Contributions of general staff to student outcomes: A Delphi study

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Abstract

The key resource for universities is their academic and general staff (Hoare, 1995, ¶2); yet, little attention has been paid to the work of general staff (Conway, 2000; Szekeres, 2004; Whitchurch, 2004). Nevertheless, general staff have comprised more than half the workforce in Australian universities since 1996 (Department of Education, Employment and Workplace Relations [DEEWR], 2009), and a more rigorous understanding of the contribution of general staff towards the strategic goals of their institutions will enhance their institutions' organisational sustainability. While universities have multiple and diverse stakeholders (Marginson, 2006), students occupy the key stakeholder role in a university's core business of learning and teaching. Consequently, the interaction of general staff with students has potential to impact on the sustainability of an institution. This paper describes a preliminary study into how general staff contribute to student outcomes. A meta-study by Prebble et al. (2004) derived 13 propositions for support of student outcomes that focussed on the contribution by academic staff, and Middleton (2006) subsequently surmised that general staff are also central to those outcomes. This study uses the Delphi method to test Middleton's (2006) assertion by engaging general staff in ranking the propositions in terms of the contribution of general staff. This paper concludes by discussing implications for future research.

Keywords General staff, student outcomes, Delphi method

Introduction

Background

Over the last twenty years, there has been growing concern about accountability in higher education in Australia (Adams, 1998). Public and government concern has coincided with or been triggered by the massification of higher education, the move from the binary system to the Unified National System, economic rationalism and the consequent changes to student profiles and funding arrangements (Adams, 1998; Ng, Heskin, & Sharma, 1993). There have been consequent calls for effectiveness and efficiency in higher education and the concomitant need for measurement. Student outcomes assessment has been identified by a number of authors as one measure of an institution's performance and accountability (Clark cited in Elford, 1996; Ng et al., 1993).

Conway (2000) asserts that university administrators are, as a group, ignored by government, by universities themselves, and by academics with whom administrators work. Szekeres (2004) laments the lack of literature concerning general staff (and, in particular, administrative staff) and refers to general staff as "the invisible workers" (p. 7). General staff have comprised more than half the workforce in Australian universities since 1996 (DEEWR,

2009) and the responsibilities undertaken by this group are diverse, comprehensive and considerable. Such a large workforce, more than 54,800 in 2008 (DEEWR, 2009) invites a more rigorous understanding of the work undertaken, and the contribution made by general staff to the strategic goals of their institutions.

This paper is concerned with the work undertaken by general staff in Australian universities, and focusses on the question of how general staff contribute to student outcomes. In a review of 146 international studies, Prebble et al. (2004) derived 13 propositions for student support that were found to enhance student outcomes in terms of retention, persistence and achievement (Table 1). Although the study by Prebble et al. (2004) focussed on the contribution to student outcomes by academic staff, Middleton (2006) surmised that general staff are also central to those outcomes. An understanding of how general staff contribute to the key behaviours identified by Prebble et al. (2004) would provide insight into how general staff contribute to student outcomes.

Table 1: *Institutional behaviours that support student outcomes* [a]

Student Support Propositions	Description
1. Institutional behaviours, environments and processes are welcoming and efficient	Students' enquiries are dealt with promptly, knowledgeably and with a friendly manner
2. The institution provides opportunities for students to establish social networks	Student clubs, societies and activities are supported, and facilities and events are provided to support socialisation
3. Academic counselling and pre-enrolment advice are readily available to ensure students enrol in appropriate programs	Students are provided with high quality advice and information concerning program choices, and links are established with secondary schools
4. Lecturers are approachable and accessible inside and outside class times for academic discussions	Students benefit from regular and meaningful formal and informal contact with academics, particularly when a learning community is developed
5. Students experience good quality teaching and manageable workloads	The quality and teaching methodologies can have an impact on student outcomes, as can a manageable workload
6. Orientation and induction programs are provided to facilitate both social and academic integration	Both academic orientation and general orientation programs can improve student outcomes
7. Students working in academic learning communities have good outcomes	The deliberate use and facilitation of learning communities has a positive impact on student outcomes
8. A comprehensive range of institutional services and facilities is available	Student outcomes are improved by the provision of services and facilities that support both the social and academic integration of students
9. Supplemental instruction is provided	Academic support programs in programs that students find difficult improve student outcomes
10. Peer tutoring and mentoring services are provided	Students benefit from well-designed and well-run peer tutoring and mentoring programs
11. The institution ensures there is an absence of discrimination on campus, so students feel valued, fairly treated and safe	Students need to feel safe, valued and respected
12. Institutional processes cater for diversity of learning preferences	Students have different learning styles, which need to be accommodated
13. The institutional culture, social and academic, welcomes diverse cultural capital and adapts to diverse students' needs	The diverse backgrounds of students should be affirmed and accommodated

a   From Pebble et al. (2004)

What is educational sustainability?

The term *sustainability* can be confusing, as it encompasses a diversity of meanings. Based on the United Nations definition for sustainable development (United Nations General Assembly, 1987), sustainability for an organisation may be defined as the state in which the needs of the stakeholders are met without compromising the ability to meet their needs in the future (Hockerts, 1999). The UK House of Commons Select Committee on Education and Skills asserted in its Seventh Report that it is not just the physical environment of schools that needs to be sustainable (2007). Indeed, sustainability is concerned with looking into the future, and requires us to the evaluate our ethics and sense of fairness (Merkel & Litten, 2007). Litten and Terkla (2007) argue that analysis and reporting are essential to achieving institutional sustainability, using appropriate projections that include educational outcomes, environmental and social impacts, resource use and supplies, and financial equilibrium. Moreover, within universities, organisational and educational sustainability may be linked through research in organisational sustainability and implementation in its learning and teaching programs (Institute for Sustainability, Health, & Environment, 2009).

Methodology

The Delphi method

The Delphi method is a group process that gathers and synthesises the opinions of several individuals, considered to be experts in the field of study, to improve the quality of decision-making (Delbecq, Van de Ven, & Gustafson, 1975). It is a method of structured communication that allows a group to deal with complex problems (Linstsone & Turoff, 2002) that was originally developed by the RAND Corporation (Hasson, Keeney, & McKenna, 2000) for long-range science and technology forecasting (Linstsone & Turoff, 2002). Essentially, the Delphi method is a series of questionnaires that provides feedback to the subjects based on the results of the previous round (Delbecq et al., 1975) and which is designed to create group consensus from individual opinions (Hasson et al., 2000). Dalkey and Helmer describe the Delphi Technique as a method for obtaining "the most reliable opinion consensus of a group of experts by subjecting them to a series of questionnaires in depth interspersed with controlled opinion feedback" (1963, p. 458). An adaptation of the Delphi method has been used to rank key issues, particularly in information systems research (Schmidt, 1997).

The Delphi Method is highly appropriate for practice-based research, as key stakeholders are involved with the research itself (Fox, 2003). Research into the work undertaken by general staff considers a complex issue that has previously received little or no attention; as such, it requires knowledge from people who understand the different factors involved, who could be considered to be experts (Okoli & Pawlowski, 2004). Okoli and Pawlowski (2004) also argue that using a panel of experts will draw from a range of experience and knowledge, and will allow more appropriate answers than could be elicited from any one expert. Compared to other group methods, the Delphi method does not require the experts to meet physically, reducing the logistical constraints of the study.

Design of the study and research method

The aim of this study was to answer two research questions: *according to general staff*, to which of these propositions for student support (Prebble et al., 2004) do general staff contribute?; and what is the order of significance of this contribution, *as viewed by general staff?* Accordingly, the Delphi method was used to develop a priority or rank order for the 13 propositions developed by Prebble et al. (2004) by using a modification of the Schmidt

Delphi method (Schmidt, 1997) with a group of general staff. The Schmidt Delphi method for ranking items involves three phases: a brainstorming phase to develop a list of issues; a narrowing down phase to pare the list of issues; and a ranking phase to order the remaining items (Schmidt, Lyytinen, Keil, & Cule, 2001). For the purposes of this study, the meta-study by Prebble et al. (2004) and the development of the propositions are considered to be the first two phases.

Composition of the panel

Choosing appropriate experts is an important aspect of Delphi studies (Delbecq et al., 1975; Duffield, 1993; Okoli & Pawlowski, 2004), and there are two key aspects to this: panel size and qualifications of experts (Powell, 2003). A single expert is unlikely to have had personal experience of all the behaviours described by the propositions, and therefore the use of a ranking-style Delphi study, using a process of iterative, controlled feedback will provide a broader experience base from which to develop consensus (Schmidt et al., 2001). Experts should be chosen who are representative of their profession, have power to implement the findings or who are unlikely to be challenged as experts (Fink, Kosecoff, Chassin, & Brook, 1984). However, the number of experts required for a panel is not large, with 10 to 18 being considered suitable (Paliwoda, cited in Okoli & Pawlowski, 2004).

The Delphi study was located at one site only: the University of Technology, Sydney (UTS). This site has been chosen due to the representative nature of UTS in terms of its provenance, location, size and diversity: it was established as a university from a previous institution some 20 years ago (as have half Australia's universities); it is located in NSW (NSW has more universities than any other state of Australia); with 32,000 students it is a medium-to-large university; it is sited in a capital city (as are most universities in Australia); with 23% international students, UTS is close to the overall Australian figure for international students of 26.5% (DEEWR, 2008; Marginson & Considine, 2000; University of Technology Sydney, 2008).

Participants suitable for this study were general staff located in faculties or schools, meeting the criteria described in Table 2, thereby providing a representative group of experts as recommended by the literature (Powell, 2003). Approval-in-principle to approach staff was firstly obtain from faculty managers, and then a list of 105 names of staff meeting these criteria were provided by managers in five faculties. From this list, 44 staff were selected from a range of faculties and positions, and were sent a short outline of the research with a request for their participation. Ultimately, 26 participants, 14 women and 12 men, returned the consent form. The demographics of the panel are shown in Table 3.

Data collection and analysis method

Collection

The propositions developed by Prebble et al. (2004) were used as a starting point for phase 3 of the Schmidt Delphi method (Schmidt et al., 2001). Typically, three rounds of surveys are conducted (Powell, 2003), at which time consensus is generally reached (Schmidt et al., 2001). Keeney, Hasson and McKenna (2006) note that this is reflected in the literature they examined, where two to four rounds were used. It is also noted that panellists can suffer from fatigue as the number of rounds increase (Starkweather, Gelwicks & Newcomer cited in Keeney et al., 2006), and McKenna (cited in Keeney et al., 2006) felt that response exhaustion occurred after two rounds, particularly for busy experts. Accordingly, it was decided to use three ranking rounds for the current study, to balance the desire for consensus with the risk of panel-fatigue and the associated ethical considerations.

Table 2: *Criteria for expert selection for Delphi study*

Dimension	Criterion	Example
Experience in higher education	Five years or more	
Faculty / School	Professional (science-based)	Engineering, IT
Faculty / School	Professional (social-science based)	Education, Law
Faculty / School	Generalist	Arts, Science
Role	Administration	Student adviser
Role	Technical	Professional officer
Role	Curriculum	Educational designer
Role	Non-curriculum	Mentor program manager
Role	Marketing	Faculty / School marketer
Role	Managerial	Faculty / School manager

Table 3: *Demographics of expert panel for Delphi study*

Characteristic	Number	Avg	Max	Min
Panellist's experience in higher education (years)		16.06	32	7
Number of universities at which panellists have worked		1.65	6	1
Panellist's educational level[1]		BD	DD	HS
HEW[2] level		7	>10	4
Faculty of Arts and Social Sciences	5			
Faculty of Engineering and IT	7			
Faculty of Design, Architecture and Building	3			
Faculty of Nursing, Midwifery & Health	5			
Faculty of Science	6			
Management	6			
Technical Management	2			
Technical	4			
Marketing / External liaison	2			
Executive assistance	2			
Research administration	2			
Practicum administration	1			
Facilities administration	1			
Administration	6			

[1] Education level is the highest level attained by the panellist: HS = high school leaving certificate (or equivalent), BD = bachelor degree, DD = doctoral degree

[2] HEW (Higher Education Worker) level is the current level of the panellist: 3 panellists indicated that previous roles had been at higher levels

In Round 1, 24 participants were sent an introductory letter with a request to rank the propositions in terms of the importance of the contribution by general staff to each proposition, and a survey form listing 13 propositions with their descriptions (Table 1). The survey form also allowed space for open-ended comments concerning the propositions or the contributions made by general staff to student outcomes. The author collected the survey forms, in person, on a nominated date, in order to maximise the return: all 24 participants completed the survey. Collection of the completed forms by the author in person also allowed for panellists to make additional verbal comments. For Round 2, three of the propositions relating most strongly to academic impact (No. 4, 5 and 12) were culled. Background information relating to the derivation of the propositions was provided, along with a summary of the analysis of Round 1 and a letter of explanation. The analysis summary included the percentage of panellists ranking each proposition in the top half of the rankings and an indication of the level of agreement of the panel, as derived using Kendall's coefficient of concordance (W) (Kendall & Gibbons, 1990; Schmidt, 1997).

Twenty-six participants were sent the Round 2 survey, comprising the original 24 as well as two additional participants for whom the consent form had been received after Round 1 had started. Two of the original participants had gone on leave and so did not complete the Round 2 survey, and one participant was unable to complete the survey due to work commitments, resulting in a total of 23 completed Round 2 surveys. For Round 3, an analysis summary of Round 2 was provided to the 26 panellists, again indicating the level of agreement and the percentage of panellists ranking each proposition in the top half of the rankings. In addition, the mean rank of each proposition was also provided along with a short commentary on the emerging patterns. In Round 3, all but one of the participants (who was still on leave) returned the survey, giving a total of 25 participants. Demographic data was also collected separately in Round 1 from all the original participants and in Round 3 from the additional two participants.

Analysis

Kendall's coefficient of concordance (W) is widely recognised as the best metric for measuring non-parametric rankings (Okoli & Pawlowski, 2004). The value of W ranges from 0 to 1 (Kendall & Gibbons, 1990), with a value of 0 indicating no consensus and a value of 1 indicating perfect agreement between the experts (Okoli & Pawlowski, 2004). Schmidt (1997) developed a guideline to the interpretation of Kendall's W (Table 4), but cautioned that these values should not be applied rigidly.

Table 4: *Interpretation of Kendall's coefficient of concordance* [a]

W	Interpretation	Confidence in Rankings
0.1	Very weak agreement	None
0.3	Weak agreement	Low
0.5	Moderate agreement	Fair
0.7	Strong agreement	High
0.9	Unusually strong agreement	Very high

[a] From (Schmidt, 1997)

Results

The results for Kendall's coefficient of concordance showed increasing agreement over the three rounds. Nevertheless, agreement by Round 3 was no more than "moderate" (Table 5), with the number of panellists in each round varying between 23 and 25.

Table 5: *Kendall's coefficient of concordance and its interpretation for each round*

	Round 1 (n=24)	Round 2 (n=23)	Round 3 (n=25)
Kendall's W	0.29	0.34	0.47
Interpretation of W	Weak agreement	Weak agreement	Moderate agreement

The most highly ranked proposition in all three rounds was the first, namely: Institutional behaviours, environments and processes are welcoming and efficient; that is, students' enquiries are dealt with promptly, knowledgeably and with a friendly manner. This proposition was ranked in the top half of the rankings by all panellists for the first and third rounds, and by 96% of panellists in the second round. Other propositions that were consistently ranked highly over all three rounds were numbers 3, 6 and 8. In addition to the propositions relating strongly to the behaviour of academics, propositions 9, 10 and 13 were consistently ranked low. The average ranks of each proposition for Round 3 are shown in Table 6.

Table 6: *Ranking of propositions in Round 3*

Student Support Propositions	Mean Rank	Percentage ranking top half
1. Institutional behaviours, environments and processes are welcoming and efficient	1.48	100
2. The institution provides opportunities for students to establish social networks	6.72	28
3. Academic counselling and pre-enrolment advice are readily available to ensure students enrol in appropriate programs	3.32	88
4. Lecturers are approachable and accessible inside and outside class times for academic discussions	N/A	N/A
5. Students experience good quality teaching and manageable workloads	N/A	N/A
6. Orientation and induction programs are provided to facilitate both social and academic integration	4.24	68
7. Students working in academic learning communities have good outcomes	6.32	40
8. A comprehensive range of institutional services and facilities is available	4.28	72
9. Supplemental instruction is provided	7.44	20
10. Peer tutoring and mentoring services are provided	7.44	12
11. The institution ensures there is an absence of discrimination on campus, so students feel valued, fairly treated and safe	6.28	48
12. Institutional processes cater for diversity of learning preferences	N/A	N/A
13. The institutional culture, social and academic, welcomes diverse cultural capital and adapts to diverse students' needs	7.52	24

Discussion and implications

Panel diversity

In keeping with the recommendations from literature, a heterogeneous group, including panel members with varied backgrounds, was selected to engender high quality outcomes (Powell, 2003). However, the wide range of responses, evidenced by the relatively low level of agreement as derived from Kendall's coefficient of concordance, is likely to have arisen from this diversity. This effect was noted by several panellists in their open-ended written comments:

> "It's difficult to deal with 'general staff' as one homogeneous group. The importance of the various propositions overleaf varies according to which general staff are involved eg. Technical staff have an impact more akin to academic staff so the "teaching-related" propositions are more important for them; front desk counter staff in the Student Centres have different rankings; equity staff etc etc."
> Panellist A, Round 1

> "I think there is a lack of consistency in terms of how general staff are involved in some activities - eg orientation. Some staff would do nothing and other faculties might be more involved. As a marketing person I am unusual in that I have run our O camp for a number of years as no-one else would do it and I saw the need to do something important but outside my normal duties. I don't think that is usual."
> Panellist B, Round 1

> "I would imagine this may be different between faculties and groups."
> Panellist C, Round 2

> "The contribution of 'general staff' to the propositions listed depends on their particular position i.e. a Student Centre staff member will have a different role and perspective concerning student outcomes as would someone who worked in the Student Services Unit in say 'Housing'."
> Panellist D, Round 1

> "I have mentioned this before – that is – Ranking of these propositions depends upon the position held by the support staff member contributing to this research. It depends on the staff member's role and their interaction with students."
> Panellist E, Round 3

This diversity has been alluded to by other authors, including Conway (2000) who discusses the problematic situation generated by using non-specific term such as "general staff", "non-academic" or "other", to encompass such a large and diverse group of staff. Just as there are typically three classifications used for academic staff — "teaching only", "research only" and "teaching and research" (DEEWR, 2009) — perhaps it is time to be more discerning and descriptive in our nomenclature for general staff, thereby facilitating an improved conceptualisation of the contributions made by general staff?

The contributions of general staff

In collecting the Round 1 survey forms, discussions with the panellists revealed a lack of clarity concerning the ranking criteria for several panellists. That is, comments by the panellists to the author indicated that in this round, several panellists ranked the propositions in order of importance, as they saw it, to student outcomes, rather than in order of the

contributions by general staff to the propositions. This lack of clarity was evident in the comment by one of the panellists in the open-ended section:

> "This survey is very difficult to do with any accuracy. The propositions are really questions for Academics that teach courses. The order of these is also very difficult to decide. It is like trying to rank fruit – *all are good* [author's emphasis]."
> Panellist F, Round 1

Other panellists realised the intent of the questions, as is shown by this comment:

> "I had to redo my ranking when I understood to requirement of 'general staff contribution to…'."
> Panellist G, Round 1

This divergence of interpretation of the question was reflected in the low level of agreement in the ranking order found for Round 1. In order to clarify this matter, the information letter for subsequent rounds emphasised that the questions related to the contributions made by general staff by including the instruction: "When considering the rank, please ask yourself: '**to which of these propositions do general (support) staff contribute most?**' " [emphasis in the original].

Limitations of a single site

Although the characteristics of UTS make it representative of many Australian universities, there are others, notably rural and remote institutions, for which the culture, staff and student characteristics are quite different. Indeed, the characteristics of the student body are central to the design and development of effective student support systems, and within any student body there may be several cohorts of students having different characteristics that require different consideration (Tait, 2000). For example, the support needs of part-time, mature-age, external students differ markedly from those of the recent school-leaver. While it is not possible to make generalisations from the current study, it does raise questions for further study: would a more heterogeneous panel give different results? what would a replication of this study at a different university find? what would the results be from a panel that included central student service staff?

Limitations of the Prebble propositions

The report by Prebble et al. examined more than 250 studies about student support, of which 146 studies contributed to the findings (2004). These studies were published between 1993 and 2003, which, given the rapid changes that have occurred in higher education and more generally, opens to question their relevance in 2009. In fact, during the Round 1 collection, one of the panellists verbally commented on the lack of propositions relating to pedagogical support through technology. Increasingly, learning and teaching is relying on technology for delivery and support of their learning needs (Salaway, Caruso, & Nelson, 2007), much of which is designed, developed and maintained by general staff. In addition, the study by Prebble et al. (2004) considered only influences on student outcomes in undergraduate tertiary study; other key student cohorts are postgraduate coursework students and higher degree research students. Further investigation is needed to test the propositions for postgraduate student support.

Conclusion

This paper presents the findings of a preliminary study that used the Delphi method to rank a set of behaviours, previously determined to support positive student outcomes (Prebble et al., 2004), in relation to the contribution of general staff. Middleton (2006) had suggested that general staff were central to these outcomes, and this study investigated this proposal from the perspective of general staff themselves. Overall, the level of agreement was moderate, and a number of propositions were consistently ranked highly over the duration of the study.

As this study was conducted at only one site, the findings may not be applicable to all Australian universities. Nevertheless, some of the methodological issues and the findings presented in this paper are likely to be relevant to many institutions, and replication of this study would test this hypothesis. Clearly, further research is required to understand the work of general staff in Australian universities, particularly in relation to *how* they contribute to their university's core activities. A better understanding and increased appreciation for the contribution of general staff will enhance the sustainability of Australian universities.

> "I think that general staff can only make a worthwhile contribution to the student outcomes if the employer values the staff and looks after staff. The staff need to feel they have been trained, supported by management and that their needs are met to work effectively. This then flows on to their contact with students."
> Panellist H, Round 1

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