

PUBLISHING FUTURES IN AN ELEARNING COMMUNITY

CASE STUDY—JOHN PAUL COLLEGE

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INTRODUCTION

This chapter examines the educational market for new book products through a case study of John Paul College¹ (JPC). The College has run a wireless noteBook computer program since 1992. The College's teaching and learning philosophy is based on a constructivist pedagogy² which the staff believe is supported by the noteBook program. Teachers at the College also author and use a range of digital educational material.

This chapter should interest publishers and printers alike, as it is indicative of future markets in education. In particular this case study indicates that it may be useful for printers and publishers to think in terms of potential partnerships, including end-users, in the development of ePublishing products and services. This would see readers re-conceptualised as users of ePublishing products.

Users of the JPC system exist at a number of levels. Students are the core users but academic staff are also users and crucial to the success of the system. Staff create and aggregate digital content, some of which contains interactive components, for the students. The JPC approach to integrated learning technologies resides within their overarching goal of creating a connected learning community. One of the ways in which this learning community is being realised is through the development of an online portal called MyJPC.com.³

¹ <http://www.jpc.qld.edu.au/>.

² 'Constructivist pedagogy is based on the belief that students create their own knowledge... Teachers can teach in ways which are called "constructivist" by being aware of, and teaching in a manner consistent with, how their students learn.'
Henriques, L., (1997) *Constructivist Teaching And Learning*.

<http://www.educ.uvic.ca/depts/snsc/temporary/cnstrct.htm>

³ <http://myjpc.com>.

The portal is an attempt to bring together students, staff, parents, former students and members of the wider community under one learning umbrella.

BACKGROUND

John Paul College is a private ecumenical school located in Daisy Hill, Australia. The College was opened in 1982 and currently has 2400 enrolled students, making it one of the largest schools in Queensland. Ten per cent of the students at the College are from overseas, some of whom enter via the international College operated via JPC.

The College serves students from preschool through to year 12, using a 'school within a school model' where primary and secondary schools are further divided into three sub-schools, each with their own head. A faculty structure overlays the school's structure to allow for focused activity around disciplines.

The College has 350 staff and a turnover of close to \$A25M per year. The school has a paid board of directors and has a corporate model of governance. The principal, Stephen Paul, sees himself as the CEO of a company, which happens to be a school. In discussion with the staff at the College it was clear that they viewed themselves as belonging to a global organisation.

TECHNOLOGY

One of the unique aspects of JPC is the extent of their technological program. Students from preschool to Year 4 have access to computers and digital devices in the classroom. The school supplies sets of noteBook computers that are shared between students at this level.

Every student from years 5 to 12 and all of the teaching staff have their own noteBook computers. In total, there are 1850 Toshiba noteBook computers and 200 Acer desktop computers in use at the school. The requirement for noteBook computers comes at a price. Students pay about \$A1000 per year to have a noteBook, and academic staff have a salary sacrifice arrangement to ensure the ubiquity of the noteBook program.

JPC have a wireless network that provides 2000 concurrent connections. This network allows students and staff to get access to online curriculum and the wider Internet from anywhere in the school grounds. Wireless base stations have been placed in strategic positions throughout the school to provide network access within and around school buildings. The local Internet Service Provider has supplied a number of 60-foot towers to provide seamless Internet access across the entire JPC campus. There is also a fibre-optic backbone across the campus providing gigabit capacity for the fixed network. This high-speed network enables video conferencing and the school has plans to implement voice communications over the wireless network via a range of portable devices over the next two years.

In addition, JPC provides the capacity for students and family to dial-up and connect to the school from home. This facilitates a Virtual Private Network (VPN) which gives the students full access to the school's intranet from home, including all of the online learning material. This technology does not come at the expense of the educational program. Computer use is so ubiquitous that students see computers as just another tool, whilst for teachers the computers allow students to achieve the desired learning outcomes. This is critical to the approach JPC takes to technology—the College aim to integrate it into the everyday experiences of their students. The technology is embedded in school life, becoming a natural and instinctual part of student activities.

The integration of computing technologies into the teaching and learning experience of JPC was contrasted by its Principal with the approach taken in some other schools where putting a computer in the classroom was perceived to be like, 'putting a combustion engine in a horse.' Other schools were seen to be lacking the constructivist model of learning that underpins JPC's use of technology. The principal, Mr Paul, believes that a computer lab where students go three times a week is not the same as an integrated strategy. He believes that the technology 'cannot be just bolted on.'

PEDAGOGY

Despite being involved in a wide range of activities, JPC sees teaching as their *core business*. Their approach is clearly student centred and they primarily employ a constructivist teaching philosophy. This allows for the learning program to be co-designed with the learner, which results in a very different environment for both teachers and students.

The role of the teacher changes in this environment from ‘font of all knowledge at the lectern’, to facilitator and collaborator working amongst the students. The principal of JPC told of occasions where he had entered classrooms and was only able to identify the teacher by their different coloured shirt, as they were ‘in amongst it’ with the students.

There is also a push at the school to break down the *subject centeredness* of teachers, inviting them to be ‘temporarily incompetent’. This approach encourages broader thinking about tasks undertaken in the classroom, and helps staff shift into an integrative mindset. Training for new staff emphasises that they are not alone in the classroom but learning *with* the students and able to call on other teachers for assistance at any time.

While the use of a constructivist teaching philosophy is not uncommon, staff feel the constructivist approach is supported by the wireless noteBook program. Staff at JPC feel that the approach taken to the introduction and integration of technology has forced a shift in the locus of power in the classroom. In this environment the student is clearly empowered and teaching materials and modes are structured around this new power relationship.

For many projects, students are supplied with a whole range of stimulus material that acts as a starting point. There is an initial immersion period, and a range of materials supplied, including starter and core resources. These resources might include key words, useful search phrases or web resources that have been previewed by staff. These resources give the students some direction, focus and momentum. In the experience of the academic staff at JPC, students were rarely confined by this set of resources—they often went beyond what was expected. In many cases students found resources of which teachers were not yet aware.

Importantly, students are encouraged to think about how they frame up questions so that the research they do is of a deeper, more

mature nature. In this environment, analysis and critical thinking skills are highly valued.

Much of the work in class is performed in groups, where collaboration is actively fostered. A great deal of inter-group work occurs in class as well, with students willingly offering resources and understanding about the current project to their peers.

In this context, staff talk of students swapping ‘cheats’ for the current project. This concept comes from computer gaming culture where knowledge and experience, especially secret codes that unlock extra features in games, are swapped between gamers. In this light, cheats have an entirely different connotation for this generation. Literally, it is an expression of the desire of students to benefit from someone else’s experience in order to make their experience better (not easier).

This practice is encouraged in the classroom and more broadly in the learning community as it ensures that the students talk to each other and solve problems together. Students also share new knowledge about the technological tools (software and hardware) they use, collaborating around them and trying to get the most out of them.

In this environment it is difficult to identify the ‘reader’—the students are users rather than readers. They use a range of resources in the classroom, some provided directly by staff, acting as facilitators, whilst others are provided by the students themselves. A culture of sharing and collaboration permeates the campus.

Despite the quicker access provided to web sites, which have been previously accessed and cached, students continue to seek their own resources. Once found, a good site is quickly shared with other students and the teacher. This means that the core is shared but the specific interests of students allow them to seek out and use divergent sources while still achieving the desired learning outcomes.

One of the teachers spoke about a project related to the Olympic Games that had been set for students to do in groups. Working from home, a particular group had been chatting to each other via the Internet. They had decided on the key words, key ideas, key phrases. One of the students then divided this list up and emailed a number of tasks to each student. They then went off to find resources on the web with an agreement to meet back in chat in a

couple of hours. They came back together, compiled their shared resource list and using these shared resources wrote their individual papers.

This led the authors to ask about whether plagiarism was perceived to be a problem at the school. The JPC staff believed it was the types of questions asked that led to plagiarism. For the teachers, if a question was asked that simply required the facts, 'you deserved plagiarism'. If you wanted students to use their critical and analytical thinking skills then teachers should ask open-ended questions.

An example was provided of a task that required students to think about alternative outcomes for an historic event, in this case World War I, where some circumstances had been altered. This required students to think for themselves and to develop a deeper understanding of events and how they were inter-related.

Assessment is not only of the written responses of students. Students are assessed on their ability to demonstrate their understanding through communication, often via presentations to a group of their peers in a formal setting. Students are asked to make peer presentations from Year 6 onwards. Staff were impressed with the ability of even quite young students to give a twenty minute presentation 'just like that.' Other aspects of assessment were based on in-class and online participation.

From this point of view, while the staff talked about outcomes, they emphasised that the end result was not the most important outcome. Students were asked to submit work progressively so that their development is made visible and assessable, and so that teachers can give timely feedback. The aim is to encourage introspection on the part of students, especially in terms of the process undertaken and skills acquired. Staff at JPC strongly believe that *how* you learn is as important as *what* you learn.

Members of staff also felt that students as young as twelve had a demonstrable ability to synthesise and extend complex ideas. One staff member commented that they 'really have to know their stuff, they have to feel it—that's real learning.' For this staff member there was a very strong sense that the technology was critical in achieving this learning outcome, which included engendering feelings of self-confidence. Additionally, students were seen to be skilled at dealing with a glut of information and by year 12 had research skills that

would help them deal with the demands of the tertiary environment.

Teaching in this environment poses some challenges for teachers. Much of the activity in class occurs in a very non-linear fashion and is driven by the day-to-day activity of students. One staff member spoke of having to put a loose structure in place with ‘hooks’ at different points. The challenge became to ‘hang the right things on the right hooks.’

The staff believed there was ‘masses of content, all quality assured—the challenge seems to be picking the appropriate stuff that suits your class and adapting, amending and adjusting the material to your kids.’ Staff also mentioned that they were breaking classes into ability groups and refining content for each group. This approach went further in some cases, where some staff expressed the need to ‘customise and structure online curriculum content for individual students.’

In the longer term this was seen to have an impact on the sorts of skills required of teachers when preparing content for their students. For example, excellent content authored by a famous physics professor can be easily sourced, but it is sometimes difficult for teachers to learn how to adjust and refine this content to meet the needs of their students. It was seen that this transition could be quite difficult for some teachers, used to assessing material based on students ‘regurgitating’ the teacher’s own content.

CONNECTED LEARNING COMMUNITY

One of the key concepts in the approach JPC takes is the idea of fostering a *connected learning community*. This is of course made physically possible with widely available computers and networking facilities, but this was not considered sufficient by JPC. They sought some way of involving parents, siblings, former students and the wider community and this was delivered in the form of the MyJPC portal, which was launched in July 2001. MyJPC allows 24-hour access to learning resources, enabling what JPC and Microsoft call, *anytime, anywhere learning*.

MyJPC supports a range of activities and acts as a hub or focus for the activity of students and staff in the online domain. MyJPC has real time chat, a college calendar, online tutorials, web sites for

students and families, video conferencing, streaming video of major school events, access to the student radio station and technical training for visitors who want to improve their computing skills. Each student and staff member has their own homepage and email address, and there is a range of online discussion groups at year and school level. A section that caters for former students, the JPC Alumni is currently under development and will be launched in 2002.

In order to participate fully in this connected learning community, each family has an email address and web page. Parents have access to the portal and are encouraged to become part of the JPC community.

The concept of a learning community is further extended via the links forged between the College and local universities. JPC is offering first year Information Technology subjects to its students, building on its acknowledged IT expertise. Universities are coming to schools to recruit potential students and many of Queensland's universities are showing an interest in what is happening at John Paul College.

DIGITAL CURRICULUM

Over time JPC have developed a *digital curriculum*, which is managed and accessed via Microsoft Encarta Class Server. This currently includes a range of learning resources that are composed variously of text, audio, video, animation and interactive components. Some of these components are self-contained learning units with automatic assessment and in-built feedback.

The entire curriculum for years 8 and 9, most of year 10 and significant parts of primary (years 5 to 7) is available via networked computers. However, the mix of teaching, computer based and hands-on activity is driven by the outcomes that staff wish to achieve for students. When staff were first coming to terms with the technology, activities were made very specific, for example, 'use your computer and Word to produce this assignment'.

The approach has evolved, so that now students might be asked to 'show how you feel about trees being green'. The students ultimately choose how best to produce and present their work and the solution *might* involve the computer or it might be a dance

segment. In this context the computer is just another tool which the students can use.

Staff members write learning material themselves or combine their material with commercially acquired content. This fosters an important feeling of ownership of the curriculum—not so much of content, but of the process and outcomes. Currently most content created by staff is hand crafted in Word, but templates are under production in order to ease their workload.

An important adjunct to the learning material is the electronic message board which is available to students on the system. In discussion about this it was noted that:

...students who don't engage in class, will go home and think about issues and contribute to the message boards. In this sense, the discussions will get further than they ever could in class. Points are being made that would never have been made otherwise.

This after-hours opportunity to contribute to the message boards was seen as a very important factor for some adolescent boys. This indirect mode of communication gives these students a voice.

The combination of learning materials, electronic resources, message board system, chat facilities and email all help to make the concept of a *classroom without walls* possible.

In the past few years there has been a dramatic shift in the creative source and volume of JPC's home-grown digital content. Whereas as recently as three years ago ten staff were producing 80% of the online material, now there are 150 professional educators all contributing content. Staff are not expected to create interactive content, but it is an option and many do it in their own time. The volume of material being generated is considerable and this has begun to put pressure on the school's capacity to store digital content.

In discussion with the teaching staff, they often referred to the 'time zone model'. As mentioned previously this informed some of their ideas on 'cheats', but also fed into their thinking on interactive content. Computer games were seen as something immediately engaging for students, and staff wanted to pick up on this 'play' aspect in the interactive content they created.

We were shown an interactive module, which formed part of the technology program on artificial intelligence, that utilised a model of the Sony AIBO robot dog. This module contained aspects that were playful, some that were puzzle-like, and others that encouraged

exploration. Some material was also presented in a quiz format—not as part of the student’s assessment—but to allow the students to get immediate feedback on their level of understanding of the material.

In this sense, interactive material is used as a *stimulus*. Staff reported that students were ‘fascinated by the AIBO stuff, but would jump back into Encarta to further their understanding. The interactive material is quick for students to run through and acquire base knowledge, and leaves more time for higher order thinking.’ Staff gave a further example of an interactive Java applet that demonstrated the principles of refraction and reflection of light in Physics.

Interactive modules such as these can be used whenever a student has access to the JPC learning system. Students could otherwise only perform these experiments in the labs at school.

These aspects of the system facilitate the ‘anywhere, anytime learning’ that is cited as central to the JPC approach. In all of this though, there is still seen to be a place for static content, including text. As stated by one of the staff members we spoke to, ‘you can’t teach a great body of knowledge through purely interactive means’.

At JPC the way in which students access information sources is changing. Rather than look through printed newspapers and magazines, students prefer the digital versions to which the school provides access, including World Magazine Bank and the Electric Library of Australasia.

This is largely because these sources are searchable, so relevant information is easier to find. Also, the availability of resources is better, ‘it’s just there all the time, and there is no sense of the material being out on loan’. This highly available resource set means that students can get access to resources even when the school is closed.

With a broad range of digital resources at their disposal, students are sometimes unsure of the authenticity or credentials of some authors. Quality assurance is still very important to the students, especially when information has been sourced from the Internet. Teachers will often vet sites before students use them, and students are taught about the importance of questioning the authenticity of resources. This promotes critical thinking skills in the students, which can be applied to any form of material they read.

JPC are investigating ways in which continuity and follow-on can be created between different year levels. KnowNet, a South African system for establishing credentials for and systematising content is being examined because it allows teachers from one year to know what teachers from another year have done. This opens up opportunities for topic materials to lead from one year into the next and reduces the possibility of repetition.

There appears to be a real opportunity for publishers to operate as an editorial or quality assurance entity for a wide range of material that might be used in educational environments.

STAFF DEVELOPMENT

The equivalent of eight days professional development per year is provided to staff. This development is written into each staff member's employment contract. The principal, Mr Paul, talked about this commitment to professional development as an investment in the staff and an investment in what the school could offer students.

He described the teaching fraternity at JPC as passionate about their teaching and highly committed to the needs of the students. This passion and commitment was clearly evident to the authors when we met with staff.

Mr Paul believed that the staff at JPC were highly marketable. The professional development they received, combined with the experience of being part of the JPC learning community, contributed to a perception of JPC staff as highly skilled teachers who were technologically literate.

PRINTING

While staff noted that students in later years were more likely to want to print material, they said that students in lower years printed fewer documents. This was partly to do with the type of material used in different year levels, and perhaps partly to do with the way different generations were using the technology. Staff observed an increased tendency amongst Year 8 students to copy material from the web and paste it directly into Word. Once they had collected

the resources they were interested in, they would incorporate and redraft material without printing it out.

This has created an interesting issue in its own right, as students are still required to hand-write exams at higher levels because of state requirements. This means that students have to be adept at writing and revising text on paper.

Staff felt that printing onsite was becoming less important, and large-scale printing or print on demand facilities would not form part of the system they were building.

COPYRIGHT

Copyright is rarely an issue in the classroom due to the provisions for fair use in the Australian Mechanical Copyright Owners Association (AMCOSS) agreement. Materials used in teaching within the campus, where access is limited to the learning community, are subject to fewer restrictions. However, the Australian Record Industry Association has not been receptive to the use of copyrighted audio material in the classroom at all.

Sharing content with people outside the school community can lead to violations of Copyright. Consequently the use of resources including images, sound and text outside the school community requires appropriate permissions and attributions.

The school produced a set of learning resources for Heinemann Interactive but they had many problems obtaining permissions to use the digital materials they had collected. When material was produced that was designed to be distributed outside the school community, the range and richness of resources was restricted to the point where staff saw their students as being disadvantaged. Ultimately they felt that their focus should be on creating content for *their* kids so the joint content development effort was curtailed. There seems to be a genuine opportunity for publishers to help teachers and authors through the digital content creation maze.

One of the teachers told the story of an Australian publisher who did more than just listen to the teachers. She told of how XSIQ, an educational software and content development company, had produced some educational software on health issues for children. The program had been created in Flash media but it wasn't very interactive beyond hitting the 'go' button at the start.

The teacher assessing the software told the representative of XSIQ that the students were not very impressed. She suggested they ask the students what they wanted. The students responded in a survey that it was 'all very nice', 'keep trying and I'm sure this will get better, but at the moment there is nothing for us to do'. The children wanted interactivity, they wanted control, they wanted choices. XSIQ responded to the feedback, redeveloped the software, made the changes suggested by the children and according to the teacher telling the story 'built a wonderful product', which is now being marketed worldwide.

However, broadly speaking, publishers have not been very interested in collaboration with the school in order to develop and evolve content. The staff were quite critical of this lack of interest by educational publishers.

THE ROLE OF TEXTBOOKS

The role of textbooks at JPC is changing too. They still have a place in the classroom, but they are definitely in decline. Staff stated that 'students need some concrete material, but printed books are just one of a variety of options'. Up to Year 5 the availability of this material is considered to be very important. A complete library of thematic material is provided in every year level, but students don't rely on this material.

Students are used to a non-linear, hyper-linked reading of text. The most recent generation of textbooks imitate this form. We were told of an example that involved the evolution of geography texts over time. In the past a geography book would focus on a particular topic and material would be presented in a very linear fashion. Current textbooks incorporate social and cultural issues, presenting information quite differently. Interspersed throughout the text are sidebars and text boxes pertaining to case studies and issues, often with focus questions at the end.

To this extent, authors and the publishing industry have changed to reflect how society thinks about problems and how readers process information. The irony here seems to be that most electronic offerings from publishers are a regression to textbooks of 30 years ago—very linear.

INTERACTIONS WITH PUBLISHERS

We spoke to the staff at JPC about the interactions they have had with publishers while developing their digital curriculum. In their opinion:

...publishers have got the content, but can't see how to adapt it or where interactivity would fit in—and they don't want to start again. People in schools probably can, they can say, oh yes you can put a video in here.

One teacher responded to this comment with 'online *learning* and online *content* are different and publishers don't realise this'.

The teachers had the sense that publishers were trying to do the teacher's job instead of simply providing the content that they needed. 'Publishers should empower us to be dynamic and different in our teaching... They are not catering for what we need but what they think we need.'

Staff expressed a desire to have a resource pool that they could draw on when building class materials, so that they could pick and choose the resources that suited their specific needs. One member of staff said that:

...publishers should be facilitators...to provide me with what I need... They should ask me what I want and...give me a set of things that I can build up and use as I like... Not a book...a collection of resources.

What might this sort of response mean to publishers? How can publishers provide teachers with what they need, what they will use rather than consume?

PARTNERSHIPS

JPC have been active in partnering with companies in order to develop their comprehensive and integrated approach. Partnering with suppliers has been crucial to the success of JPC's 'online learning community' initiative. They currently have relationships with companies including Microsoft, 3Com, Toshiba, Acer, KnowNet, ISIS Education and Training (XSIQ) and Heinemann Interactive. Each of these partners provides an essential part of the infrastructure that they need to prepare and deliver content for their connected learning community.

Principal Stephen Paul said that 'a lot of synergy comes from those connections—we are trying new products, therefore people

know that we are trying new things'. This has a compounding effect, as this inclination towards innovation attracts other players who are also interested in innovation, creating opportunities for further partnerships.

Many of the arrangements that JPC has with their partners are particularly interesting and innovative. For example, John Paul College is a Microsoft solution site for the development of Encarta Class Server. JPC's relationship with Microsoft is, in effect, as a co-developer of the product, as well as that of supplier and end user. JPC's involvement will help ensure the Microsoft product meets the requirements of real users. Also, JPC's technical support, both for hardware service and software updates, is provided by contractors permanently stationed at the school.

The productive relationships that JPC has developed with Heinemann Interactive and XSIQ are good examples of the kinds of relationships that are possible between publishers and users. XSIQ exports educational services and products to more than twenty countries, including the United States, the United Kingdom, the Philippines, Malaysia, Korea and New Zealand. XSIQ uses the Australian market as a development test bed for their educational software.

JPC benefits by having input into the development of digital content products that meet their needs, and the publishers benefit by gaining insights into the specific needs and practices of users. This understanding informs their product development, and ensures that their products are appropriate, desirable and actually useful.

An example of some very interesting developments at JPC, was offered by recently departed Director of IT at JPC, Aiden McCarthy. Mr McCarthy was one of the architects of JPC's integrated learning and technology strategy and was approached by Microsoft to head an educational software division. This indicates the degree to which Microsoft believes in the approach at JPC and their desire to reproduce it elsewhere.

In another interesting development, Tony Carrucan, Vice President of XSIQ is moving to Queensland to locate himself at JPC. Mr Carrucan will stay on as Vice President of XSIQ, but spend the majority of his time working to contribute to the vision of the future at JPC. He sees this as a form of partnership where he is embedded in the educational environment of the school.

These two moves, when examined together, highlight the development of partnerships between software companies and their communities of users. The future development of products and services by Microsoft and XSIQ, for their user communities, could be expected to reflect these developments. With these two examples we sensed that we were seeing companies that really understood the value of the user perspective and their capacity to *create* as well as *use*.

How many other publishers could benefit from such closely integrated partnerships?

DISCUSSION

The achievements of JPC were recently highlighted when the school was singled out as an exemplar in the Australian Labor Party's Knowledge Nation Report. JPC was identified as an outstanding example of a school that had successfully integrated teaching and learning with information technologies.

Microsoft too, has beaten a path to the door of John Paul College, making it the first Microsoft solution site for development of Encarta Class Server in Australia. The school has regular communications with Microsoft regarding the development of the product, more specifically JPC's requirements for the product. Microsoft's recent hiring of JPC's Director of IT is further evidence of interest in the activities of John Paul College.

Both Microsoft and XSIQ seem to have recognised that a great deal of expertise is to be found within the domain of the user. Companies rarely have the experience on the ground, where users are actively engaging with, adapting and responding to, the products and services provided.

They have recognised that they can hire people from the customer's world and even place their employees directly into the environment of the user. These people share the user's context, know what is happening on the ground and can relate directly and intimately to the user.

For the publishing industry it is important to understand that publishers can source important expertise and knowledge among their own users. From this perspective the product is a side effect of the relationship between the company and the users, the focus is

more on gaining an understanding of the users—developing an awareness and appreciation of specific users and the way they use the resources.

JPC has a strong sense that the way they are integrating their pedagogy with information technologies is immeasurably beneficial for students. They believe ‘all schools should be doing what we are trying to do.’

In many ways John Paul College is an exceptional school. This is not a reason to think that the experiences and practices of the College and their partners are unique. This approach can work more broadly, even in environments that are not so well resourced. Many of the companies partnering with JPC are working with schools in the public system.

Much of the success of JPC is due to partnerships—with suppliers of equipment, software and content. Compelling user-centred offerings can be provided by publishers in this and other changing environments if meaningful partnerships are created with end users of products and services.

NOTE

PROJECT-MU conduct all of their work in a collaborative mode. All authors contributed equally to this chapter and are listed alphabetically for convenience.

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In December 2001, the authors spoke to the Mr Stephen Paul and a number the school’s academic and technical staff members. The conversation was tape-recorded and the transcript of this recording was used to inform the writing of this chapter.

In January 2002 the authors interviewed by telephone Mr Tony Carrucan. Notes were taken during the conversation and used to inform the writing of this chapter.

This chapter represents the authors understanding and perceptions of the experiences of the respondents. Where the respondents are quoted in the text their comments relate to the above-mentioned conversations.