

Developing Literacy through Information and Communications Technology - a Jamaican School's Project

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Abstract

This research developed from one Jamaican schools desire to make more use of computers in teaching and learning. A literacy project was planned which provided teachers with computer skills, training in the pedagogy of Information and Communications Technology and provided computer-based learning for students.

Investigator observations of teachers from two grades in a primary and junior high school were conducted. This was followed by a KAP study using a structured self-administered questionnaire and a focus group interview. These were used to inform project development.

A computer software package was selected which enabled the students to create their own stories in pictures and words and then print them in book form. The software was obtained as a donation from a private company in England.

Large class sizes and a limited number of working computers meant that classes had to be divided into three groups, each group attending a forty-five minute session per week. These sessions were a combination of demonstration lessons given by the ICT specialist teacher and lessons given by the class teacher supported by the specialist teacher.

The intervention took place between January and July 2006.

THE JAMAICAN SCHOOL

Blue Mahoe School* is located in the corporate area of Kingston, Jamaica. It is a government funded co-educational nursery, primary and junior high school catering for twelve hundred students from the ages of four to fifteen. This research project was based in the primary grades of the school with the aim of providing context-based Continuing Professional Development (CPD) for teachers using the Storybook Weaver software to develop students' writing skills.

BACKGROUND TO THE RESEARCH

During the academic year 2004/2005 a pilot study was carried out at the School focusing on educational technology used for teaching in the primary grade classes from Grades One to Six. The pilot study included the use of Information and Communications Technology (ICT) for teaching. Evidence from the pilot study revealed that the teachers wanted to use computers, but they were not computer literate and/or did not know how to use the computer in their teaching. The School's computer laboratory contained only three working computers at the time.

THE PROJECT

Literacy Focus

At the start of the 2005/2006 academic year it was decided to plan a project in the School which would provide professional development in ICT for the teachers in the primary grades. Literacy was selected for the project since many of the students have limited literacy skills and this is the focus for the School Development Plan. As a Primary Education Support Project (PESP) Demonstration School the development of best practice in literacy is also an important objective for the School.

The Revised Primary Curriculum

Given limited resources and demands on teachers' time one approach for professional development is to focus on the ICT resources that are most relevant to teachers and their curriculum (UNESCO, 2004). The curriculum used in the primary grades in the school is the Jamaican Revised Primary Curriculum (RPC). The RPC is integrated for Grades One to Three and subject-based for Grades Four to Six. Technology in the RPC for Grades One to Three has the stated objective of using computers and software to enhance the learning process. In Grades Four to Six the technology objectives are specific computer skills, including keyboard skills and word processing (Ministry of Education, 1999, pp. 296-297).

Sample

Since the school has a large student population with class sizes at the primary level exceeding forty students it was necessary to limit the ICT project initially to two grades to make it feasible within the time limit of one academic year. Grade Two was selected as that grade is the mid-point for the integrated part of the RPC and Grade Five is the mid-point for the subject-based curriculum. All six class teachers were selected, three Grade Two and three Grade Five teachers. It was anticipated that after the initial one year project was completed a cascading professional development model would be used to reach down to Grade One and up to Grade Six. It was also hoped that the project could be cascaded up into the junior high school grades since many of the students in Grades Seven to Nine had not passed the Grade Six Achievement Test (GSAT) and remained at the school to continue their secondary school education because of weak literacy skills.

Literacy and Language Arts

Non-participant observation was carried out in the three Grade Two classes and the three Grade Five classes during the first term. At first observation was carried out in a single classroom for extended periods, observing both teacher and students. It quickly became apparent that in every class much of the teaching was directed, using the textbook and chalkboard, and rote learning was emphasised. Literacy was given special emphasis during Language Arts lessons, held on a daily basis. During these Language Arts lessons textbooks and the chalkboard were used to develop writing skills using punctuation and grammar exercises. Reading was carried out as a class activity using class readers and textbooks. There was no evidence of creative writing taking place during the observation in any of the classes. When asked if they included creative writing in Language Arts lessons all six teachers said that they provided opportunities for writing from a picture or title stimulus.

Software Selection

The observation evidence highlighted the lack of opportunity provided for students to write from their own experience or using their imagination and so it was suggested to the Principal that writing should be the focus for the ICT project. With the agreement of the Principal writing software was found that would run on the second-hand computers in the school's computer laboratory. Storybook Weaver has word-processing and graphic tools designed to inspire writing skills in students aged from six to twelve years. A graphics library is used to create pictures and word processing tools are used for writing. Individual pages containing a picture and accompanying writing build into a book which can be printed. The software was sourced from a supplier in England who kindly offered to donate the software to the School free of charge for the project. Using funds already allocated from the Ministry of Education, the Principal arranged for the repair of a number of computers in the School's computer laboratory and the subsequent installation of the software. Through these public-private sector partnerships the project was ready to launch with teachers and students.

Research Questions

The project was based on three research questions:

- How can context-based CPD be established and developed through collaboration between an ICT specialist and class teachers?
- What effective teaching strategies, techniques and materials can be developed using the Storybook Weaver software?
- How can CPD using the Storybook Weaver software be developed and sustained in the school?

PROJECT IMPLEMENTATION

A four phase implementation plan was used for the project.

Phase One: The Setting

Initially in Term One access to the setting was through the Principal in her role of gatekeeper (Creswell, 1998), and this continued throughout the project. During the October 2005 monthly staff meeting the research was outlined to all the staff and the role of the ICT specialist explained. During this first phase non-participant observation in each of the sample classes provided in-depth information on the individual classes which was used to plan the demonstration lessons in the computer laboratory to be held in the second phase. Information on the teachers' Knowledge, Attitudes and Practice (KAP) was also obtained, through a questionnaire and a focus group interview. Since the School was a PESP Demonstration School a consultation meeting was also arranged with two of the PESP education officers at the Ministry of Education to discuss the Language Arts curriculum and ICT within the PESP.

Phase Two: Development

The second phase began with a presentation and practical activity on reflective practice for the entire teaching staff during the School's Staff Development Workshop at the start of Term Two. This was followed by training for all six teachers together with the Principal in the computer laboratory using the Storybook Weaver software. The software tutorial was used to introduce the software to the teachers then they were given time to explore the software individually with guidance given as required. Before the project was launched with the students each teacher was provided with a notebook and pen to keep a reflective journal on their practice during the project. On the recommendation of the Principal the teachers were also given a detailed list of teacher responsibilities during the project. These were discussed with the teachers in the presence of the Principal and each individual teacher's agreement was sought and received.

The Principal devised a timetable for the project as each class had to be divided into three groups to ensure a maximum of two students per computer in the computer laboratory. At first sessions were timetabled for thirty minutes but four weeks into the project the teachers asked if the sessions could be extended to forty-five minutes as they and their students were finding the lesson too short. Teachers accompanied each group to the computer laboratory, leaving work for the students remaining in the classroom who were supervised by the other two teachers in that grade. Initially demonstration lessons were given to each group, involving the teacher more and more with class management, organisation and teaching as time progressed. The teachers learned how to use the software with the students as they sat and worked with them. Constructivist learning was encouraged, with the teachers and students problem solving. A team-teaching situation, involving the ICT specialist and the teacher, was gradually established. Team-teaching was a new experience for all of the teachers as they normally had sole responsibility for teaching their class.

Focus group interviews provided feedback during this phase of the project. These were important opportunities for the teachers to discuss and share their experiences with their colleagues, the Principal and the ICT specialist, apart from the students. During these sessions requests were made and ideas given for learning materials to be used in the computer laboratory and the classrooms. Learning materials for the teachers and the students were developed by the ICT specialist to form part of a project resource folder.

Teachers were also given individual tutorials during break times as requested. Sometimes these tutorials involved assistance from the ICT specialist but at other times the teacher wanted to explore the software alone. These individual sessions were opportunities to discuss the project informally with the teacher and obtain feedback. A formal training session was also held with all of the teachers together to explain the additional features of the software. A leaflet explaining how to use the software was created for the teachers so that they would have written instructions for personal reference.

During this phase problems were encountered with the second-hand computers but these problems were promptly dealt with by informing the school Bursar who then arranged for a technician to visit and solve the problem. The Bursar's support was invaluable throughout the project as problems were always resolved and there continued to be ten computers working at all times. Working computers were crucial to the project as more than two hundred and forty students and six teachers used the computer laboratory each week.

Phase Three: Reflection

As some of the students finished their writing the teachers were encouraged to sit with the students to help them edit their work. When the students had completed the editing of their books for printing the file was saved. Initially it was planned to use an existing colour printer in the computer laboratory for the books produced by the students but after printing a handful of books the printer stopped working. Resources were again mobilised as the Principal and Bursar obtained a new printer and consumables, such as paper and ink, to print the students' books.

Non-participant observation was carried out during this phase. Having been part of the team teaching the students,

it was very difficult to become a non-participant observer in the computer laboratory. When students asked for assistance they were told to ask the class teacher. This was just one tool used to place the emphasis back on the class teacher as the main facilitator of learning. As a follow-up to the observation suggestions were made to the class teacher highlighting more effective teaching strategies.

During this third phase there was another opportunity to make a presentation about the project at the monthly School staff meeting. The Principal agreed to the participation of the teachers in this presentation since the project was collaborative. Four out of the six teachers talked about both positive and negative aspects of the project for themselves and their students. This presentation was followed by the setting up of a display of the books, written by students from both grades, in the school library. During break times students and teachers were encouraged to read the books written by the students on display. Student visitors included students from the primary and junior high school grades, so in this way we were able to share the books across grades in the school. Many students from grades not involved in the project expressed a desire to use the software to create their own books and teachers shared their enthusiasm about the quality of the books produced.

Phase Four: Assessment

Since this phase is in its initial stages only preliminary findings are available from limited analysis of the data collected during the project.

How can context-based CPD be established and developed through collaboration between an ICT specialist and class teachers?

This project was designed as a collaborative research project to provide a sense of ownership and belief in the innovation (Somekh, 1997, p. 115). Initially the research design had included the concept of teachers as researchers with the sample teachers engaging in reflective practice throughout the project. Although an initial workshop was held to introduce the concept of reflective practice to the teachers and reflective journals were begun, all of the participants stopped recording in the journal provided at some point during the project. When interviewed about the journal each teacher said that writing in the journal helped them to record what they and the students were doing but over time they stopped writing during the computer laboratory session and then did not find time to write when they returned to their classroom. It appeared that there was some reflection on practice using the computer in their teaching but this was limited and not written in their journals. Reflection as part of professional development is one aspect of the Teacher Performance Evaluation Instrument (Ministry of Education, 2004), so it is hoped that this will become an increasingly important aspect of professional development in the future.

Preliminary analysis of the interview data from the final individual interview shows that all six teachers felt that their involvement in the project had provided them with professional development. One said that she had discovered a new way of teaching writing using the Storybook Weaver software, describing it as more dynamic and more exciting than methods she had tried before. The software provided the teachers with a tool to help students formulate their ideas for writing using their own pictures instead of their usual tool which involved writing in the abstract. Another teacher concluded that the project had brought out the creativity in the students and she liked that aspect of using the software. All six teachers said that they would use the Storybook Weaver software in the future with students to develop writing skills.

What effective teaching strategies, techniques and materials can be developed using Storybook Weaver software?

A materials pack has been produced as a resource folder for teachers to use alongside the software. This includes activity or lesson plans for Grades Two and Five, ICT vocabulary sheets which can be copied for charts and signs, keyboard outlines with activity ideas, software instruction sheets for students and a training workshop leaflet for teachers. All of the completed student books have been copied on to a CD so that a Grade Two and Grade Five book collection can be printed out and bound for future display. Digital photographs taken throughout the project provided picture evidence of software use by teachers and students, as well as the display of students' books in the school library at the end of the project. The students' books and the teaching materials produced during the project can all be used as examples of best practice for the PESP Demonstration Schools initiative.

How can CPD using the Storybook Weaver software be developed and sustained in the school?

In order to sustain the use of the software beyond the life of this current project a teacher-trainer has been identified from among the teachers involved in the project. The teacher-trainer has received additional training and support from the ICT specialist to enable her to train other teachers to use the Storybook Weaver software. Contact between the School and the software supplier in England has been sustained throughout the project through email. This may be a valuable contact for future use of ICT in the School since resources are limited in a developing country like

Jamaica.

CONCLUSION

The introduction of technology into a school represents an educational innovation. The main purpose of an educational innovation is the improvement of practice and it may be proposed for a variety of reasons. The stages of an innovation are the source, adoption, implementation and institutionalisation. At the implementation stage, unless the innovation is seen to be authentic, teachers may resist it (Fullan, 1982, cited in Somekh, Whitty & Coveney 1997, p.191). Somekh, Whitty & Coveney (1997, pp. 205-207) identify five key concepts in successful innovation, messiness, the power of individuals, partnership, teacher professional development and the integration of theory and practice.

The aim of this project was to provide context-based Continuing Professional Development to equip a group of teachers with the necessary skills and knowledge to make effective use of computers in their teaching of literacy skills, specifically writing. Literacy was selected because of the school's focus on the literacy needs of their student population and the limited opportunities for writing within the existing timetabled Language Arts lessons.

During the project learning has taken place at two levels, the teacher and the student. Before the start of the project none of the teachers were using the computer laboratory with their students. By the end of the project all six teachers involved in the project were using the computer laboratory to develop their students' writing skills using the Storybook Weaver software. The students have a new found appreciation for books as they have created their own books and become authors. Their books have exceeded all expectations.

This has been a small scale project that has made use of public and private partnerships, both within Jamaica and internationally. The project has shown what teachers and students can achieve when given the chance to use ICT. When human and financial resources are limited partnerships such as these are crucial for sustainable development.

* Denotes change from official school name.

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