study. Both feature a 5-point scale.

Secondly, participants created a pathfinder for about 80 minutes without any designation on subject or course. They were allowed to make pathfinders for their best subject or course. However, they were restricted in making any pathfinder banks [9]. With Word or Notepad, it can be called electronic pathfinders. The volume was designated as between 1 to 4 pages. Examples are shown below (shrunk from A4 size).

Thirdly, three teachers who were both ICT and school library expert marked the pathfinders, according to latest study [10], from four points of view: flow of guidance, necessary in a form set, appropriate class development, and teaching people in class. This was also graded according to a 5-point scale. The next chapter shows that there was a correlation between inquiries and marks.

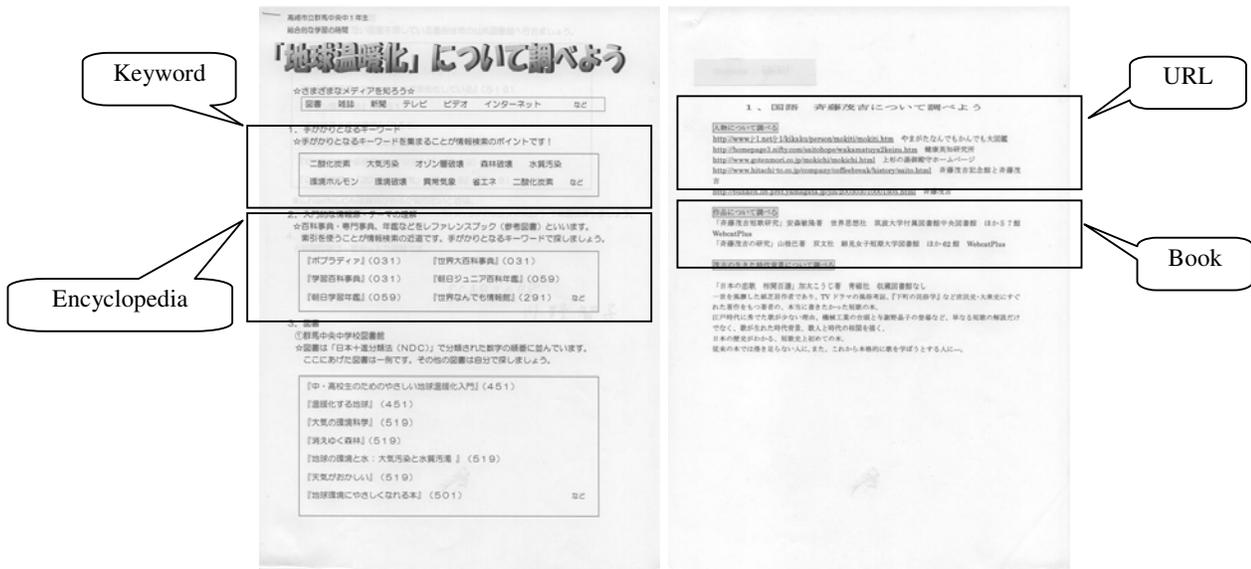


Figure 1: Example of pathfinder

3. Results

This section describes items statistically showing strong correlation between inquiries and marks. The following correlational coefficient has a statistical significance of about $p < .05$.

3.1 Items about ICT, Logically Application and Logic -Important Results-

As mentioned above, a school library plays the role of an information center related to education and learning (at school), and a teacher-librarian helps introduce computers into teaching [2]. He/she must have ICT skills; web-page, application, and lessons with ICT. This section deals with Web (HTML) and a spreadsheet.

Inquiry: You can make and change your webpage or your school's webpage.
Mark: Necessary in form set 0.267 (p=.040)

An HTML source is structured and so is a teaching plan [10]. Teachers capable of creating and managing a web page will be better at creating a well-structured teaching plan. An HTML is based on logic. Thus, this is an area that should be considered for the next discussion.

However, we must note that the marks to change a webpage are much less than those to use a spreadsheet. For the inquiry "You can make or change your webpage or your school's webpage" the average was 2.000. For the inquiry "You can use a spreadsheet to add (total using calculation function)" the average was 3.283. The standard deviation was 1% (t =7.209).

Inquiry: You can use a spreadsheet to add (total using calculation function).
Mark: Teaching people in class with this 0.294(p=.023)

This result agrees with a past research [13], which dealt with junior college students. A spreadsheet user also will also have to be "logical". This will be similar to "structured" or "logical thinking". Both teachers of ICT and the school library expert (described as evaluators in the previous section) indicated that most teachers could not use the spreadsheet. Thus, they are not good at "structure" or "logical thinking" skills when using the computer. This relates to how data is efficiently arranged. It is easy to share data (including teaching plan) of teachers who can use and manage the spreadsheet, with other teachers.

However, as mentioned above, we considered frequency with an applications, word-processor, spreadsheet, webpage software. Teachers were found to be better with the word processor than spreadsheet in following two inquiries. Inquiry "You can use word processing software (write text, print, save)" saw an average of 4.517 and "You can use a spreadsheet to add (total that used the calculation function)" found the average to be 3.283. The standard deviation was 1% (t =8.725).

Pathfinder evaluators also highlighted that teachers had to be trained for practical use in reducing data using a spreadsheet or webpage, and improving ICT skills, so they become better pathfinder and gain better ICT instruction potential.

3.2 About Information Morals

This section deals with information morals. Teacher must understand information literacy or protection of individual privacy.

Inquiry: You think you can send an e-mail to someone without getting permission from the original sender. (Reverse Item)
Mark: Appropriate way of class development -0.287 (p=.026). Teaching people in class with this -0.279 (p=.055).

Inquiry: You would like to define regulations to supervise and regulation undesirable information on the Internet.
Mark: Expression of guidance flow 0.251 (p=.053). Appropriate way of class development 0.246 (p=.058).

Both inquiries are information morals. Teacher with better understanding on information morals tended to have good influence on the student's information morals. Thus, there is a need for teachers to have good information morals, since that will have positive effect on ICT instruction performance. CEC reported [12] the following two matters. 1. Students tended to study information morals in schools that provided guidance on information morals in their guidance plan and taught it beforehand. 2. Guidance on information morals tended to be effective in training children to learn information morals.

3.3 General Items about ICT

See below inquiries and marks, teachers, who make good pathfinders, can adequately evaluate and make good use of ICT as a teaching material in a class. It is naturally expected for them to get high marks.

Inquiry: When using a computer, you can be thinking about whether study and work can efficiently be possible.
Mark: Necessary in a form set 0.282 (p=.029). The appropriate way of class development 0.400 (p<.01). Teaching people in a class with this is 0.496 (p<.01).

Inquiry: You want to positively use a computer to make things in life more convenient.
Mark: Teaching people in class with this 0.256(p=.048)

Inquiry: You will know how to effective use a computer and seek for a fruitful life.
Mark: Expression of a flow of guidance 0.254(p=.0499)

Inquiry: You want to learn what you can on the Internet.
Mark: Teaching people in class with this 0.250(p=.053).

That is to say, the teacher eager to use ICT in various situations makes good Pathfinder.

4. Conclusion

The purpose of this study was to learn about the teacher-librarian's ICT literacy. The study took place in both school library and ICT education. As a result, webpage and spreadsheet skills were proved to be very useful for constructing a pathfinder, and related to logical and structured thinking in using the computer. A good pathfinder tended to maintain a positive attitude toward the computer, internet and information morals. The relationship between ICT readiness and instruction capabilities with ICT became apparent.

Future studies will share information on the new checklist by MEXT [8], which is about the causal relationship between an inquiry and the marks. Then we will study the instruction skills with the pathfinder. Then the results will be applied in developing new training programs for ICT instruction.

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