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ABSTRACT

This paper describes the teacher inservice training that was developed as the result of a technology needs assessment at two elementary schools in Quebec. The workshop was developed as an initial vehicle for enabling teachers to incorporate technology into their teaching. The six days of the workshop are sketched, and the materials used in the workshop are summarized. Workshop objectives are for the participants to be able to: (1) analyze an existing lesson plan to verify that it is instructionally sound, and modify it when necessary ; (2) determine if an existing traditional lesson plan is suitable for the incorporation of Internet resources; (3) identify types of Internet resources available and relevant for the elementary classroom; (4) locate World Wide Web resources that can be incorporated into lesson plans to make them technology lesson plans; (5) state ways of modifying current classroom management techniques to adapt to technology lessons; (6) successfully implement a lesson plan incorporating technology; (7) utilize methods of limiting student access to the Internet; (8) apply appropriate consequences to students who misuse the Internet; and (9) create a long range plan for using technology in the classroom. The field testing of the workshop and its implications are also discussed. (DLS)

Teacher In-service Training and the Incorporation of Technology into Teaching

1999 AECT National Convention
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Purpose and Rationale:

As our society becomes an increasingly technological one, there is a movement within education to promote the integration of computer technology into the classroom. Since the introduction of computers into education, research investigating people's attitudes toward computing and technology has become increasingly prevalent. In the last 15 to 20 years, a wealth of information has been amassed concerning how students and teachers relate to, feel, and think about computers and computing (Schnackenberg & Savenye, 1997). However, very little research has explored how teachers are being trained to incorporate these new technologies into actual teaching practices. Schrum (1995) states that "introducing information technologies to practicing teachers is a non-trivial task" and that "teacher education institutions and schools in general have not done enough to support and encourage a thoughtful use of technologies to enhance the teaching and learning process."

While some research has been conducted on teacher in-service training and staff development involving technology training (Gilmore, 1995; Ryba, Anderson, & Brown, 1992), most of these studies have involved the evaluation of the effectiveness of an implemented program in the United States. Within the province of Quebec, the Ministry of Education has recently authorized the expenditure of considerable sums of money for the purchase and upgrading of equipment in the schools over the next few years. A team of researchers at major metropolitan Canadian university have investigated the professional development aspects of this initiative. Several Quebec school boards are working in partnership with the university in order to explore the potential of using new technologies to enhance the curriculum. The challenge, at this point, is to determine how to move from schools' current model of computer use to one where technology use is more fully integrated into the actual curriculum. This new projected model of technology use is very much an innovation and still in development.

In an attempt to make educated decisions about "what should happen next," a group of developers/researchers from Concordia University , in partnership with a schoolboard in Quebec, have undertaken to develop an effective model for training teachers to incorporate technology into their teaching practices. A needs analysis was conducted as part of the process of developing effective teacher in-service training for integrating technology into education.

Prior to the formulation of data collection instruments for the needs analysis, both parties (one of the aforementioned schoolboards and the university team) agreed to the terms and conditions under which data collection would take place. More importantly, the types of information sought were discussed among both parties,

thereby establishing a working partnership and equal investment on behalf of each partner.

Development of data collection instruments was undertaken by the university team using a creation-revision process to ensure quality materials. Data were collected from the school board director, school principals, school resource personnel, and a subject matter expert via one-on-one interviews. Data were also collected from approximately 20 teachers from two elementary schools via small focus groups and anonymous surveys. All data collection measures inquired about the present use of technology, the degree of integration of technology into teaching, and the level at which integration would optimally occur.

The data was compiled and studied, and the following workshop was developed as an initial vehicle for enabling teachers to incorporate technology into their teaching:

Day 1: The workshop begins with introductions of both the university team members and the teachers. Expectations from the workshop are also stated by each person. A short introduction to the workshop as a whole, the terminal objectives, the participant guides, and a video demonstrating the implementation of a technology integrated lesson is then given. An opportunity for the teachers to ask questions about the workshop or the video - it's creation, the process of technology integration, etc., follows the introduction. After the question and answer period, a teachers watch the video and take notes on whatever they wish to ask or discuss at the end of the viewing. Another opportunity for questions and answers is given. During this time teachers are also asked to discuss their apprehensions, if any, about incorporating technology into their classroom practices. Finally, each teacher is asked to give a brief synopsis of the lessons the intend to work with on Day 2 of the workshop. The university team, as well as the other teachers, discuss the viability and strengths and weaknesses of attempting to incorporate technology into each lesson.

Day 2: Teachers bring in two lesson plans and work in pairs (according to either their computer literacy level or the grade they teach) and rework the lesson to incorporate technology. The training starts with a brief introduction and then the teachers begin the workshop by learning about the process of incorporating technology into their lessons utilizing their participant guides. This process includes steps such as analyzing their existing lesson plans, reflecting on teaching/classroom management practices they are already familiar with, and brainstorming about where in the existing lesson plan they see a computer application fitting in. The pairs then complete some case scenarios (illustrating hypothetical lessons and answering questions about how to improve or alter them) in order to practice the process that they've just learned. The teachers then go to computer stations and begin practicing with the available software at the school or browsing the Internet to find the resources they need to revise the lesson plans they brought with them. Each member of the university team involved in the workshop works with the teacher pairs as they try and utilize the computer resources to incorporate into the lesson plans they brought with them. At the end of the day, each teacher briefly orally presents or describes to the rest of the group their original lessons and how they've revised them.

Day 3: Each teacher implements one of the lessons they created in the workshop in their class. One university team member joins the teacher as they implement in order to ease the transition into teaching with technology for the teacher. After implementation, the teacher briefly discusses the areas of success and improvement of the lesson with the university team member. Teachers may also keep journals so that they can track their progress and feelings as they begin, and progress through, this process.

Day 4: Each teacher implements the other lesson they created in the workshop in their class. One of the other teachers joins the teacher as they implement in order to help each other. After implementation, the teacher briefly discusses the areas of success and improvement of the lesson with the other teacher verbally and emails the university team their reactions or feelings. On both Days 3 and 4, a technician is on call to troubleshoot hardware/software problems for the teachers.

Day 5: The original workshop group reconvenes and discusses as a group the pros and cons, frustrations and successes they experienced. After the discussion, the teachers and university team members do some visioning on where they would like to proceed in the area of incorporating technology into teaching. The teachers are to create another lesson plan incorporating technology on their own after the workshop.

Day 6: The teachers implement their technology lesson alone and email their reactions to the university team members.

Materials:

The materials used for the workshop are described below:

- An instructor guide which includes an introduction to the workshop including objectives, organizational format, materials, lesson sequence, planning/presentation methods, and assessment instructions. Supplementary resources and URLs are also included at the end of the guide.

- A participant guide which contains readings about ways to incorporate technology into educational practices, as well as a suggested process teachers can use to effectively incorporate technology into lesson plans. Practical application examples are included in these readings. Worksheets and diagrammed group activities to enable teachers to practice these skills before using them in the classroom are contained in the participant guide as well.

Objectives:

Upon completion of the in-service workshop, the participants are able to:

1)Analyze an existing lesson plan to verify that it is instructionally sound, and modify it when necessary.

Sub-objectives:

- State all five necessary components of an instructionally sound lesson plan.
- Given sample lesson plans, identify any and all missing necessary components.
- Given sample lesson plans, modify the plans to include all five necessary components.

2)Determine if an existing traditional lesson plan is suitable for the incorporation of Internet resources.

Sub-objectives:

- Successfully apply the criteria that determine the suitability of lesson plans for the incorporation of Internet resources by choosing appropriate lesson plans from a given selection.

3)Identify types of Internet resources available and relevant for the elementary classroom.

4)Locate World Wide Web resources that can be incorporated into lesson plans to make them technology lesson plans.

Sub-objectives:

- Given a list of URL's, locate and identify World Wide Web resources according to the given categories of resources.
- Determine the suitability of the sites for your lesson plan.

5)State ways of modifying current classroom management techniques to adapt to technology lessons.

Sub-objectives:

- List methods for limiting students misuse of the Internet.
- List types of consequences for students who misuse the Internet.

6)Successfully implement a lesson plan incorporating technology.

7)Utilize methods of limiting student access to the Internet.

8)Apply appropriate consequences to students who misuse the Internet.

9)Create a long range plan for using technology in the classroom.

Tryout Procedures:

The workshop described above was field tested with approximately 18 classroom teachers from two elementary schools in Quebec in the spring of 1998. Each school received it's own workshop. All of the teachers were voluntary participants and the workshop instructors were a university professor and a graduate student pursuing a Master's Degree in Early Childhood Education. Five graduate students studying educational technology assisted in the delivery of the workshop.

The workshop days occurred sequentially to keep continuity in the overall process/goal, but not all in one week. The workshop as a whole took approximately 5 months for each school. No teachers dropped out of the workshop while it was in-progress and the events of the days remained true to the descriptions above. The participating school board and schools are still partners with the university and further workshops are being planned.

While it was originally envisioned that achievement and attitudinal data would be collected from the participants by the workshop instructors, these tasks were unable to be accomplished as the end of the workshop coincided with the end of the teachers academic school year and there was simply no time for such procedures. However, observational data from one instructor was obtained and highlighted below:

- The lesson procedures in the Instructor Guide were very clear and it was easy to use.
- The content of the workshop was very appropriate for the target audience.
- The workshop helped the participants tremendously in understanding the concept of technology integration, as well as the mechanics of implementing such a lesson.
- The participants seemed more comfortable implementing a lesson knowing that they were first partnered with a person from the university. It helped them not only in that there was an extra body in the room, but so they could see how the other person handled problems involving the technological aspect of the lesson.
- The participants were confident to implement their lesson when the time came with another teacher from their school present.
- Discussions and brainstorming during the workshop allowed the participants to learn from one another and "borrow" good ideas.
- Overall, the participants did not get frustrated during their lessons if the technology failed.

- The participants were highly motivated to learn the concepts and ideas taught in the workshop.
- The participants especially liked the hands-on approach of implementing the lessons in class.
- Participants were better able to create a long range plan for using technology in their own classes rather than in the school as a whole.
- Due to the end of the school year, teachers never got to create lessons on their own and implement them.

Implications:

While it is difficult to draw any conclusions about any sort of method from simply the feedback of one instructor, it would appear that a bit of insight was gained from this one application.

Overall, it appeared as if the tasks requested of the teachers were not above their skill and interest level. Rather perhaps, they were at the right level to remain challenging without being frustrating. Also, the idea that teachers not only get to create technology lessons, but implement them as well with the guidance of the workshop leaders, seems to be an exceptionally strong asset this particular type of teacher-in service training. The fact that the teachers were interested in and motivated to do this from the start seems to have aided in the willingness of the teachers to follow through with tasks outside of the workshop itself.

One of the weaknesses of the training was the timing. Implementing any sort of teaching strategy change at any time is difficult. Doing so at the end of a school year is virtually impossible. Follow-up discussions on the strengths and weaknesses of the implemented lessons was extremely difficult and might have been more informative at a different time of the year.

Also, asking the teachers to make a long range technology plan appeared to be a bit overwhelming. This may have been due to the time in the school year, or perhaps due to the unfamiliarity of the teachers with technology infused lessons, but that is not clear. It is clear however, that creating a plan at this stage in the workshop is not appropriate and might better be saved until teachers have had an opportunity to implement several more technology-based lesson plans.

Conclusions:

In general, it appears that the workshop described in this paper is successful in training teachers on how to create and implement technology-based lessons in their classrooms. The objectives are attainable in the suggested time-frame and the skills learned are of great value to educators in a world where the push to infuse technology into education is ever-present.

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