Integrating Information Technology in a Discovery School – A Case Study

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Abstract

This paper reports a case study of the integration of information technology (IT) in a Discovery School in South Australia, and the problems and issues that the school encountered in the process. A number of data-collection methods were used. The school was well provided for in IT. Both students and teachers were confident with the use of IT in learning and teaching. The students' use of IT was much dependent on their access to IT at home. Some learning area coordinators did not seem to recognize or place emphasis on the success of integrating IT into their own areas. Also, the principal and the teachers seemed to have different perceptions in relation to some of the problems and issues arising from integrating IT into the school. Flexible timetabling and further development of instructional strategies may be some of the keys to further enhance the school's success in using IT.

Introduction

Integrating information technology (IT) into learning and curriculum has been an important focus in contemporary education. Using selected schools to promote such integration is a model that has been adopted by many countries (e.g., [1]). In 1999, the South Australian government nominated six discovery schools with the stated role that these schools would positively influence other schools on how to use IT by reflecting on, researching and further developing the "exemplary ways" in which they have been embedding IT with respect to pedagogy, curriculum and school change.

It has been reported in the literature that in the process of integrating IT into learning and curriculum, schools often face problems such as securing funding, development of a dynamic IT plan, decisions concerning the choice of hardware and peripherals (e.g. [2]). This was not the case with this school as it already had a well-developed infrastructure including a good network, a good number of computers and it was considered as an "advanced" school in IT within the state. Therefore, the focus of this study was to examine the extent of and how IT was used to support student learning by collecting data from the students, the teachers and the leaders in the school.

Methodology

The study began in early 2001 and finished in early 2002. Multiple data collection methods were used: Focus group meetings with 23 teachers, surveys of 126 students and 23 teachers, interviews with the principal, the ICT coordinator and all eight key learning area coordinators. The focus group meetings were to identify the issues that the teachers were having with the integration of IT in their classrooms. The surveys attempted to examine the patterns of usage of IT in the school by the students and the teachers, and also students' access of IT at home. The interviews were conducted with a semi-structured schedule. The main aim of the interviews was to find out from the school leaders, viz., the key learning coordinators, the IT coordinator and the principal, their views of integrating IT in the school.

Focus group meetings and interviews were recorded and transcribed. Themes were then drawn from the interview data. Survey data were tabulated and analysed using descriptive statistics. When appropriate, the two sets of data were compared for triangulation.

Results and Discussion

The school had a deliberate policy of integration of IT across the curriculum. There were no specific subjects in years 8-10 which were "IT" subjects. However the school recognised that students still needed some explicit computer applications teaching. To meet these needs the various curriculum areas took responsibility for the development of particular application skills as part of the teaching of their subject.

Many of the staff interviewed identified an increasing level of competency in the use of IT for learning by the students. The staff identified it not only as increasing at higher year levels but commented on the increasing ability of students entering at year 8, the first year of high school in South Australia. These observations were supported by the student survey which asked the student to self-assess their IT ability.

The students’ skill level was only one aspect of the study and it was the integration of IT into the students’ learning which was the focus. There were a number of indicators that the school was successful in its integration of IT into learning and teaching. One indicator was the wide range of specialised software being used in the...
school across a number of the learning areas. It was not only the use of a range of specialised software but also the way in which they are being used which was an indicator of successful integration. Teachers identified that students were producing work that could only be done using the IT and that their understanding of the subject was better through its use.

Another indicator was the types of learning that some of the staff identified as being facilitated by the IT integration. For instance, IT was not only being used to produce a final copy but was integrated into the writing process and was used to work in different ways with scripts etc. This was evident in a number of subject areas where IT was seen as integral to the process rather than as an add-on. One issue that arose out of this was access to computers and that they needed to be booked at the beginning of the semester which reduced the flexibility.

Staff did not always identify what they were doing as being innovative or that they were doing anything that they could not have done before possible when the activities described by them were quite innovative or were things that could not easily be done in other non IT ways. This underselling of what they were doing did highlight that the staff needed time to reflect on their achievements in order to identify the things that they were doing that were working and allowed them to share these successes. This brought into focus an issue identified by the staff and that was the issue of access and time, including access and time on the computers, time for planning and preparation for class and time to develop appropriate materials that make the best use of the technology.

There were varying perceptions on the issue of access and equity, the school management took a different view on space usage, however the school was somewhat a victim of its own success with more teachers now wanting to use the computer pools.

The school had a good ratio of computers to students (1:3). However, the number of computers must be bound by the sustainability of their use and disposal. The students’ perception was also quite different from the staff, with approximately 59% indicating that access to IT at school was easy. This must be considered in conjunction with the data, which indicated that approximately 75% of the students did most of the IT work at home.

The school had made some structural changes including changes in timetable and placement of computers. For example, the school had a number of pods (groups of about 5 computers), which were available in the school and it would seem that these were rather under-utilised. Comments from teachers indicated that there was a need to develop the use of groups more in teaching and to perhaps break down some barriers between learning areas.

An example of a timetable change made was to finish school earlier on a Wednesday to allow for and extended time for meetings and professional development. These changes are working however there may be scope to look at more substantial changes in the schools structure and that some comments by teachers indicate that these may be needed to move forward in the schools development of its IT use in learning.

Students surveyed within the school were in general very positive about the use of computers, as indicated before, the majority (75%) did most of their school work that required the use of IT at home. More than half of the students indicated that they believed that IT helped them do their best work and only 12.9% gave it a negative rating. Again it was interesting to note that the year 9 group were again the most positive of the year level groups. Most of the students who were negative were those who did not use the computer to do most of their work at home.

**Conclusion**

The school in this investigation was rather successful in the integration of IT in learning and teaching. This was evidenced in a number of indicators including the development of IT skills among the students, the types of software used and the way they were used, and the types of learning facilitated by IT integration. It is clearly important for the school, the staff, the students and the community to be aware of this success. There are some issues that school can address in order to achieve better integration of IT in learning and teaching. These issues include better timetabling and teaching strategies used by some of the teachers including getting the students to work in small groups with the computers [3,4]. Overall, the integration of IT at this school could provide useful experience and guidelines for other schools for measuring success at other schools.

**References**