

Attracting Students to Computing: The Collaborative Development of an Innovative Marketing Tool

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Abstract

Over the past few years students enrolling in computing courses or choosing computing as major have been declining. (McCallum, 2006, Chabrow, 2004) Review of the literature tells us that one of the reasons for this decline is the “image of computing” as a viable career option. To help eliminate this myth a project was established under the Accelerating Auckland Task Force TEC funding to create a DVD for high school students to show how exciting a career in computing can be. Six Auckland tertiary institutions collaborated to design and produce a DVD outlining eight different careers in the field of computing. This paper outlines the background to the declining enrolments, the collaboration of the six tertiary providers and the production and development of the DVD. Free copies of the DVD will be available at the presentation.

1 Introduction

Declining enrolments in the wider field of computing have been a major issue for tertiary providers for the past six years (Clear & Bidois, 2005). Many studies (McCallum, 2006, Clear & Bidois, 2005, Selby et al 1997) have identified various reasons for the decline in enrolments, although one reason is consistent with all studies: the image of computing. High school students, their parents and advisors tended to suggest that computing is a “nerdy”, “geeky” career with little or no options of job security or career potential (Reed, D. 2008, Selby et al, 1997).

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Along with the decline in enrolments in tertiary institutions in the computing field, the industry were reporting a crisis in the employment market, there weren't enough graduates to fill the rising number of positions in computing. (Sydel, 2004, McCallum, 2006). So, although we had the need from industry we had little demand from potential students.

To attempt to dispel at least this one myth, that computing professionals were “nerdy” and “geeky” and there were no jobs for them, six institutions that were part of the Accelerating Auckland Task Force joined to collaboratively develop a marketing tool.

This paper outlines the collaboration, the development, the issues involved during the development and the final product that was developed.

2 Background

2.1 Declining enrolments

Much has been written in formal journals and newspapers over the past few years on the decline in students choosing computing or choosing a computing major in their tertiary education. Internationally many institutions reported up to 60% decline in first year enrolments (Frauenheim, 2004) with some institutions closing their computing degree programmes altogether. The NACCQ has also noticed and reported this trend in their Annual Reports. (Robertson, 2007) The ACM Education Council considered this so important they created two special task forces, one of which was the “Image of Computing” to develop materials, website and other tools to try to dispel these myths. (Association of Computing Machinery, 2008) The ACM Computer Science Teachers Association also created materials to appeal to high schools students to consider a career in computing. (Computer Science Teachers Association, 2008)

2.2 Increase in Job Vacancies

The New Zealand Department of Labour Job Vacancy Monitor (JVM) noted though a steady increase in the number of skilled computing and IT jobs. “The IT Vacancy Index increased by 33% between May 2004 and the same period in 2005 to 209 indicating a growing gap between the demand for and supply of IT skills. Vacancy growth was strongest in Christchurch (82%). Wellington and Auckland recorded 39% and 25% growth, respectively” (New Zealand Department of Labour May 2005). In December 2007 the JVM noted

“IT job advertisements grew by 22% to 1206 from December 2006 to December 2007.

Figure 3 shows the increases in IT vacancies in December for the three largest regions, Auckland, Wellington and Christchurch.

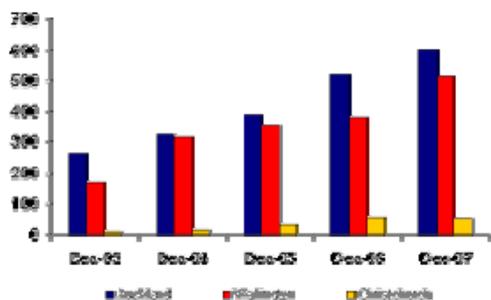


Figure 3”
(Department of Labour, 2007)

This shows that from December 2003 to December 2007 the IT job market increased from approx 400 job vacancies to 1206, an increase of over 300% in four years.

Similar reports were received from Australia and the USA.

2.3 Accelerating Auckland

During this time A Task Force was set up in Auckland funded by a grant from the Tertiary Education Commission (TEC) which brought industry and education together to attempt to encourage more students to consider a career in computing. As stated on the website “*Accelerating Auckland* is a unique collaborative model enabling judicious participation and interaction between multiple TEOs and industry. It is anticipated that the model will be suitable for replication in other sectors or regions seeking similar outcomes.” (Accelerating Auckland, 2008)

Accelerating Auckland states that it:

“...supports regional growth by ensuring that Auckland has enough workers with ICT skills. It does this by:

- Aligning industry skill needs with tertiary programmes
- Promoting ICT programmes and careers to students
- Fostering collaboration between industry and tertiaries
- Working to increase Maori and Pacific participation and completion in tertiary study”.

(Accelerating Auckland, 2008)

Accelerating Auckland receives funding from the Tertiary Education Commission (TEC), other central government sources, economic development agencies, and the private sector.

The development of the DVD was one of a number of initiatives that Accelerating Auckland worked on during 2006 and 2007. It’s main focus is on:

- “**Building and maintaining an understanding** of existing and emerging skill requirements of the ICT sector
- **Advocating ICT careers** to different population segments
- **Promoting tertiary education and training opportunities** available in ICT to appropriate student markets
- **Enhancing the relevance of ICT and related programmes** to industries traditionally not involved with ICT
- **Developing incentives and interventions to encourage targeted student populations**, in particular Maori, Pacific and international students, into ICT programmes and careers.”

(Accelerating Auckland, 2008)

3.0 Design and Planning

3.1 Previous similar tools

In the early 1990’s a collaborative project was funded by the New South Wales government in Australia to produce a video disk depicting jobs and careers in computing. As the technology developed rapidly this video disk

was redeveloped into a CD by the NACCO and customized for the member institutions. An anecdotal comment from one of the institutions was that “it is the best marketing tool we have as it shows the school leavers what careers there are in computing”.

Accelerating Auckland approved a project to develop a similar tool as a DVD for today’s market. It was decided to produce a prototype to understand the development phase and iron out issues before the real project was started. Two senior students from Unitec Institute of Technology developed the prototype as part of their major project. This DVD used real people in computing careers and although the questions were scripted the answers were not.

Based on this development we approached the School of Performing and Screen Arts (SPASA) at Unitec to bid for the final project. They now had two previous cd’s to view to understand the philosophy and intention behind the project and build on the development. Based on the advice from the experts in SPASA the new project would use students actors from their school and the scripts would be based on the answers to the questions in the prototype to ensure accurate representation of the careers in the final product.

3.2 Collaboration

Collaboration is now seen as a fundamental critical success factor in the development of producing products for competitive markets and while the academic sector has a long and successful history in collaborative research, developing specific content and tools that are used in a marketing context (more commercially focused) was a new and exciting venture.

Relationships formed during the Accelerating Auckland Task Force meetings that fostered deep communication between members, meant that institutions were now eager to work together. The role in communication in developing this tool is consistent with international research in collaborative innovation and entrepreneurship. (Agitavi, 2007)

At the time the project got underway there were six tertiary institutions in Accelerating Auckland. Initially all six were keen on the project and undertook to participate with time, money and expertise. During the first month one of the institutions decided to withdraw as

they felt that the use of actors depicting the jobs may breach the Advertising Authorities standards. This was quickly investigated by the director of the project and the legal advice given was to ensure there was a disclaimer in the final product stating that actors were used. The institution still were not prepared to continue with the project and at that time a further institution had joined Accelerating Auckland and they were keen to participate. This meant there were now three universities, two polytechnics and a Private Training Establishment involved.

3.3 The Audience

From the outset it was decided that this tool would be directed at high school students in years 11, 12 and 13. It also had to appeal to Careers Advisors and parents as they are the most influential in students’ choice of career (Mandel, 2007). This was consistent with the intention of the Accelerating Auckland Task Force.

4 Development

After due consideration and consultation it was decided to have eight jobs depicted in the DVD. We reduced this from a list of over 30 job titles after searching newspapers, the internet and other sources for current jobs and job descriptions within the industry. We also had to consider the audience and what they might relate to. For example should we classify a “Games developer” as a “software developer” or make it a different category. For this example we decided on leaving the games developer job as the audience would better relate to a games developer than a programmer or software developer. We decided on eight fairly “generic” titles

- Systems Analyst
- Games Developer
- Software Developer
- Business Analyst
- Trainer
- Helpdesk Analyst
- Network Technician
- Web Development

4.1 Scripts

Scripts were then written for each of the jobs titles based on the narrative that the “real” people gave in the prototype development. We also decided on six questions to ask each of the

jobs and scripted answers again based on the narrative of the prototype. Then each of the jobs was allocated to one of the six institutions and the scripts adjusted for that institution's programmes that suited the career that was described.

4.2 Roles/Actors

Prospective acting, dance, behind the scenes or writer's students can enrol in a Bachelor of Performing and Screen Arts with four majors. Students from the acting major auditioned for the eight roles. We had decided to have a balance of gender, ethnicity and a little of age, bearing in mind this was for high school students, we mainly looked for younger people who our audience would relate to well. The successful actors were aged from 18 to 30 and represented seven ethnicities.

4.3 Filming

The filming of the different careers took place over four weeks with different locations at Unitec. Representatives of the institutions were able to view the initial rushes and we had to make filming and voice over changes to almost all the careers. This was due to the inexperience of the institutions which was very patiently dealt with by the producer, actors, sound and camera technicians. Midway through development we also changed the institutions that the actors came from so this involved extra voice-overs to change the qualifications that they were representing.

4.4 Testing

At various milestones throughout the development the different videos were tested on a sample audience to ensure we were meeting the required audience expectation. The videos were also critiqued by the institutions and some were reshot to ensure authenticity and correct details for the market audience.

5.0 Reflection

To create a quality commercial product that appealed to our target audience we realized we had to use professional actors and production staff. It appealed to use students from the School of Performing and Screen Arts as it gave the students the opportunity to act (and be paid) for a commercial production and also valuable real experience for them, they can add

this to their CV's. Although the prototype was accurate and quite exciting it was let down by the amateur quality of the video and the "staidness" of the real people.

5.1 Issues

The School of Performing and Screen Arts included the software development in their bid. On reflection we should have developed a joint bid with the School of Computing and Information Technology for the software development of this project. We didn't have enough control over the software development and this caused us issues at the latter end of the project. It also means a more difficult creation of an accompanying website that will be developed in stage 2.

5.2 Reaction

The DVD has been launched and showcased at a number of Accelerating Auckland events and also events of the six institutions. The response from high school careers advisors has been overwhelmingly positive. "At last we have something to describe careers in computing". The institutions are now enrolling students who tell us that they found out about the courses from the DVD.

6 Conclusion

For the participants in this project it has developed insight into the issues that surround the needs of the industry and the demand from the students. We had to research and investigate why students were not enrolling in computing courses and degree programmes and also research and investigate the rising number of job vacancies.

It also provided an exciting opportunity for six tertiary providers to work together to attempt to address the issues of reduced student numbers, something that hadn't happened in such a coordinated effort before now. The fact the six institutions collaborated on this project has led to further collaborations after this project, something that TEC want to see happen and something that we all believe is healthy for the tertiary sector going forward.

We are all much more aware of the issues surrounding the decline in student enrolments and the rising job vacancies. Collaborating with industry was also an important component of this project. This in turn has developed better relationships between the computing industry in Auckland and the tertiary providers.

As important as these collaborations are the major aim of this project was to provide high school students with an opportunity to see for real what jobs in the computing sector were really like. We are quietly optimistic that enrolments are starting to increase and that this DVD has played some part in developing that interest among our new tertiary students.

7 Acknowledgement

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