

Assessing Outcomes of University Study: An SUT Pilot Study of the Perceived Importance of Generic Skills Outcomes

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Abstract

In line with the national policy requirement to enhance quality assurance in higher education, Swinburne University of Technology (SUT) has, since 1992, funded several research projects which addressed quality issues. This paper is the outcome of one of those projects. The paper has two purposes. The first is to report a pilot network of exploring what outcomes the stakeholders of higher education regard as important for students to achieve as a result of their study at, and involvement in the activities of, the universities. The second is to look briefly at the data emanating from the pilot study to get a sense of the kinds of perspective's which such an approach might yield in a properly focused, full-scale study.

Introduction

The international higher education system has changed markedly over the last quarter century. A common trend has been its rapid transformation from an 'ivory tower' outlook espousing academic freedom and basic/pure research towards a more externally oriented focus and encompassing a more corporate structure with an explicit mission and strategic plan. Hence, it is not surprising that business jargon and ideas like strategic planning and management, efficiency, ISO9000, BS15750, total quality management, HOSHIN planning or PDCA (Plan, Do, Check, Act) have become the staple diet of executives in higher education. Many academics have argued that higher education is indeed a business enterprise (Spanbauer and Tyler, undated). Nevertheless, there are many issues and problems relating to the business transformation of higher education that have yet to be satisfactorily resolved by the various participants, constituents, or vested interests (collectively called the "stakeholders") of the system. One of these is the recent rapid growth of the 'quality industry' in higher education.

The current government concern (allegedly reflecting public concerns) for quality assurance in higher education institutions has driven governments to demand structures and mechanisms for demonstrating quality assurance in institutions, with financial implications. In Britain, an Academic Audit Unit has been established to assess the quality of teaching and learning processes in higher education institutions in order to provide external reassurance that the quality control mechanisms in these institutions are proper and adequate to the task. In the case of Western Europe, the European Commission has drafted recommendations for a mechanistic system of pan-European co-ordination of quality assurance in the higher education sector (*Times Higher Education Supplement*, 27 November 1992). In Australia, the government had released, in mid-1988, a White Paper entitled *Higher Education, A Policy Statement* which spelt out the directions and priorities for major restructuring of the tertiary education system. Since then, a number of reports (for example, *Higher Education: The Challenges Ahead*, *Performance Indicators in Higher Education*, and *the Young People's Participation in Post-Compulsory Education and Training*), largely as a result of government initiatives, have elaborated more specifically the areas for change in the development of Australia's tertiary education through the 1990s. One of the priority strategic directions which these reports emphasised in meeting the emerging challenges of the 1990s has been the enhancement of quality in tertiary education.

These international preoccupations with quality assurance in higher education have been greeted with some concern by academics. The editorial of the *Higher Education Quarterly* (1992, p.2), for example, has succinctly expressed their concern as follows:

What is worrying about current developments [in the 'quality industry'] is that an extremely complex and problematic issue is being treated as if it were susceptible to simple one-dimensional solutions. Above all, real quality is about product and not processes which are important only insofar as they result in a worthwhile product. Of course one of the problems in higher education is that in some cases the process is part of the product. but that must not be allowed to hide the fact that the ultimate aims of higher education are to produce and disseminate new and worthwhile knowledge and to produce people, preferably with qualifications to demonstrate it, who are able to perform well as human beings, as citizens, as highly skilled professional workers, and as creators and critics of culture and society. No quality assurance mechanism is worth enforcing until it can be shown to promote, and not obstruct, these aims.

Certainly assessing the quality of tertiary education is by no means a simple procedure. There are no absolute or simple values either within the tertiary education system or, indeed, over time in relation to the concerns of any of the key player groups or stakeholders. The ground inevitably will keep shifting. The Higher Education Council's (HEC) 1992 document, entitled *The Quality of Higher Education* recognised both the conceptual and practical problems and issues of assessing the quality of tertiary education. Of late, these problems and issues, which generally have been centred on the definition and measurement of quality, have been widely debated in Australian academic circles in particular (refer to the HEC Discussion Papers for a comprehensive account of the debate by the different stakeholders: students, academic staff, employers, unions, etc.). One of the measurements which the HEC is currently emphasising is assessing the quality of outcomes to reflect the concerns of the different stakeholders as well as to understand "how each of the processes within institutions are organised and evaluated..." (HEC, 1992, p.6).

From the outset, the task of assessing the quality of student outcomes must be ongoing to take account of changing circumstances. Quality is multi-faceted and different key groups may have different perspectives determined by their different needs and agenda at a given point in time. In addition, the entire situation is inherently dynamic rather than static since the pursuit of new outcomes, arrived at by whatever processes, will inevitably create new perceptions of success and failure within the system by all interested parties. For example, the employers' wish for more readily useable, job-related skills in graduates can only be accommodated at the expense of current attributes which other graduates possess. The value of these more latent attributes may only become evident when graduates lacking in them enter the workforce, or have been in the workforce for some time and face new and unpredictable challenges to their resources. Then the whole cyclical process of concern and review will begin again *ad infinitum*. The HEC draft advice document (July 1992) identified three main desirable 'characteristics of quality' as which graduates should possess. These are:

- generic skills, attributes and values
- a body of knowledge
- professional/technical or other job-related skills.

In a world of dynamic power shifts and profound technological advances, changes in employment patterns, social interactions and lifestyles, there is no doubt, however, that the HEC's desirable characteristics should be considered in the development of teaching and learning programs. For example, in the USA it is common to have several job changes within one's working career, and this is increasingly common in Western industrialised countries. Under such circumstances, the value of generic skills is enhanced in relation to the value of very specialised skills. Employer groups in Australia have also advocated, of late, the need for graduates of higher education institutions to possess generic skills in addition to the specialised skills of their field of study. The messages that are emerging from the quality debate in higher education seem to indicate the following trends:

- a greater focus is now on educational outcomes/outputs than on inputs
- the linking of quality to generic skills outcomes
- the linking of quality and measurement
- an emphasis on the importance of stakeholders' views.

Hitherto, there has been no Australian research which examines stakeholders' priorities on generic skills in higher education. As far as we are aware, the submission by the Business/Higher Education Round Table

to the HEC in 1992 was one of the few documents which explicitly identified the kinds of generic skills that the business and academic sectors believe higher education institutions should prioritise in their teaching and learning programs. These skills are “the capacity to learn new skills and procedure, to make decisions and to solve problems, to work with minimum supervision and highly developed communication skills”. (HEC p.15) Even more recently, the *Report on Implications for Higher Education of a Competency-Based Approach to Education and Training* has advocated “...greater attention to the links between workplace performance and discipline-based knowledge, increased efforts to address the attainment of generic skills and explicit consideration of the interrelationship of all these in curriculum development, teaching and learning activities.” (*Higher Education News*, August, 1993, p4)

Obviously, there is a need to explore further the kinds of generic skills that education institutions should prioritise from various stakeholder perspective's, given the diversity of higher education institutions, and learning and teaching environments. Such an exploration should further enhance institutions in achieving quality by:

- indicating similarities and differences between stakeholders in educational priorities
- indicating issues to be addressed (but not, alas, resolutions)
- indicating the extent to which objectives are being achieved
- indicating areas of strengths and weaknesses in the educational process from the perspective of the stakeholders
- providing a tool to guide future developments in enhancing the learning and teaching processes.

Assessing Generic Skills

In the HEC document (1992, p.20) on *Achieving Quality*, generic skills are defined as “skills, personal attributes and values which should be acquired by all graduates regardless of their disciplines”. Such skills, according to the HEC, “should represent the central achievements of higher education as a process” so as to enable graduates to be “receptive to innovation, adaptable to change, and more able to manage a more flexible culture”. (Mitchell *et al*, 1991, p. 60) In principle, outcomes like higher-level conceptual skills, independence of thought, and intellectual curiosity are less readily measurable than the more specific skills and knowledge. As a result, the more readily measurable parameters of competency-based learning have been recommended for outcomes determination in higher education and this is an area of continuing controversy.

The first task in the pilot study at Swinburne University of Technology was to identify which generic skill are perceived to be important in the eyes of the interested parties or stakeholders and to be the proper concern of universities. To this end, overseas attempts to measure outcomes (for example, see Pascarella and Terenzini, 1991 and Bogue and Saunders, 1992), and the specific concerns expressed in the HEC document on quality in compiling a questionnaire were reviewed. The rationale for the measurement of generic skills in assessing outcomes is relatively clear. A limitation is that the different stakeholder groups lack consensus on the perceived proper outcomes, and this will result in endemic frustration with the system and/or its products. These issues will then have to be debated and resolved to the extent that it is appropriate for the higher education system to resolve them and to the extent that it is capable to resolving them. This will not necessarily be a straightforward or clear process. One of the problems one might, for example, anticipate is that it is perhaps inevitable that any perceived shortcomings of graduates will be attributed to their university experience, which is the final exit point in a three-tier system of education. University academics are, however, unlikely to regard it as equitable if complaints refer to knowledge and skills which, in their view, students should have acquired at an earlier point in their education.

The SUT Survey Instrument

A pilot questionnaire, which specified some 37 possible outcomes in the form of generic skills to which subjects were required to respond on a five-point Likert scale, was developed to seek the views of stakeholders concerning their priorities in terms of the outcomes of higher education. In addition, a further questionnaire was developed to tease out the meaning specifically of “communication” to members of the stakeholder groups in terms of the modes of communication involved (verbal, written,

social) and the kinds of target groups for which the communication is intended (people of the opposite sex, people of a different educational background and so forth). The latter scale was included in the pilot study in view of the frequent reference to this specific generic skill in the quality literature both generally and in Australia. In practice, however, the second questionnaire proved too long and repetitive for respondents, resulting in unreliable data, and it was decided not to adopt such an approach in future research. For this reason, this paper concentrates only on the results obtained from the first questionnaire.

Sample

The National Board on Employment, Education and Training (NBEET) report in 1992, entitled *The Quality of Higher Education*, identified three main interested parties in the outcomes of higher education, namely employers of graduates, staff and students of the higher education system, and finally, governments on behalf of the community. The NBEET's second category is not appropriate for assessing outcomes as it confounds providers of the service, namely staff, with recipients, namely students, and is therefore essentially two distinct interested parties. Governments' interests too, certainly at present, are essentially dependent on and subsidiary to the satisfaction of the other stakeholder groups. It was therefore decided that the views of three groups should be attended to in the pilot study, namely the primary providers of higher educational services, academic staff, the primary recipients of the service, students and the secondary recipients of the service, graduate employers. It is acknowledged, however, students can be secondary providers too since they bring resources to the educational process in the form of individual ideas, experience, and support for fellow students.

Twenty respondents were sought from each of the respective stakeholder groups, thus with a target total of 60 respondents in all for the study. Employers were selected largely from various SUT Advisory Committee membership lists and contacted by letter with telephone follow-ups; nineteen employers eventually responded. Five academic staff for each of SUT's four faculties (Applied Sciences, Arts, Business and Engineering) responded and a similar array of students was sought. The student sample, however, contained more Engineering and Applied Science students (15) than Business or Arts students (5). Convenience sampling was applied to the students, with the survey instrument being administered at a central location such as the library or cafeteria.

Stakeholders' Priorities

The generic skills which the three stakeholders perceived as highest priority outcomes of higher education are listed in Table 1. As indicated, students, staff, and employers differed in their average perception of the importance of specific generic skill outcomes. Students prioritised "Greater team skills" (the mean rating was 4.4); staff ranked "Think logically and critically" as the top priority (mean rating was 5.0 indicating complete consensus); while employers perceived "Developing professional skills" as the most important (average rate was 4.9 indicating almost complete consensus). However, out of the first ten priorities that the stakeholders had ranked, there were five priorities with which the stakeholders were in agreement. These were "Analyse and solve workplace problems", "Develop professional skills", "Ability to work unsupervised", "Ability to think laterally", and "Think logically and critically". Based mainly on the perceived top ranking of the three stakeholders, it might be said that students tended to prioritise team skills, academics prioritised cognitive skills and employers prioritised professional skills.

Table 1: Generic Skills Perceived to be Most Important by Stakeholders

Ranking	Students	Rating
1	Greater team skills	4.40
2	Analyse and solve workplace problems	4.35
3	Ability to plan	4.35
4	Develop professional skills	4.30
5	Ability to work unsupervised	4.30
6	Ability to think laterally	4.20
7	Think logically and critically	4.15
8	Increased self-reliance	4.15
9	Enhanced self-discipline	4.15

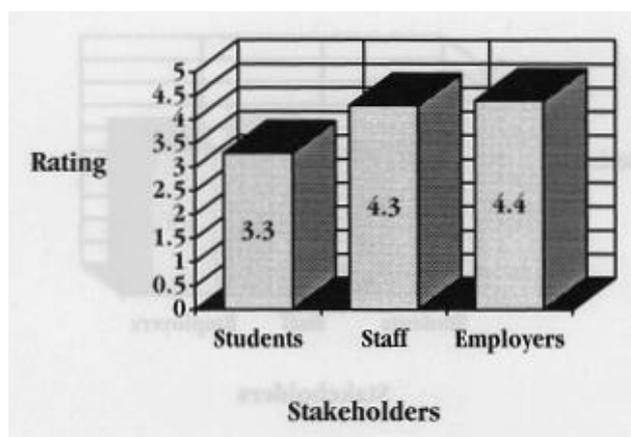
10	Ability to manage time	4.05
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Ranking	Staff	Rating
1	Think logically and critically	5.00
2	Maintain ethical standards	4.75
3	Analyse and solve workplace problems	4.65
4	Develop professional skills	4.55
5	Ability to think laterally	4.47
6	Awareness of impact of new technology	4.35
7	Ability to manage time	4.35
8	Ability to use information resources	4.30
9	Write well	4.26
10	Ability to work unsupervised	4.25

Ranking	Employers	Rating
1	Develop professional skills	4.89
2	Think logically and critically	4.84
3	Analyse and solve workplace problems	4.68
4	Maintain ethical standards	4.42
5	Write well	4.37
6	Ability to think laterally	4.37
7	Skill in use of computers	4.10
8	Ability to work unsupervised	4.00
9	Ability to plan	4.00
10	Capacity to retrain in workforce	3.95

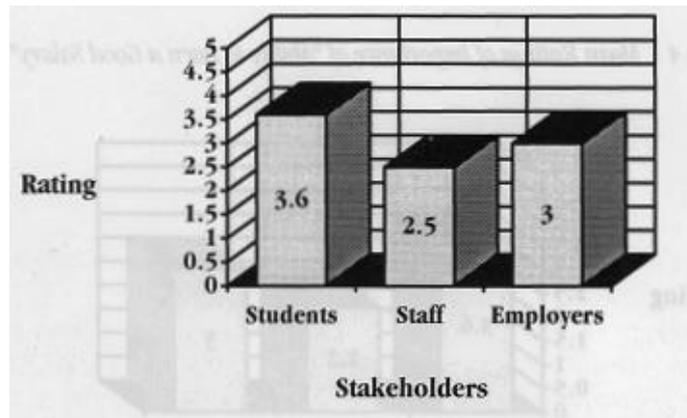
As Figure 1 shows, students perceived the importance of “writing well” significantly lower in importance than either staff or employers. Indeed, students often complain that academic staff spend too much time criticising their style of presentation of assessed work as opposed to its content, as if the two were separable. This illustrates the point that addressing generic skills outcomes does not mean that non-academic stakeholders necessarily have views which must be regarded! as imperative by academic staff; and this appears to be the unspoken message behind much of the argument preferred in several government-sponsored reports. Quite clearly, the student stakeholders here have it wrong while the staff and the employers have it right. What this particular finding illustrates, more than anything else, is the need for staff to educate the students about the importance of the ability to write well so that they are more highly motivated to improve in this area and to value staff efforts to assist them.

Figure 1: Mean Ratings of Importance of “Ability to Write Well”



On the other hand, having criticised the students, Figure 2 shows that they are more conscious of the importance of “Ability to generate wealth” than either staff or employers.

Figure 2: Mean Ratings of Importance of "Ability to Generate Wealth"



As illustrated in Figure 3, none of the three stakeholders rates the importance of "Understand(ing) different cultures" very highly. This perhaps illustrates that all of the stakeholders can be wrong in their judgement! There is no panacea here, but rather a new window shedding fresh light on an old problem.

Figure 3: Mean Ratings of Importance of "Understanding Different Cultures"

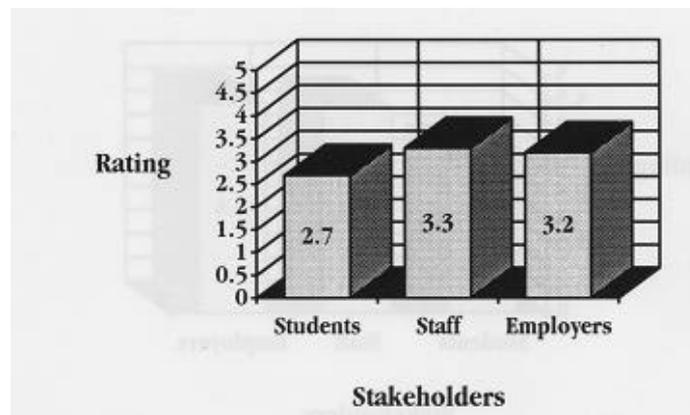


Figure 4 shows that students are more concerned with their "Ability to earn a good salary" than either staff or employers and that staff are particularly uninterested in this skill. On the other hand, despite these differences, this skill is not among the ten most important generic skills in the view of students as indicated in Table 1. It is a skill which perhaps inevitably is more important for students than others and the differences noted need not necessarily give rise to concern in a relatively affluent society.

Figure 4: Mean Ratings of Importance of "Ability to Earn a Good Salary"

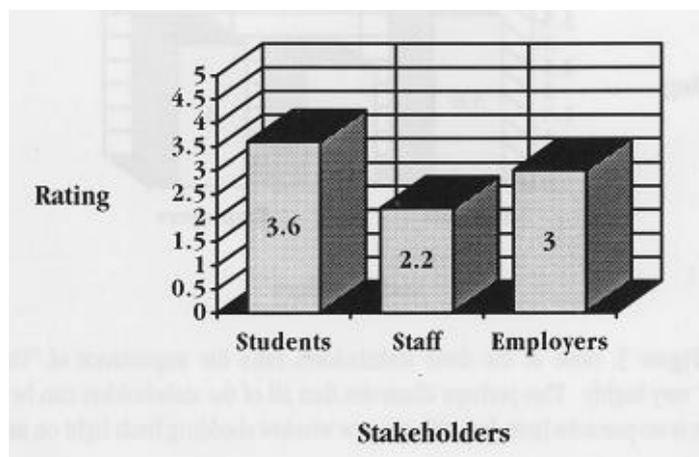
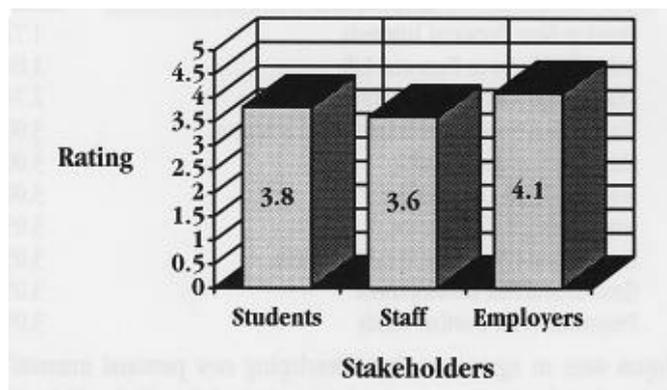


Figure 5 illustrates a state of relative unanimity in that all stakeholders rate "Skill in the use of computers" relatively highly in importance.

Figure 5- Mean Ratings of Importance of "Skill in Use of Computers"



Generic skills which were accorded the least priority by the stakeholders are shown in Table 2.

Table 2: Generic Skills Perceived to be Least Important by Stakeholders

Ranking	Students	Rating
37	Appreciate cultural activities	2.10
36	Understand Arts and Humanities	2.20
35	Solve problems in personal life	2.36
34	Develop new personal interests	2.60
33	Understand social and behavioural sciences	2.70
32	Develop personal and ethical values	2.70
31	Better understand different cultures	2.85
30	Contribute to community development	2.95
29	Growth and self-development	3.05
30	Understand physical and life sciences	3.15

Ranking	Staff	Rating
37	Develop new personal interests	2.00
36	Ability to earn good salary	2.15
35	Ability to generate wealth	2.45
34	Appreciate cultural activities	2.89
33	Solve problems in personal life	3.20
32	Understand Arts and Humanities	3.25
31	Better understand different cultures	3.30
30	Understand physical and life sciences	3.45
29	Improved self-confidence	3.50
28	Increased self-reliance	3.50

Ranking	Employers	Rating
37	Develop new personal interests	1.72
36	Solve problems in personal life	1.84
35	Understand Arts and Humanities	2.74
34	Understand social and behavioural sciences	3.00
33	Ability to generate wealth	3.00
32	Ability to earn good salary	3.00
31	Increased self-confidence	3.05
30	Understand physical and life sciences	3.05
29	Growth and self development	3.05
28	Preparation for further study	3.05

The staff and employers were in agreement that "Developing new personal interests" should be accorded the lowest priority of student outcomes. Students perceived that it should be "Appreciating cultural activities". These are pragmatic times! Of the ten lowest priorities identified, the stakeholders were in agreement with four, namely, "Understand arts and humanities", "Solve problems in personal life",

“Develop new personal interests”, and “Understand physical and life sciences”. There are some surprising results among the least important skills according to each of the stakeholder groups, for example: “Ability to generate wealth” for employers; “Increased self-reliance” for staff; “Develop personal and ethical values” for students. One should, however, only note such matters for future research rather than place too much emphasis upon them in a small pilot study.

Similarities and Differences in Educational Priorities

Of the thirty-seven items rated (refer to Table 3), the following have been shown to be not significantly different in the perceived ratings of the three stakeholders:

- Better self understanding
- Serve society better
- Better understand different cultures
- Analyse and solve workplace problems
- Skill in use of computers
- Better understanding of career
- Speak well in public
- Understand mathematics
- Improved self-confidence
- Develop new personal interests
- Understand physical and life sciences
- Appreciate cultural activities
- Capacity to retrain in workforce
- Ability to think laterally
- Increase self-reliance
- Greater initiative
- Ability to plan
- Greater team skills
- Increased attention to detail
- Ability to work unsupervised.

Table 3: Statistically Significant Differences Between Stakeholder Groups in Perceived Importance of Generic Skills

Question/Topic	Means			Differences		
	Students	Staff	Employers	Stu/Sta	Sta/Emp	Stu/Emp
01 Better self understanding	3.90	3.90	3.32			
02 Serve society better	3.55	4.16	3.63			
03 Think logically and critically	4.15	5.00	4.84			p<.002
04 Solve problems in personal life	2.36	3.20	1.84		p<.01	
05 Develop professional skills	4.30	4.55	4.89		p<.02	
06 Preparation for further study	3.75	4.00	3.05		p<.003	p<.05
07 Better understand different cultures	2.85	3.30	3.10			
08 Contribute to community development	2.95	4.10	3.05	p<.01	p<.02	
09 Analyse and solve workplace problems	4.35	4.65	4.68			
10 Write well	3.30	4.26	4.37	p<.01		p<.02
11 Skill in use of computers	3.80	3.68	4.10			
12 Understand Arts and Humanities	2.20	3.25	2.74	p<.02		
13 Develop personal and ethical values	2.70	3.95	3.47	p<.01		
14 Better understanding of career	3.85	3.75	3.37			
15 Speak well in public	3.75	3.89	3.42			
16 Understand social and behavioural sci	2.70	3.68	3.00	p<.01	p<.05	
17 Maintain ethical standards	3.80	4.75	4.42	p<.001		p<.05
18 Awareness of impact of new technol.	4.00	4.35	3.63		p<.01	
19 Understand mathematics	3.55	4.00	3.63			
20 Improved self-confidence	3.65	3.50	3.05			
21 Develop new personal interests	2.60	2.00	1.72			
22 Growth and self-development	3.05	3.95	3.05	p<.03		
23 Understand physical and life sciences	3.15	3.45	3.05			
24 Appreciate cultural activities	2.10	2.89	3.32			
25 Ability to ear good salary	3.60	2.15	3.00	p<.01	p<.05	
26 Ability to use information resources	3.70	4.30	3.95	p<.05		
27 Capacity to retrain in workforce	3.75	3.79	3.95			
28 Ability to think laterally	4.20	4.47	4.37			p<.05
29 Ability to generate wealth	3.50	2.45	3.00	p<.03		
30 Increased self-reliance	4.15	3.50	3.47			
31 Greater initiative	3.90	4.05	3.84			
32 Ability to plan	4.35	4.15	4.00			

33	Greater team skills	4.40	4.10	3.74	
34	Increased attention to detail	3.60	3.80	3.84	
35	Enhanced self-discipline	4.15	3.90	3.16	
36	Ability to manage time	4.05	4.35	3.58	p<.03
37	Ability to work unsupervised	4.30	4.25	4.00	

Hence, there was a convergence of opinions in 54% of the items and these were mainly related to interpersonal and team skills.

The following items were found to be significantly different (at the 95% confidence level or greater) between at least two of the three groups:

- Think logically and critically (between students and employers)
- Solve problems in personal life (between staff and employers)
- Develop professional skills (between staff and employers)
- Preparation for further study (between staff and employers, and students and employers)
- Contribute to community development (between students and staff, and staff and employers)
- Write well (between students and staff, and students and employers)
- Understand arts and humanities (between students and staff)
- Develop personal and ethical values (between students and staff)
- Understand social and behavioural sciences (between students and staff, and staff and employers)
- Maintain ethical standards (between students and staff, and students and employers)
- Awareness of impact of new technology (between staff and employers)
- Growth and self-development (between students and staff)
- Ability to earn good salary (between students and staff, and staff and employers)
- Ability to use information sources (students and staff)
- Ability to generate wealth (between students and staff)
- Enhanced self-discipline (between students and employers)
- Ability to manage time (between staff and employers).

Nearly 60% of these significant differences in ratings were between students and staff. From an educational standpoint, there is a need to match the learning objectives of students with the teaching objectives of staff. Significant differences in perception between students and employers were noted in the following items: “think logically and critically”, “preparation for further study”, “write well”, “maintain ethical standards”, and “enhanced self-discipline”. These differences in ratings between the stakeholder groups need further in-depth studies to facilitate reliable conclusions.

Conclusions

This study has explored a method of gauging stakeholders’ (students, staff, and employers) perception of the importance of various possible generic skills outcomes in higher education. It has found that there were more areas of convergence in priorities than divergence as indicated by statistically significant differences between mean stakeholder views, or the lack of such differences. These differences were found more between the students and the staff than between students and employers, and staff and employers. They were related mainly to cognitive and interpersonal skills. Though the findings on the whole were indicative, nevertheless, the mismatches in the priorities found between students, staff, and employers, if confirmed in more substantial and focused studies, could serve as useful guidelines in enhancing the quality of the teaching and learning processes in higher education by focusing attention on specific generic skills outcomes where divergence of stakeholder views exist.

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