

Inspiration, Perspiration or Support Structures?

Presentation to Women in Astronomy Workshop

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by

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Scope of Talk

- Thumbnail of my background in science
- Decision points and experience
- Analysis of career stages and options for women scientists
- What worked and why?
- What are some potential pitfalls?
- Learnings for women scientists and their managers



My Background in Brief

- Decided to become a scientist at a young age
 - Father an engineer – the “encouragement”
 - NASA and the space race – the “inspiration”
 - Scholarship to ANU – the “means”
- PhD for career as an academic was my aim
 - Change of direction to chemistry
 - Scholarship (& sporting career) in Switzerland
- First postdoc at University of Zurich
- Returned to Australia on QEII fellowship
 - My Swiss husband accompanied me
 - However, within 18 months I had left research for CSIRO management stream
- Appointed Registrar of ANU at age 32
- All positions since have had a scientific/engineering flavour

***Scientific training a crucial success factor for all
my management roles***



Decision Points & Experience

- Had early encouragement and the means to pursue my dream
- Friend support structure at uni
 - decided me on chemistry
 - had toyed with astronomy, but put off by expected night shift work!
- Heavy emphasis on funding for research in Switzerland
 - meant my PhD group and first postdoc team was well endowed
 - my next research group in Australia was not
- CSIRO HQ provided fabulous strategic opportunity
 - new research vessel
 - Australia Telescope
 - caught the engineering bug
- Supportive husband and good childcare
 - meant my career did not miss a beat



Career Stages for Women Scientists

- School subject choices are crucial
- First degree experience is influential for direction
- Reward of discovery vs risk and poor pay of the PhD years
- Once this far, the juggling really begins at first postdoc stage
 - The intense competition for research grants (or telescope time for astronomers), position tenure, then group leadership
 - Requires resolve, passion, as well as different management support at each stage
- Do not ignore consideration of broader career opportunities that can still advance science
 - My passion became large project engineering, for the economy or to advance science
 - Skilled enough to manage the structures at GM level, without performing all the detail



Possible Career Options

- Science degree
 - Further study, roles in public policy, program delivery, science communication, research assistant/officer, quality management, ...
- Engineering degree
 - Further study, project management, R&D, instrument development, facility operations, ...
- PhD
 - Research career, scientific assistant to senior management, technology transfer, strategic planning, staff or line roles in company operations, ...
- PhD + Operational Experience
 - Senior adviser to government, managing major business lines, non-executive director roles, ...

Scientific education to bachelor or PhD level opens doors to many careers



What Worked and Why?

- Postponed having a family until in a senior management position
 - Then able to leverage my staff, ie. direct the work rather than do it personally
 - Alternatively, do it early while still at uni!!
- Time at ANU as Registrar opened my eyes
 - Lack of senior women around me meant something was amiss
 - Establishment of “women returners” PostDoc fellowship
 - Established meaningful job-share positions
 - But could have done more!!!
- Universities and businesses are now much more aware of cost of wasted human resources
 - Training a woman researcher has cost money, so well worth retaining them
 - So these days it is conference travel money, childcare assistance, making longer allowance for publications record, teaching relief, research assistant funding



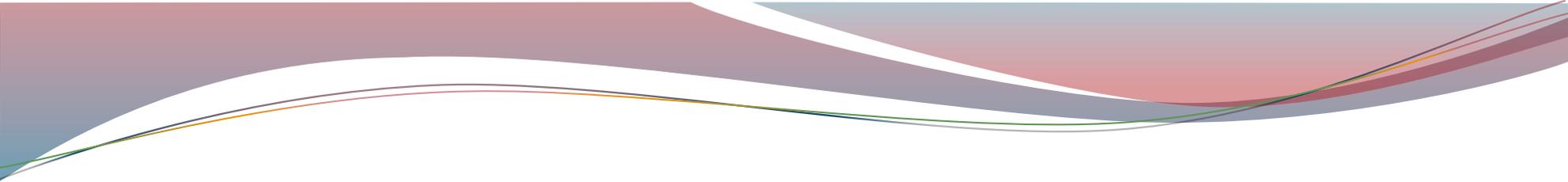
Potential Pitfalls?

- Being a two-career family in academia
 - Compromise necessary by one or both parties
 - But universities and research institutes now more enlightened re this risk
- Availability of childcare or a partner who does not share family duties
 - Can impact motivation for research
 - Certainly results in loss of research time or seniority
- A non-inclusive culture, or uncompromising work environment, raises the barrier
 - The Defence culture, certain engineering environments
 - Timing of meetings, carer's leave etc
- Lack of self-confidence
 - A mentor or coach is important, helps you face your own fears and sort through career aims and strategies



Lessons Learned

- Too many successful managers still believe that hard work and merit are the only factors necessary for advancement
 - Have ignored the systematic barriers that disadvantage certain groups (eg. women) for too long
 - Impact on bottom lines becoming clearer, so now there's incentive to change
- Survey reasons for women dropping out, as well as initiatives that have worked
- Particular issues for astronomers, eg. the remoteness, multi-authored papers, length of non-tenured positions
 - Will observing automation help?
 - My time with Space Industry Innovation Council and particularly AAO is giving me a new perspective
- Government research funding policies need to be flexible
 - Measurement of “recent research record”
 - Length of positions
 - Permitted uses for grant funding



Q & A Time