FACULTY: INFORMATICS
TEAM: B
MEMBERS: ADAM KHOLER
KRATIKA SANGAL

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EXECUTIVE SUMMARY

The study and Objectives

Our team 'Informatics B' has conducted a study towards fulfilling the requirements of The Graduate Attribute Challenge (GAC). The aim of the study is to discover the link between the graduate attribute (GA) of a UOW Informatics graduate and the employability skills sought after by potential employers.

During the first stage of the study interviews were conducted with four IT Employers / Professionals through the aid of an open – ended questionnaire. Interviews were conducted in person and through E-mail. As a follow up / quantifying measure, a Graduate Skill Set was identified by the group and completed by the interviews.

The second part of the study included extensive analysis of secondary resources (past studies, research papers). The secondary resources were used to further our understanding of the GAs that employees expect from a University graduate.

The primary and secondary were compared to draw out similarities and findings were quantified using the two sets of information.

Main Findings

The main findings of the study are as follows:

i. Skills sought in new graduates: all the responses were almost similar and related almost identically to attributes identified through secondary information sources: Genuine interest in the discipline; Ability to think beyond the square; Analytical skills; Problem solving abilities; Adaptable; Communication skills; Technical know-how; Interpersonal skills; Teamwork skills; Self learning ability; & multi-disciplinary skills.

ii. Personal skills: identified through the "Skill set" list, they are given almost equal importance as other attributes: Presentation skills; Social skills; Leadership skills; Motivation; Willingness to continuously learn; Creativity; Agility; Hard working ability; & Free thinker.

iii. Differentiation factor between University and non-University Graduate: employer's were of the opinion that University IT education instils a basic understanding of the sciences, a sense of maturity and direction. Non-University accreditation tends to be too narrow in focus.

iv. Facets of IT Industry: the importance of both technical and non-technical IT personnel was established by all the interviews. However, it was stressed that new graduates are expected to have a strong technological aptitude

v. Changing trends in the IT industry: the IT industry is very sensitive to change. As mentioned by an interview, IT is the tail-end of any business; it is the first to get hit and the last to recover in wake of an upswing.

vi. University and Graduate Attributes: it was found that UOW has successfully been in the forefront of evolving and changing course content / degree structures to account for changes in the Information and Communication Technology (ICT) industry. The volatility and expansion of ICT in almost all non-IT areas has lead to inclusion of double degrees/ majors from other Faculties. Mandatory work experience has largely increased the desirable skill set attained by a UOW IT Graduate.

vii. Industry ties: it is felt that the Faculties relationship with various entities in the IT industry does not have a lot of bearing on its curriculum development / benefits for students.

1 INTRODUCTION

The report presents the findings of a study carried out to identify and understand the Graduate Attributes expected / desired by IT employers. The study was conducted in two stages – four employers were interviewed; the collated information was used to identify the GAs most valued along with other pressing issues in the IT industry that would be of

concern to the University while planning out curriculum. The second stage of the study involved literature review of past surveys and academic papers within the realm of GA studies. A brief comparisons between primary and secondary data has been presented as well.

2 EMPLOYER INTERVIEWS

2.1 Employers' profile

Our team conducted interviews with four potential IT employers' / IT professionals. Efforts were made to encompass individuals from varied backgrounds (discipline, experience, culture) within the industry; to enable us to gain a more comprehensive insight into the 'Graduate Attributes' (GA) sought after by the different arenas within the scope of our faculty.

Two interviewees' are part of the Australian IT industry, and two from a South-East Asian / Middle Eastern leg of the IT industry. The inclusion of IT employer's overseas was intended to help gain an international perspective on desired GA[1].

2.2 Interviewing Technique(s)

A series of open-ended questions[2],[3] were developed as a guideline to aid in the interviewing process. This was coupled with a laddering and probing technique to gain further insight into the responses provided. Face – to – face interviews were conducted in teams of two. This helped conduct the interview in an informal chat session, thus

[1] Refer to Appendix B for Interviewees' profiles
[2] Refer to Appendix C for Sample Questionnaire
[3] Refer to Appendix E for Interview Transcripts

enabling detailed responses with extensive examples and cross-referenced insight provided by the respondent. The overseas based IT professional were E-mailed the series of open-ended questions.

In addition to qualitative techniques, a set of attributes were identified[4] by our team and set out in a table format. Each attribute was to be assigned a weight in the range of 1 – 5 (1 – least important; 5 – most important). This document was used to cross-verify the attributes enlisted in the interviews and, to include GA's that may have been unstipulated earlier.

2.3 Skills sought in new graduates

Information collated through the interviews suggested the following list of GA's that IT employers looked for in new University graduates:

- Genuine interest in the discipline
- Ability to think beyond the square
- Analytical skills
- Complex problem solving abilities
- Adaptability
- Communication skills
- Technical know-how
- Interpersonal skills
- Teamwork skills
- Self learning ability

A majority of other skills that were identified in the 'Skill set' were of general nature; but were given a high weight.

[4] Refer to Appendix D for Skill set

Most of them believed it was essential for IT graduates to acquire skills from non-IT disciplines. However, greater part of the respondents failed to give a concrete view about the existence of difference in perception of IT skill sets across different industries.

Selections criterion such as grade average, University reputation, prior IT experience were all given a similar weighting as the attributes listed above.

2.4 Personal attributes

As reflected in the 'Skill set' list, employers considered a host of personal attributes of high importance:

- Presentation skills
- Social skills
- Leadership skills
- Motivation
- Willingness to continuously learn
- Creativity
- Agility
- Hard working ability
- Free thinker

It was stressed during the course of the interview that often presentation skills, leadership qualities, social skills, agility are not essential in certain areas of Information Technology.

2.5 The two sides of IT

Information Technology can be broadly divided into a technical and a non-technical area. Employers however, expressed an importance of a high-level of technical knowledge in

new graduates. At the same time, all employers stated that eventually the technical jobs lead into non technical responsibilities (and involved decision making process).

Employers did identify the need for IT graduates with a knowledge base in technical matters coupled with a stronger focus on the non-technical (management, etc.).

2.6 Other Insights

i. **Commercial Schools versus University**: most employers stated that certification from a 'Commercial' Institution (i.e. Cisco Academy, TAFE) fails to compensate for the skills acquired at a University.
These skills include – basic understanding of science and mathematics, ability to self learn, and accreditations from these institutions are technology specific. It was also stressed that University helps students mature and develop a better understanding of the professional work environment

ii. **Significance of a Postgraduate degree**: all the respondents did associate a certain level of importance to postgraduate course work. However qualitatively it was not awarded a high weighting. The employer's commented that a postgraduate was of importance in some instances only

2.7 Comparison of responses

Responses differed greatly between the two Australian IT Professionals, owing to their involvement in the two different sides of IT. Also, responses provided by overseas based IT Professionals were fairly different from the Australian perspective[5].

[5] Refer to Appendix E for Interview Transcripts

3 LITERATURE REVIEW

3.1 Literature reviewed

An extensive literature review was carried out in conjunction with the interviews. Previously administered surveys, past research papers and government statistics were included in the literature review. A wide-ranging selection of information resources[6] were used to help us better explore viewpoints towards desired IT graduates' skill sets. '*Employer Satisfaction with ICT Research Graduates*' authored by Dianne Hagan was used as underlying foundation of the literature review[7] along with '*Employer Satisfaction with Graduate Skills survey*', conducted in 2000 by AC Nielsen Research Services for the Department of Education, Training and Youth Affairs. Research conducted overseas was also taken into account to quantify similarities / disparities in perceptions over GA overseas.

3.2 Trends in IT Recruitment

i. A survey commissioned by the Australian Computer Society in 2002 showed an unemployment rate among ICT professionals of 11.9%, contradicting official government figures[8]

ii. The Australian Computer Society's 2003 Remuneration Survey of computing professionals shows a continued decline in demand for ICT skills, with 31%

[6] Refer to References section
[7] Refer to Appendix F for complete text of the article
[8] Australian Computer Society (2003) *Official figures fail, as jobless tough it out* The Australian, 4th February 2003.
[8] Australian Computer Society (2003a) *The Australian Computer Society remuneration survey report* http://www.apesma.asn.au/surveys/acs/. Accessed September 08, 2004.
[9] Department of Employment, Education and Training, Department of Industry Technology and Commerce &Information Industries Education and Training Foundation (1992) *Report of the discipline review of computing studies and information science education*, Canberra: Australian Government Publishing Service.

of respondents having been retrenched at some point in their working lives, and 5.4% being retrenched during the survey period[9]

iii. The Graduate Careers Council of Australia figures (Graduate Careers Council of Australia 2003) also show that, of ICT graduates who were employed in 2002, 76% were employed in private industry[10]

3.3 Comparison with Primary Research (Interviews)

i. The employer's interviewed by our team echoed findings of the 2000 '*Employer Satisfaction with Graduate Skills survey*' – "employers rated creativity and flair, enthusiasm and the capacity for independent and critical thinking as the most important qualities of new graduates; in the qualitative responses, employers stated that what they looked for most in graduates was academic achievement".

4 UNIVERSITY & GRADUATE ATTRIBUTES

4.1 Striking a balance

There is a perceived conflict between the requirements of industry for graduates trained in the specific tools and methodologies that they are currently using, and the desire of universities to teach students in a broader, more theoretical way in order to equip them to deal with what is likely to be used in the future as well as what is current[11]: UOW's Faculty of Informatics does succeed to a greater extent in overcoming this conflict. Our University allows students to expand into other areas with combination degrees (i.e. IT &

[11] ACNeilsen Research Services (2000): Employer satisfaction with graduate skills. Research report. Canberra: Commonwealth of Australia.

Law), combination in majors and offering electives in other Faculties as part of the curriculum.

IACT and ICTS courses offered by the faculty introduce IT course work together with insight into the managerial and business side of the industry. Extensive report and essay writing through constant team work enable students to develop set of personal skills. Also, this helps diversify knowledge base enabling (future) informed decision making in the work place.

Most Undergraduate degrees offered in the Faculty of Informatics incorporate 'Work Experience' as a mandatory requirement in order to graduate. This agrees with findings of other surveys, for example a government review of computing studies which stated that employers preferred graduates who, in addition to being competent technically, had transferable skills and had completed an industry placement[12].

But it is felt that the Faculties relationship with various entities in the IT industry does not have a lot of bearing on its curriculum development / benefits for students[13]. Harnessing this relationship could catapult the university into a whole new direction of study.

5 LIMITATIONS OF STUDY

[12] Department of Employment, Education and Training, Department of Industry Technology and Commerce & Information Industries Education and Training Foundation (1992) *Report of the discipline review of computing studies and information science education*, Canberra: Australian Government Publishing Service.

i. Time constraint: the entire study was conducted in a span of 2 weeks only. Our team felt that this project's scope could have been fully realized over an extended period of time

ii. Team structure: initially a team of 6, our numbers eventuated to only 3. With more team members, more ideas could have been explored leading to a more comprehensive study

iii. Lack of resources: our team was able to interview only 4 employers. The results of the study could have been substantiated better through encompassing more professionals.

iv. Team synergy: with other commitments, ample time was not dedicated to this report. As mentioned earlier, an extended time period to conduct a more thorough research could have lead to a more in-depth look

v. Skewed outlook: the current study does not truly account for all the three schools within the Faculty of Informatics.

vi. Untapped resources: including current and recent IT graduates from UOW could have helped relate the findings better. This was not done and information available through secondary research was utilized instead.

6 CONCLUSION

Although the study was based on a very small information set, the findings match closely to past surveys conducted by various government bodies and independent research houses. Basic GA set have been identified nearly identically across the individuals interviewed and the secondary data sources. Personal skills are given a reasonable level of importance as well. But, the importance of personal skills is subjective to the area within IT and could become almost nearly insignificant in some cases (especially non-technical).

The IT industries employability rates are as dynamic as the nature of the technology that it deals with. There has been a visible decline in employment rate in the ICT area, but those numbers are slowly climbing back up. The University of Wollongong's Faculty of

Informatics has constantly evolved its curriculum to address changes in the IT employability market. But, the Faculty fails to harness the full potential of its industry links. A closer involvement of industry partners would greatly enhance and possibly enrich the offerings of the faculty.

REFERENCES

ACNeilsen Research Services (2000): Employer satisfaction with graduate skills. Research report. Canberra: Commonwealth of Australia.

Australian Computer Society (2003) *Official figures fail, as jobless tough it out* The Australian, 4th February 2003.

Australian Computer Society (2003a) *The Australian Computer Society remuneration survey report* http://www.apesma.asn.au/surveys/acs/. Accessed September 08, 2004.

Department of Employment, Education and Training, Department of Industry Technology and Commerce &Information Industries Education and Training Foundation (1992) *Report of the discipline review of computing studies and information science education*, Canberra: Australian Government Publishing Service

Hagan, D. (2003) *Employer Satisfaction with ICT Graduates,* School of Computer Science and Software Engineering Monash University, Melbourne: Australia

APPENDIX A

Project Management

Initiation:

- Following the assigning of team members we established contact through E-mail.
- At the end of the first assigned week of work, 3 group members left the GAC Program
- After several failed attempts, the team meet on 31/08/2004

Project planning:

- After a thorough review of the GAC Student Guideline, the team members came up with possible approaches to complete the tasks
- The work was broken down into stages:
    - Stage 1 – Identify and establish contact with IT Employees
    - Stage 2- Conduct research on Employers to be interviewed
    - Stage 3 – Review literature relating to the GAC program to formulate a interviewing techniques; and questionnaire
    - Stage 4 – Conducting interviews

Project execution:

- Following completion of primary data collection (interview responses) a number of attributes / employability deciding factors were identified.
- Team members reviewed information gathered from the interviews and Skill Set Markings
- Secondary data was divided amongst group and reviewed individually
- Communication via email was conducted
- Ideas regarding the final structure and layout of the report were discusses and finalised
- Ideas for poster presentation were pooled together
- In light of no concrete ideas about poster display, research was conducted. Ms. Gleeson's assistance was sought to understand the Poster Display component better

- Sub sections within the report were assigned to different group members
- Based on the information presented in the report a poster was devised
- Power point presentation was put together as an extension of the report. The presentation will be conducted by only two members.

APPENDIX B

IT Employers/ Professionals Profile

Mr. Noel Parkhill

Mr. Parkhill has been part of the IT Industry for over 25 years. He worked as a software developer initially before moving to the management and consultant side. He has worked in North America and Europe as well within the IT Industry. In the last 5 years Mr. Parkhill has been involved with independent consulting for E- Commerce in electronic gateways for SMEs and freelance project manager. Also, since the last 5 years he has been undertaking causal teaching at the University of Wollongong, in the School of Information Technology & Computer Science. He has on previous occasions collaborated on various projects with Ms. Joan Cooper (ex- Dean, Faculty of Informatics) and Mr. Peter Croll (ex – Dean, Faculty of Informatics).

His extensive experience over such a long span of time, and his current involvement in both academics and the industry gives him a multi-dimensional perspective.

Mr. V. A. Pradeep

Mr. Pradeep has around 8 years of experience in the IT Industry. He currently works as an IT Services Consultant. His past involvement in the industry has been as an IT Sales Value Added. He has been part of the IT industry in India, and UAE. He is part of an HP Channel Partner IT Services Company.

Mr. Danielle F Saffioti

Mr. Saffioti has been involved with the industry for around a decade. He has been involved with casual teaching since 1998; in 2002 he started teaching full time in the capacity of an Associate Lecturer in the School of Information Technology & Computer Science. He has been a guest speaker at various Universities over the world. He represents UOW at the Apple Consortium and has an ongoing working relation with AC3, Australia National University, University of Western Sydney, Australian Nuclear Science & Technology Organisation (ANSTO) and the NSW Government. He is involved in numerous research projects.

His role as an active academic along with the corporate arena would give him a wider perspective allowing him to have a more comprehensive view of the situation: his involvement with University Initiation programs, and close association with students in 100 – 300 level (and Post Graduate students); development and evolvement of course content. Through his constant involvement in various environments he would be able to relate the academic and practical aspects more readily

Mr. D. P. Sangal

Mr. Sangal has been involved with the IT Industry for around 27 years. He has worked in various executive capacities through the span of his career. He has been involved with IT firms of across India. He has worked on IT projects around the globe in countries such as Singapore, Russia, England, etc. Mr. Sangal maintains a special working relation with a number of corporations such as Microsoft, Dell, HP-Compaq, Epson, Fujitsu-Siemens, IBM, etc. For the last 2.5 years he has been heading his own IT Services Firm in association with HP-Compaq in the UAE.

Owing to his extensive experience, and involvement in various working cultures; his opinions would help shed a light into the multi-cultural dimension of IT, and related areas.

APPENDIX C

Sample Questionnaire

1. How long have you been involved in:
    a. IT Industry
    b. Teaching

2. Could you list out a few attributes that employers expect of / look for in a University Graduate
3. What attributes set a UOW graduate apart from other University Graduates?
4. Which of these are more important in your view?
5. Do you think a person with professional training (Eg. Cisco Academy, Microsoft Certification, etc) would be able to exhibit a similar set of attributes? Please support yes / no with a detailed explanation
6. Would a student with a Master level degree possess superior attributes than a student with an Undergraduate degree?
7. On what basis do you develop your course content? Is a purist academic approach better or should everything be attuned to various industry needs (since they will be hiring us at the end of it all)?
8. Do you think it is essential that IT students broaden their horizons while at University and take on non-IT courses as well (Arts, Commerce, etc) to increase their job prospects? Also because a bulk of IT jobs are present in non – IT firms. Thus, an understanding of other industries would be essential in functioning well.
9. You had two choose between two people for an IT related job – one person has 10 years worth of experience, but is very set in his ways and does not always like adapting new technological fads / trends / practices that come about that quickly.
   The other candidate is relatively new in the field, does not really have any concrete experience. But he has up-to-date knowledge and one to adapt to technological changes almost instantly.
   Who would you choose and why?

10. IT could be broadly split into technical and non technical. Examples – software development, system administration, etc. Non technical- customer satisfaction, market analysis, sales and marketing, etc. What skill sets are more essential in a IT graduate? Technical or non-technical?
11. Do you believe that IT is getting too saturated? We have an excessive amount of individuals with an IT / related degree. Or do you think it is untrue; a myth created by people in other industries due to a lack of personnel in their areas. Or maybe also because IT gets too much of attention these days and they want the focus to shift.
12. What do you think makes you successful and able to work in various different industry sectors? Or in effect is it all the same?

APPENDIX D

Skill Set

Skills / Attributes	Influencing factor? (Y/N)	Score (0 – not important; 5 – most important)
Duration of Bachelors degree (3yrs; 4 yrs)		
Masters degree		
Research based degree / PhD		
Grade average and University		
Prior work experience within the IT industry (or related)		
Prior work experience in general		
Presentation skills		
Social skills		
Project management		
Time management skills		
Problem solving		
Ability to communicate		
Interpersonal skills		
Analytical ability		
Leadership skills		
Broadminded		
Motivated		
Taking initiative		
Willing to continuously learn		
Innovative		
Capable to team work		
Free thinker		
Creative		
Flexible		
Agile		
Open minded		
Hard working		

APPENDIX E

Interview Transcripts

Mr. Noel Parkhill

Kratika: How long have you been involved in the IT industry?
Noel: 25 years, from Chemistry to Computing 25 years ago

Q: How long have you been teaching?
A: At this University at least 5 years

Q: Why did you start teaching? Having been in the work environment for such a long time
A: 2 reasons:

1. On invitation by Joan Cooper and Peter Croll. Based on previous collaborations with both of them they felt that students could benefit from my previous industrial experience.
2. A lot of contracting work tapering off, it was a good balance to pick up lecturing / tutoring work at University
3. To gather feedback on my knowledge based on a wide range of IT experience over such an extended period of time

Q: What are the attributes would you expect from a University IT graduate?
A: - Some form of foundation over what they want to specialize in the workplace

- Basic information across IT to be setting their carrier goals
- Open mind
- Enough grasp of knowledge to problem solve
- Adaptable
- Apply analytical skills
- Research skills

Q: What sets a UOW graduate apart from other University graduates? Or are all University graduates similar, irrespective from which Institution they attended?
A: Based on experience from SITACS and a few 'Commercial Schools' I think UOW does have an advantage over the sandstone; a few awards this University has been winning is a tribute to that. There is a quiet a relationship between academics and the business world. There is a sharing of the academic research and the business experience, and that is where students benefit. Lecturers and tutors can give good career guidance owing to their own working / ongoing relation with industry. Helps students make better choices, and lead to better career development.

Q: Do you feel that going to a 'Commercial School' (i.e. Cisco Academy) is better suited with regards to attaining a job, than going to University?

A: For some people it would probably work. Some people might not need University, because they are so focused in their particular area.
Some people need University to help them mature, a guided way to express themselves, a guided though process. They need it prior to jumping to into the workplace.

Q: Does attending University give us an edge over graduates' of a "Commercial School"?
A: It is not manifest in all students. Some students do view classes as a time filler to reach their goal of 'graduating'. Some lecturers have lost touch with the non-academic world. They may have not changed their approach or their information to make it more appealing for students.
What makes UOW different is because professors are constantly re-evaluating their course content, fresh ideas are brought in. They strive to be abreast and sensitive with changing technology and industry needs to remain relevant.

Q: Is postgraduate superior than undergraduate?
A: Subjective. Some people are more academically inclined. The again maturity does play a part. Other components in PhD. and Masters the stress is on how well a person can express themselves. Often an Undergraduate student reaches that level and a postgraduate may not be that important.
Based on my limited experience, IT / IS is relatively new and changing rapidly. As a result the 4th year and Masters Levels are often identical. But different approach and a different level of work are expected from the two groups. Higher academic standing does have a higher value, but it is not always true.
Based on my industry experience, it does not really come down in an interview if someone has done postgraduate or undergraduate. Of course, it may come about as a factor. But during an interview it really depends on how they perform during the particular interview. It is a factor, but not a major deciding factor at all times.

Q: Did you work primarily in IT firms or non – IT firms?
A: With my career in IT I have always been with an IT organisation. But in the last 5 years I have been involved in independent consulting for E- Commerce in electronic gateways for SMEs and freelance project manager.

Q: Do you think that IT graduates while at University must be pushed to study other disciplines such as Arts, Commerce etc., owing to the fact that most IT jobs lie in non-It firms? Or does that knowledge really come about at work and it would be eventually learned in its due time in the work place?
A: Depends on the interests and maturity of the students. From a job point of view, if a candidate for a job is extremely interested in a particular non-IT area they would have already done a lot in that area on their own. And I don't think it would work that well for Universities to try and force and relate disciplines onto the IT fraternity.
When I did my (science based) degree, science majors were forced to study Humanities to graduate. Art students were not required to do science however. It was a move on the University's part to humanise the degree. Thankfully Universities have moved away from this practice.

Depending on how one's career develops, he / she can pick the relevant skills (besides core IT skills) to move ahead; be it management, marketing, arts, etc. A lot of people often find that it better suits their careers to move into other spheres such as management to attain a job / progress careers.
For a 'Project Manager' and other Managers within the IT arena it would be important to have had specialised / have an understanding of the discipline such as system change management. It is required to implement the process, problem solving, and support. Involvement at the grass-root level is important to progress to becoming a successful manager.

Q: Within the IT arena, it can be broadly divided into technical and non-technical personnel. Often an IT graduate is interpreted as a Computer Science graduate; and software generation or network administration is expected of us. As a graduate, is a strong technical base an essential?
A: There is a need for both. Non – technical people could be analyst, change managers, involving in the people and business side; interfacing the technical the with business side. There is a long way to go between bridging the gap between CEOs and CIOs. Non-technical IT graduates help bridge the gap and introduce an appreciation of / for both sides.

Q: Which is more important experience or the keenness to adapt new technology?
A: Either way, an open mind would be more conducive. Some people may have a wealth of experience, but might be unwilling to change. They are too comfortable in their knowledge base, and could be lead behind in wake of constant change. An open minded person is more to my liking. It is always subjective to the position that needs to be filled. In some instances a person with in-depth knowledge would be better suited. Different skill sets suit different jobs within the scope of IT jobs.
Using the 'targeted selection' process, interviews can be tailored to suit the particular job, and make a better informed decision in choosing a suitable candidate.

Q: Do you think IT is really saturated?
A: A lot of demand for IT professionals is tapering off. But I think it is more related to a levelling off of business activities in general and I think the IT levelling is associated with that. But on the IT field we have said that for many years that IT is the tail-end of any business decline. IT is always the last to decline and usually the last to recover. Once businesses start recovering, we look to upgrade systems and implementing the IT infrastructure and that is when it starts to pick up.

Q: Is their a vast difference in perspectives overseas for IT graduate skills?
A: The business communities and IT included mirrors what is happening in Europe and North American because of comparable economies. There is a difference in business management culture in Europe and is vastly different from the approach in North America. Australia is, unfortunately, still following the North American model. Taking into account how the American economy is going, the European model tends to work much better.

Q: What do you think makes you successful as an IT professional?
A: I started out as an Industrial Chemist. Then went back to University and got a degree in Pure and Applied Mathematics. During my first year in IT I felt a bit out of place, because I was not used to that discipline. I learn to adapt. I think because I had a reasonably open mind; I try not getting bogged down in in-depth knowledge. I did get into reasonable depth in the technical area, but I used it to move to the managerial arena. I had a preference for people management over management of technology alone.
My career developed as the IT industry developed – coming from mainframe, and even programming with paper tape readers to managing fairly advance computer network projects, etc.

Q: Do you think the perspective towards IT differ in various industries or is it nearly similar?
A: I think it is similar. Especially with the smaller organisations they prefer people who can discuss in non-jargon terms and explain technology easily. The image of overtly technical personnel is fading as businesses expect IT professionals to be able to explain the technology in basic terms.

Mr. V. A. Pradeep

13. How long have you been involved in:
    a. IT Industry – 8 years
14. Could you list out a few attributes that employers expect of / look for in a University Graduate

    The few attributes are his/ her marks, Reputation / Standing of University and his / her analytical thinking,
15. Do you think a person with professional training (Eg. Cisco Academy, Microsoft Certification, etc) would be able to exhibit a similar set of attributes? Please support yes / no with a detailed explanation

    No. The reason that these certification does not stress on fundamental concepts of Science/ Technology.
16. Would a student with a Master level degree possess superior attributes than a student with an Undergraduate degree?

    Yes but not necessarily always.
17. Do you think it is essential that IT students broaden their horizons while at University and take on non-IT courses as well (Arts, Commerce, etc) to increase their job prospects?

    Also because a bulk of IT jobs are present in non – IT firms. Thus, an understanding of other industries would be essential in functioning well.

    Yes. It definitely helps in understanding the totality of business of which IT is one of many important subject.
18. You had two choose between two people for an IT related job – one person has 10 years worth of experience, but is very set in his ways and does not always like adapting new technological fads / trends / practices that come about that quickly.

    The other candidate is relatively new in the field, does not really have any concrete experience. But he has up-to-date knowledge and one to adapt to technological changes almost instantly.Who would you choose and why?

    It depends on the kind of position for which candidate is being hired for. If Position calls for more mature person having knowledge in systems and procedures and required to be more involved in strategic aspects of IT. Then it is a person with more number of years of experience.
19. IT could be broadly split into technical and non technical. Examples – software development, system administration, etc. Non technical- customer satisfaction, market analysis, sales and marketing, etc. What skill sets are more essential in a IT graduate? Technical or non-technical?

    Entry Level Position: 75% Technical and 25% Non-Technical

    Middle Level: 45% Technical and 55% Non-Technical

    Senior Level: 25% Technical and 75% Non-Technical
20. Do you believe that IT is getting too saturated? We have an excessive amount of individuals with an IT / related degree. Or do you think it is untrue; a myth created by people in other industries due to a lack of personnel in their areas. Or maybe also because IT gets too much of attention these days and they want the focus to shift.

IT is not getting saturated. It is growing at a rapid pace and every day products with new technology is being rolled out in the market.

21. Do you think perception towards valid IT Graduate Attribute skill set differ in different countries / cultures?
    No.
22. What do you think makes you successful and able to work in various different industry sectors? Or in effect is it all the same?
    Your qualification with good basic personal attributes and of course relevant experience .

Mr. Daniel F. Saffioti

Adam: How long have you been involved in the IT industry?
DFS: 9 – 10 years

Krat: How long have you been teaching?
DFS: 5 years; Full time academic – 2 years ago

Q: Which role do you enjoy more? Being an academic or being involved in the industry?
A: Academia; but there are traits of academia that I do not truly enjoy

Q: What are the basic attributes that an employer expects of a University IT graduate?
A: Genuine interest in discipline, ability to think beyond the square, critically analyse things, solve complex problems, interpersonal skills. These are the traits that make people. But as a University we fail students in some regards, we are finding more and more that degrees are being treated as a commodity, rather than something you earn / desire to earn. When I studied computing, people did computing because they found it genuinely interesting. They felt it defined them as a person. Today every man comes and does Computer Science. Not everyone really has a genuine aptitude in the discipline. They are getting by in the workplace.
Failing also lies in the IT industry; it is becoming more commodities based. Universities are not good at that. At University we can talk about a lot of concepts / philosophies behind things. We rarely implement all these complex theories in detail.

Q: How well do you think Universities relate theory with the practical side of things?
A: Universities are often of the view that they are all about the theory. There are two kinds of professionals out there: those who can walk the walk; and those who can talk the talk. Very rarely is a professional who can talk the talk and walk the walk.
Example: a student did very well at Universities. They get ahead at work; they get by because of the jargon they know.

Q: Are 'Commercial Schools' better suited when compared to Universities?
A: The thing that University does is teach you how to learn. If you walk out with any skill from University, one basic skill is how to learn. If you graduate with a Bachelor's of Computer Science, you clearly demonstrate an ability to take raw information process and manipulate it to use in complex problems. University teaches you how to self-learn. Often a University graduate gets chosen over a TAFE graduate because they have demonstrated that they can learn. They know how to research, how to express their ideas. Where and how to look for things, and teach themselves.

Q: How does UOW stand apart from other Universities (Sydney, NSW, etc.)?
A: UOW is a red brick institution; Sydney and NSW have snob value based on the virtue of where they lie. And the links they have with the community. In my view UOW can never compete with the likes of USyd; UMel, Berkeley, Stanford. They have many industry links. I feel the more industry links you have, the more collaborative work you

do, the more your courses would benefit. We do not have extremely strong links with industry. We do benefit from Nortel's presence.

Q: Has Nortel helped University a lot?
A: Nortel has not really influenced curriculum here. By virtue of position Berkeley has down the road you have Apple, across the road you have Oracle Systems, close by is Sun Microsystems. These companies enhance the curriculum. Nortel did contribute many years ago to a Wireless Project. But it did not really have any long term effects. They have benefited from the pool of students they can easily access and sift through (for those they desire to work with the company). Nortel however has stepped back.

Q: When you develop course content in your academic capacity what are the driving factors? A purist fashion approach to teach Computer Science? Or do you account for possible requirements a student would face in the industry?
A: A subject is meant to further the way a student thinks. Some subjects are very narrowly focused. But you will not really benefit from a lot of them, because they may not always have implementations in the industry. When I write a subject I take into account my personal experiences and experiences of others (people in industry). A system administrator for example should know theory and the practical side of things. I like an amalgamation of the theoretical, technical and practical together.
Often, a lot of subjects (read IACT) fail to encompass hands-on / practical side of the information being taught.
If I had to choose between who knew fluff or someone who is not good at the fluff, but has an ability to learn and knew the stuff technically. I would always side with the technically versed person.
Lot of managers do not know much about technology and do not take into high regard what technical people have to say.
I trust a technical person more. I trust empirical facts.

Q: Do you feel that IT graduates need to learn skills available in other disciplines such as Commerce, Arts, etc. Most IT jobs come from non-IT firms and in light of this, would this make the graduate skill sets more desirable for an employer?
A: A particular CompSci. graduate is brilliant at coding, but he fails to express his idea amongst people. This is often a common problem in Computer Science graduates who are extremely sharp in complex problem solving but they are extremely naïve in the interpersonal arena. I think they should be forced to do diverse subjects from different faculties.
The IACT degree allows you to become technically capable of something and involves management and communication with it.
Computer Science people often only know computing, too narrow in focus. There is a need to diversify. Without knowledge in other areas, decision making can be nearly impossible. When I was in government, I had to make a decision and I knew nothing in the area. I had to turn to an advisor. But you can never trust a person enough. A good researched decision is important to make; thus knowledge in more than one area is of importance whilst at work. An understanding of different things is important.

Adam: I am doing Computer Engineering; my degree does try to bridge the gap. But is rather hard, and at the end of it you feel like you have a generic knowledge base. You get to mould yourself based on what you learn.

DFS: Some degrees do allow diversification (IT/Law). Employers appreciate different value sets in graduates. While choosing a potential employee, it really comes down to how well a person may fit into an organisation coupled with the previously mentioned factors.

Q: What do you think makes you so successful in various industries? Or is IT the same across the different industries?
A: It is definitely not the same. A lot of things I have done in the last few years is moving away from computers. I make decisions of strategic importance at the Apple Consortium. As you get older, you move away from your grass-roots. Computing is very different in different places. As I progressed, it has become more managerial / leadership based. Always have an open mind, never shoot down people. You have to prepare to sacrifice things. You have to be able to explore and create in that place. Think outside the square, be innovative to get ahead.

Q: Should graduates move away from their core areas and look for jobs in every possible direction? As mentioned earlier, with progress in ones career, movement in other areas is inevitable.
A: Initially always try sticking to your area you studied. Stick to the area you were trained in. People often sell themselves out for various reasons. But ideally having spent all those years training in a particular discipline, putting knowledge to work would be a good move.

Q: You had to choose between two people: one with a great amount of experience; but someone who was very set in their ways and slow to adapt to technology. The other person had little experience, but was a keen and quick adapter of new technology. Who would you pick and why?
A: They are both dangerous. People who fiddle with technology cost money; they would always want to move ahead. People who are too set in their ways, could loose out on opportunities. You need to find open minded people who are cautious in their workings and decision making. One has to be a forward thinker. It is not practical to adapt new technology instantly and all the time. It costs money, and professionally people have commitments to fulfil and this approach would not suffice to either. I would choose neither one. Finding equilibrium is of importance.

Q: Is IT really getting saturated?
A: IT is getting too saturated with people who do not know what they are doing. In the dot com revolution a lot of people jumped into IT degrees. Two characteristics that separate an ‘IT Professional’ from an ‘IT Professional’ – genuine IT professionals have an aptitude; an innate ability to work and interact with a machine. They have this personality which is all about computing. To truly excel and deliver in your area, you have to know what you are doing.

Q: Do you think the perspective differ overseas?
A: Yes it does differ. The view held in a lot of Asian countries is that education is all about regurgitation of fact; no real learning occurring there. The US is very different to Asia.

Q: Do you think marks really matter?
A: Regurgitate fact alone, without understanding is no good. You want your graduates to know how things function; computing is all about applying facts. Marks alone are not the deciding factor. They do not reflect genuine ability. Marks are a way of measuring your ability at a given time and comparing it to other people. A genuine measure of ability is through assignments.

Q: Do you think a postgraduate is better than an undergraduate degree?
A: It depends. Some postgraduate degrees are bridging courses. Other postgraduates are considered extra to undergraduate degrees. Some are more research based. They depend on where you sit at that given time.

Mr. D. P. Sangal

Q How long have you been involved in:
   a. IT Industry – 27 years

Q Could you list out a few attributes that employers expect of / look for in a University Graduate
University – Standing –reputation / Grade / Course content / Grades / Analytical Ability/ Attitude / Overall Personality

Q Do you think a person with professional training (Eg. Cisco Academy, Microsoft Certification, etc) would be able to exhibit a similar set of attributes? Please support yes / no with a detailed explanation
NO they are product / application specific

Q Would a student with a Master level degree possess superior attributes than a student with an Undergraduate degree?
Definitely yes – cannot be generalised although

Q Do you think it is essential that IT students broaden their horizons while at University and take on non-IT courses as well (Arts, Commerce, etc) to increase their job prospects? Also because a bulk of IT jobs are present in non – IT firms. Thus, an understanding of other industries would be essential in functioning well.
Definitely Yes as IT is used by all and sundry this will help them to apply IT appropriately. IT is only a part of a Business not the Business in itself for any organisation.

Q You had two choose between two people for an IT related job – one person has 10 years worth of experience, but is very set in his ways and does not always like adapting new technological fads / trends / practices that come about that quickly.
The other candidate is relatively new in the field, does not really have any concrete experience. But he has up-to-date knowledge and one to adapt to technological changes almost instantly.
Who would you choose and why?
This will essentially depend on the position and the requirement defined for the same. Maturity does have its own value in addition to the Knowlegde and being upto date. One will choose the person accordingly.

Q IT could be broadly split into technical and non technical. Examples – software development, system administration, etc. Non technical- customer satisfaction, market analysis, sales and marketing, etc. What skill sets are more essential in a IT graduate? Technical or non-technical?
This depends on the level and the function the person is working at
Entry Level - 80% Technical
Middle Level – 50% Technical
Senior Level – 20-25% technical
However the above are applicable for general positions and not R& D positions as there the requirement will be approx 70% technical right through.

Q Do you believe that IT is getting too saturated? We have an excessive amount of individuals with an IT / related degree. Or do you think it is untrue; a myth

created by people in other industries due to a lack of personnel in their areas. Or maybe also because IT gets too much of attention these days and they want the focus to shift.

IT is all about human innovation and application of these in day to day life be it at home / work or recreation. As food is required by all now-a-days IT is required by all directly or indirectly. Such an industry can never be saturated.

Q Do you think perception towards valid IT Graduate Attribute skill set differ in different countries / cultures?

Generally NO but maybe in some places

Q What do you think makes you successful and able to work in various different industry sectors? Or in effect is it all the same?

Your acquired skills and your general attitude towards life. Personal attribute also mean a lot along with your ability to adapt to the changing world.

In general and in conclusion it can be said that a Graduate works for over three decades , the skills acquired during this Graduation go a long way in making this journey smooth and fruitful. In three decades the technology does change drastically. Hence one of the Skill / attribute that every Graduate , irrespective of the field, should develop is the ability to adapt and change.

APPENDIX F

Hagan, D. (2003) *Employer Satisfaction with ICT Graduates,* School of Computer Science and Software Engineering Monash University, Melbourne: Australia