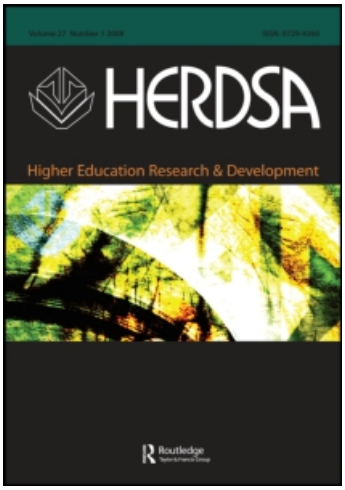

Higher Education Research & Development
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713423834

Show me the money! An empirical analysis of mentoring outcomes for women in academia

Maria Gardiner[a]; Marika Tiggemann[a]; Hugh Kearns[a]; Kelly Marshall[a]
[a] Flinders University, Australia

To cite this Article Gardiner, Maria , Tiggemann, Marika , Kearns, Hugh and Marshall, Kelly(2007) 'Show me the money! An empirical analysis of mentoring outcomes for women in academia', Higher Education Research & Development, 26: 4, 425 — 442
To link to this Article: DOI: 10.1080/07294360701658633
URL: http://dx.doi.org/10.1080/07294360701658633

Higher Education Research & Development
Vol. 26, No. 4, December 2007, pp. 425–442

Show me the money! An empirical analysis of mentoring outcomes for women in academia

Maria Gardiner*, Marika Tiggemann, Hugh Kearns and Kelly Marshall
Flinders University, Australia

This paper discusses and comprehensively evaluates a mentoring scheme for junior female academics. The program aimed to address the under-representation of women in senior positions by increasing participation in networks and improving women's research performance. A multifaceted, longitudinal design, including a control group, was used to evaluate the success of mentoring in terms of the benefits for the women and for the university. The results indicate mentoring was very beneficial, showing that mentees were more likely to stay in the university, received more grant income and higher level of promotion, and had better perceptions of themselves as academics compared with non-mentored female academics. This indicates that not only do women themselves benefit from mentoring but that universities can confidently implement well-designed initiatives, knowing that they will receive a significant return on investment.

Keywords: *Academia; Evidence-based; Longitudinal; Mentoring; Women*

Introduction

Women in senior levels

Although many gains have been made in recent years to address the gender balance in the Australian workforce, women still appear to be under-represented in more senior positions. A recent survey by Hudson Australasia (Palermo, 2004) revealed that women make up only 10% of executive management positions in Australia, despite comprising 44% of the workforce. This issue is not limited to Australia; women are believed to comprise only 10% of senior management positions within the United States (Catalyst, 1996) and 5% in Germany (Neumann, 1998).

*Corresponding author. Staff Development and Training Unit, Flinders University, GPO Box 2100, Adelaide, SA 5001, Australia. Email: maria.gardiner@flinders.edu.au

ISSN 0729-4360 (print)/ISSN 1469-8366 (online)/07/040425–18

DOI: 10.1080/07294360701658633

This trend extends to senior positions within academia. Although women have increased their presence within Australian universities to now comprise approximately half of undergraduate students and more than half of all staff (Carrington & Pratt, 2003), this effect has not yet filtered through to the senior positions within the university structure. At the authors' institution, women are clustered within the lower levels of the academic hierarchy, comprising 57% of junior academic staff. When considering the senior positions of associate professor and professor, this figure is reduced to only 23%. A similar pattern appears across other Australian universities, with females represented in only 21% of senior academic positions (DEST, 2003). Although this figure is an improvement from 15% in 1998, it is still well below that which would be expected, given women's equal presence within universities.

This issue is not limited to Australian universities, with similar figures obtained from other Western countries. In the United Kingdom, women make up only 9% of professors, which is the top academic level (Bagilhole, 2000), and similar proportions are seen in Norway (12%; Søyland *et al.*, 2000) and Sweden (10%; Eliasson *et al.*, 2000). These figures indicate that initiatives to improve women's representation in senior positions continue to be badly needed.

Reasons for the under-representation of women

Much has been written of the barriers to advancement for women in academia; for example, the literature on the 'chilly climate' for women (e.g. The Chilly Climate Collective (1995), as cited by Seagram *et al.*, 1998). Several researchers have suggested particular reasons for the under-representation of women in senior positions in academia (e.g. Kanter, 1977; Bellamy & Ramsay, 1994; Gardiner & Tiggemann, 1999). Two explanations that appear particularly pertinent to women in academic contexts include a lack of networking opportunities, and a lower level of advancement in women's research careers compared to their male counterparts.

The first explanation suggests that women in universities lack access to informal networks, which provide information relevant to career advancement (Bellamy & Ramsay, 1994). As such, women miss out on advice on applying for research grants, information about procedures involved in applying for promotion, and so on. Some evidence appears to support this claim. A recent survey of male and female academics found that 24% of women claimed to be aware of informal networks that excluded faculty members on the basis of gender, whereas only 6% of males reported a similar awareness (Foster *et al.*, 2000). It has similarly been reported that women academics report a lack of culture-fit within the university (Lyness & Thompson, 2000) and feel more socially and intellectually isolated than do their male colleagues (Johnsrud & Atwater, 1991; Dean *et al.*, 1996). These feelings of isolation may be because of historical factors; women have been a relatively recent addition to university faculties, some of which still maintain the tradition of a 'boys' club', which is hard for women to penetrate (McCall *et al.*, 2000). A further factor in these feelings of isolation and in women's difficulty in informally obtaining career-relevant information may be a lack of senior female role models (McCall *et al.*, 2000). This would disadvantage

junior women in reaching more senior positions and, having a circular effect, limit the number of future female role models.

Another argument put forward for the lack of senior academic women may be that women tend to lag behind men in their research careers. Research is widely believed to be one of the key criteria for promotion and, hence, poor research performance is detrimental to women achieving promotion to senior positions. McCall *et al.* (2000) and Probert *et al.* (1998) suggest that this poorer research output may be because of many women taking time off for childcare, creating a gap in their research career. Rimmer and Rimmer (1994) and Dex (1987) provide evidence to support the idea that these gaps not only slow career advancement but may also cause regression to lower positions within the university. In addition, the ongoing responsibilities of childcare and household tasks, typically performed by women, consume time, energy and concentration, and restrict the number of hours spent on campus (Caplan, 1993; Probert *et al.*, 1998), at the expense of research and publishing. This might suggest that women produce fewer publications than do men, which appears to be part of a 'research productivity cycle', as described by Soliman and Soliman (1997). Women are unable to successfully apply for research grants because they do not have enough publications but are unable to publish because they do not have adequate funding to conduct research. This would lead to poorer research 'track records' for women than for men, contributing to slower rates of career advancement.

It is evident, then, that attempts to improve the networking resources for female academics and to enhance their research careers appear to be promising approaches to improving women's positions within the university structure.

Initiatives to increase representation of women in senior positions: mentoring

The problem of under-representation of women in senior academic positions has received much focus in recent years. In 1999, the Australian Vice-Chancellors Committee adopted an action plan for women, with the aim of targeting gender inequality in Australian universities. Nearly all Australian universities currently have programs targeted at advancing the careers of women (for a review, see *Women and Leadership Programs in Australian Universities*, AVCC, 2001). Many positive outcomes have arisen from such programs; for example, the Leadership Development for Women Program at the University of Western Australia (de Vries, 2005) has resulted in its participants experiencing increased participation in networks, improved work–life balance and becoming more proactive in exercising leadership. These different programs incorporate a diverse range of features, such as seminar programs, grants, workshops and networking opportunities. One element appearing in many universities' development programs is mentoring schemes.

Historically, mentoring has been an informal process, in which the mentor and mentee spontaneously form a relationship with the purpose of assisting the mentee in developing career-relevant skills (Kram, 1985). Recently there has been a trend towards formal or assigned mentoring relationships in organisations. This

is particularly relevant for women, who may often be excluded from the informal mentoring partnerships (Burke & McKeen, 1990).

Formal mentoring schemes typically vary a great deal in terms of their goals and structure (Jacobi, 1991). Mentoring relationships can be either dyadic (one on one, consisting of a mentor and a mentee) or in groups, and can involve one member with seniority over the other or consist of peers. There is also considerable variation in the amount of information and structure given to both mentors and mentees; for example, in the amount of training given to mentors or in prescribed frequency of contact between mentors and mentees. In addition, in some programs, mentors are assigned to mentees, whereas in others, the mentees select a colleague to act as their mentor.

Several different universities in Australia have adopted mentoring programs in order to assist in the learning and development of their staff (AVCC, 2001). As Wunsch (1993) claims, successful academic careers 'can be facilitated by colleague guides who provide assistance, sound advice, and astute insight into the political processes of the institution' (pp. 353–354). The University of Tasmania and RMIT operate formal mentoring programs aimed at both male and female staff members. The University of Sydney runs a workshop on how to seek and work with a mentor, and the University of Western Australia provides training for mentors and mentees.

Mentoring programs aimed specifically at female staff include the University of Queensland's Women in Leadership Mentor Program and James Cook University's Academic Women's Mentoring Program. Several institutions take a group mentoring approach, such as the University of Canberra's Group Mentoring Program for Women, which involves meetings with two or three facilitators and nine to fourteen women. However, the majority of programs take a dyadic approach, such as the joint initiative between Murdoch and Curtin Universities, in which junior female academic staff are paired with senior academics.

Although the greater proportion of mentoring programs are more formalised, Deakin University supports an informal mentoring program, and the Australian National University holds an annual Women's Academic Writing Retreat as a networking opportunity. A number of programs, such as the University of South Australia's Women in Leadership Program, include training and support for mentors and mentees, whereas others have specific aims, such as the University of Wollongong's program, which focuses on increasing the number of applications for promotion by women. With such a diverse range of mentoring schemes operating at Australian universities, it is important to examine how beneficial such programs are for both the mentees and the organisation.

Evaluation of mentoring schemes

Numerous studies have found mentoring to be an overwhelmingly positive learning experience for both mentors and mentees alike (Hansford *et al.*, 2002). In their review of over 300 mentoring evaluations, Ehrich and colleagues (2004) discovered

that over 35% of programs resulted in only positive outcomes, such as networking, sharing ideas with colleagues, personal satisfaction and growth. On the other hand, a mere 2.5% reported exclusively negative outcomes, including a lack of time or personality mismatches. In her report on the mentoring component of the Leadership Development for Women program at the University of Western Australia, de Vries (2005) notes that mentoring produced many benefits for the mentees, such as encouragement, networking and increased self-confidence, as well as benefits for their mentors.

Although the distinction is not often made in the mentoring literature, mentoring outcomes can be divided into three groups: (i) perceptions of mentoring; (ii) subjective career outcomes; and (iii) objective career outcomes. Evaluations of mentoring programs normally consist solely of measuring perceptions about mentoring. Such reports usually provide testimonials and opinions of the effectiveness of such programs (Merriam, 1998). Ehrich *et al.* (2004) examined reports of mentoring schemes in educational, business and medical contexts, and found that the most frequently cited positive outcomes for mentees were support, empathy, encouragement, contact with others, career satisfaction, motivation and promotion. Mentors in the different mentoring programs listed networking, reflection, facilitating professional development and personal satisfaction as positive outcomes resulting from the mentoring process. Although such reported outcomes are a highly desirable and necessary part of the mentoring process, they are not sufficient in terms of a large investment in time and money in a well-run mentoring scheme. As such, positive career outcomes also need to be established.

Mentoring has been linked to career outcomes such as increased career satisfaction (Aryee *et al.*, 1996; Dansky, 1996; Burke & McKeen, 1997; Chao, 1997). In their meta-analysis examining 43 mentoring studies, Allen and colleagues (2004) found those who had a mentor experienced not only greater career satisfaction but were more committed to their career, were more likely to believe they would soon experience career advancement and were more satisfied with their jobs. It has also been argued that mentoring should additionally help to reduce the amount of stress individuals experience at work (Wilson & Elman, 1990; Allen *et al.* 1995).

Perhaps the 'holy grail' of evaluation is to show tangible, definable outcomes, which are often assigned a dollar value. So, as well as being linked to subjectively measured perceptions about one's career, the impact of mentoring on objective career outcomes has also been investigated. Several studies (Dreher & Ash, 1990; Whitely *et al.*, 1991; Scandura, 1992; Orpen, 1995; Aryee *et al.*, 1996; Chao, 1997) have found a positive relationship between mentoring and promotion. This was also supported by Allen and colleagues' (2004) meta-analysis, which found that those individuals with a mentor received greater compensation (i.e. income) than those without a mentor. Mentoring would also be expected to relate to additional objective career outcomes, such as work productivity; however, owing to the paucity of evaluations measuring such objective outcomes, this relationship has yet to be established. The evaluation of our mentoring scheme allows us to redress this lack of evidence.

Mentoring: our approach

In an attempt to increase the number of female academic staff in senior positions at our institution (a medium-sized research-intensive university), we initiated a mentoring scheme in 1998 specifically targeted at early-career female researchers. Mentoring was chosen because of the evidence citing its positive outcomes in institutions such as universities. Although mentoring may already have existed in an informal capacity at the university, it was believed that a formal scheme that assigned mentors to mentees would be most beneficial to junior academic women. It was decided that this scheme would take a flexible approach, allowing each mentee to determine her own goals and plans for the mentoring process. This design is believed to be the most beneficial for women in the workforce (Gardiner, 2002). There is some evidence to suggest mentoring programs need considerable on-going support so that they continue to function effectively (Boice, 1992; Australian Technology Network Executive Development for Women Program, 1998). As such, recruiting and maintaining a co-ordinator was deemed essential to ensure the mentoring program didn't 'die out'.

Although, as previously described, there is a great deal of evidence to support the relationship between mentoring and an array of positive outcomes, the majority of studies into the effectiveness of mentoring consist of evaluating perceptions and opinions of various mentoring programs. Therefore, it was decided to conduct a rigorous multifaceted evaluation of the outcomes of the present mentoring program, not only as perceived by the mentees, but also as reflected by objective data.

The primary aims of this mentoring scheme were to improve the performance of junior women researchers and to increase the numbers of women in middle and senior academic positions. As such, the key indicators of promotion and research output (reflected by the number of grants and publications obtained) were assessed. These outcomes, although not only beneficial for individuals' career advancement, are also essential for a successful and productive university. In addition, subjective career outcomes were measured, such as career and job satisfaction, work-related morale and distress, capacity as an academic, concerns about research and career planning.

A great number of evaluations into the effectiveness of mentoring programs take a retrospective design, obtaining post-program opinions of effectiveness. Fewer designs take pre- and post-measures, which allow for a more conclusive test of the program outcomes. The present evaluation involved taking measures both before and after the mentoring experience. We also included a control group, which allows for a more rigorous test of the effects of mentoring.

In addition, many mentoring programs only have funding to operate for 12 or 18 months. An evaluation spanning this short timeframe would exclude any benefits of mentoring that appear only in the long-term. Research into the effectiveness of mentoring programs indicates that at least a few years are needed to see change develop (Kram, 1985). As such, a longitudinal design was implemented in the present study, evaluating the scheme at baseline (before the commencement of

mentoring in 1998), at 9 months into the scheme (1999, at the end of the pilot phase) and, again, several years later (2004).

Overview of the mentoring scheme

Mentees were identified through consultation with heads of faculty and other senior staff across the university. They were identified on the basis of being junior and/or inexperienced in their research careers. 'High-fliers' or those with more established research careers and those who stated they had no interest in research were less likely to be approached. Those invited to participate were primarily Level B (lecturer), and undertook both teaching and research functions. There was an approximately equal distribution of mentees across all four faculties in the university. Mentors were selected and approached on an individual basis to meet the needs of each participant. These needs were established after an interview with the coordinator; for example, a woman may say her goal is to be able to balance the demands of a young family with establishing an active research career or another woman may say her goal is to gain a research grant in the next round. Potential mentors who were able to assist in these areas were then approached.

Once the mentors and mentees had been selected, they were invited to attend separate workshops on mentoring. This training session, developed by the coordinator, aimed to provide general information and skills relevant to the mentoring partnership, as well as specific clarification of what each mentee wished to achieve as a result of mentoring. After 9 months, mentees attended a review workshop to evaluate how their mentoring partnership was progressing. During the initial 9 month period, the coordinator provided support to both parties while the mentoring relationship was being established, and regularly followed up to ensure there were no problems. The coordinator remained available to follow up and offer guidance if requested over the ensuing period.

Because the intention of the scheme was for it to be participant-driven (rather than institution-driven), mentees and mentors (with support from the coordinator) decided upon the frequency, length and content of their meetings (although it was suggested that approximately 1 hour per month may be suitable). Furthermore, there was no prescribed duration for the partnership, and mentors and mentees were left to decide when it was appropriate to 're-define' their partnership. The formal ending of each relationship was not measured (as, indeed, the partnerships did not generally have a formal termination) but we estimate the relationships lasted an average of approximately 3 years. More detailed information about the scheme can be found in the report by Gardiner (1999) or by contacting the authors.

Method

Participants

The mentees joining the scheme in its pilot phase (1998) are used as the main comparison group. This group consisted of 22 females, mostly at Level B (lecturer)

academic status. In order to assess any changes in the mentees relative to those not receiving mentoring, a control group was used. In 1998, prior to the commencement of the mentoring scheme, 46 women of similar academic standing to the mentees but who would not be receiving formal mentoring were selected to form a control group. These control women were at the same academic level as the majority of mentees (Level B), and had been employed by the university for a similar length of time as the mentees (average of approximately 5 years for each group). A comparison of data obtained in 1998 suggests that the controls may have been a more confident group of researchers prior to the commencement of the mentoring scheme (see Gardiner, 1999). As such, any improvements seen over time in the mentees relative to the controls can reasonably be at least partially attributed to formal mentoring. It is important to note we are unsure of whether the control group undertook any mentoring of an informal nature over the course of the study.

At the completion of the pilot phase of the study, women in the control group were offered the chance to participate in the scheme and receive formal mentoring. The controls who participated have been removed from all analyses.

Measures

Objective career outcomes. Data on objective career outcomes, such as promotion, staying at the university, grant income and publications, were obtained from the university research data collection database for all mentees and controls. Data on grants and publications were collated from reports compiled annually by the university for Commonwealth Department of Education, Science and Training (DEST) and tabulated for each person. Information about promotions and whether participants had left the university was also collected from the university records.

Subjective career outcomes. Information about participants' perceptions of their careers was measured using questionnaires administered in 1998, 1999 and 2004 to initial mentees and controls. Items were included to assess participants' concerns about research, their perceived capacity as an academic, career satisfaction, job satisfaction, career planning, and work-related morale and distress. (For more detail about the specific questionnaires used, see Gardiner (2005).)

Perceptions of mentoring. Perceptions of the mentoring process were assessed using open-ended written questions given to all mentees. The questions asked participants to describe the benefits from participating in the mentoring scheme, a tangible outcome of the program, and the effect of mentoring on promotions, publications and grants. Finally, general comments relating to the mentoring scheme were solicited.

Procedure for evaluation

Subjective data from participants were collected at three times: before the onset of mentoring (at baseline, in 1998); at the end of the pilot phase of the program

Table 1. Response rates for questionnaires

Phase	Response rate	
	Mentees	Controls
Baseline (1998)	18 (82%)	40 (87%)
End of pilot phase (1999)	18 (82%)	40 (87%)
In 2004*	12 (63%)	22 (71%)

*In 2004, only 19 mentees and 31 controls remained at the University.

(9 months into the scheme, in 1999); and again in 2004. The response rates for the questionnaires (subjective data) are shown in Table 1. Data on objective career outcomes were obtained from the university research data collection database in 2004, providing information about grants, promotions, publications and leaving the university for all mentees in the program, and for the initial controls, for the years 1998 to 2004. For all objective measures, 22 mentees and 42 controls were used (with decreasing numbers for later stages to reflect participants leaving the university).

Ethics approval for this study was granted by the university's ethics committee.

Results

Objective career outcomes: promotion and research

Retention rates. Of the 22 mentees who began the scheme in 1998, three had left the university by 2004 (14%), compared with 15 of the 46 controls (33%). This indicates that those women who received mentoring were more likely to stay at the university.

Promotions. Of the 22 mentees, 68% had been promoted at least once by 2004. In contrast, only 43% of the controls had received at least one promotion. Mentees' comments confirm the idea that the scheme had a positive effect on applying for promotions:

> Achieving promotion to Senior Lecturer, which was a direct result of working with my mentor.

> It helped me look into the future with a greater sense of self-worth and self-confidence. I tried for promotion a few years after the scheme and was successful.

Research grants. Figure 1 indicates that the initial mentees have been more successful at receiving external research grants than have the controls.

The average mentee has amassed $41,896 in external grants over the 6-year period. This is in contrast to the controls, who have received, on average, $14,647 in external grants over the same period. This amounts to an annual grant income of $6983 for mentees and only $2441 for those not receiving mentoring.

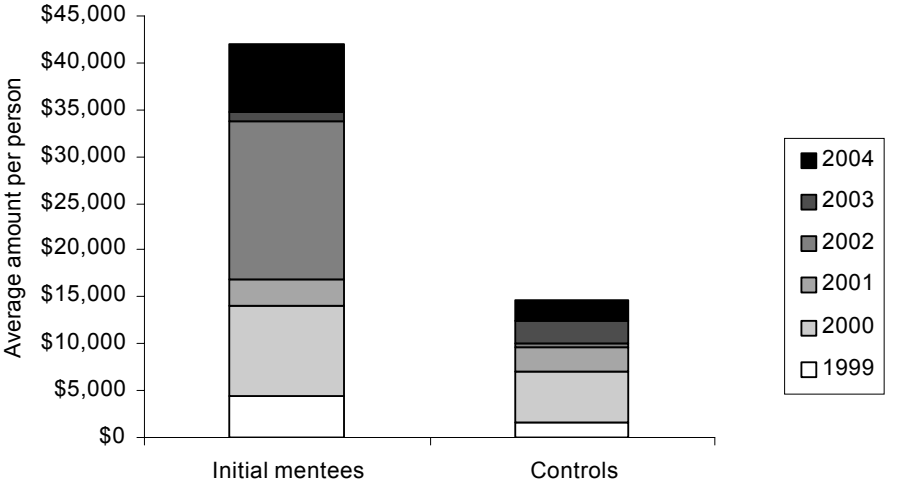

Figure 1. Average grant income from external sources per person for initial mentees and controls in the years 1999–2004

Mentees made comments about the degree to which the mentoring scheme helped them apply for research grants.

> I was enabled by the mentoring scheme to get back on track, which enabled my successful application for research grants.
>
> I was encouraged to go for two internal grants (successful).
>
> My mentor was especially helpful here. I have gained lots of skills that will help in the future.

Publications. The DEST-submitted publications, which include scholarly journal articles, book chapters and refereed conference papers, are used by the Australian government to determine the allocation of funding to universities for research. Mentees produced more DEST-submitted publications than did the controls (as shown in Figure 2). This represents a greater research output of a higher status than those who have not received mentoring. The initial group of 22 mentees have produced 77 DEST publications in the period 1999 to 2003. This is compared with the 104 DEST publications produced by the 42 women in the control group.

Several mentees commented on the effect the scheme had on their publication record:

> In the past twelve months I submitted one article, one co-authored article, a book chapter and co-edited a book. It gave me the confidence to do this, and a plan to achieve it.
>
> I could develop clear career planning objectives which helped me to submit twelve manuscripts last year – the most ever. I feel empowered by the choices I am making.

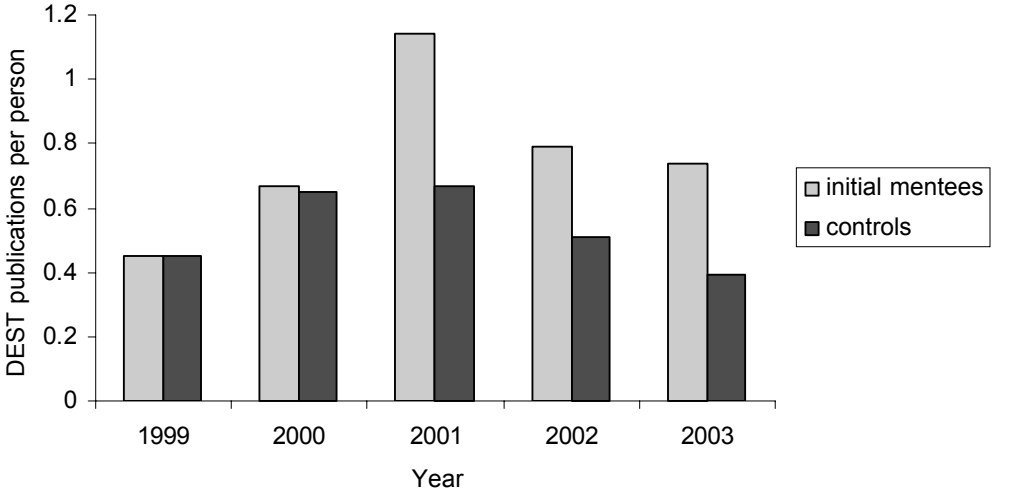

Figure 2. Average number of Department of Education, Science and Training (DEST)-submitted publications per person, for initial mentees and controls for the period 1999–2003

Subjective career outcomes: career and research attitudes

As well as the objective data, subjective career outcomes, such as perceptions of capacity as an academic, concerns or worry about research, job and career satisfaction, and psychological distress, were measured, for both the initial mentees and the controls.

Capacity as an academic

There was a significant interaction between group and time for perceptions of capacity as an academic ($F(2,144) = 6.15$, $p = 0.003$). As shown in Figure 3, this was because of a significant increase seen in the group of mentees ($F(2,45) = 9.50$, $p < 0.001$). Although those participating in the mentoring scheme started with slightly lower judgements of their capacity as an academic in 1998, this had improved by 1999 and, by 2004, had surpassed that of the controls ($p = 0.009$). The control participants, on the other hand, had no significant change in their perceptions of their capacity as an academic across all three time periods ($p = 0.718$). This indicates that the mentoring scheme had a significant impact on participants' perceptions of their own ability to function and perform as members of the academic community.

Concerns about research

There were no significant differences in concerns about research between the controls and the mentees at any time point; however, as shown in Figure 4, the initial mentees had slightly higher levels of concern about research than did the controls prior to the

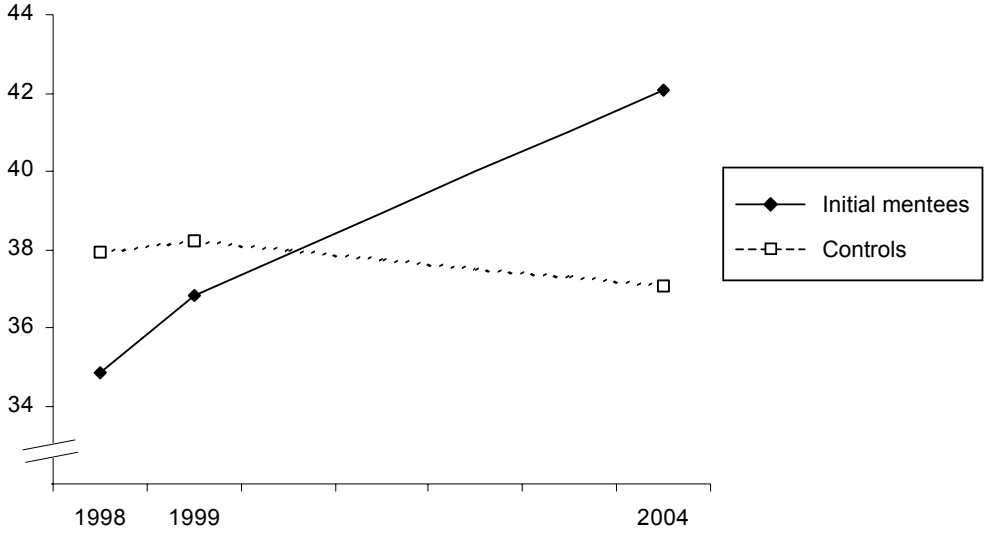

Figure 3. Capacity as an academic in 1998, 1999 and 2004, for initial mentees and controls

commencement of the mentoring scheme. After 9 months of involvement in the scheme (1999), these concerns had decreased to the extent that they were at similar levels to the controls, and this pattern has been maintained after 7 years' involvement (2004). This suggests that mentoring was able to allay mentees' initial concerns about conducting research at the university, after which they remained at similar levels to the control group.

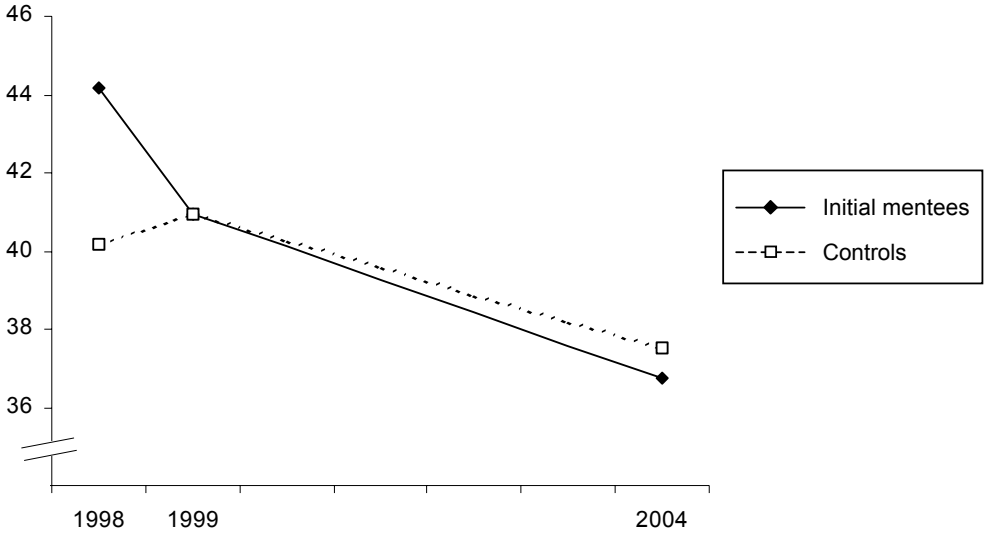

Figure 4. Concerns about research in 1998, 1999 and 2004 for initial mentees and controls

Career satisfaction

Figure 5 shows that the controls had higher levels of career satisfaction than did the mentees in 1998 ($p = 0.003$) and in 1999 ($p = 0.015$). However, in 2004, controls' levels of satisfaction had decreased slightly, resulting in no significant difference between the controls and the mentees ($p = 0.444$). This suggests that mentoring may have little effect on women's career satisfaction, although controls' satisfaction does appear to be declining at a greater rate than the initial mentees; as such, it is possible that mentoring has the effect of protecting academics from a decline in career satisfaction.

Job satisfaction

There were no differences in levels of job satisfaction between mentees and controls at time period 1 ($p = 0.863$), time period 2 ($p = 0.768$) or time period 3 ($p = 0.590$).

Career planning

There were no differences between mentees and controls in terms of career planning at time period 1 ($p = 0.150$), time period 2 ($p = 0.168$) or time period 3 ($p = 0.079$).

Work-related distress

There were no differences between controls or mentees for 1998 ($p = 0.830$), 1999 ($p = 0.239$) or 2004 ($p = 0.236$).

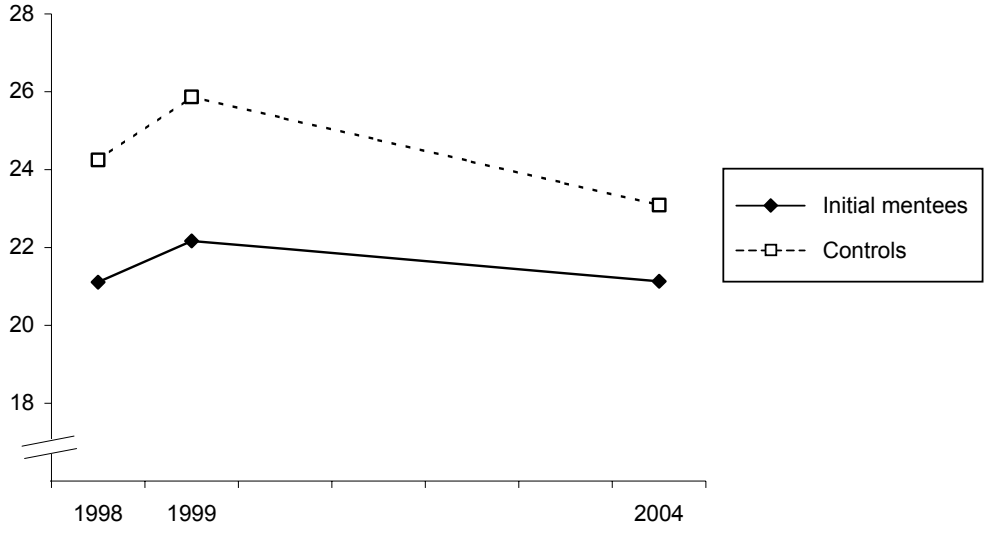

Figure 5. Career satisfaction in 1998, 1999 and 2004 for initial mentees and controls

Work-related morale

There were no differences between controls and mentees for 1998 ($p = 0.191$), 1999 ($p = 0.899$) or 2004 ($p = 0.140$).

Other benefits received from the mentoring scheme

Mentees offered comments as to the other benefits they had received from the scheme. Some included:

> Knowing that I had someone to talk to; that there was someone who could guide me in my career.

> To realise that I am not alone in the struggle to balance the competing demands of an academic career. I met other inspiring women who accept the choices they have made and are positive about their multiple roles in life.

Discussion and conclusions

Mentoring was introduced in 1998 to address the issue of gender inequality in senior academic positions in a university context. Mentoring was selected as a strategy to enhance the networking and research performance of women. Despite many mentoring schemes and evaluations reporting positive perceptions of mentoring (e.g. Hansford *et al.*, 2002; Ehrich *et al.*, 2004; de Vries, 2005), very few have conducted rigorous evaluations of the outcomes for participants. Hence, we aimed to provide a comprehensive, evidence-based study of the objective and subjective career outcomes of mentoring for a population of academic women. To achieve this, we utilised a control group consisting of those junior academic women not receiving mentoring, both pre- and post-test measures, and a longitudinal design spanning 7 years.

An analysis of the objective career outcomes revealed that the mentees were more likely to stay at the university than the controls. Given the high costs of recruiting university staff, this is a significant benefit for the university. However, we are unsure of the reasons for controls leaving and, indeed, they may have left to further their careers. Mentees also had a higher rate of promotion; 68% of mentees had been promoted at least once since the commencement of the scheme compared with 43% of the controls. This is in line with previous research, which found a correlation between mentoring and promotion (Dreher & Ash, 1990; Whitely *et al.*, 1991; Scandura, 1992; Orpen, 1995; Aryee *et al.*, 1996; Chao, 1997). This finding is also possibly reflected in data produced by DEST regarding the representation of women in senior positions across all Australian universities; our university is ranked third out of 42 universities in the change in representation of academic women in senior levels, with an increase of approximately 15% in the period 1996 to 2003 (DEST, 2003). This high rate of change may, in part, be due to the high rate of promotion to senior levels achieved by the mentees. In summary, the evidence suggests that mentoring, when implemented in a format such as we have used, is an effective means of improving gender equality in academic positions within universities.

The mentees also received a higher average amount per person in research grants from external sources compared with the control group. Since the scheme's inception, mentees have contributed $3.7 million in external research grants. These results would seem to support the assertion that mentoring has had a positive effect on not only the mentees' research careers but also the research profile and profitability of the university. Mentees also produced a higher rate of peer-reviewed, scholarly publications than did the controls. The initial mentees produced one and a half times the number of these articles when compared with the control group. These improved publication rates, taken together with the results for research grants, may be a primary contributor to the higher promotion rates shown by the mentees.

Mentees, who began with lower perceptions of their capacity as an academic than did the controls, had significantly higher levels by 2004. Levels of concern or worry about research, which were higher than that of the controls prior to the onset of mentoring, had reduced to be at similar levels. Mentoring may also have a protective effect on career satisfaction, as was found by Allen *et al.* (2004), Aryee *et al.* (1996); Burke & McKeen (1997), Chao (1997) and Dansky (1996). However, mentoring appears to have little effect on job satisfaction, career planning, morale or distress, with mentees and controls having similar levels across all time points. This is contrary to Allen *et al.*'s (2004) meta-analysis, which found mentoring to have a positive effect on career satisfaction, and to the work of Allen *et al.* (1995) and Wilson and Elman (1990), who suggested that mentoring may reduce levels of stress at work. In summary, our findings indicate that, in the long term, mentoring seems to mostly affect mentees' global sense of confidence as an academic, and in the short-term it reduces worries about research. However, our findings also indicate mentoring has minimal effect on career and job satisfaction.

The experience of mentoring was perceived as positive by the majority of mentees, as it has been found in many previous studies (e.g. Hansford *et al.*, 2002; Ehrich *et al.*, 2004; de Vries, 2005). Mentees listed a number of benefits from the scheme, including help with promotions, grants and publications, increased confidence, improved networking, and having someone to discuss their career with. This indicates that in addition to having definable positive outcomes, mentoring is also well received and well liked by the mentees.

In summary, this evaluation has undertaken the most rigorous and conclusive study of the tangible benefits of mentoring, to date, in Australia. One important caveat, however, is that women were not randomly assigned to mentoring and control groups. Bearing this in mind, the results of the study appear to show that mentoring has accelerated junior women academics' careers, probably through improving their research performance and, ultimately, resulting in promotion for the vast majority of participants. This career advancement either coincides with, or is partially caused by, women feeling more confident about their abilities as academics. Despite these benefits, however, the psychological and career satisfaction aspects of women participating in accelerated career programs needs to be monitored in future as these findings are inconclusive. However, for universities there appears to be little question that investing in well-designed and implemented

mentoring schemes, such as the one studied here, provides a significant return on investment. This is both in increased retention rates of staff and in higher research output, with mentees attracting four times the external research income and one and a half times the number of high-status publications. In conclusion, the current evaluation has demonstrated that mentoring is an effective strategy for universities financially, and also personally for the many women who wish to pursue successful and rewarding academic careers.

References

Allen, T. D., McManus, S. E., Russell, J. E. A., & Reiniger, A. (1995, November). *An examination of the impact of peer mentoring on socialization and stress.* Paper presented at the Southern Management Association Proceedings, Orlando, FL.

Allen, T. D., Eby, L. T., Poteet, M. L., Lentz, E., & Lima, L. (2004). Career benefits associated with mentoring for protégés: A meta-analysis. *Journal of Applied Psychology, 89*(1), 127–136.

Aryee, S., Wyatt, T., & Stone, R. (1996). Early career outcomes of graduate employees: The effect of mentoring and ingratiation. *Journal of Management Studies, 33,* 95–119.

Australian Technology Network Executive Development for Women Program (ATN WEXDEV). (1998). *Developing successful mentoring for women.* ATN WEXDEV.

Australian Vice-Chancellors Committee. (2001). *Women and leadership programs in Australian universities.* Canberra: Australian Vice-Chancellors Committee.

Bagilhole, B. (2000). Too little, too late? An assessment of National Initiatives for women academics in the British university system. *Higher Education in Europe, 25*(2), 139–145.

Bellamy, P. A., & Ramsay, K. (1994). *Barriers to women working in corporate management.* Canberra: Australian Government Publishing Service.

Boice, R. (1992). *The new faculty member: Supporting and fostering professional development.* San Francisco: Jossey-Bass.

Burke, R. J., & McKeen, C. A. (1990). Mentoring in organizations: Implications for women. *Journal of Business Ethics, 9,* 317–332.

Burke, R. J., & McKeen, C. A. (1997). Benefits of mentoring relationships among managerial and professional women: A cautionary tale. *Journal of Vocational Behaviour, 51,* 43–57.

Caplan, P. J. (1993). *Lifting a ton of feathers: A woman's guide to surviving in the academic world.* Toronto: University of Toronto Press.

Carrington, K., & Pratt, A. (2003). *How far have we come? Gender disparities in the Australian Higher Education System.* Canberra: Department of the Parliamentary Library.

Catalyst. (1996). *Catalyst census of women board directors of the Fortune 500 as of March 31, 1996.* New York: Catalyst.

Chao, G. (1997). Mentoring phases and outcomes. *Journal of Vocational Behaviour, 51,* 15–28.

Commonwealth Department of Education, Science and Training (DEST). (2003). *DEST selected higher education staff statistics.* Retrieved October 29 2004, from http://www.dest.gov.au/highered/statpubs.htm

Dansky, K. H. (1996). The effect of group mentoring on career outcomes. *Group and Organization Management, 21,* 5–21.

Dean, E., Johnson, L., Jones, G., & Lengkeek, N. (1996). *Women, research and research productivity in the post-1987 universities: Opportunities and constraints.* Canberra: Australian Government Publishing Service.

de Vries, J. (Ed.). (2005). *More than the sum of its parts: 10 years of the Leadership Development for Women Programme at UWA.* Perth: The University of Western Australia.

Dex, S. (1987). *Women's occupational mobility.* Basingstoke: Macmillan.

Dreher, G. F., & Ash, R. A. (1990). A comparative study of mentoring among men and women in managerial, professional, and technical positions. *Journal of Applied Psychology, 75,* 539–547.

Ehrich, L. C., Hansford, B., & Tennent, L. (2004). Formal mentoring programs in education and other professions: A review of the literature. *Educational Administration Quarterly, 40*(4), 518–540.

Eliasson, M., Berggren, H., & Bondestam, F. (2000). Mentor programmes – a shortcut for women's academic careers? *Higher Education in Europe, 25*(2), 173–179.

Foster, S. W., McMurray, J. E., Linzer, M., Leavitt, J. W., Rosenberg, M., & Carnes, M. (2000). Results of a gender-climate and work-environment survey at a midwestern academic health center. *Academic Medicine, 75,* 653–660.

Gardiner, M. (1999). *Making a difference: Flinders University Mentoring Scheme for early career women researchers. Pilot program report, July 1999.* Adelaide: Flinders University.

Gardiner, M. (2002). *Women and Australian leadership: Beyond the current paradigms. In The Heart and Soul of Leadership.* Roseville, NSW: McGraw-Hill.

Gardiner, M. (2005). *Making a difference: Flinders University Mentoring Scheme for early career women researchers: Seven years on… June 2005.* Adelaide: Flinders University.

Gardiner, M., & Tiggemann, M. (1999). Gender differences in leadership style, job stress and mental health in male- and female-dominated industries. *Journal of Occupational and Organisational Psychology, 72,* 301–315.

Hansford, B., Tennent, L., & Ehrich, L. C. (2002). Business mentoring: Help or hindrance? *Mentoring and Tutoring, 10*(2), 101–115.

Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research, 61*(4), 505–532.

Johnsrud, L. K., & Atwater, C. D. (1991). *Barriers to retention and tenure at UH-Manoa: Faculty cohorts 1982–1988.* Technical report. Honolulu, Hawaii: University of Hawaii at Manoa.

Kanter, R. M. (1977). *Men and women of the corporation.* New York: Basic Books.

Kram, K. E. (1985). *Mentoring at work: Developmental relationships in organizational life.* Glenview, IL: Scott Foresman.

Lyness, K. S., & Thompson, D. E. (2000). Climbing the corporate ladder: Do female and male executives follow the same route? *Journal of Applied Psychology, 85,* 86–101.

McCall, L., Liddell, M., O'Neil, J., & Coman, G. (2000). Strategies to increase the representation of women on the academic staff of the Faculty of Medicine at Monash University. *Higher Education, 39,* 131–149.

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass.

Neumann, K. (1998). Germany: Only 5% of top positions held by women. *Win News, 24,* 71.

Orpen, C. (1995). The effects of mentoring on employees' career success. *Journal of Social Psychology, 135,* 667–668.

Palermo, J. (2004). Breaking the cultural mould: The key to women's career success. Retrieved November 8, 2004, from http://au.hudson.com/documents/au_2020Series_Women_Whitepaper_03112004.pdf

Probert, B., Ewer, P., & Whiting, K. (1998). *Gender pay equity in Australian higher education.* Victoria: The National Tertiary Education Union.

Rimmer, R. J., & Rimmer, S. (1994). *More brilliant careers.* Canberra: Australian Government Publishing Service.

Scandura, T. A. (1992). Mentorship and career mobility: An empirical investigation. *Journal of Organizational Behaviour, 13,* 169–174.

Seagram, B. C., Gould, J., & Pyke, S. W. (1998). An investigation of gender and other variables on time to completion of doctoral degrees. *Research in Higher Education, 39*(3), 319–335.

Soliman, I., & Soliman, H. (1997). Academic workload and quality. *Assessment and Evaluation in Higher Education, 22*(2), 135–157.

Søyland, A., Skarsbø, A., Amble, N., Christensen, L., & Ølnes, A. (2000). Strategies for achieving gender equality in higher education and research in Norway. *Higher Education in Europe, 25*(2), 147–153.

Whitely, W., Dougherty, T. W., & Dreher, G. F. (1991). Relationship of career mentoring and socioeconomic origin to managers' and professionals' early career progress. *Academy of Management Journal, 34,* 331–351.

Wilson, J. A., & Elman, N. S. (1990). Organizational benefits of mentoring. *Academy of Management Executive, 4,* 88–93.

Wunsch, A. A. (1993). Mentoring probationary women academics: A pilot programme for career development studies. *Higher Education, 18*(3), 349–362.