Construction of Web Communication System to Support Young Teachers' Training

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Abstract: There numerous small-scale public schools, including on remote islands and in other locations, in Kagoshima, Japan. Therefore, we suggest a method of mentoring between young teachers via the Internet because it is difficult for persons to meet in many of these areas. We added three functions to the existing portfolio system and constructed a web communication system that young elementary and junior high school teachers can use for support and to share ideas with each other on the Internet. The teachers used two systems, the comment column and the bulletin board, for different purposes. However, there was considerable variation in the use of the system. Moreover, to improve the use situation, we found that it was necessary to make the system compatible with a mobile phone, making it possible to exchange opinions, and study the applicable scope of communication on the Internet.

Keywords: Communication, Internet, system development, young teachers' training

1. Introduction

1.1 Background

It is necessary to improve the qualifications and the quality of teachers generally in Japan. It has been suggested that there should be a plan for helping a teacher continue to develop throughout the entirety of her/his professional life as part of the second basic plan for the promotion of education by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), 2013. It has been suggested that on-the-job training should be structured through cooperation and collaboration among metropolitan and district boards of education as well as universities because this approach can lead to greater enhancement and advancement of on-the-job training, including young teachers' training.

We have constructed an "assessment system to visualize a teacher's formative process and achievement" and attempted to unify "teacher training and training function through the graduate's follow-up survey." This is because we must respond to social needs which are training of teachers in advanced practical skills and conforming to the image of the teacher in society, among students, graduates, and faculty members. In a study on the "construction and use of the education system which contribute to the formation of the professional ability of the teacher" 2010–2012, we discussed the skills required for a teacher, which consisted of nineteen items in five categories, and developed a system to show a teacher's ability visually and an assessment that aims at enhancing and deepening teaching skills of students in a teacher training course that is recorded in a portfolio. This approach is based on a portfolio, the purpose of which is to support a teacher after graduation, and which is used as a tool to help young teachers understand how they can develop professional abilities and to support their reflection (Faculty of Education, Kagoshima University, 2013).

However, there are many small-scale public schools, including on remote islands and in other locations in Kagoshima, where it is difficult for teachers to obtain such support: it is 43.4% of all elementary schools; it is 40.6% of all junior high schools. The national average is 19.5 teachers per school in elementary schools and 23.7 teachers per school in junior high schools, but in Kagoshima there are a relatively small number of teachers per school: 13.1 teachers per school in elementary

schools and 17.8 teachers per school in junior high schools (MEXT, 2012). Recently, schools have conducted collaborative meetings, but there has been little discussion related to communication between co-workers who are young and inexperienced and their seniors. Therefore, it is difficult for teachers to discuss difficulties they face in teaching and to support each other.

1.2 Purpose of This Study

To address the above issue, we constructed a web communication system for young elementary and junior high school teachers using an existing portfolio system in cooperation with the board of education in Kagoshima. The system enhances mentoring by enabling young, senior, and similar young teachers, who are not mentors, to form a relationship (Rhodes, Stokes, & Hampton, 2004). There is a case in which a mid-level leader and a similar age group as well as an instructor mentored young teachers during their training in Japan (Shimada, 2012). However, it is difficult for teachers to meet in many areas on remote islands and other locations. Therefore, we suggest mentoring between young and similar young teachers through the Internet.

Therefore, the purpose of this study is to extend the functions of the existing portfolio system and construct a web communication system that young elementary and junior high school teachers can use to support each other and share ideas on the Internet.

2. Extension of Functions for the Existing System

The existing system is a self-support web tool that a teacher may use to evaluate her/his self-growth and reflect on whether s/he has to improve certain abilities to improve her/his teaching skills. Each teacher has a user ID, a password, and a portfolio. S/he makes a record by the next flow every year.
    i. S/he records goals (skills, abilities) for the year in April.
   ii. S/he makes a record of her/his teaching (such as school affairs, workshops, and lessons).
  iii. S/he evaluates her/his skills as a teacher and reflects on the year in March.
  iv. S/he submits topics for consultation in the comment column as needed. A university instructor confirms and replies to the topics in the comment column, and in this way the teacher can receive advice from an experienced university instructor.

The existing system was tailored to an individual, but we thought that it might be reworked to promote communication between young teachers by providing materials for sharing information and exchanging opinions. In particular, the following utilization and effects are expected.
- Young teachers utilize a web communication system to conduct a thorough investigation of each training problem through collaborating and exchanging information with each other.
- Young teachers who have similar professional teaching experience and are work at neighboring locations can discuss and perform mentoring on the Internet by sharing daily training problems and studying the problems together for a year.
- When they meet face to face, teachers can plan solutions to problems immediately because they have communicated about and shared topics through the Internet on a continuing basis.
- Teachers are able to receive a variety of advice and support from inspectors or school managers by becoming a member of the web communication system.

To realize the system described above, it must be possible for teachers to communicate through text, voice, and movies in a developed system. Therefore, through the extensions of function in this study, we implement communication functions based on the existing system to allow teachers to give advice and exchange opinions on the Internet.

2.1 Submitting Comments between Teachers

The existing system focused on a teacher's self-evaluation of her/his skills, and did not have a function for the viewing of other teachers' portfolios. Thus, it was difficult for a teacher to obtain advice and exchange opinions with other teachers by using the portfolio. Therefore, we implemented a comment submitting function for use between teachers. Moreover, we made it possible for a teacher, a school manager, an inspector, and a university instructor to view a portfolio, give advice, as well as exchange

opinions mutually. However, only the members who have access privileges to the portfolio through the access control, described below, can view and submit comments to the portfolio.

In particular, when a teacher submits a comment, "comment content," a "contributor name," and a "submission date and time," these are shown in the comment column of her/his portfolio. At the same time, the other teachers are notified of the comment through e-mail, that they can access the portfolio. Thus, we hope to reduce the work involved in the teacher's checking her/his portfolio frequently.

2.2 Access Control

The existing system is a self-support web tool that a teacher can use to evaluate her/his own growth. We can imagine that there might be teachers who do not wish for anyone to view their portfolio easily. However, there might be teachers who would like to receive instructions and advice based on their portfolios from an authorized inspector or university instructor to achieve their goals during the year.

Therefore, we devised the system so that the teacher who is the owner of the portfolio can control the access privileges for her/his portfolio every year (Figure 1). For example, when s/he had a problem in 2013 with "student instruction," s/he could show the portfolio to other teachers who had the same problem, her/his own school manager, a university instructor, and an inspector who specializes in student instruction, and discuss her/his accomplishments and solution to the problem by receiving advice and exchanging opinions with the other individuals. In the setting window, a box is divided into two columns, and user names are listed according to access or no access. In other words, all the user names whose portfolios cannot be accessed are listed in the right-hand column, and the user names whose portfolios can be accessed are in the left-hand column. The user names in each box can be moved by using the "Add" or "Cancel" button.
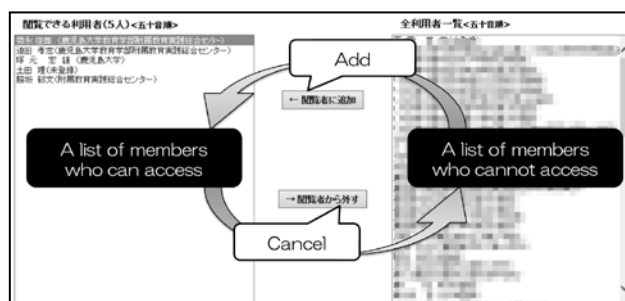

Figure 1. Access control screen

2.3 Submission Classification Select in Bulletin Board

The comment column for each portfolio is intended mainly for one-to-one communication between teachers. However, in this study, we aim at facilitating mentoring by a number of teachers. It is therefore necessary to establish a virtual space for discussion in which a number of teachers can give advice and not just discuss one-to-one. When teachers talk about problems based on a text, it is necessary for a viewer to understand easily "what kind of answer a consultant finds."

Therefore, we implemented a bulletin board system and a function by which a contributor can select what kind of answer s/he is looking for at the time of a submission (Figure 2). For example, we made it possible to choose from a selection of answers that are prepared beforehand, such as the contributor needs "counseling," "a document," "a practice example," "advice," "a tweet," and "others." In this way, we expect that both the sides—the viewer and the contributor—can discuss and respond smoothly.

Figure 2. New submission on bulletin board

In this bulletin board system, we implemented a function for attaching a file. The kinds of files that the teachers can attach are a Microsoft Office file, a PDF (Portable Document Format), a picture, and movies. Since teachers can attach pictures and movies, they can share, for example, part of their actual class, a review class, or a discussion between teachers. However, the upper limit of the file size that can be attached is 20MB because the disk space of the server is limited.
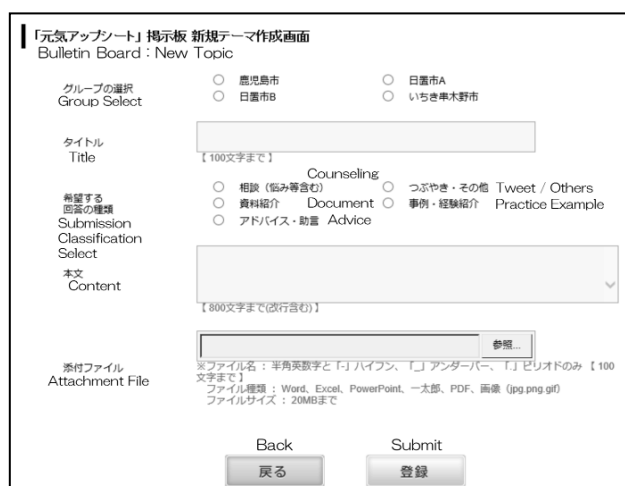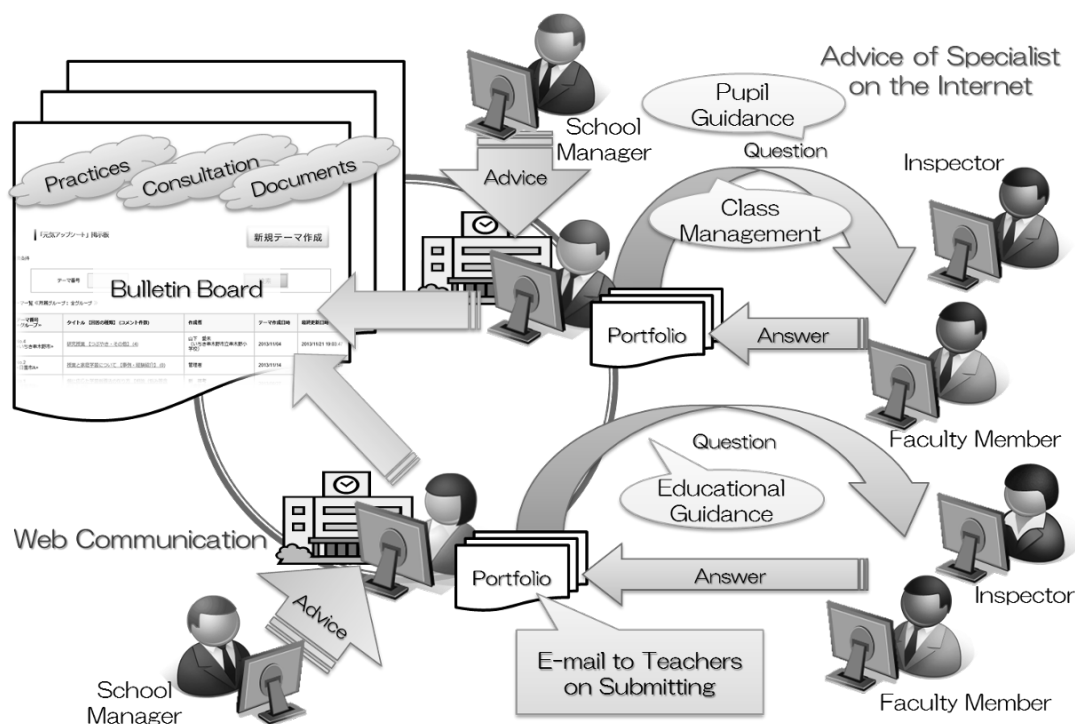
Figure 3. Utilization example of comment column and bulletin board in web communication system

3. Evaluation

3.1 Research Method

This web communication system, which included the extensions discussed in the previous chapter, was implemented at August 2013 (Figure 3). We undertook a questionnaire survey for 17 teachers to evaluate this system in December. The survey items were as follows, and teachers used free description:

Q1. Did you use the web communication system after September? Why?
Q2. When did you use the bulletin board? When did you like to use it?
Q3. When did you use the comment column? When did you like to use it?
Q4. What do you think of the positive and negative aspects of exchanging opinions between teachers through the web communication system?
Q5. Do you have any question about the use of the web communication system?

3.2 Result

3.2.1 Utilization Situation

Six teachers answered "Yes" in Q1. In addition, two teachers answered "a little" instead of answering "Yes." The reasons for responding "Yes" included "I thanked for teachers to visit my lesson," "I could receive advices." The reasons for answering "No" included "work and events were given priority," "I did not feel the need to use it because I asked for advice directly from the same school teacher."

3.2.2 Method for Utilization of Bulletin Board

There are frequent answers about ideas for lessons and class management in Q2, for example, "I asked about an idea for planning a class," "I got advice when I prepared a teaching plan," "I wanted to ask the opinions of teachers in other areas or at other schools when I planned class management and lessons," "I got information about class management and learning instructions." In addition, we found that teachers were positive about the possibility of using the bulletin board, for example, "I would like to use it as an

opportunity to cooperate actively between elementary schools and junior high schools," "I would like to watch open classes and exchange opinions between teachers."

However, unlike with the comment column, the bulletin board is not a system whereby a notice reaches other members when a member submits a message on the board. Therefore, it is a problem with the system that teachers cannot receive a response in a short amount of time when they would like to obtain advice. For example, we received the response "I would like to get a reply as soon as possible when I'm in trouble." In addition, we found that teachers were anxious about submitting a comment on the Internet to teachers whom they did not know well, for example, "I was afraid that it was only a text how it would be received by others."

3.2.3 Method for Utilization of Comment Column between Teachers

The teachers expressed that they would like to use the comment column when receiving professional support from university instructors and inspectors, in Q3. In addition, there was also a view expressed that teachers would like to use the system to contact each other, for example, "I suggest an answer for myself about a problem and receive praise for it from other teachers," "I would like to use it for exchanging small amounts of information in the future." However, the system is currently not used well in comparison with the above-mentioned bulletin board system because about half of the teachers answered that they "did not use" it.

3.2.4 Effect of Exchanging Opinions on the Internet

Teachers responded with a variety of opinions on both positive and negative aspects in Q4. A positive aspect is that a teacher can use the system to ask the opinion of others when there is not a partner physically present nearby, and moreover, there is no limit on the time and place, for example, "Even if members could not gather physically, I could submit the comment anytime," "I could exchange opinions willingly, and there is little limitation on the time." In addition, teachers can ask for a variety of opinions throughout the school because it is easy to share a topic on the Internet, for example, "I could get a variety of thoughts on one theme," "I could ask others' opinion on various viewpoints."

However, a negative aspect is that it is not easy to have a connection and exchange opinions directly with a virtual connection on the Internet, for example, "It is difficult to ask teachers whom I have met only several times," "I did not feel a need because it is best to ask teachers from the same school." In addition, some teachers expressed the view that they would not be interested in using it because it requires work to maintain the system and the computer, for example, "I cannot readily become accustomed to connecting to the system because the computers that have the Internet are found only at the school," "It is not simple to access the system, [it] needs to have a password input because it is too busy." Therefore, there is a need for an input terminal, for example, "It is better to access it with a mobile phone," and it is suggested that there is a need to develop an environment in which many members can frequently participate.

3.2.5 Unclear Points about Method for Utilization

There were a few teachers, as seen in Q5, who felt that the method for utilizing the system was unclear. However, we thought that it was necessary to promote regular use because the teachers answered, "I forgot how to use it when I used it again after a long absence." In addition, the teachers answered, "The e-mail notification does not come to a mobile phone." This is because the system may reject a computer domain e-mail due to restrictions by the Japanese wireless provider that may send unwanted e-mails to spam. Thus, it is necessary to alter the receive setting of the mobile phone for each individual contract so that the teacher is able to receive e-mail from the mail server that posts a notice.

3.3 Consideration

Concerning the users of the system, we can classify them broadly into the teachers who use it frequently and the teachers who do not use it at all. The teachers who use it frequently collected and submitted classroom newsletters, practices related to class management, ideas for lessons, writings on the

blackboard, and other activities along with the bulletin board system. However, the submission frequency for the comment column was less than for the bulletin board system, but the teachers used it often to contact each other and thank others in the comment column. Thus, we suggest that teachers should use the bulletin board system for collecting and submitting the information that they would like to save for a relatively a long time and use the comment column for short messages. The teachers should definitely be tactful about the use of the two different systems.

A problem to be dealt with in the future is how to improve the use situation. As one of the solutions, it is necessary to study the issues below:

- using it with a mobile phone, in response to the opinion "I would like to access the system with a mobile phone."
- making a clear requisite, scale and inevitability for exchanging opinions on the Internet.
- studying the applicable scope of communication on the Internet in response to the opinion "It is good to make the consultation system on the Internet in case there is only one subject-based teacher in a junior high school or there are few training opportunities on a remote island.."

4. Conclusion

The purpose of this study was to extend the functions of the existing portfolio system and construct a web communication system that young elementary and junior high school teachers can use to support each other and share ideas on the Internet. We developed and added a function for submitting comments, an access control function, and a function for submitting selected classifications to the existing portfolio system, and implemented it. The results of the survey for the teachers showed that they used the two systems, the comment column, and the bulletin board, for different purposes. However, there was considerable variation in the use situation of the system. Moreover, to improve the use situation, we found that we have enable it to be used with a mobile phone, make it necessary to have exchange of opinions, and study the applicable scope of communication on the Internet.

In addition, we set up the system to send a notification e-mail when teachers submitted topics to the bulletin board after this survey, since it required a lot of effort for teachers to check whether a new topic was submitted, and they hoped that they would receive a notification e-mail from the system when a teacher submitted a new topic to the bulletin board. We hope that this will enable the use situation to be improved in the next year.

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