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**GRADUATE ATTRIBUTES SURVEY REPORT:
A SURVEY OF EMPLOYERS**

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ABSTRACT

This paper presents the results of the 1998/9 Graduate Attributes Survey (GAS). The survey was designed to assess employers' perceptions of the level of generic skills and competencies of Curtin graduates. The results of the 1998/9 Graduate Attributes Survey are presented in terms of three key indicators; the Overall Rating, the Core Skills Rating and the Performance Rating.

The Overall Rating indicates that a Curtin degree provides good preparation for the requirements of the job and that Curtin graduates compare favourably with graduates from other universities.

The Core Skills indicator identifies those skills found to be most important by employers. These included willingness to learn, capacity for teamwork and communication skills. The survey showed that Curtin courses embodied these skills.

The Performance Rating indicates that there is a small performance gap that Curtin needs to reduce to meet the needs of employers, particularly in terms of practical knowledge, problem-solving and time management.

The 1998/9 GAS Report provides benchmarking information that will be used to monitor the extent to which the attributes within the Curtin Teaching and Learning Plan are being conveyed to students during their courses and validating these attributes in relation to the requirements of a range of employers.

GRADUATE ATTRIBUTES SURVEY REPORT: A SURVEY OF EMPLOYERS

INTRODUCTION

The Graduate Attributes Survey (GAS) is a questionnaire that seeks employers' perception of the level of generic skills and competencies of Curtin graduates. The results of the GAS will be used as a basis for improving Curtin courses. This paper follows on from the paper presented at the Australasian Association of Institutional Research, Eighth International Conference, November 1997, titled "Graduate Attributes Survey (GAS): Results of a Pilot Study".

BACKGROUND

The Graduate Attributes Survey (GAS) was developed in 1995-96 to measure employers' perceptions of the quality of Curtin graduates. The survey is comprised of a series of generic skills and abilities that are representative of the skills and abilities that are valued by employers, or are expounded by Curtin's mission, goals and value statements. Furthermore these attributes are stated as objectives within the University's Teaching and Learning Plan. The survey asks employers to rate the Curtin degree as preparation for employment and rates the graduate/s in comparison with graduate/s from other universities. A pilot study of the survey was conducted in 1996/7 with 161 employers. Information from the pilot study led to a major revision of the survey in conjunction with a consultative group comprising representatives from the University, the student body and employers.

The pilot study also led to the development of three key indicators of the extent to which Curtin graduates embody the skills and attributes valued by employers. These indicators are:

1. Overall Rating of Curtin degree.

Question 3 of the Graduate Attributes Survey asks respondents for their overall rating of the Curtin degree as preparation for the requirements of the job. Responses to this question are averaged to derive a simple but concise rating of whether the degree is preparing the graduate to be employed in that particular position.

2. Core Skills Rating

The second rating, the Core Skills Rating, is calculated by identifying the ten most important skills and attributes valued by employers. The extent to which employers believe that graduates embody these traits, measured through the average perception rating for these skills and attributes, is used to derive the Core Skills rating.

3. Performance Rating

The performance gap rating is calculated by comparing the 'Importance of Attribute' rating against the 'Perception of Attribute in Graduate' rating, for each attribute on the survey. A positive rating means that Curtin is providing relevant skills that employers value, whilst a negative rating suggests Curtin might not be targeting skills that are valued by specific employers.

THE GRADUATE ATTRIBUTES SURVEY (GAS)

The Graduate Attributes Survey (GAS) seeks employers' perceptions of the level of generic skills and competencies (possessed or demonstrated) by Curtin graduates as a basis for improving Curtin courses. The attributes developed within the GAS were developed from the University's Teaching and Learning Plan, and reflect areas of knowledge and skills deemed necessary for graduates to perform their professional employment upon graduation.

The GAS contains a series of questions designed to gather information on the perceptions of Curtin graduates by employers. The first section of the survey lists 35 attributes where employers are asked to rate how important the attribute is to their organisation and then to rate to what extent they perceive the attribute to be embodied in their employee (recent graduate). There is also the ability for the employer to suggest other attributes that require improvement and ways these attributes can be improved. The second section of the survey contains five questions which seek an overall rating of the graduate/s, a comparison to be made with graduates from other universities, the number of graduates to whom the employer is referring, a question relating to the ease of completing the survey form and a final question eliciting any further comments. Employers also have the ability to request a copy of the survey results.

The Curtin University Quality Office administered and collated responses to the GAS, provided an overall report to the University and specific reports to Schools within the University.

Improvements from the Pilot

After the Pilot survey was concluded a project team was established to redesign the survey form and methodology to facilitate the administration of the GAS across all academic schools of the University.

The major improvement from the Pilot survey was the incorporation of a performance gap for each attribute. Instead of the employer merely rating their perception of the attributes of Curtin graduates, employers were now asked to rate the importance of the attributes. This served two important functions:

- a) Identifying what attributes are valued most highly by the organisations, and
- b) Establishing a performance gap between what attributes employers value and how Curtin graduates perform against these attributes.

The project team established a consultative group to review the Pilot survey form, the administration of the Pilot survey and results of the Pilot survey. Focus groups were used to verify that the attributes used in the Pilot GAS were relevant to both new graduates and employers.

The methodology was altered in ways that were designed to improve the response rate with a more robust mechanism for identifying and locating employers of recent Curtin graduates. This included a closer liaison between the project team and the Schools to identify employers from both the Graduate Destination Survey and school contacts with employers. Employers were then contacted by phone before the initial mail-out of the survey.

Focus Groups

Two focus groups were held at Curtin to discuss the attributes of Curtin graduates that were deemed to be important from different perspectives. The two groups consisted of:

- Students currently studying at Curtin; and
- Employers of recent graduates of Curtin.

The student group comprised of students from the fields of Marketing, Management and Electrical Engineering and were organised through the Student Guild.

The students were prompted with three questions, the first asked students about what attributes a recent Curtin student should possess upon graduating. The two most important attributes identified were *knowledge and experience of the real world*, and *written and oral communication skills*.

The second question asked the students to identify which attributes they felt were important but were currently not acquiring. The two perceived most important were again *knowledge and experience of the real world*, and *written and oral communication skills*.

The final question asked the students to identify methods the University could utilise to ensure the attributes identified could be incorporated into the curriculum. The students varied in their selection method. The most commonly selected were *ensure all students in every course complete some form of work experience* and to make *the penalties for poor English expression in essays harsher*, as students were completing degrees with substandard written English skills. Related to this was the suggestion to *ensure that foundation units such as written and oral communication skills, computer literacy and working ethics were incorporated into every degree (regardless of the discipline) across the entire University*.

Students were particularly vocal on the topic of ways to ensure that the skills deemed important by employers were incorporated into the course curriculum. Students identified issues in work experience, length of an undergraduate degree, the role of student and employer needs in determining funding allocations and services provided at university and appropriateness of current assessment procedures.

The employer focus group consisted of employers from a wide variety of industry, including, Aged Care, Accountancy, Nursing, Print Media and Agriculture. Both the public and private sectors were represented, as were metropolitan and rural employers. The number of university graduates employed annually by these employers ranged from two to sixty, while the number of graduates employed annually from Curtin ranged from one to twenty.

The employers were questioned similarly to the student focus group with questions examining their opinions on the attributes they expected in a graduate from Curtin, those they perceived to be evident among the recent graduates they had employed, and any methods Curtin could utilise to ensure the attributes employers expected in graduates from Curtin could be incorporated into course curriculum.

The first question asked participants what attributes they looked for in a recent employee from Curtin, while the second asked participants to indicate which of the important attributes were not seen in graduates. Results suggest that employers value the ability of the employee to *link theory learnt at University to the workplace and the work setting*. Employers also value employees having *professional and previous work experience in the area*, and *sound written and oral communication skills – in particular related to functions required at work* such as writing letters, telephone manner and attending meetings. *Problem solving capacity and demonstrating innovation and initiative* was also highly regarded amongst the employer group.

On the whole, employers in the focus group were relatively satisfied with the attributes seen in graduates. There were not too many responses to the section asking employers to indicate which attributes graduates from Curtin did not possess. However, some employers indicated that they *had not seen a 'business sense', or work experience in the area and professionalism in the workplace*. This was followed by a *lack of reasonable written and oral communication skills and interpersonal skills*.

Single response attributes identified by employers included the ability to take on a larger perspective, interest in the world, being a self directed learner, intelligence, a genuine interest in the area, research and analytical skills and the ability to learn from colleagues and seniors.

The third question asked participants to identify methods the University could utilise to ensure the attributes deemed as important by employers were incorporated into course curriculum. The three most popular strategies were closely related and concerned the role of work experience while studying, the balance between theory and practice within courses and the role of industry in shaping the content of courses available.

Methodology

The first step in the administration of the GAS was the identification of employers of Curtin graduates. This was achieved by targeting employers indicated in the Graduate Destination Survey (a national survey that asks graduates details about the post-study employment) of the previous to years for those graduates who went on to permanent full-time work with an undergraduate qualification. Individual teaching schools also identified likely employers of their graduates. Employers were kept to local Australian employers, as it was too difficult to establish contact with international employers.

Schools were also given the opportunity to add discipline specific questions to the survey, however, they could not change any of the generic questions.

In October/November 1998, the Quality Office made telephone contact with Human Resources staff from the identified group of employers and explained the purpose and nature of the GAS. Human Resources staff were then asked to identify people within their organisation who supervised a graduate from Curtin. The relevant staff member was then contacted, the nature of the survey was explained and they were asked to participate by completing the survey. Employers who agreed to complete the survey were sent a survey, with a covering letter, by fax or mail.

In January, 1999, a second mail-out of survey forms was administered to employers who had agreed to participate but did not complete or return the first survey. Completed surveys received by the Quality Office were coded and analysed using Microsoft Excel and Statistical Packages for the Social Sciences (SPSS).

RESULTS

Response Rate

The Graduate Attributes Survey was sent to 987 employers, with 186 responding to the survey and a further 164 employers indicating that they had no recent Curtin graduate. Table 1 shows a breakdown of the respondents.

Table 1 : Breakdown of responses for GAS

Response Category	Number of respondents	Percentage
Responded	186	19%
Employers had no recent Curtin graduate	164	17%
Return to Sender	31	3%
<u>Non-response</u>	<u>606</u>	<u>61%</u>
Total	978	100%

The response rate of 19% indicates that there were difficulties encountered in surveying employers of Curtin graduates. In particular, the difficulty was in the identification of individual managers and supervisors within these organisations who were willing and able to complete the survey. Future GAS administration will need to concentrate on identifying and forming a close liaison with the person who is likely to be completing the survey form.

Overall Rating of Curtin Degree

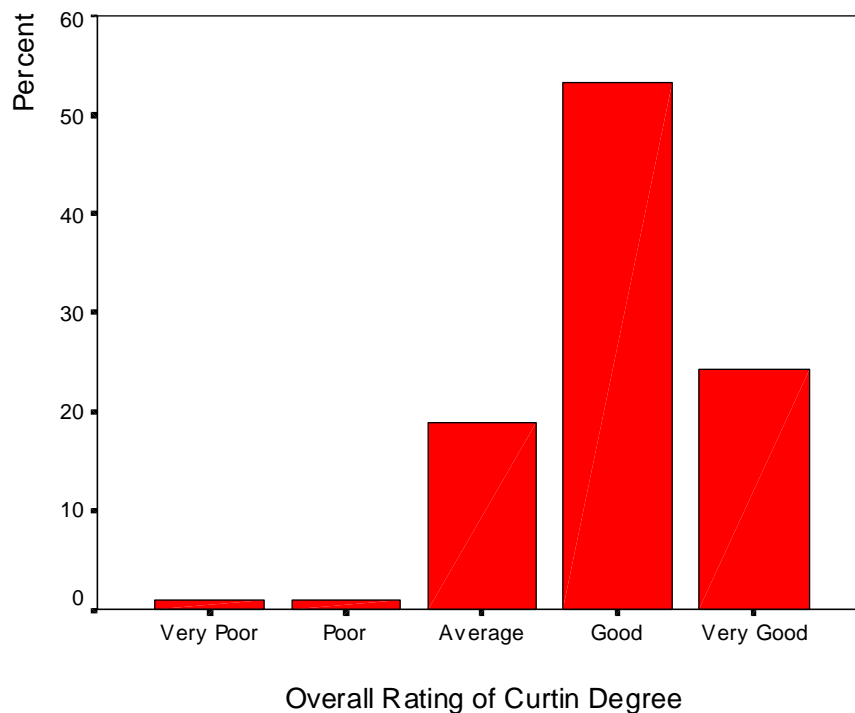
Question 3 on the Graduate Attribute Survey asks employers for their overall impression of the Curtin degree, in the specified discipline, as preparation for the requirements of the job. The results (Table 2) indicate that over three-quarters of employers (77%) rated the Curtin degree as providing 'good' or

‘very good’ preparation for the job, with a further 18% of employers rating the degree as ‘average’. Less than 4% of employers provided ratings of ‘very poor’ (1.1%) or ‘poor’ (1.1%).

Table 2 : What is your overall rating of the Curtin degree in your discipline as preparation for the requirements of the job?

<i>Response (N=185)</i>	%
Not Applicable	1.1
Very Poor	1.1
Poor	1.1
Average	18.9
Good	53.5
Very Good	24.3

Figure 1 : Overall Rating of Curtin Degree by Employers
 (* ‘Not Applicable’ ratings removed from figure)



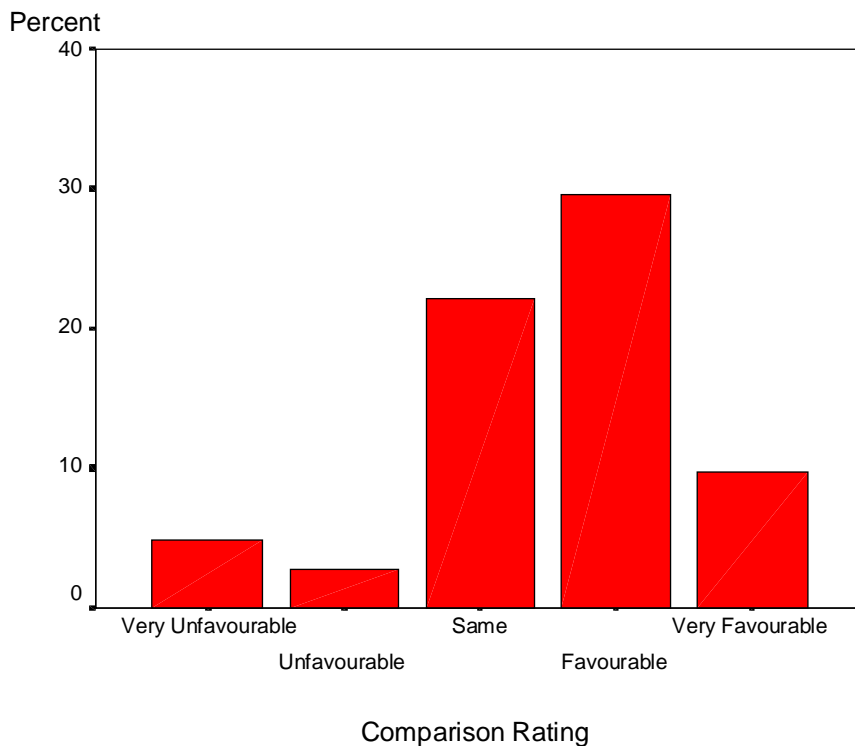
A similar indicator of Curtin meeting the needs of employers is the comparison of Curtin graduates with graduates from other universities in the same discipline (see Table 3). When employers were asked to rate how Curtin graduates compared with other graduates, over half of employers (56%) who were able to make the comparison provided ratings of ‘favourable’ or ‘very favourable’. A further 32% of these employers rated Curtin graduates as having the same personal and professional attributes as graduates from other universities.

Table 3 : When considering the personal and professional attributes covered in the survey, how do you rate Curtin graduates in this discipline in comparison to graduates from the same discipline from other universities?

<i>Response (N = 181)</i>	<i>% of sample</i>	<i>% of those able to comment</i>
Unable to comment/make comparison	29.3	-
Compare Very Unfavourably	5.0	7.0
Compare Unfavourably	2.8	3.9
About the same	22.7	32.0
Compare Favourably	30.4	42.9
Compare Very Favourably	9.9	14.0

Of those providing unfavourable ratings (10.9%), 7% provided a ranking of ‘very unfavourable’. It should also be noted that close to 30% of the original sample were unable to comment or make a comparison between graduates of different universities.

Figure 2 : Comparison of Curtin graduates with other graduates



Core Skills Rating

The Core Skills Rating is calculated as the overall average of employers’ perceptions for the ten most important skills and attributes on the survey. Table 4 (below) identifies the most important skills and attributes identified by employers, and provides the average perception ranking that the graduate possesses that attribute.

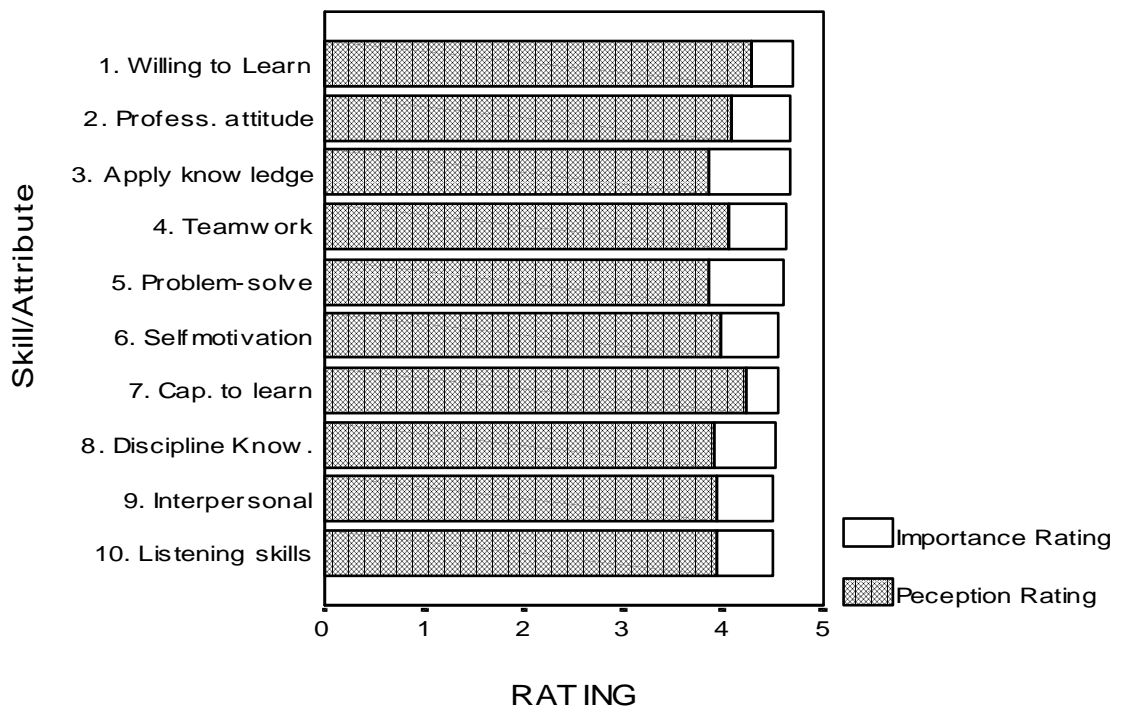
Table 4 : Perception Ratings for top ten most important skills and attributes
(1=Very Poor, 2 = Poor, 3= Average, 4=Good, 5= Very Good)

<i>Skill/Attribute</i> (N = 179+)	Importance Rating	Perception Rating
1. Willingness to learn	4.67	4.28
2. Professional Attitude to Work	4.66	4.08
3. Ability to apply this knowledge	4.61	3.85
4. Capacity for teamwork	4.60	4.06
5. Capacity for problem-solving	4.57	3.85
6. Self-motivation	4.55	3.99
7. Capacity to learn	4.53	4.22
8. Discipline knowledge	4.49	3.90
9. Interpersonal skills	4.49	3.93
10. Listening skills	<u>4.49</u>	<u>3.94</u>
CORE SKILLS RATING		4.01

The results indicate that employers perceive that Curtin graduates have a ‘good’ rating (rating of ‘4’) for the skills and attributes that they deem to be most important. As indicated in Table 4, the perception rating is close to ‘good’ for all of the most important attributes within the GAS.

It is clear from the results that the skills and attributes that employers deem most important focus on those that would enable the graduate to adjust to a new work environment. These include the “willingness and capacity to learn”, the “capacity to solve problems” they are likely to encounter in a new job, “listening skills” they would need to receive initial instructions and the “ability to apply discipline knowledge”, learnt at University, in a practical setting.

Figure 3 : Core Skills Rating (Perception of Most Important Attributes in Graduates)



Performance Rating

The performance rating is calculated as the average difference between the Importance Rating and the Perception Rating for the attributes contained in the GAS. This performance gap for each attribute indicates whether Curtin is providing the skills and attributes that are valued by industry or is focusing on developing other skills and attributes that might be valued elsewhere.

A positive score on the performance gap indicates that the perception of the attribute in the graduate is higher than the importance ratings provided by employers. A negative score indicates that importance ratings are higher than the perception ratings for a graduate demonstrating those skills or attributes. Of particular importance in interpreting results using this indicator is confirming there are no high performance gaps in either a positive or negative direction. A highly positive score may indicate that employers perceive that Curtin is over-emphasising the teaching of skills and attributes that are not equally valued by industry, whilst a high negative score could indicate that graduates do not embody the skills and attributes valued by employers to a sufficient level.

Table 5: Performance Rating for Skills and Attributes
(*Performance Gap = Perception Rating – Importance Rating*)

Skill/Attribute (N= Ratings used for calculation of Perform. Gap)	Performance Gap	Skill/Attribute	Performance Gap
1. Willingness to learn (164)	-.41	19. Writing Skills. (161)	-.65
2. Professional Attitude to Work (161)	-.59	20. Ability to critically evaluate. (163)	-.65
3. Ability to apply this knowledge (161)	-.82	21. Technical capabilities. (159)	-.56
4. Capacity for teamwork (164)	-.56	22. Commitment to ethics and social justice. (161)	-.30
5. Capacity for problem-solving (164)	-.74	23. Capacity for decision-making. (163)	-.65
6. Self-motivation (164)	-.57	24. Punctuality. (164)	-.07
7. Capacity to learn (163)	-.32	25. Willingness to seek feedback. (163)	-.42
8. Discipline knowledge (164)	-.62	26. Reading Skills. (160)	-.24
9. Interpersonal skills (162)	-.57	27. Capacity to work without supervision. (158)	-.43
10. Listening skills (162)	-.56	28. Sense of community responsibility. (160)	-.12
11. Ability to access and utilise information. (162)	-.48	29. Computer skills relevant to the field. (149)	-.07
12. Willingness to act on feedback. (162)	-.58	30. Potential for promotion/ career advancement. (153)	-.06
13. Verbal Skills. (160)	-.62	31. Creative ability. (156)	-.25
14. Accepts responsibility. (162)	-.48	32. Capacity to take the lead.(158)	-.25
15. Willingness to accept direction as necessary (162).	-.36	33. Cross-cultural communication skills. (150)	-.02
16. Time management. (164)	-.94	34. Awareness of relevant national and international issues. (150)	-.04
17. Demonstrates initiative. (164)	-.62	35. Graphic Skills. (165)	.19
18. Ability to adapt to change. (162)	-.58		
PERFORMANCE RATING =			<u><u>-0.429</u></u>

Table 5 (above) displays each attribute ranked according to their rating of most important (1. Willingness to learn) to least important (35. Graphic skills), and indicates the performance gap for the attribute as well as the overall Performance Rating for the GAS.

The performance rating of -0.429 indicates that the perception of the attributes in graduates is slightly less than the importance rating that employers assign to those attributes. For example, if employers were to rate an attribute as 'Important' (a rating of 4), the perception that the graduate embodies that attribute would be 3.571 (between the rating of 'Average' and 'Good'). A performance rating of -0.429 indicates that Curtin is embodying the attributes at a slightly lesser level than employers value the attribute in relation to the entire list of attributes.

A closer analysis of the results indicates that those attributes with the greatest negative performance gaps are "time management", "ability to apply discipline knowledge" and "capacity for problem solving". This indicates that Curtin might have to place renewed emphasis on teaching practical skills that are likely to be encountered in a work situation.

The attributes with the smallest negative performance gap, and the attribute with a positive performance gap, indicated attributes not valued as highly by employers and were the lowest eight in terms of importance rating. These attributes included "graphic skills", "cross-cultural communication skills", "capacity to take the lead" and "awareness of relevant national and international issues". The lower number of responses used to calculate the performance gaps indicate the high number of 'Not Applicable' ratings that were given.

LIMITATIONS OF THE GAS

Theoretical Limitations

Similar to the Pilot study, there are several theoretical limitations to the GAS, the main being that the GAS seeks to gain employer ratings on a list of generic skills; skills that are deemed to be important to workplace performance. By this rationale every workplace, independent of the industry or profession, must require the same generic skills, this however, is an unrealistic assumption, as different work environments have different types of skill requirements. For example a Nursing graduate would require a different set of skills than that of an Engineering graduate.

Methodological Limitations

As with the pilot survey the current method of analysing the data does not take into account the number of graduates to which the employer is referring, therefore the frequency of responses to each question is based on the number of employers and not on the number of graduates.

The response rate again is a problem due to several factors, including employers not responding to the survey, the employers identified not having recent graduates employed and the survey not going to the correct person within the organisation, especially large organisations with a large graduate intake.

IMPROVEMENTS REQUIRED

Future analysis of the data needs to investigate a method of weighting based on the number of graduates to which the employer is referring. This would give a more equal weight to those employers responding with many graduates and those that respond with only one or two.

Future enhancements need to be made in the way employers are identified and contacted. Schools need to maintain a closer relationship with the employers of their graduates. The response rate for the Graduate Destination Survey needs to be improved so that there is a broader base of employers to work with.

When initially contacting employers it is not just as simple as contacting the Human Resources Department within the organisation to identify the most appropriate person to send the survey. A more thorough approach is needed such as a pre-survey telephone questionnaire undertaken with the

direct line manager of the graduate/s to establish an initial contact with the person filling in the GAS. This telephone questionnaire should establish whether the organisation has recent Curtin graduates, if the person being interviewed is willing to participate in the survey and is the most appropriate person to be filling out the survey.

Once the employer has been contacted, different methods should be used in the delivery of the GAS, such as, by fax or using email, this would facilitate a more timely response from the employer.

DISCUSSION

The results of the 1998/9 Graduate Attributes Survey indicate that Curtin is to a large extent meeting the needs of employers. Employers generally perceive that a Curtin degree provides good preparation for the requirements of a job in that discipline. Likewise, Curtin graduates compare favourably with graduates from other universities in the same discipline.

The results of the survey indicate that when data for all Schools are aggregated, Curtin is providing the most important skills and attributes that employers desire in their graduates. In terms of the ten most important attributes, Curtin graduates are perceived to have close to a good embodiment of all attributes. It was observed that employers placed considerable emphasis on skills that would enable graduates to adapt to a new environment, rather than cognitive skills such as reading, writing and verbal skills that may be given greater emphasis in a University context.

The performance rating indicates that Curtin is targeting the skills and attributes at a level that is similar to that of employers. The slightly negative rating indicates that Curtin might need to place similar emphasis on embodying the skills valued by industry as that placed on those attributes valued highly by the University, such as awareness of national and international issues and cross-cultural skills. By providing these skills and attributes the graduates are more likely to be highly valued by local employers.

The results of the 1998/9 GAS provide a benchmark for assessing the extent to which Curtin is meeting the needs of employers. With further refinement of the survey, particularly in terms of its administration, the survey will continue to provide useful information for the restructure of courses to be responsive to the needs of employers and the community.

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