

# Teaching and Learning: A Personal Journey

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## **Abstract**

*This paper examines my journey both as a learner and teacher. I consider how I was taught and how that influenced the ways I teach and learn. I will also identify how the use of technology has assisted my teaching and therefore, students' learning.*

## **Introduction**

As far as I can tell, I've always been keen to learn. Teaching seems to have always gone alongside it. At school, for instance, I helped others with their maths homework during after-school tuition times. I started my teaching in a professional capacity after receiving a Bachelor of Science degree from Auckland University and then a Teaching Diploma from the Auckland Teacher's College of Education. I then began a career as a secondary maths teacher. I took up studying some years later with a Diploma in Film and T.V. Studies where I was interested in exploring the boundaries between education and computers by creating an educational cd rom based around a short film. For me, the boundaries between teaching and learning have now become blurred with each of them happily co-existing with one another. There has also been a large explosion of available computer software and hardware capabilities to assist in teaching and learning, making my particular journey more enjoyable. I am learning all the time, not just because I am involved in the fast changing areas of multimedia and the Internet, but also to remain fresh and excited about what I do so I can impart knowledge to my students.

## **School Experience**

My early learning experiences at primary school were very enjoyable. There was no real pressure put on us as learners and we learnt with the same group of students in the same classroom for the whole year. Textbooks, chalk and the blackboard were the main technology tools used to assist our learning in those early years. We used pencils to write in our books and when we could write to the teacher's satisfaction, meaning neat writing and not many mistakes, we advanced to using fountain pens. There were big changes between primary and secondary school and these took a while to accept as the norm. We no longer stayed in the same classroom but had specialist teachers for all of our subjects. The number of students in the classes hadn't changed very much, but the total number of students in the school had increased and the grounds and buildings were much bigger. The intimate nature of the learning space had changed and we were now focussed on subject areas more than the individuals.

I recall being taught by people who were the fountains of all knowledge in their subject area and our job was to soak up all their imparted knowledge like sponges. They wrote things on the blackboard and we studiously wrote it down. It was up to us to learn the material but as long as the teacher covered the curriculum material and had passed the material onto us, they had done their job. I really hated this approach to learning due to a lack of creativity, the absence of problem solving skills required by us and I could see no real world practical application for this method of teaching. Consequently, I have tended not apply this in my way of teaching. There was more pressure in secondary school to succeed and the exams were always a threat looming at the end of the school year. I always found that my exam mark was not a true indication of the work I had put into subjects during the year or a real measure of just where I was at academically.

As far as technology is concerned, there were no computers in schools at this stage of my journey so our experience with using any technology was in the woodwork and metalwork workshops. We were also introduced to typing in a 6th form elective class but we didn't take this very seriously.

## **University**

This was an impersonal place for me with most of my initial courses conducted in huge lecture theatres attended by two or three hundred students. Again there was mainly lots of writing by the lecturers on the board and lots of writing by us into our pads. We were occasionally treated to a film, a visiting lecturer or a field trip to give us other

information about the topic. Overhead projectors were just starting to make their presence felt in the learning space. Some lecturers had roles of transparency material that they used to produce at the start of the session and proceed to wind it out, talking to the material as it appeared on the screen. Occasionally the lecturer would write on the transparency when either another idea came to mind or there was material to be updated. This meant that the lecturer could use some materials that had been used in lectures the previous year. We were also subjected to lots of paper handouts. Some of these things are still very much with us today.

We had no choice but to attend these sessions as lectures were the place we went to 'get the information' and without it, I would not have passed my degree. If the notes were missed, we had to copy them from someone who had attended the session. The tutorials and lab sessions were a little more human and with smaller numbers of students attending it was a time to get to know other students and share experiences. These sessions are more valuable to some courses than the lectures. With smaller Stage Two classes, the tutorials were taken by the lecturers in those early years but now they are run by more advanced students under guidance by the lecturer.

A computing paper was introduced while I was at University and we learnt how to use punch cards to write simple programmes. The wait for the programmes to be run so we could check our error messages was either over night or over a few days. It is quite amazing that we now complain if we have to wait a few seconds for information to download from the Internet. My first experience with computers and programming was an interesting experience. The computers were housed in a room that we didn't have access to but we could see the operators in their white coats and the lights of the computers constantly flickering. It seemed more like a scene from a science fiction movie and the domain of the computer staff always seemed full of mystery and way out of reach.

## **Teachers' College**

It was a relief to get to Teachers' College after University. Even though I was learning to become a Mathematics teacher, there was more of a focus on the people than on the subject of maths. We spent lots of time thinking about the process of teaching mathematics to the students we would be confronted with rather than the content. After all, we had been learning content all our lives and as we had made a decision to teach, it was now time to learn how. I was with a small group of people who were moving in

the same direction and there was a real purpose to being there. I felt a sense of belonging at last. The campus was much more intimate than the University, as it had smaller buildings and classes. It felt similar to being back to school again but the experiences here were to change me in many ways. We spent time on our subject areas, as to be expected, but the process of teaching and learning was where it became exciting and alive.

I think that the three times I went out on teaching practice in schools were the most valuable times I had at teachers' college. It was time to put into practice, in a sheltered environment, the things we had been learning. Time in front of classes was instrumental in helping to shape students' learning as well as let me experiment with my teaching style. The different schools and teachers that I met and worked with helped me in my journey. I had a long way to go but we all have to start somewhere. Some teachers were glad to have a student teacher as it meant that they could go and do other things while their classes were being attended to. This was fine by me as it gave me a chance to learn about myself in front of thirty children.

Computer technology had not arrived at the college when I was there but we did learn the valuable experience, how to present material, both on the blackboard and using overhead transparencies. We were also able to be filmed teaching and then we could watch ourselves in action. No-one found this to be a particularly pleasant experience, but one we had to endure and find out, what we looked and sounded like in front of a group of people; a scary thought at the best of times.

## **Teaching**

I was now at the point of no return. I had made a decision to teach, graduated from university, received a teaching diploma and now I was in front of all these students. The apprenticeship was over, it was time to put all my learning into practice. The subject area of mathematics was not a daunting one to face as I had been learning maths all my life as well as assisting other students on a one-to-one basis. I felt confident that I knew the subject area really well so the most terrifying aspect was having all these new classes of students whose learning of maths I was to become responsible for. Working out a coherent learning progression for each of the classes was a daunting task but one that over time I mastered.

I learnt very quickly that there was more to being a good teacher than just knowing the subject material better than the students. I learnt a good lesson in school in the 6th form when a very well qualified teacher was having difficulty with a statistics problem. He knew his subject, but

couldn't explain it to the class. I volunteered, and proceeded to explain the problem to my classmates. In thinking back to the situation, I don't recall or probably even thought about, how the teacher felt about this as there were more important things to think about than his feelings.

In teaching, our focus must be on the students' learning needs in our class and part of our job is to find better ways to get our message across. If we don't succeed the first time, the challenge is to find better ways for the students to grasp the concepts we are trying to teach. We had to use our skill, cunning and our colleagues then as technology wasn't there to assist is at that time.

No matter what the subject material is, we need to strive to make the subject interesting for the students and make them think that it is the most important area in their learning. Maths for many students is a mystery and the objective of a maths teacher is to remove the mystery and mystique to make the subject as accessible as possible. This applies to all areas of learning and once the students can see a reason for the subject area, they will gain more out of studying that discipline.

## **Overseas Travel**

After teaching for three years, it was time my partner and I to travel overseas to see what the world had to offer. This was a great experience and taught me to think on my feet and gave me confidence to try different things. Travelling gave me a change to experience things first hand and learn from those experiences. I soon realised that only having work experience as a maths teacher didn't open too many doors to me overseas. There were other job opportunities available and while these gave me lots of new experiences, the money I could earn was not always very good.

While I was in London, a friend was returning to New Zealand and under his arm was one of the first personal computers I had come across. He was using it to create small programs using the in-built programming language. It was all very primitive but fascinating as well. The reason behind writing a complicated program to accept two numbers from the keyboard, add them and display the answer on the screen seemed both facinating and a waste of time. We also had a New Zealander flatting with us in London who was a computer operator. I didn't understand what this was but I learnt that there were also people called computer programmers who were in demand at that time in London. This information was filed away somewhere to be used later.

On visiting my brother in Bahrain on the way home, I met a person who was a computer analyst and the significance of the meeting was in what he told me. “When you return to New Zealand” he said, “get into the computer field. I couldn’t grasp just what this meant at the time but knew that I needed to learn other things so I could be more than a ‘maths teacher’.

### **Returning to New Zealand**

Back in New Zealand, it was time to reassess what I was going to do. First things first, however. I started by doing some relieving teaching in an Auckland school and had responsibility for a class of students for a few months as their regular teacher was in hospital with heart problems. I was told that the class was really bad and my first thought was the teaching experiences I had had in London. Being a supply (relief) teacher me that teachers who had bad classes or taught in rough schools were absent more often than teachers in good schools.

With trepidation I went into the class and made my way to the front of the room. I started the lesson with the usual formalities, but once I started to work with the students, I noticed that many didn’t have any maths books and they didn’t have very much interest in the subject either. The students were not bad; they were mainly bored with the subject and so didn’t put much effort into learning maths. By displaying an interest in the students’ learning as well as helping them achieve some success in the subject, I found that they soon had maths books and were taking an interest in the class. So the ‘bad’ class had found a reason to take an interest in their maths lessons. I was sad to leave them in the end as we had achieved a lot in such a short time

One day, I saw an advertisement in the local paper advertising a course on computer programming. The first step was an interview followed by an aptitude test. On passing the first hurdle, I decided to take the plunge and enrolled in the course. The course was privately run and had lasted 10 weeks. Most of us hadn’t used a keyboard but some had previous experience of using typewriters. The course took us through the rudimentary elements of using the keyboard and learning COBOL to write simple programs. One third of the fees were paid while I was attending the course and the remaining fees were to be paid if we were employed in the following six months in the computing industry. The company that ran the

course also helped us write out curriculum vitae and then sent them out to prospective employers.

The course was a great model but very different from the tough three years of learning that we now expect of our students for jobs in the computer industry.

### **Working with Computers**

My first job in the computer industry was with a company in Auckland as a junior programmer. I was not a very good programmer and didn't get very much satisfaction out of the role. There was too much talking to computers and not enough people involvement. A new role of systems officer was created and I stepped into it without any hesitation because it involved me as an intermediary between the programmers and the users. I would talk to the users who would tell me what was required. I would pass this onto the programmers who would create a prototype for me to demonstrate. The comments were fed back to the programmers who would then develop the program further. After a few iterations, a useful program would be in production. This was a very satisfying role and taught me very early on that the people component of computing was as important, if not more important, than the programming side.

My second position in the computer industry field was as the computer trainer for a large organisation. The programmers initially did the training, but being technical staff, they didn't have the required skills to pass the information onto the users. My position included doing needs analysis, designing specific courses for staff, and holding training sessions for staff on specific areas. I now had the perfect role where I could combine the roles of education and computing. My initial training as a teacher combined with my growing computing skills was a great combination.

The computer industry was rapidly changing. Many new roles were being created and each one seemed to be more highly specialised. During my time in industry, personal computers arrived and caused a change in the power base of the traditional computing 'main frame' department. Staff in a wide range of areas soon realised that they could use off-the-shelf software like spreadsheets and databases to create their own programmes to assist in the efficient running of their departments. The need to rely on the power base of the traditional computing department began eroding. This meant I had to learn new skills, develop new courses and teach to the changing needs of the staff.

## **Tertiary Education**

My next move was into the tertiary education sector to teach in the area of User Support. We offered traditional introductory software packages with other courses covering more advanced areas of the software packages to satisfy needs in the job market. Courses in help desk and training soon followed as support areas identified by our industry advisors as a growing need. People with more than just programming skills were sought after and the user support area has expanded at a great rate. This meant that a wider variety of students had a way to enter the computing industry with different skill sets.

At the same time, tertiary funding began being squeezed. This led to more pressure on lecturers to have more students in our classrooms as well as teaching shorter courses. Computing courses experienced an explosion of popularity, coinciding with courses being shortened. Lecturers under pressure to cover the curriculum in less time than they had the previous year. For some colleagues these external changes affecting pedagogical practice were resisted. For instance, a colleague of mine broke a finger and so had time off from his teaching duties. “I cannot teach as I cannot write on the board,” he said. For him, teaching was about transmitting knowledge or information, not about helping students’ learn.

I realised for the first time in my career that there were people in the tertiary education system that were there because of their content expertise rather than their teaching skills. Their teaching skills amounted to giving out information rather than assisting students’ learn. I was coming from a totally different perspective and to me, the content was not as important as the method of teaching. We cannot know everything about our subject to teach it and with areas of computing we have many gaps in our knowledge. I use this to my advantage and continue to learn with my students.



## **Multimedia in the Classroom**

In the early 90's multimedia programmes emerged. My first introduction to this area was Hypercard on the Apple Macintosh computers. This was the first multimedia program that let the imagination take over and allowed us to create applications without any pre-conceived notions. The program was also provided free on all new Apple Macintosh computers but no equivalent on the DOS platform. The program was based on card metaphor in which text, graphics and navigation buttons could be placed on the screen and these buttons could be clicked to navigate to other screens. We had a blank canvas in which we could begin to paint our own pictures. Sounds and voice could also be integrated with video still on the horizon.

The first time I introduced multimedia into my courses was in a training module where students had to construct a computer based training application. I chose to use Hypercard and had to borrow another department's Macintoshes as we were only equipped with labs of DOS based personal computers. Once students learnt about working the Mac way, they were on their way to creating some great programmes. Both the students and I became fascinated by its possibilities.

I began to see how 'multimedia' could be useful in the classroom. This led me to writing a multimedia course for the computing diploma I was teaching. The department by then had seen the need for this area of computing and we bought a lab of Macintoshes for multimedia course work. This also introduced us to the other media areas of graphics, sound and video, which we took on board with a vengeance and had the students experimenting within the multimedia course.

Two aspects were important in multimedia: teaching how to use programs to create the various media elements; and putting them together in a cohesive fashion to create an application that was usable. I didn't set out to have another applications course where we taught the relevant multimedia packages. Instead I wanted the classroom to be used for experimentation in the multimedia field where students felt that they could have a degree of freedom in the subject and still receive recognition for their efforts. To this end, I have given students the opportunity to pick their own topics when they are studying multimedia. This meant they could concentrate more on an area of interest and use the technology as a tool for making their topic accessible to others in a multimedia format.

## **Apple Developer's Conference 1992**

In 1992 I was offered a place to San Jose, California to attend the Apple Developers' Conference. This was the most amazing experience of my computing life. I was privileged to be with an exciting group of people who were at the bleeding edge of the multimedia revolution. I witnessed ideas by developers that were years ahead of their time and suddenly realised that this was the direction I was destined for. I felt enthused and confident that this was an area of computing that I could fit into and make my presence felt.

It was the first conference I had attended where the presenters were using multimedia presentations of their development projects. These were not just Power Point presentations but also used were sophisticated software multimedia authoring products to create their presentations. New Technologies like cd roms were also demonstrated for the first time. It felt great to be involved in this revolution and have ideas to bring back to put into practice.

## **Back in New Zealand**

At home again, it was time to re-evaluate the direction that I was going. Multimedia took over my life. It was time to get things moving in that direction. I developed a new course for third year students and put it into the National Diploma in Business Computing. Students could also opt to complete their third year by doing a project in Multimedia. This move began to stretch the departmental facilities and would take time to settle in.

I also decided that my own professional development needed some attention. I enrolled at Waikato University to study for a Graduate Diploma in Film and Television Studies. I has always been interested in the moving image and saw the areas of film and computers merging very quickly with the introduction of the mass storage devices. The last year of my three year course was a directed study and I chose to explore the area of using cd roms as a way of teaching film in New Zealand.

After extensive research and watching many New Zealand short films, I watched a short film by Nicky Marshall called "Mirage". I also watched a taped lecture given by Nicky when she guest lectured at a Summer School paper at Waikato University. This gave me lots of ideas for my directed study and I could see the possibilities with this film. I had an intention of

not only digitising the film and putting it onto a cd but I also wanted to explore aspects of the film using this medium that could be used in a teaching situation. Included on the cd was; viewing of the film in a cinema setting, viewing the film as a video, with full controls, interviews with the director and an actor, the whole script, the original storyboard, the advertising poster, a tutorial with film students and other relevant material. The intention was for students to view the contents of the cd rom in their own time and make some decisions about the film based on what they viewed. There was no clear sequence to viewing the cd, but it was advised to view the film before any of the critiques.

My university supervisor assisted me in the task, but I created the whole application by myself. I learnt many things from the experience, like; the time it takes in creating multimedia applications; the need for teamwork; and having a clear idea of what you are trying to accomplish. I knew what I wanted to accomplish in the end but the structure was being defined as I went. It was very difficult to write a storyboard for the whole application as some of the content and areas of further exploration was unclear until after I had interviewed the director about the film. It wasn't until then that I had some ideas of just what areas I would explore.

While my study was occurring, A Bachelor of Information Technology (BIT) was written and introduced at our institution. The changes were happening at a fast pace and this was only to increase over the next few years. A third year multimedia paper was also included as a choice for students and some also opted to complete their degree by doing a multimedia project. Based on my experience in doing the directed study, we insisted that students worked in teams in developing their applications as this was also being demanded by our computing advisory boards. We also ran the UTS, Graduate Diploma in Computer Based Learning in Hamilton to cater for those students who were in the workforce already but wanted to further their education in the multimedia field. An attraction for this course was the weekend study option offered so that people working full-time didn't need to take time off to gain another qualification. The classes were small but the students still needed to travel to Hamilton on the weekends that the course was offered. Lecturers were also flying in from Sydney to take part in the delivery of the material. The traditional Monday to Friday teaching times were changing as we started to listen to the needs of the students and attempt to create courses that suited what they wanted and not get them to fit around what the institution offered.

## **The Arrival of the Internet**

I recall a time not so long ago when business cards appeared with e-mail addresses on them. If you didn't have an e-mail address, you were missing out on something, we just weren't sure what. We didn't realise at the time that this was just the beginning of the Internet revolution that was to make a very big impact on our lives. Business cards and e-mail signatures now have our own, or our businesses URLs on them. What's next?

I saw the World Wide Web as a natural progression from the multimedia teaching I had been involved in previously and saw it as another interesting challenge. I was keen to be involved so started teaching students about the Internet as soon as I could. The greatest change that the Internet brought about to my teaching was the ability to put courses on-line. I could experiment with another approach to teaching and see just what this medium had to offer both teachers and learners. The Internet course I was teaching in the degree program was an ideal course to experiment with putting on-line. Initial restrictions meant that the developed html pages were stored locally for the students to access the course notes. This was great for students on site but when they were at home, they had no access. After continued demand from students, the pages was put onto my own personal Internet account as an interim solution and from there it was changed, developed and moved to the institutes' web server. We now use WebCT as our framework for the course and after two years of work have a good product to assist learning.

## **Now**

I still teach multimedia in the degree program and also in our masters of computing degree. The Internet course is still popular with other institutions wanting the ability to teach it in their programs. More lecturers are now seeing the advantages of using both multimedia and the Internet to assist their classroom teaching and are joining the move towards alternative delivery methods.

I find the area of teaching and learning a very challenging space to be involved in and our task is to make sure that the on-line learning experience is just as valuable to the students as being in a face to face learning environment.



## Conclusions

This journey has a definite beginning, middle, but no end, only a temporary pause for some re-evaluation. A good and worthwhile teaching and learning experience must be the goal of every professional teacher who has a group of students to teach. The art of good teaching cannot and will not be replaced by technology but we can use technology to make what our jobs more fulfilling and the learning experience for the students a more rewarding experience.

The excitement and challenges just keep on coming.

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