Making a Difference:
Flinders University
Mentoring Scheme
for Early Career
Women Researchers

Seven Years On ...
June, 2005

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BA Hons  MPych (Clin)  MAPS
Published by

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Making a Difference: Flinders University Mentoring Scheme for Early Career Women Researchers
Seven Years On … June, 2005

1. Mentoring
2. Women in academia
3. Research

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Foreword

This report is the second in a series of reports on the Flinders University Mentoring Scheme for Early Career Women Researchers. The first report was published in 1999, only a relatively short time after the scheme began in 1998. At the time of that first report, very encouraging results about the effectiveness of the scheme were beginning to emerge. Now, after seven years of operation and study, it is clear just how effective the scheme has been in assisting the research careers of the women who have engaged in it.

The scheme was established via the then Affirmative Action in Research Committee to provide academic women staff at early stages of their careers with access to expertise, experience and advice from a more senior colleague with whom they had been carefully matched, with a primary focus on research. Throughout its history, the scheme has had my strong support, and that of the Vice-Chancellor (who also provided support when she was previously Deputy Vice-Chancellor).

As you will see from the report, the scheme has been a clear success at two levels: not only has it provided effective support to 70 women as they have built their research careers, but it has also formed the basis of a unique longitudinal study of the effectiveness of such mentoring schemes.

Those who have participated in the scheme have outperformed the control group in terms of grant income and the most significant kinds of publications (represented by those that are used by the Australian government in determining the funding allocation to universities for research). Participants were also more likely to be successful in gaining promotion. Data on subjective career outcomes, such as perceptions of confidence and satisfaction, were also collected; probably the most significant difference in these perceptions was in relation to attitudes to capacity as an academic, where the participants became more confident of their capacity as an academic while being mentored, eventually overtaking the control group.
All of these benefits are significant for the participants, and lead to significant benefits for the University: its academic workforce is more successful, more confident and has an improved gender balance at the more senior levels. The University has also gained in a monetary sense, with increased research income and federal government funding compared to what would have been the case without the scheme. As an illustration, had the control group increased their ability to access grants at the same rate as the participants in the scheme, the University would have received $1.25 million more in external research grants over the period reported here.

This project and the two reports which have emanated from it would not have been possible without the energy and commitment of Maria Gardiner, and she is to be congratulated for her pivotal role in the scheme from the outset.

Chris Marlin
Deputy Vice-Chancellor (Research) and Acting Vice-Chancellor
May 2005
Acknowledgements

The Flinders University Mentoring Scheme for Early Career Women Researchers has been in operation for seven years and during that time has received much support, advice and commitment. I would like to thank the following people.

The scheme has continued to be funded through the commitment and generous support of the Deputy Vice-Chancellor (Research) Professor Chris Marlin and the Vice-Chancellor Professor Anne Edwards.

Mr Hugh Kearns has provided much guidance, support and insight over the last seven years and has made a significant contribution to the success of the scheme. Associate Professor Jan Orrell has assisted in many mentee/mentor matches and her help has been much appreciated. Thank you also to the Staff Development and Training Unit for continued administrative support for the scheme.

Professor Marika Tiggemann and Mr David Green have provided invaluable input into the academic, research and statistical aspects of this report.

Ms Kelly Marshall has worked tirelessly and with great skill on every aspect of this report. Ms Susan Arthure provided much appreciated editorial assistance.

I thank the mentees who took the opportunities offered to them and achieved the successes they deserve, and finally, again I thank the mentors, without whom there would be no mentoring scheme.

Maria Gardiner
Coordinator
Flinders University Mentoring Scheme for Early Career Women Researchers
Adelaide, South Australia
June 2005
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1. Executive Summary

- In 1998, Flinders University initiated a mentoring scheme to aid the career development of junior female academics. The scheme aimed to address the under-representation of women in senior positions by increasing participation in networks and improving women’s research performance.

- A longitudinal design from 1998 to 2004 was used, allowing us to comprehensively assess the long-term benefits of mentoring. Objective outcomes such as promotions, grants and publications, as well as subjective career outcomes and perceptions of mentoring were assessed.

- Twenty-two mentees and 46 academic women who had not received mentoring (control group), participated in this evaluation. Both groups were mostly level B academics.

- Objective data reflects the higher rate of promotion achieved by the mentees, 68% of whom had been promoted at least once since the commencement of the scheme, compared with 43% of the control group.

- Mentees outperformed controls with regards to research grant income, with the average mentee receiving over four times the grant income of women in the control group. Since the scheme’s inception, all mentees have together amassed $4,305,508 in research grants.

- Mentees also have a higher publication rate than controls, producing one and a half times the number of Department of Education, Science and Training (DEST) submitted scholarly articles.

- Mentees had higher perceptions of their capacity as an academic by 2004 compared to controls, and also had reduced concerns about research from 1998 to 2004. However, mentoring appears to have minimal effect on job and career
satisfaction, or career planning. The effects of mentoring on psychological well-being are unclear and need to be monitored in the future.

- Mentoring was perceived as an overwhelmingly positive experience for the majority of mentees. Many benefits were listed including promotions, increased confidence, improved networking and having someone to talk to about their career.

- Taken together, these results clearly indicate that not only do women themselves benefit from mentoring, but universities can confidently implement well-designed initiatives, knowing that they will receive a significant return on investment.
2. History of the Scheme

In April 1998, Flinders University instituted a mentoring program to help improve the career prospects of early career women researchers. The scheme was initiated through a proposal of the then Affirmative Action in Research Committee to the Deputy Vice-Chancellor (Research). Mentoring was put forward as a strategy to support the objectives of the University’s Affirmative Action Report to ‘work to achieve a senior staff profile which more closely reflects the composition of the University Community…’.

Furthermore, following a survey into women’s participation in research, it was noted that women are at a disadvantage in relation to research performance and promotion compared with their male colleagues. Since research performance is a key component considered in the promotion process, women’s poorer performance in this area was seen as one possible reason for the lack of women in more senior positions. While women’s research performance can be influenced by many factors, such as their life experiences and work patterns, other key reasons were identified. These include a lack of access to networks, absence of informal training and women’s more limited exposure to the process of modelling their career on a successful and more experienced peer. As such, mentoring was considered to be the strategy most likely to achieve the University’s desired outcomes.

In 1999, an evaluation was conducted of outcomes for the original cohort of mentees and a pilot program report published and distributed entitled *Making a Difference: Flinders University Mentoring Scheme for Early Career Women Researchers*. The report was extremely well received, as it was the first comprehensive and rigorous evaluation to show that such initiatives do in fact result in tangible and measurable outcomes, both for universities and women.

Based on the pilot findings, the scheme continued, with approximately ten new participants joining each year. The aim of the scheme has always been to ensure thorough and comprehensive support for each mentee over whatever period of time is required, rather than large numbers participating in short time periods.
Now some seven years and 70 mentees later, it is time to evaluate the longer term outcomes of the scheme. This is the first time a group of women participating in a university career initiative has been subjected to such long-term and intensive scrutiny in order to determine more conclusively the benefits of widely touted and utilised strategies such as mentoring.
3. Rationale for the Scheme

3.1 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).

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 Flinders University, 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% (Flinders University Staff Statistics, 2004). A similar pattern appears across other Australian universities, with females represented in only 21% of senior academic positions (DEST Selected Higher Education Staff Statistics, 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, the top academic level (Bagilhole, 2000), while similar proportions are seen in Norway (12%; Søyland, Skarsbø, Amble, Christensen & Ølnes, 2000) and Sweden (10%; Eliasson, Berggren & Bondestam, 2000). These figures indicate that initiatives to improve women’s representation in senior positions continue to be greatly needed.
3.2 Reasons for the under-representation of women

Several researchers have suggested possible reasons for the under-representation of women in senior positions (e.g. Bellamy & Ramsay, 1994; Gardiner & Tiggemann, 1999; Kanter, 1977). 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 which excluded faculty members on the basis of gender, while 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 (Dean, Johnson, Jones & Lengkeek, 1996; Johnsrud & Atwater, 1991). These feelings of isolation may be due to 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, Liddell, O’Neil & Coman, 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 possible reason 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 would be detrimental to women achieving promotion to senior positions. McCall et al. (2000) and Probert, Ewer and Whiting (1998) suggest that this poorer research output may be due to 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.

### 3.3 Initiatives to increase representation of women in senior positions

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 a mentoring scheme.
3.4 Mentoring schemes

Historically, mentoring has been an informal process, where 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, while 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, while 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 Womens’ 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, while 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.

3.5 Evaluation of mentoring schemes
Numerous studies have found mentoring to be an overwhelmingly positive learning experience for both mentors and mentees alike (Hansford, Tennent & Ehrich, 2002). Ehrich, Hansford and Tennent (2004), in their review of over 300 mentoring evaluations, 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. De Vries (2005), in her report on the mentoring component of the Leadership Development for Women program at the University of Western Australia, 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: perceptions of mentoring, subjective career outcomes and 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. While 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, career outcomes have also been studied.

Mentoring has been linked to career outcomes such as increased career satisfaction (Aryee, Wyatt & Stone, 1996; Burke & McKeen, 1997; Chao, 1997; Dansky, 1996). In their meta-analysis examining 43 mentoring studies, Allen, Eby, Poteet, Lentz and Lima (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 (Allen, McManus, Russell & Reiniger, 1995; Wilson & Elman, 1990).

Perhaps the “holy grail” of evaluation is to show tangible, definable outcomes, 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 (Aryee et al., 1996; Chao, 1997; Dreher & Ash, 1990; Orpen, 1995; Scandura, 1992; Whitely, Dougherty & Dreher, 1991) 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, due to the paucity of evaluations measuring such objective outcomes, this relationship has yet to be established. The evaluation of the Flinders University mentoring scheme allows us to redress this lack of evidence.
3.6 The Flinders University mentoring scheme

In an attempt to increase the number of female academic staff in senior positions, Flinders University 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 a formal scheme which 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 (Australian Technology Network Executive Development for Women Program, 1998; Boice, 1992). 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 number of grants and publications obtained) were assessed. These outcomes, while not only beneficial for individuals’ career advancement, are also essential for a successful and productive university. In addition, subjective career outcomes were also measured, such as career and job satisfaction, work-related morale and distress, capacity as an academic, concerns about research, and career planning. Finally, mentees’ perceptions of the mentoring program were evaluated.
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.

In addition, many mentoring programs only have funding to operate for twelve or eighteen months. An evaluation spanning this short timeframe would exclude any benefits of mentoring that only appear 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 this study, evaluating the scheme at baseline (before the commencement of mentoring in 1998), at nine months into the scheme (1999, at the end of the pilot phase), and again several years later (2004).

### 3.7 Summary

In order to address the issue of under-representation of women in senior academic positions, Flinders University in 1998 initiated a mentoring program for early career women academics. A comprehensive, multifaceted evaluation was undertaken to support prior suggestions of the benefits of mentoring. It was expected that the mentoring program would improve objective career outcomes (including promotions, grants and publications), as well as subjective career outcomes (such as career and job satisfaction).
4. Evaluation Strategy

4.1 Outline of the mentoring scheme

4.1.1 Recruiting participants
The mentoring scheme is aimed primarily at women employed at academic Level B
(lecturer). Women are eligible to participate in the scheme as mentees if they have
completed or almost completed their higher degree studies, or are not undertaking
higher degrees. This is to avoid any possible difficulties or confusion from having
both a higher degree supervisor and a mentor.

The initial cohort of mentees and mentors were recruited through personal
approaches made by the coordinator of the mentoring scheme. Potential mentees and
mentors were approached after consultation with Heads of Faculty, Heads of
Departments and other senior staff in the University. Following the initial evaluation
of the scheme showing successful results, the second through to sixth waves of
mentees were recruited through open advertising to Level B women.

4.1.2 Matching participants
In order to determine an appropriate match between mentee and mentor, mentees
were interviewed and asked about their particular needs and circumstances. The
approach taken with this scheme is to help women understand their own particular
agenda and needs (e.g. see Gardiner, 2002). So, for one woman this might be how to
maintain a research presence whilst navigating motherhood and maternity leave,
and for another woman it might be how to achieve a research grant for a large multi-
stage project. It is only after each individual’s needs are understood that a suitable
mentor can be found. The process of clarifying needs is often very helpful for the
woman herself, and generally allows mentoring to begin more quickly as the issues
and goals are more evident.

Once a mentee is clear about what she wants to get out of mentoring, a particular
mentor is “hand-picked”. This is generally done through either the personal
knowledge of the coordinator and/or other Staff Development and Training Unit
members (e.g. academic coordinator), or through consultation with senior staff across the University. Approximately 95% of all staff approached to act as mentors have agreed to participate.

### 4.1.3 Workshops

As part of their involvement in the mentoring scheme, mentees are invited to attend a workshop at the beginning of the scheme. These workshops are specifically designed to meet the needs of participants, and are designed to provide skills and information relevant to mentoring.

The initial workshop has two aims: firstly, to explore and ultimately shape expectations of mentoring; and secondly, to provide skills that are likely to maximise the success of the mentoring partnerships.

Part one of the workshop takes participants through exercises that provide them with the opportunity to think about the mentor’s role and the mentoring process. In particular, the “action planning in mentoring model” is presented. This shows how the mentor can play an integral role in the mentee’s research career development while the mentee maintains autonomy and control. To enable some practice with the action planning in mentoring model and also to allow discussion of the practical issues involved in mentoring, the second part of the workshop consists of a case study and small group discussion. Formal mentoring agreements are also discussed, with one agreement presented as an option.

### 4.1.4 Follow-up

The coordinator (employed at 0.4 FTE) remains available to all current and past mentees and mentors to assist with any issues regarding mentoring or the relationship between mentees and mentors.
4.2 Evaluation of the mentoring scheme

4.2.1 Participants
The initial group of mentees in the pilot phase of the program (1998) are used as the main comparison group. This group consisted of 22 females, mostly at Level B 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 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 Flinders University for a similar length of time as the mentees (approximately five years). 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 pilot report, Gardiner, 1999). As such, any improvements seen over time in the mentees relative to the controls can reasonably be attributed to mentoring. This forms our experimental comparison. In addition to comparing the initial mentees and the controls, each subsequent year’s intake of mentees is also included in this evaluation, in order to assess the effect of mentoring over time. Each group of mentees comprises seven to fourteen women, again mostly at Level B academic status. Details of each group are displayed in Table A.

Table A. Characteristics of each comparison group.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Attrition rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial mentees (1998)</td>
<td>22</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>Control group (1998)</td>
<td>46</td>
<td>15 (33%)</td>
</tr>
<tr>
<td>Mentees wave 2</td>
<td>14</td>
<td>3 (21%)</td>
</tr>
<tr>
<td>Mentees wave 3</td>
<td>11</td>
<td>2 (18%)</td>
</tr>
<tr>
<td>Mentees wave 4</td>
<td>7</td>
<td>2 (29%)</td>
</tr>
<tr>
<td>Mentees wave 5</td>
<td>8</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Mentees wave 6 (2004)</td>
<td>8</td>
<td>1 (13%)</td>
</tr>
</tbody>
</table>
4.2.2 Design

In this evaluation, two types of comparisons were made. The first was comparing the group of initial mentees with a control group consisting of women of similar standing within the University who had not participated in the mentoring program. Comparing data across these two groups allows us to directly examine the effect of mentoring on various outcomes, whilst controlling for extraneous factors, such as length of time at the university, experience of university procedures, and so on. Data was collected three times (baseline in 1998, end of pilot phase in 1999, current in 2004) for the initial mentees and the controls.

The second comparison examines the differences between groups of mentees entering the program at different times. As these mentees have been in the program for different numbers of years, this allows us to examine the effect of mentoring over time, and to assess the long-term benefits of mentoring. Only objective data and perceptions of mentoring were collected from the second through sixth waves of mentees.

The groups of participants and how they fit into the design is displayed in Figure A.

![Figure A. Timeline showing each group of participants.](image-url)
4.2.3 Measures

Objective career outcomes
Data on objective career outcomes such as promotion, staying at the University, grant income and publications was obtained from the University research data collection database for all mentees and controls. Data on grants and publications was collated from reports compiled annually by the University for 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 (see Appendix A for a copy of the questionnaire) for 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.

Concerns about research were measured using an 11-item scale (Gardiner & Tiggemann ©), designed specifically for this evaluation. The items assessed participants’ attitudes and judgements about research, for example, “I feel like I don’t really know how to do research”. Responses were made on a 7-point Likert scale, with responses ranging from one (strongly disagree) to seven (strongly agree). Scores were summed to produce a total for the scale. Possible scores range from 11 to 77, with higher scores indicating a greater level of concern or worry about research.

Capacity as an academic was similarly measured on an 11-item scale (Gardiner & Tiggemann ©) developed specifically for this evaluation. The items assessed participants’ perceptions of their ability to perform various aspects of their job as an academic, such as writing for publication. Responses were made on a 5-point scale, ranging from one (very poor) to five (very good). Total scores range from 11 to 55, with higher scores indicating greater capacity as an academic.

Career satisfaction was measured using the scale developed by Greenhaus, Parasuraman and Wormley (1990). It consists of five items, including “I am satisfied with the progress I have made towards meeting my overall career goals”, which are
rated on 7-point scales. Total scores for career satisfaction range from 5 to 35, with higher scores suggesting greater career satisfaction.

*Job satisfaction* was measured by Hackman and Oldham’s (1975) General Job Satisfaction Scale. Three items, including “I am generally satisfied with the kind of work I do in this job” are rated using 7-point Likert scales. Higher scores indicate greater levels of job satisfaction.

*Career planning* was measured using Gould’s (1979) 6-item scale. Items include “I know what I need to do to reach my career goals”, and responses are made on a 7-point Likert scale. Higher scores indicate a higher level of career planning.

*Work-related morale and distress* were assessed using the Psychological Outcomes scale (Hart, Griffin, Wearing & Cooper, 1996). The 14-item scale comprises two subscales, with seven items measuring work-related morale (e.g. “Report how often you experienced feeling happy at work”) and seven items measuring work-related distress (e.g. “Report how often you experienced feeling tense at work”). Responses are made on 7-point scales, ranging from one (not at all) to seven (all the time). Higher scores indicate higher levels of either morale or distress.

*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.

### 4.2.4 Procedure for evaluation

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 (nine months into the scheme, in 1999); and again in 2004.
Baseline (1998): In 1998, questionnaires were sent to the group of initial mentees ($n = 22$) and the control group ($n = 46$), assessing subjective career outcomes prior to the commencement of the mentoring scheme. Of those, eighteen mentees and 40 controls provided valid questionnaires (response rates of 82% and 87% respectively).

End of pilot phase (1999): At the end of the pilot phase, the same questionnaire measuring subjective career outcomes was again administered to the initial mentees (response rate 82%) and the controls (response rate 87%). In order to evaluate the more objective or tangible outcomes, mentees were asked to report on the number of publications they had produced, conferences they had attended, and so on. In addition, the mentees and their mentors were asked their perceptions of the mentoring scheme.

In 2004: In 2004, the questionnaire measuring subjective career outcomes was again sent to those initial mentees ($n = 19$) and controls ($n = 31$) still at the University. Of those, twelve mentees (response rate of 63%) and 22 controls (response rate of 71%) returned the questionnaire. Additionally, perceptions of mentoring were obtained from all mentees. Finally, data on objective career outcomes was obtained from the University research data collection database, obtaining 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.
5. Evaluation of the Scheme

5.1 Objective career outcomes: promotion and research

The objective career outcomes of retention rates, number of promotions, research grant income and number of publications were obtained for all mentees and controls. This was used as a tangible, definable measure of the effectiveness of the mentoring scheme.

The means, standard deviations and proportions, as well as the relevant inferential tests for all objective career outcomes are reported in Appendix B.

5.1.1 Retention rates

Of the 22 initial mentees, three had left the University by 2004 (14%), compared to fifteen of the 46 controls (33%). This indicates that those women who received mentoring were more likely to stay at the university.

5.1.2 Promotions\(^1\)

Of the 22 initial mentees who began the scheme in 1998, 68% had been promoted at least once by 2004. In contrast, only 43% of the controls had received at least one promotion.

As shown in Figure B, this represents a trend of a higher rate of promotion amongst those women who participated in the mentoring scheme, as compared to those not in the scheme. This trend also extends to all women who have entered the mentoring scheme since 1998.

\(^1\) For initial mentees, \(n = \) between 22 and 19; for controls, \(n = \) between 46 and 37; and for all mentees, \(n = \) between 70 and 19.
Figure B. Percentage of participants who have received a promotion (cumulative), by number of years in the scheme, for initial mentees, controls, and all mentees.

Of the initial group of 22 mentees, thirteen have received at least one promotion since 1998. This includes five mentees who have received two promotions in that time. This is compared to the sixteen of 46 controls receiving at least one promotion, with only one control participant receiving two promotions.

All mentees. Although at an earlier stage of career development than the initial mentees, the mentees in waves two to six appear to be following the same trend of faster career advancement. Of the second wave of fourteen mentees, who entered the scheme in 1999, eight (57%) have received at least one promotion, with three of those receiving two promotions. For the subsequent waves, the mentees are at an earlier stage of career development, however, as Figure B shows, early indications suggest a positive influence of mentoring on promotions.
5.1.3 Research grants

Initial mentees\(^2\) and controls\(^3\). Figure C indicates that the initial mentees have been more successful at receiving external research grants than the controls. Figure D, which displays research grants from all sources (internal and external) across the six year period, indicates that mentees are also more successful at obtaining research grants from all sources than are the control women.

![Average grant income from external sources per person for initial mentees and controls in the years 1999 to 2004.](image)

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

\(^2\) \(n = \) between 22 and 19. The number changes from year to year to take into account participants leaving the university.

\(^3\) \(n = \) between 42 and 35. Two extreme outliers were removed; see Appendix C for details.
On average, mentees received $10,859 per year in external and internal grants, compared with $2,583 received by controls. Consequently, the average mentee has amassed $23,256 in internal and $41,896 in external grants over the six year period. This is in contrast to the controls, who have received, on average, $850 in internal and $14,647 in external grants over the same period. Over the six years, mentees have received $65,152 per head, compared to $15,498 received by controls.

The initial group of 22 mentees have obtained a total of $1,324,479 in research grants in six years, of which $834,071 was obtained from external sources. This is compared to the group of 42 controls, who have together received $599,049 in total, including $564,814 from external sources, in the same period.

All mentees. Again, although the subsequent intakes of mentees have less established research careers than the initial wave, current indications reinforce the trends seen in the initial mentees. As can be seen in Figure E, mentees from all waves of the scheme have, on average, gained $2,819 per year in internal and $12,505 in external grants, with an average of $15,324 per year from all sources. Hence, all mentees who have entered the scheme since 1998 have together amassed $4,305,508 in research grants, which includes $3,721,776 in external grants.
5.1.4 Publications

*Initial mentees*[^4] vs *controls*[^5]. As shown in Figure F, mentees have obtained, on average, more publications than controls. Greater differences are displayed, however, when considering the two types of publications separately. 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. Non-submitted publications include non-refereed articles, conference abstracts, and editorials. Mentees produced more DEST-submitted publications than did the controls (as shown in Figure G), while the controls contributed a greater number of non-submitted publications than the mentees. This indicates not only a greater research output amongst those women who have received mentoring, but also publications of a higher status than those who have not received mentoring.

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[^4]: n = between 22 and 19
[^5]: n = between 44 and 38
Figure F. Average number of DEST-submitted, non-submitted and total publications per person, for initial mentees and controls over the period 1999-2003.

Figure G. Average number of DEST-submitted publications per person, for initial mentees and controls for the period 1999-2003.
The initial group of 22 mentees have produced 77 DEST publications in the period 1999 to 2003. This is compared with the 110 DEST publications produced by the 46 women in the control group.

The average mentee has produced 3.79 DEST publications over the five year period, while the average control has produced 2.69 DEST publications in the same period. This amounts to an average of 0.76 publications per person per year by mentees, and 0.54 publications per year by controls.

All mentees. All mentees entering the scheme at various stages have also demonstrated high rates of publications. The average mentee has produced 0.82 DEST publications per year, which is considerably higher than the rate produced by control participants (0.54).

5.2 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.

The means and standard deviations for each subjective career outcome, as well as the inferential statistics, are shown in Appendix D.6

6 For initial mentees, n = between 18 and 12, and for controls, n = between 40 and 22.
5.2.1 Capacity as an academic

Figure H shows that 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. The control participants, on the other hand, had no significant change in their perceptions of their capacity as an academic across all three times. 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.

![Figure H. Capacity as an academic in 1998, 1999 and 2004, for initial mentees and controls.](image)

5.2.2 Concerns about research

As shown in Figure I, the initial mentees had slightly higher levels of concern about research than did the controls, prior to the commencement of the mentoring scheme. After nine months 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 seven 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.
5.2.3 Career satisfaction

Figure J shows that the controls had higher levels of career satisfaction than did the mentees in 1998 and in 1999. However, in 2004, controls’ levels of satisfaction had decreased slightly, moving closer to that of the mentees. This suggests that, as with the pilot evaluation, 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.
5.2.4 Job satisfaction

Figure K indicates that all participants experienced an increase in job satisfaction from 1998 to 1999, followed by a decrease to 2004, with a similar pattern displayed for both controls and initial mentees. Mentoring appears to have little impact on job satisfaction, with factors related to being an academic having a similar effect on all level B academic women.
5.2.5 Career planning
As indicated in Figure L, all participants experienced an increase in career planning from 1998 to 1999 with controls appearing to increase slightly more than mentees. All participants showed a slight decline at 2004. These results suggest that all participants plan early on in their careers, then plan less as time goes on. Controls may have experienced a greater increase than mentees as they were in a sense required to plan for themselves in the absence of guidance from a mentor. Mentees may have perceived they were planning less as they had more assistance with their career plan from a mentor.

Figure L. Career planning in 1998, 1999 and 2004 for initial mentees and controls.

5.2.6 Work-related distress
Figure M shows that there were no significant differences between mentees and controls at any time point, despite controls increasing more than mentees at 1999 and mentees increasing more than the controls at 2004. In effect mentees began with higher distress than the controls, and seven years on, still have higher distress.
5.2.7 Work-related morale

As shown in Figure N, all participants experienced a slow decline in work-related morale, with no significant differences between the groups at any time, although the mentees showed a greater decrease in morale at 2004.
5.3 Participants’ perceptions of mentoring

All mentees were provided with the opportunity to comment on their participation in the mentoring scheme, to assess their perceptions of its effectiveness and benefits. Of these, 21 provided responses.

5.3.1 Benefit received from the mentoring scheme

Mentees’ responses to this question were varied, and listed a number of positive benefits of the mentoring scheme. The most commonly named benefit (as described by 33% of respondents) was having somebody in the University to talk to about their career.

- Having someone to talk to about my career … who was enthusiastic, knowledgeable and useful.

- Being able to chat/share ideas; make contact with another academic who has “been there done that”; discuss problems/challenges, brainstorming ideas/strategies.

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

- Having someone to discuss [my] career with.

- Having people to talk to about my career who were not just going “through the motions” – as with the annual review process.

Nineteen per cent described the benefits that arose from having contact with other female academics.

- Making me realise that I am not very different (skill-wise) than other more experienced women.

- Finding somebody in a senior position with an atypical background, which I also have.

- Knowing that other women have similar issues to mine.
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.

Other benefits listed by mentees included developing links within the university, advice on their career plans, a greater understanding of their place within the University, and support from their mentor.

5.3.2 **Tangible outcomes from the mentoring scheme**

Again, there was a wide range of positive outcomes listed, with 33% stating that they had received a promotion due to their participation in the mentoring scheme.

*Promotion from level B → C.*

*My promotion!*

*Promotions! Two!!*

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

Ten per cent stated that they had received research grants because of their involvement, while 5% cited improved publication rates as a benefit. Nineteen per cent noted that their goal-setting had been improved by their participation.

*More focused goals.*

*I know that it is up to me to define my goals. To achieve this, I make annual plans embedded within a five year plan.*

Nineteen per cent listed improved networking as a tangible benefit of the scheme.
My mentor has also enabled me to develop new and valuable networks of great assistance professionally.

Networking across the university.

Other benefits listed were increased confidence, and insight into the life of a successful female academic.

### 5.3.3 Promotions

Of those mentees responding to this question, 57% reported the mentoring scheme having a positive effect on promotions. Some noted that they had received a promotion, others stated that their participation in the scheme gave them the confidence to apply, as well as advice on how best to write their application.

Gave me the confidence to promote my achievements and highlight the outcomes (as opposed to simply describing these).

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.

... I got promoted to level C after three years at Flinders and felt confident enough to apply even though I was discouraged by other more senior people.

I would not have applied as early as I did and wouldn’t have expressed myself as confidently in my application.

Gave me more confidence to hold a more senior position and to “spread my wings” in a changing research environment.

The main effect has been confidence to apply, and having someone read my application who is impartial.

Definite positive effect. Tangible support.
The remaining participants either made no comments regarding the effect of mentoring on promotion, or claimed that it was too early in their career for mentoring to have an effect. One woman commented on getting unhelpful advice from the University, including her mentor.

5.3.4 Publications

Forty-three per cent of respondents cited positive effects of the mentoring scheme on publishing.

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.

Kept me focused and on track.

Yes – having someone to talk to / bounce ideas off (rather than feeling I’m taking time away from another, less invested colleague). The mentor was always keen to provide support.

Provide motivation to publish.

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.

Confidence building which has enabled me to publish.

The remaining mentees stated that they either already had a good publication record, or that their mentoring relationship had focused on an area other than publications.

5.3.5 Research grants

Thirty-eight per cent of mentees listed positive benefits of the mentoring scheme on obtaining research grants.
I was encouraged to go for two internal grants (successful).

Feeling more confident to go for bigger grants, how to write one [application] better and therefore possibly a better success rate.

Gave me the impetus to make an application and, although I was unsuccessful with the ARC, I received a URB.

My mentor was especially helpful here. I have not been able to attract a decent size grant yet, but I have gained lots of skills that will help in the future, and I am more confident to do so as a team leader – maybe not ARC or NHMRC yet, but not far off?

Useful feedback on OSP application which was successful.

My mentors encouraged me by highlighting the often arbitrariness of reviews; hence “do not take them personally”. In this sense, I have submitted ten grants, of which five were successful.

I was enabled by the mentoring scheme to get back on track which enabled my successful application for research grants.

5.3.6 General comments

The majority of comments regarding the mentoring scheme were overwhelmingly positive.

… important in gaining access (without guilt) to advice and important in stress management/support issues which are important for keeping people in the job.

It has been great. I am hoping that I can continue with [my mentor] and develop a career plan that will see me positioned competitively at the end of my contract.

…it has been very helpful for me in my first year of the job to talk to someone who was once in the same position as me.
I totally endorse this scheme!

I think it is a very important scheme that has made a huge difference to my confidence professionally. Just knowing I have a mentor there helps greatly.

What comes around, goes around! I have been able to pass on to my students the skills and attitudes learned from my mentor, and through this scheme. I feel very grateful that I was able to access the scheme, as at the time, I really needed that sort of help!

I think it’s fantastic to be able to talk things over strategically with somebody in such a constructive way.

I encourage all women to participate, as it gives a “human picture” to our life at Flinders University. I know there are many wonderful women at FU, and I have had the great pleasure to meet a few of them. This has inspired me to contribute to mentoring programs in my school.

It has been a very useful scheme for me which enabled me to get information about how uni processes worked and become more confident participating in them. For years I had no idea about the promotion process, for example, while male colleagues seemed much better informed. Rather than leave people to work it out themselves, the mentoring scheme was good at showing lower level academic women that the University cared about them.

I was most fortunate to be involved in the scheme and hope it grows to include more people at all levels across the University. It is an excellent scheme!

A very small number of women commented that they did not receive the full benefit from the scheme, due to poor timing for themselves, not maintaining active participation, or a mismatch with their mentor.
6. Summary of Findings and Conclusions

The Flinders University Mentoring Scheme for Early Career Women Researchers was introduced in 1998 to address the issue of gender inequality in senior academic positions in the University. 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, 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, as well as evaluating participants’ perceptions of the mentoring process. 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 seven years.

An analysis of the objective career outcomes revealed that the initial 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. Mentees also had a higher rate of promotion; 68% of mentees had been promoted at least once since the commencement of the scheme, compared to 43% of the controls. This finding is possibly reflected in data produced by DEST regarding the representation of women in senior positions across all Australian universities; Flinders 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 Selected Higher Education Staff Statistics, 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, as implemented at Flinders University, is a highly effective means of improving gender equality in academic positions within universities.

The mentees also received a higher average amount per person in research grants, in particular those grants from external sources, compared with the control group. Over the six years of data collection, the initial mentees have contributed approximately $65,000 per head in total grants, while controls have contributed approximately
$16,000 per head. Since the scheme’s inception, mentees have contributed $3.7 million in external research grants. These results would seem to clearly indicate 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 publications than did the controls, in particular publications of a higher status, such as peer-reviewed, scholarly articles. The initial mentees produced one and a half times the number of scholarly articles compared to the control group. Furthermore, this trend in publication rates appears to be continuing among the entire group of mentees, who also have a higher rate of publications than the controls. 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 appears to have little effect on career or job satisfaction, with mentees and controls having similar levels. Mentees appeared to have lower levels of career planning, and this was maintained throughout the mentoring process. It is unclear why this is so, but possibly because mentees had a mentor to assist with their career plans, and perhaps perceived they were doing less planning. Finally, levels of work-related distress and morale were not significantly different for the initial mentees and the controls; however there was a trend for mentees to show worsening stress and morale. This will need to be monitored in future. It may be that higher stress levels reflect those of women in more senior positions. It would appear, however, that more evidence needs to be obtained to determine the impact of accelerated careers on stress levels. In summary, mentoring seems to mostly affect mentees’ global sense of confidence as an academic in the long-term, while in the short-term it reduces worries about research to match the controls, and has minimal effect on career and job satisfaction.

The experience of mentoring was perceived as an overwhelmingly positive experience by the vast majority. 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. 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 well being of women participating in accelerated career programs needs to be monitored in future.

For universities there appears to be little question that investing in well-designed and implemented mentoring schemes provides a significant return on investment. This is both in increased retention rates of staff, but also 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 a highly effective strategy for universities financially, and also personally for the many women who wish to pursue successful and rewarding academic careers.
7. References


Appendix A: Questionnaire

Dear Mentoring Scheme Participant

As part of your current or past involvement in the Mentoring Scheme, I would like to ask you to participate in an evaluation program. The information I collect may also eventually result in a publication.

In this evaluation I want to ask you some questions about various aspects of your job and career. You are of course entirely free to not participate in this evaluation process or to decline to answer particular questions. Any information you provide will be anonymous and confidential.

I hope that you find the questions relevant and interesting and greatly appreciate your assistance.

Your Personal Code

We have collected information from you in the past. In order to be able to match your initial responses with your later responses, we would like you to place a personal code on this booklet. Only you will know your personal code.

For this code, please write the day and month of your birth followed by the first and last letter of your mother’s maiden name.

For example: If you were born on the 7th of February and your mother’s maiden name was Cook your code would be 72CK

Write Your Personal Code Here: ______________________

Group 1 version  Once the enclosed data have been recorded, this cover sheet will be removed

Yours Sincerely,

Maria Gardiner
Coordinator, Mentoring Scheme for Early Career Women Researchers
A. Please indicate (by circling the appropriate number) how you would rate yourself in each of the following areas.

<table>
<thead>
<tr>
<th>Very Poor</th>
<th>Poor</th>
<th>Okay</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Please indicate your judgement of your current capacity to:

1. contribute to the university 1 2 3 4 5
2. understand the university culture 1 2 3 4 5
3. set work-related goals 1 2 3 4 5
4. confidently promote yourself 1 2 3 4 5
5. work to a plan 1 2 3 4 5
6. approach colleagues for assistance 1 2 3 4 5
7. conduct research 1 2 3 4 5
8. write for publication 1 2 3 4 5
9. write research grant applications 1 2 3 4 5
10. balance research with teaching and administration 1 2 3 4 5
11. present your research at a conference 1 2 3 4 5

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B. Below are some statements that women have made in relation to their academic careers. Please indicate (by circling the appropriate number) how much each statement applies to you.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Disagree Slightly</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree Slightly</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I feel like I don’t really know how to do research 1 2 3 4 5 6 7
2. Doing research feels overwhelming 1 2 3 4 5 6 7
3. There is not enough time to do research 1 2 3 4 5 6 7
4. It is hard to know where to start when doing research 1 2 3 4 5 6 7
5. I feel resentful about the expectation to carry out research 1 2 3 4 5 6 7
6. It is difficult to know how to balance research with other duties 1 2 3 4 5 6 7
7. Research is not all that important to me 1 2 3 4 5 6 7
8. I think that my track record isn’t good enough to get a research grant 1 2 3 4 5 6 7
9. I am unsure of how to apply for a research grant 1 2 3 4 5 6 7
10. I don’t have many people that I can discuss my research career with 1 2 3 4 5 6 7
11. I do not have an appropriate role model for my career 1 2 3 4 5 6 7

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C. We now want to ask you to rate various statements that describe how you might feel about your job. Please read the instructions for each part carefully, and answer each question.

Listed below are various statements with which you may agree or disagree. For each one, would you indicate your level of agreement by circling the appropriate number on the following scale:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Disagree Slightly</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree Slightly</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

**Career Satisfaction**

1. I am satisfied with the success I have achieved in my career  
2. I am satisfied with the progress I have made toward meeting my overall career goals  
3. I am satisfied with the progress I have made toward meeting my goals for income  
4. I am satisfied with the progress I have made toward meeting my goals for advancement  
5. I am satisfied with the progress I have made toward meeting my goals for the development of new skills

**Job Satisfaction**

1. Generally speaking, I am very satisfied with this job  
2. I frequently think of quitting this job  
3. I am generally satisfied with the kind of work I do in this job

**Career Planning**

1. I have not really decided what my career objectives should be yet  
2. I have a plan for my career  
3. I have a strategy for achieving my career goals  
4. I know what I need to do to reach my career goals  
5. My career objectives are not clear  
6. I change my career objectives frequently
D. We would like you to indicate how often over the past MONTH you have experienced the following feelings whilst at work, by circling the appropriate number of the following scale:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>All the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feeling positive at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2. Feeling tense at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>3. Feeling enthusiastic at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4. Feeling afraid at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>5. Feeling proud at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>6. Feeling unhappy at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>7. Feeling cheerful at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8. Feeling anxious at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>9. Feeling happy at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>10. Feeling negative at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>11. Feeling uneasy at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>12. Feeling energised at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>13. Feeling depressed at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>14. Feeling delighted at work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

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E. We would now like to ask your opinion of the impact of the mentoring scheme.

1. Looking back now, what would you say was the greatest benefit you received from participating in the mentoring scheme?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________

2. What is one tangible, definable outcome you would say occurred as a result of your involvement in the mentoring scheme?

_____________________________________________________________________
_____________________________________________________________________
_____________________________________________________________________
3. Can you describe any effect you feel the mentoring scheme has had in relation to promotion?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

4. Can you describe any effect you feel the mentoring scheme has had in relation to publishing your research?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

5. Can you describe any effect you feel the mentoring scheme has had in relation to obtaining research grants?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

6. Are there any comments you would like to make about your involvement in the mentoring scheme?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

Thank you for answering these questions.
Appendix B: Inferential Statistics for Objective Career Data

Promotions
As shown in Table B, the percentage of initial mentees promoted is consistently higher than the percentage of controls promoted. The proportion of the initial group of mentees promoted by the year 2003 is significantly higher than the proportion of controls promoted ($p < .01$).

Table B. Results of inferential tests comparing initial mentees and controls on number promoted (cumulative) for the period 1998 to 2003.

<table>
<thead>
<tr>
<th>Percent promoted (cumulative)</th>
<th>Initial mentees</th>
<th>Controls</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>13.6%</td>
<td>11.1%</td>
<td>.09</td>
<td>.765</td>
</tr>
<tr>
<td>1999</td>
<td>16.7%</td>
<td>22.7%</td>
<td>.35</td>
<td>.555</td>
</tr>
<tr>
<td>2000</td>
<td>42.9%</td>
<td>29.3%</td>
<td>1.15</td>
<td>.285</td>
</tr>
<tr>
<td>2001</td>
<td>50.0%</td>
<td>33.3%</td>
<td>1.54</td>
<td>.214</td>
</tr>
<tr>
<td>2002</td>
<td>57.9%</td>
<td>39.5%</td>
<td>1.73</td>
<td>.188</td>
</tr>
<tr>
<td>2003</td>
<td>68.4%</td>
<td>44.4%</td>
<td>2.87</td>
<td>.090</td>
</tr>
</tbody>
</table>

Initial mentees: $n =$ between 19 and 22
Controls: $n =$ between 37 and 46

Grants
The results of the t-tests comparing grant income for initial mentees and controls are displayed in Table C. Although few significant results were found, this is most likely due to the small sample size and the high variability in grant amounts received. As such, examining the means for each group provide a better perspective on the data. The means clearly indicate that the group of initial mentees received more grant income than controls, across almost all comparison periods.

Overall, the initial mentees received significantly more from internal grants than did controls, $t(21.11) = 2.15$, $p = .044$ and also received more grant money overall, $t(24.28) = 1.91$, $p = .068$. 

53
Table C. Results of inferential tests comparing initial mentees and controls on grant income for the period 1999 to 2004.

<table>
<thead>
<tr>
<th></th>
<th>Mean amounts</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial mentees</td>
<td>Controls</td>
<td>t</td>
<td>df</td>
<td>p</td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$3649</td>
<td>$476</td>
<td>2.27*</td>
<td>26.66</td>
<td>.031</td>
</tr>
<tr>
<td>external</td>
<td>$4453</td>
<td>$1683</td>
<td>1.00</td>
<td>62</td>
<td>.319</td>
</tr>
<tr>
<td>total</td>
<td>$8102</td>
<td>$2159</td>
<td>1.33*</td>
<td>23.34</td>
<td>.195</td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$14088</td>
<td>$0</td>
<td>1.50*</td>
<td>20</td>
<td>.149</td>
</tr>
<tr>
<td>external</td>
<td>$9605</td>
<td>$5382</td>
<td>.49</td>
<td>59</td>
<td>.626</td>
</tr>
<tr>
<td>total</td>
<td>$23693</td>
<td>$5382</td>
<td>1.48*</td>
<td>28.53</td>
<td>.149</td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$4707</td>
<td>$193</td>
<td>2.22*</td>
<td>20.37</td>
<td>.038</td>
</tr>
<tr>
<td>external</td>
<td>$2739</td>
<td>$2577</td>
<td>.05</td>
<td>58</td>
<td>.959</td>
</tr>
<tr>
<td>total</td>
<td>$7446</td>
<td>$2770</td>
<td>1.33</td>
<td>58</td>
<td>.185</td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$813</td>
<td>$180</td>
<td>.76*</td>
<td>19.81</td>
<td>.457</td>
</tr>
<tr>
<td>external</td>
<td>$16870</td>
<td>$405</td>
<td>1.41*</td>
<td>18.04</td>
<td>.173</td>
</tr>
<tr>
<td>total</td>
<td>$17683</td>
<td>$586</td>
<td>1.48*</td>
<td>18.05</td>
<td>.157</td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$0</td>
<td>$0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>external</td>
<td>$1114</td>
<td>$2343</td>
<td>-.416</td>
<td>53</td>
<td>.679</td>
</tr>
<tr>
<td>total</td>
<td>$1114</td>
<td>$2343</td>
<td>-.416</td>
<td>53</td>
<td>.679</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>internal</td>
<td>$0</td>
<td>$0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>external</td>
<td>$7113</td>
<td>$2257</td>
<td>.867</td>
<td>52</td>
<td>.390</td>
</tr>
<tr>
<td>total</td>
<td>$7113</td>
<td>$2257</td>
<td>.867</td>
<td>52</td>
<td>.390</td>
</tr>
<tr>
<td>all internal grants</td>
<td>$22291</td>
<td>$778</td>
<td>2.15*</td>
<td>21.11</td>
<td>.044</td>
</tr>
<tr>
<td>all external grants</td>
<td>$37912</td>
<td>$12837</td>
<td>1.50*</td>
<td>28.74</td>
<td>.145</td>
</tr>
<tr>
<td>grand total</td>
<td>$60204</td>
<td>$13615</td>
<td>1.91*</td>
<td>24.28</td>
<td>.068</td>
</tr>
</tbody>
</table>

* = Levene’s test for equality of variances violated, which accounts for the low incidence of statistical significance.
Initial mentees : n = between 19 and 22
Controls : n = between 35 and 42
Another comparison is between whether mentees and controls were able to obtain grants. As such, chi-square analyses were performed comparing the number of mentees and controls who obtained a research grant.

**Table D. Percentage of initial mentees and controls who received grants for the period 1999 to 2004.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent receiving grants</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial mentees</td>
<td>Controls</td>
<td>$\chi^2$</td>
<td>p</td>
</tr>
<tr>
<td>1999</td>
<td>40.9%</td>
<td>18.6%</td>
<td>3.75</td>
<td>.053</td>
</tr>
<tr>
<td>2000</td>
<td>47.6%</td>
<td>9.8%</td>
<td>11.39</td>
<td>.001</td>
</tr>
<tr>
<td>2001</td>
<td>33.3%</td>
<td>10.0%</td>
<td>5.07</td>
<td>.024</td>
</tr>
<tr>
<td>2002</td>
<td>15.8%</td>
<td>5.3%</td>
<td>1.75</td>
<td>.185</td>
</tr>
<tr>
<td>2003</td>
<td>10.5%</td>
<td>8.1%</td>
<td>.090</td>
<td>.764</td>
</tr>
<tr>
<td>2004</td>
<td>15.8%</td>
<td>8.3%</td>
<td>.711</td>
<td>.399</td>
</tr>
</tbody>
</table>

As can be seen in Table D, a higher percentage of mentees received grants across all years, and in 1999, 2000 and 2001 this difference achieved statistical significance (p < .1).

**Publications**

T-tests comparing the number of publications across initial mentees and controls yielded no significant differences, although as for grant income, this may be due to the relatively small sample size. The mean numbers of publications indicate that the initial mentees secured more DEST-submitted publications than did the controls, whilst the control participants achieved more non-submitted publications.
Table E. Results of inferential tests comparing initial mentees and controls on number of publications for the period 1999 to 2003.

<table>
<thead>
<tr>
<th></th>
<th>Initial mentees</th>
<th>Controls</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1999</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEST-submitted</td>
<td>.45</td>
<td>.43</td>
<td>.12</td>
<td>64</td>
<td>.908</td>
</tr>
<tr>
<td>Non-submitted</td>
<td>.95</td>
<td>1.00</td>
<td>-.15*</td>
<td>63.81</td>
<td>.881</td>
</tr>
<tr>
<td>total</td>
<td>1.41</td>
<td>1.43</td>
<td>-.05</td>
<td>64</td>
<td>.960</td>
</tr>
<tr>
<td><strong>2000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEST-submitted</td>
<td>.67</td>
<td>.67</td>
<td>.00</td>
<td>61</td>
<td>1.00</td>
</tr>
<tr>
<td>Non-submitted</td>
<td>1.33</td>
<td>1.48</td>
<td>-.14</td>
<td>61</td>
<td>.852</td>
</tr>
<tr>
<td>total</td>
<td>2.00</td>
<td>2.14</td>
<td>-.12</td>
<td>61</td>
<td>.902</td>
</tr>
<tr>
<td><strong>2001</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEST-submitted</td>
<td>1.14</td>
<td>.63</td>
<td>1.43</td>
<td>60</td>
<td>.159</td>
</tr>
<tr>
<td>Non-submitted</td>
<td>1.05</td>
<td>2.02</td>
<td>-1.32</td>
<td>60</td>
<td>.192</td>
</tr>
<tr>
<td>total</td>
<td>2.19</td>
<td>2.66</td>
<td>-1.53</td>
<td>60</td>
<td>.601</td>
</tr>
<tr>
<td><strong>2002</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEST-submitted</td>
<td>.79</td>
<td>.56</td>
<td>.75</td>
<td>56</td>
<td>.457</td>
</tr>
<tr>
<td>Non-submitted</td>
<td>1.37</td>
<td>.72</td>
<td>1.22</td>
<td>56</td>
<td>.226</td>
</tr>
<tr>
<td>total</td>
<td>2.16</td>
<td>1.28</td>
<td>1.36</td>
<td>56</td>
<td>.181</td>
</tr>
<tr>
<td><strong>2003</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEST-submitted</td>
<td>.74</td>
<td>.39</td>
<td>1.32</td>
<td>55</td>
<td>.192</td>
</tr>
<tr>
<td>Non-submitted</td>
<td>1.21</td>
<td>1.42</td>
<td>-.25</td>
<td>55</td>
<td>.804</td>
</tr>
<tr>
<td>total</td>
<td>1.95</td>
<td>1.82</td>
<td>.14</td>
<td>55</td>
<td>.889</td>
</tr>
<tr>
<td>all DEST-submitted publications</td>
<td>3.50</td>
<td>2.39</td>
<td>1.33</td>
<td>66</td>
<td>.189</td>
</tr>
<tr>
<td>all non-submitted publications</td>
<td>5.45</td>
<td>5.89</td>
<td>-.19</td>
<td>66</td>
<td>.847</td>
</tr>
<tr>
<td><strong>grand total</strong></td>
<td>8.95</td>
<td>8.28</td>
<td>.242</td>
<td>66</td>
<td>.809</td>
</tr>
</tbody>
</table>

* = Levene's test for equality of variances violated
Initial mentees : n = between 19 and 22
Controls : n = between 38 and 46
Appendix C: Outliers

Of the 46 participants in the initial control group, two left the University part-way through 1999, so their data was not included in these analyses. Of the remaining 44, two participants were classified as outliers and hence removed, leaving a sample size of 42.

One control was initially a Level B academic but became a professor in a very short period of time as she already had a highly developed research infrastructure. As such, she was removed from these analyses. A second control was also judged to be an outlier and was also removed. This person was a junior investigator and received a grant of over half a million dollars as a result of a grant submitted by a large team. These two outliers can be seen in Figure O.

![Boxplot showing distribution of grant amounts for initial mentees and controls, and the two outliers, for the years 1999 to 2004.](image.png)

Figure O. Boxplot showing distribution of grant amounts for initial mentees and controls, and the two outliers, for the years 1999 to 2004.
### Appendix D: Inferential Statistics for Subjective Career Data

**Table F. Means (and standard deviations) for each subjective career outcome for 1998, 1999 and 2004.**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>1998 (n = 18)</th>
<th>1999 (n = 18)</th>
<th>2004 (n = 12)</th>
<th>1998 (n = 40)</th>
<th>1999 (n = 40)</th>
<th>2004 (n = 22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>capacity as an academic</td>
<td>34.86 (4.02)</td>
<td>36.83 (5.49)</td>
<td>42.05 (3.37)</td>
<td>37.94 (4.85)</td>
<td>38.20 (3.73)</td>
<td>37.05 (5.70)</td>
</tr>
<tr>
<td>concerns about research</td>
<td>44.17 (11.30)</td>
<td>40.94 (10.73)</td>
<td>36.75 (10.66)</td>
<td>40.18 (11.28)</td>
<td>40.95 (10.72)</td>
<td>37.50 (10.98)</td>
</tr>
<tr>
<td>career satisfaction</td>
<td>21.11 (5.56)</td>
<td>22.17 (6.12)</td>
<td>21.13 (5.19)</td>
<td>24.25 (6.54)</td>
<td>25.87 (4.55)</td>
<td>23.09 (7.87)</td>
</tr>
<tr>
<td>job satisfaction</td>
<td>13.33 (2.63)</td>
<td>15.50 (3.62)</td>
<td>13.67 (3.92)</td>
<td>13.60 (2.23)</td>
<td>15.06 (4.23)</td>
<td>14.43 (3.92)</td>
</tr>
<tr>
<td>career planning</td>
<td>22.11 (3.68)</td>
<td>27.17 (8.19)</td>
<td>25.17 (7.53)</td>
<td>23.33 (3.73)</td>
<td>31.59 (10.46)</td>
<td>29.82 (6.95)</td>
</tr>
<tr>
<td>work-related distress</td>
<td>23.84 (8.82)</td>
<td>24.29 (7.88)</td>
<td>27.59 (7.63)</td>
<td>20.99 (7.79)</td>
<td>23.58 (11.03)</td>
<td>23.64 (10.86)</td>
</tr>
<tr>
<td>work-related morale</td>
<td>33.46 (7.91)</td>
<td>32.18 (7.46)</td>
<td>23.55 (8.91)</td>
<td>33.08 (7.02)</td>
<td>31.01 (7.36)</td>
<td>28.82 (10.14)</td>
</tr>
</tbody>
</table>

*a* There was a main effect of time for capacity as an academic, F(2, 144) = 3.90, p = .022, with capacity increasing over time for all participants. However, there was a significant group by time interaction, F(2, 144) = 6.15, p = .003. Post-hoc tests revealed that the increase over time was due to the mentees, F(2, 45) = 9.50, p < .001, while the controls’ capacity remained fairly constant, p = .718. There was no difference between the initial mentees and the controls at 1998 (p = .053) or at 1999 (p = .345), however at 2004, mentees had a higher capacity as an academic than did controls, t(32) = -2.79, p = .009.

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7 Three outliers were excluded from all analyses; the two academic women mentioned earlier, and one control who was working in a research-only position.
There was a main effect of group, $F(1, 142) = 11.11, p = .00$, where controls generally had higher levels of career satisfaction than did mentees. However, post-hoc t-tests revealed that, while controls had higher levels of satisfaction at 1998, $t(56) = 3.06, p = .003$ and at 1999, $t(54) = 2.52, p = .015$, there was no difference between the groups at 2004 ($p = .444$).

A main effect of time was found, $F(2, 142) = 3.38, p = .037$, revealing that levels of job satisfaction changed over time. However, post-hoc tests indicate that this change is apparent when considering all participants together, as no changes over time were found for either mentees ($p = .135$) or controls ($p = .238$).

There was a main effect of group, $F(1, 142) = 7.34, p = .008$, with controls having a higher level of career planning than mentees. However, this difference disappeared when considering each time-point separately; there were no differences between groups at either 1998 ($p = .150$), 1999 ($p = .168$) or 2004 ($p = .079$). There was an additional main effect of time for career planning, $F(2, 142) = 11.41, p < .001$. Planning increased from 1998 to 1999 ($p < .001$), and was also higher at 2004 than at 1998 ($p = .001$). There was no difference between career planning at 1999 and 2004 ($p = 1.00$).

There was a main effect of time for work-related morale, $F(2, 140) = 8.14, p < .001$. Morale was found to be lower at 2004 than at 1998 ($p = .001$) and at 1999 ($p = .025$). This was due to the mentees, for whom morale changed over time, $F(2, 43) = 5.76, p = .006$, while for controls, it remained fairly constant ($p = .099$). However, there was no significant difference between the mentees and controls by 2004, $p = .082$. 