



Research Productivity
in Australian Management
Departments
from 1997 to 1999

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**RESEARCH PRODUCTIVITY IN AUSTRALIAN MANAGEMENT
DEPARTMENTS FROM 1997 TO 1999**

**A REPORT FROM
THE AUSTRALIAN AND NEW ZEALAND ACADEMY OF MANAGEMENT**

INTRODUCTION

In late 2000, the Academy decided to undertake a survey of research productivity within Australian universities. Surveys were sent to the Head of School or equivalent person in the 100 relevant academic units within all Australian institutions. A total of 30 responses were obtained, providing a response rate of 30%, although two units indicated that they did not consider themselves to be “management type” departments and did not provide any data. In total, data on research activity were obtained on 226 management academics from 1997 to 1999, as well as information on the research support provided across the 28 responding units. The present report outlines the responses obtained from these units.

THE RESPONDING ACADEMIC UNITS

In general, responding academic units were not large, with an average size of 18 full time staff in 1997, 20 in 1998 and 22 in 1999, suggesting that management units increased moderately in size during this period. However, there were some large units, with sizes ranging up to 73 full time academics. Almost all departments ran formal research seminar programs (83% in 1997, and 93% in 1998 and 1999), although these varied from weekly to six monthly events. Most, however, were weekly or fortnightly events, suggesting a strong and continual program.

Many of the management units were also effective in obtaining research grants as over 60% of units reported at least one grant in each of the three years. Many were much more successful, with 30% reporting at least five such grants in each of the three years and one unit reporting more than 30 such grants in each year. A significant amount of money was also raised through such grants, with the mean amount increasing from \$87000 in 1997 to \$159000 in 1998 and \$250000 in 1999. Some departments are obtaining in excess of a million dollars in such grants. It appears that there is considerable “real” money being spent on management research

as, if responding units are typical of the management unit population, more than \$20 million dollars in research funding was obtained during 1999.

Responding academic units were also asked about the size of their doctoral programs. The results obtained are shown in Table 1 below. As can be seen from the table, doctoral programs have increased in recent years, especially through part-time enrolments. It is also clear that more people are entering doctoral programs than are exiting, suggesting that many units are likely to have concerns about recent changes in the funding of such programs that will financially penalise universities where students take longer than expected to complete such degrees. The increases also suggest that many universities are likely to have supervision issues as academic numbers have risen less than the numbers of students in doctoral programs. Further research is clearly needed to examine the state of doctoral (and other graduate research) programs to ensure they operate effectively and provide students with an appropriate research background.

As can be seen from the maximum enrolment figures, which show the largest programs reported, some such programs are very large, with one program having almost 100 doctoral students enrolled in 1999. The unit had 42 staff, suggesting that, while it was a large unit, the number of students may well present significant supervision issues.

Table 1: Doctoral Programs – 1997 to 1999

	1997	1998	1999
Mean Enrolments			
Enrolled Full Time	3.29	4.14	6.20
Enrolled Part Time	8.46	10.23	13.38
Completed Degree	1.21	1.46	1.82
Maximum Enrolments			
Enrolled Full Time	13.00	11.00	28.00
Enrolled Part Time	46.00	72.00	98.00
Completed Degree	8.00	6.00	7.00

Responding academic units were also asked to indicate the influence of a number of criteria on promotion and tenure decisions within their university. The responses are shown in Table 2. As can be seen from the Table, overt research outcomes in the form of publications are perceived to be the most influential criterion, followed by teaching evaluations and the number of research grants obtained. Other criteria are much less important. Clearly, research is seen to play a crucial role in all responding units. Further, teaching evaluations are more important in only 23% of responding units. Given this, the importance of research support to academic staff is evident.

Table 2: Influence of Promotion and Tenure Criteria *

Criterion	0	1	2	3	4	5	Mean
Number of Publications	0	0	1	2	13	12	4.29
Number of Research Grants	0	3	5	9	7	4	3.14
Value of Research Grants	3	4	9	8	4	1	2.25
Teaching Evaluations	0	0	1	6	16	5	3.86
Internal Collaboration	2	5	10	7	3	1	2.25
External Collaboration	1	4	10	10	3	0	2.36
Professional/Discipline Service	0	5	6	11	5	1	2.68

* [0 = no influence; 1 = slight influence; 2=some influence; 3 = moderate influence; 4 = strong influence; 5 = very strong influence]

ACADEMIC STAFF OUTCOMES

Staff Profiles

The remainder of the survey asked about the performance of individual staff. Information was obtained as to publications, successful research student completions and the amount of research funds raised. Relative workload allocations were also obtained by asking for information as to the percentage of total work hours spent on research, teaching and other duties. The remainder of the report outlines the results obtained from this section of the survey. As mentioned earlier, information was obtained for a total of 226 staff, whose academic qualifications varied as shown in Table 3. As can be seen from the Table, 60 % of the staff had doctorates, while less

that a quarter did not have a graduate research degree. It would seem that responses were obtained from better qualified units, as the average percentage of management staff with doctorates according to DETYA statistics was 52% in 1996. Consequently, it is likely that the research output data provided is upwardly biased as it would be expected that better qualified staff would be more research active and productive.

Table 3: Highest Academic Qualification

	Frequency	Valid Percentage
Bachelors Degree	3	1
Honours Degree	9	4
Postgraduate Diploma	1	0
Coursework Masters	39	18
Research Masters	38	17
Professional Doctorate	2	1
PhD	130	59
Not Provided	4	
Total	226	

Academic rank was also obtained and the results are shown in Table 4. As can from the table, most staff members were lecturers (35%), although there were significant numbers from all levels, including professors (15%).

Table 4: Academic Rank

Academic Rank	Frequency	Valid Percent
Associate Lecturer	25	11
Lecturer	78	35
Senior Lecturer	54	25
Associate Professor	29	14
Professor	34	15
Missing	6	
Total	226	

Publications

Research output was measured in terms of journal papers, refereed conference papers and research books. Average output over the three years is shown in Table 5. As can be seen from the table, research output is generally small. On average, management academics produced less than one journal article and less than one refereed conference paper a year over the three years. There was a small, although statistically insignificant, increase in the number of journal articles produced and a small, but significant increase in conference papers across the three year period. Very few research books were produced, with 43 such publications being reported. The low figure arose from a dichotomy within the sample. Twenty percent of staff members produced no research output over the three year period, while an additional twenty percent produced only conference papers. On the other hand, twenty eight academics produced 6 or more journal papers, 37 academics produced 6 or more conference papers and 4 academics produced 3 or more books during the three year period. The maximum output over the three year period was 21 journal articles, 31 conference papers and 5 books. One respondent produced 47 outputs during the three year period (15 journal articles, 31 conference papers and 1 book). Clearly, output is skewed within the management research community.

Table 5: Research Output from 1997 to 1999

	1997	1998	1999
Journal Articles	0.70	0.73	0.75
Refereed Conference Papers	0.72	0.96	1.06
Research Books	0.07	0.07	0.05

Average publications over the three-year period were also computed for each of the three types of publications and for “total publications”, which was merely a sum of the three types. The results are shown in Table 6, which also provides a set of relevant percentile scores in each case. These results confirm the earlier comments about the relatively low output and the skewed nature of research output in the management area in Australia. However, the percentile scores again show that those

at the top end of the range are very productive researchers, with the top one percent producing an approximately five journal articles a year, seven conference papers a year and one book a year, while those in the top ten percent produced approximately two journal articles, two conference papers a year and one book over the three year period.

Table 6: Average Output during the Period 1997-1999

	Journal Articles	Conference Papers	Books	Overall
Mean	0.72	0.91	0.06	1.70
Median	0.33	0.33	0.00	1.00
Variance	1.06	1.76	0.04	4.43
Skewness	2.39	3.15	4.89	2.90
Minimum	0.00	0.00	0.00	0.00
Maximum	7.00	10.33	1.67	15.67
Bottom 25%	0.00	0.00	0.00	0.33
Bottom 50%	0.33	0.33	0.00	1.00
Top 25%	1.00	1.33	0.00	2.33
Top 10%	2.00	2.33	0.33	3.87
Top 5%	2.67	3.33	0.33	4.93
Top 1%	4.74	7.27	1.25	11.35

An analysis of publications by academic rank was also undertaken. The analysis of variance produced a significant result, suggesting professorial level staff produced significantly more journal articles and conference papers. Associate professors seemed to produce more books, but the numbers of books produced are very small at all ranks. Average publications by rank, shown in table 7, make the differences in publications clear. As would be expected, senior academics are more productive. However, this raises the important issue as to how productivity can be increased in less senior ranks. There is an apparent need for programs to assist junior academics in this regard as there is no guarantee that present junior staff will increase productivity without assistance.

Table 7: Publications by Academic Rank

Rank	Journal Articles	Conference Papers	Books	Overall Publications
Associate Lecturer	0.15	0.5	0.03	0.68
Lecturer	0.39	0.57	0.01	0.97
Senior Lecturer	0.72	0.93	0.06	1.72
Associate Professor	1.15	0.93	0.19	2.29
Professor	1.62	1.92	0.1	3.64

Research Degree Completions

Information was also obtained on research degree completions and the results obtained are shown in Table 8. As can be seen from the Table, staff members graduated very few research students over the three year period. Again there was a dichotomy, as seventy seven percent of staff members had no research student completions over this period, while less than ten percent supervised more than three successful research students. One respondent was reported to have supervised seventeen successful research theses. This further highlights the issue of research supervision as only a small minority of academic staff are experienced supervisors and it is likely that such staff are supervising increasing numbers of students, given the increases noted earlier.

Table 8: Average Research Degree Completions from 1997 to 1999

	1997	1998	1999
Masters Completions	0.15	0.10	0.14
Doctoral Completions	0.15	0.16	0.22

Income Generation

Information on research income generated was also obtained. The mean income generated by each academic increased significantly over the three year period, rising from \$4000 in 1997, to \$10000 in 1998 and \$14000 in 1999, reflecting the overall increase in research funds generated that was noted earlier. The earlier noted dichotomy was also evident here. Less than a quarter of staff members raised research funds in any of the three years. The average grant in 1997 was \$22000, which increased to \$42000 in 1998 and to \$57000 in 1999. Clearly, management academics who win grants are obtaining larger grants.

Interestingly, while there was a positive correlation between research dollars obtained and publications, it was not strong (0.28), suggesting that grants are not a prerequisite for research outcomes in the management area. There was a stronger correlation between research dollars obtained and successful research student completions (0.41), which may be due to the development of long-term research teams that include research students and the inclusion of research scholarships within many government grants (eg ARC linkage grants). What was also clear is that there are a number of management academics who are extremely active in all three areas. The respondent who had the maximum number of publications over the three year period (47) also supervised 10 successful research students and obtained \$240,000 in grants. Another respondent had 35 publications, successfully supervised 7 research students and obtained \$112000 in grants while a third staff members had 31 publications, successfully supervised 6 research students and obtained \$165000 in research grants. It is clear that there are a number of extremely active management researchers in Australia.

Work Allocation

The survey also asked about staff member's work allocations by providing information on the percentage of total work hours allocated to teaching, research and other university duties over a "standard university year." The results are shown in Table 9. As can be seen from the table, there has been a small, but statistically

insignificant, movement towards research in the period but teaching remains the major part of management academics' workload.

Table 9: Work Allocations (as a percentage) in the Period from 1997 to 1999

Academic Area	1997	1998	1999
Teaching	46	44	43
Research	32	33	34
Other Duties (eg Administration)	22	23	23

It seems that management academics are expected to spend about a third of their time on research related activities, although there is considerable variability as there are a few (less than five percent) who are not given any research allocation while there are others (about 12 percent) who are given a workload allocation of more than 50 percent. The inter-quartile range for the research work allocation fell between 20% and 40%, again suggesting that most management academics are expected to spend about a significant amount of time on research related activities.

In order to see if workload allocations impacted on research output, a series of regressions were undertaken in which the three research outcomes (publications, research dollars and successful student completions) were regressed against teaching and other duties across the three year period (research was seen as the base), controlling for academic rank and qualifications. The results obtained are shown in Table 10, which contains the estimated standardised regression coefficients and their associated t-statistics (shown in parentheses). As can be seen from the Table, the adjusted R square statistics are not high, suggesting that other variables impact on research outcomes. However, the significant results do have some important implications. Senior academics (especially professors) have more productive outcomes, all other things being equal. Teaching loads also seem to have a significant impact, especially on publications. Staff who have lower teaching loads produce more publications. For every 10 percentage point reduction in teaching load, an increase of approximately 1 publication could be expected. Similarly, for every 10

percentage point reduction in teaching load, an increase in research dollars of approximately \$8000 could be expected.

Table 10: Regression Results – Research Outcomes (1997 to 1999)

Predictor Variable	Publications ¹	Research Student Completions ²	Research Money ³
Doctoral Qualification	0.27 (4.33)	na	na
Associate Professor	na	0.16 (2.52)	na
Professor	0.24 (3.61)	0.39 (5.67)	0.26 (3.59)
Teaching Workload	-0.22 (-2.90)	-0.06 (-0.84)	-0.14 (-1.75)
Other Duties Workload	-0.01 (-0.19)	0.03 (0.41)	-0.02 (-0.29)

¹ Adjusted R² = 0.26; ² Adjusted R² = 0.18; ³ Adjusted R² = 0.10

While the associations are not high, it would seem that workload allocation do impact on research moneys obtained and publications, although not on research student completions, where seniority (or perhaps experience) seem to have an impact.

CONCLUSIONS

Overall it would seem that management research has some very active researchers who are publishing, successfully supervising research students and obtaining significant research money. However, there is a clear dichotomy, as almost twenty percent of management academics surveyed produced no research output. Thought needs to be given to ways of including this group in the research process and of improving the effectiveness of management researchers as the present study suggests average outcomes are low. Whether this is due to environmental issues (such as funding, teaching loads and staff-student ratios), a lack of research training or a lack of motivation remains an issue that needs further research and discussion.