Abstract

Snyder (2000) writes, "There needs to be more research into how [faculty] departments and individual teachers integrate computers into curricula and how computers interact with the whole school curriculum. How does pedagogy change? Do teachers’ expectations alter? What are the implications for teachers’ professional development?" (AER Journal Vol27, 2 August.)

The professional development offered for using IT in the classroom will be examined through the eyes of four teachers in a secondary school. Each of the teachers came from different teaching areas and had varying skills in IT as well as different experiences in using IT in the classroom. The change in the way the teachers taught and expected their students to work were examined as part of the case study approach taken in attempting to answer some the questions posed by Snyder. Long term changes appeared to be possible only when the teachers’ new IT skills overcame their fear of changing established methods of delivery. The organisational process involved in gaining access to the IT Centre also played a part in whether the teachers were willing to organise lessons using IT.
Introduction

In the space of a few years computers have become a pervasive part of the workplace, the classroom and the home. Technological advances and the speed of information transfer, along with related knowledge, skills and abilities are of paramount importance in an information society. Many changes have occurred in this area, not least in the work of teachers who have become the 'change agents between the learner and technology and play a critical role in the process of teaching and learning' (Chin & Hortin, 1994). While it would be reassuring to presume that all teachers have embraced the new technology, this is not the case. In fact, Chin & Hortin (1994) discovered in their research that "...numerous recent studies have shown that teachers want to use the new technology and to prepare their students for the world of technology outside of school. What teachers really need is more time to acquire the knowledge and understanding of technology, and to absorb what instructional technology can do for them" (p. 87). In 1996, in a study of some American teachers, Mathews, David and Hamilton found that up to one half of all teachers never actually used technology for any instructional purpose. Over half rated themselves as novices in all areas. In Australia, research concerns have looked more at the use of IT by students and schools, not so much as how teachers acquired their skills in order to facilitate learning by students. Reading for this paper has revealed that State Departments of Education and Universities are providing on line courses (University of Tasmania and Queensland Department of Education and Training for example). However, the classroom teacher who is teaching in subject areas outside of Computer Studies has little or no knowledge of what is possible in terms of using computers, the Internet or teaching online unless he or she has a particular interest in these areas.

These findings are borne out in other research (Parker, 1997; Norton, McRobbie & Cooper, 2000). Thus, teachers are failing to effectively model its use for their students. (Mousund & Bielefeldt, 1999). As a result, despite an increased emphasis on technology and its use in the curriculum, many teachers are ill prepared to use it effectively.

Professional Development Model – one example

Towards the end of Term 4, 200, I was asked by the Principal of the school in which I work one day a week providing professional development, to survey staff in order to find out what their perceptions of their professional development needs would be for 2001. Overwhelmingly teachers requested help in IT skills. Reasons for this included the opening of a new ITC that had not been used very much because the majority of teachers did not feel capable of teaching a class using technology. The second biggest request was for lessons using Power Point. This request came particularly from Year Coordinators who were expected to present parent evenings during the year – up till this point I had been working with coordinators to prepare material and often went back to the school at night to help set up the presentation.

Since each teacher’s computer skills were so different it was decided by the school Executive to run professional development in IT skills in two different ways. The first was to be a full day staff development program with all teachers receiving professional development in using Power Point, the Internet, making hyperlinks and for those who wanted it, making movies to be used with Power Point or other presentations. In addition to being part of the staff team who presented on the day, my next task was to work with every teacher who had requested particular IT needs during the next two terms – on a one-to-one basis for one or two periods each. In addition to this, I spent some of my time at school helping coordinators to write up internet sites into their programs so that teachers would not have to spend time finding particular sites to support their learning strategies. It was hoped that there would be increased use of the ITC as a result.
This paper tells the stories of four of the teachers. They were chosen from four different Key Learning Areas so that the school could have a record of the achievements in this year’s professional development program across a broad spectrum.

Methodology

Each of the teachers was interviewed at three different times during the year – prior to the professional development day was held, after I had done follow up work with each of them and finally at the end of October. After each interview I wrote the responses to my questions and checked back with the teachers for validation of what had taken place. The following questions were asked:

Session 1

• Describe yourself as an IT user
• What, if any lessons, have you taught in the new ITC? Why or why not?
• What skills do you need in order to change this?

Session 2

• What changes have taken place in your use of IT?
• What, if any lessons, have you taught or planned for using IT? Why or why not?
• What else would help you to change this?

Session 3

• Describe yourself as an IT user
• What are you doing now that you would not have attempted twelve months ago?
• Has the professional development you had this year help you? How?
• What do you plan to learn and do using IT in the future?

The Story of P – English Department

Personal history – virtually no formal training, only education was at university – the unit, Ed Tech in the Classroom, consisted of using blackboard and OH. Only skills are in using pre-programmed materials, cut and paste for reporting. If a small senior class, will 2-finger type for reports

Teaching – never used computers at all in teaching – OH is big deal!

Feelings – very hesitant, kids know he is a Luddite, but he would like to ‘break the ice’ and have a go. ‘I’m not comfortable and would need someone there to support me all the time’.

After the inservice day I worked with Peter to develop a lesson in the ITC. I had found some excellent sites on William Shakespeare before I met with him and then helped him to set up the lesson for his senior students. When I met with him again, he asked for help with another topic for his junior students.

At the final session P reported:
I see myself now as being less reluctant to use computers, because I am competent in basic skills and I am less narrow minded – they do have their uses. I guess I see computers as an administrative aid rather than a teaching aid, but....

This time last year all I could do was reports using a software program that had been designed to do this. I had no personal skills nor did I use any class-based work with IT. Now I use email regularly, all marks for my subject area are on spreadsheets, I have given a couple of lessons in the ITC and my students have done research in three different units. I prepared and presented a PowerPoint lesson on the Globe Theatre. In addition, I am able to prepare memos and other information on for my staff and type it up myself and send it to the others.

Professional development this year has opened my eyes and given me a starting point. I am happy to ‘fiddle around’ rather than just ignore them. I am keen to find out what is around in terms of teaching aids. Other staff have helped in that they have told me about sites I can check out.

In the future I think I will be more confident in terms of going to the ITC and doing things by myself. I hope to learn more by observing other teachers’ lessons and learning how to find teaching sites for online teaching.

The Story of M - Food Technology

Personal History – limited use of computer though some basic skills. Never used in classroom and don’t know where to begin

At the final session, M reported

I am able to write up Word documents rather than asking for clerical assistance. I am using the Internet for doing the shopping for school. In class I am using a teaching program for Year 11 & Year 12 Hospitality as well as doing some Internet research for Year 12. I had to do a presentation for a staff meeting recently and used PowerPoint for the first time.

I see myself as confident; the computer is a useful tool whereas before I thought that using computers was the domain of computer teachers, not for me.

In the future I would like to use PowerPoint presentations as a way of presenting material for the students as well as getting the students to prepare an assignment using Power Point. I think I need lots of time though to use it myself. Also I want to be able to use the Internet to find recipes that I could use in class.

Professional development this year has been wonderful because it was presented in such a way to encourage us to ‘have a go’. It was simple, used small steps and wasn't threatening at all. I believe that I have gained confidence and competence.

I just hope that that someone is there to give me support if I need it, someone who is willing to help.

The Story of L - Humanities

Personal history – word processing on Claris Works, and is learning to use Microsoft Word (self teaching). Only recently discovered email and Internet, but can download and save to disk for printing.
Teaching – used once 2 years ago – text type scaffold supplied on computers for students to use.

Feelings – using IT is daunting even though I’ve learnt a bit more – it’s so big. If there was only one computer I would feel as if I had a bit of knowledge, but they know more than I do and if something goes wrong, I wouldn’t know what to do.

I would need very strong structure and keep a very close eye on students for me to feel comfortable in using the ITC. If the IT person at school was there, I would feel better – she gives lots of support. The same thing happens in the staff room – if I get stuck I know there are people who would show me what to do.

At the final session, L said:

_I have had a growth in confidence in using IT. I have become more adventurous on my own. I have found wider uses that I had thought of before. I am satisfied with the way I’m using it._

_I have used IT with my assignment in Year 9, provided them with links and questions to work with – the boys enjoyed doing it. I also have used it for research for my own preparation for lessons, much more than I thought I would. I have even been able to download a picture and use it in an assessment task. In addition, I now keep my marks in an online program, store it at home and just print out when I need it for parent interviews._

_In the future I hope to learn how to use computers to store information that I find, at present I search, find and print out, but I don’t know how to save it in folders and so on. I also need to learn to store materials for units of work in a folder, for example. I am actually thinking of buying a computer for home._

_Through the advice and support I received I have had the courage to try new things – someone ‘walking the journey with me’. I need more time and I have to learn to remember to book the data projector in order to use PowerPoint, which I haven’t done to date._

**The Story of N – Mathematics Department**

Personal history – has been using computers since he was 12 years old. Has proficiency in Word processing, spreadsheets, desktop publishing, e-commerce, Internet and email

Teaching history- used computers in Year 11 General Maths course – a 2-week unit on spreadsheets

- taught desktop publishing and spreadsheets in years 7-12 in his last school

Feelings

Loves the practical side of using IT – enjoys seeing what kids can do because they can do more than he can

 Doesn’t like the ‘administration’ side of IT – for example, to use the ITC there is lots of red tape because of passwords, logins, time to get working – the process doesn’t always work.
Would prefer students to always use their own disks and have someone scan for viruses each day.

At the last session, N reported:

*Overall this year I think I have degenerated in my use of IT because of the lack of availability of the ITC and the general nuisance of finding the key the even get into it. Once there, the boys and their passwords are ‘messy’. The pressure of unit requirements makes it difficult because the programming is inflexible. I did ask the school to buy some particular software, but nothing happened – it never arrived.*

*At home I use computers more and more – I have a CD burner, a digital camera, my own website. I did my tax on Excel for the first time, and I use Internet for finance and Excel to help people with investments.*

*I guess as a Maths teacher, I want to keep up to date, and use computers more for ‘hands on’ teaching. I am also in the process of designing my own web page.*

*In terms of professional development, I loved the PowerPoint and the way we were taught to use it – and using the resources that you shared with me have helped me. I haven’t had any other help from anyone else. Because of the time factor, I haven’t actually used PowerPoint as a way of teaching.*

*For the staff, having computers in the staff study is much better. And for one of my students who has some difficulty with his writing is using computer in class every day – I loaded Maths Equation Editor onto his computer for him.*

**Conclusion**

In response to the questions raised in Snyder’s article, there are some key observations that have emerged from this limited research:

- In order to develop teacher confidence and skills to use IT in their teaching, professional development for teachers has to include on going support as well as designated sessions that may or may not provide sufficient expertise. The fact that the school has shaped its professional development so that members of staff share their expertise with their peers has proven to be a real asset – if help is needed outside of professional development time, there is someone on staff who can assist.

- Pedagogy can only change if teachers are provided with ‘hands on’ material or processes to help them take up integration of IT and learning strategies. Such assistance has to be supported by technical help in the ITC itself – setting up for a class activity, ensuring all computers are ready to use at the beginning of a lesson, helping individual students if necessary.

- Teachers’ expectations alter in terms when they become aware that the skills of their students often outstrip their own. Students can become teachers and if teachers then provide learning situations for students to use these skills, IT is not so threatening for less capable teachers.

- Professional development for teachers has to be given in small sessions with hands on activities and a process manual that is simple enough for all to use. Large group sessions with explanations are not suitable for those who have a real fear of computers and IT. The more supportive and less threatening the learning environment is, the easier it is for teachers to ‘have a go’ without feeling foolish.
• Programs provided for teachers need to include active internet sites that will encourage reluctant teachers to use them. If sites are provided and technical assistance is available, teachers will make the effort to book into the ITC, especially if one session is successful. They will then be more willing to book in again.

My aim has been to make myself redundant in terms of providing IT professional development. Most of the teachers on staff are using the computers provided in the staff room, have used Power Point at least once in class and have had some lessons in the ITC using Internet. Those who have been somewhat reluctant to do this are to be surveyed again, to find out what else is needed in terms of professional development.

Bibliography


