Developing an academic career

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Outline

- Academic planning

- Teaching & Supervising

- Research

- Service

- Leadership

- Supervising PhDs

- [Research (and other) Planning - for another day…]

- Managing time

About me

- Academic for 21 years – 17 in NZ, 4 in Australia

- BSc(Hons), MSc, PhD all from Uni Auckland

- 12 years (so far!) as Head, Deputy Head, Dean, Deputy Dean, Director, …

- Teaching – Software Engineering team projects, software design, project management, HCI, programming, databases

- Research – 260+ refereed publications, over $14m NZD in external research grants, over 50 PhD and Masters by research students

Greetings / Academic or no?

- Go around room:

  - Who are you, where from?

  - Why are you an academic / want to be an academic?

  - What other options did / do you have?

  - What do you want to achieve in your career?

- Being an academic isn't the only thing you can usefully do with your life / your PhD / etc!!!

- If you hate it / its too pressured etc – get out!!

- There are LOTS of other options… esp for CS/SE academics

Academic Careers 101

- Hard to get a post-doc

- Hard (very!) to get a permanent (or even fixed-term) T&R position

- Rewarding in many ways

    - What do you find rewarding?

- Challenging in many ways

    - What do you find challenging?

- IMO – really need to PLAN to be as successful as you can be…

Planning

- 3-5 years

- Teaching: areas want to teach, specific units, teaching research/scholarship want to do, new things want to try ("innovations")

- Research: projects want to work on, resources you need to do it, students to recruit, grants to apply for, papers to publish, networks to build – [I'll out my Research Planning talk off my Talks page…]

- Service: YES – its important!! - areas you want to "make a difference", ways you want to contribute, service to university vs discipline vs community vs to others…

    [which one am I doing while standing here?? ☺]

- Talk about with your Dept Chair, Supervisor – they will like someone this organised!! It might need a bit of give and take…

Teaching & Supervising

- I find this the most satisfying part of my job

- EVERYONE (typically) needs to teach

- It MUST be done well (or at least satisfactory++)

- Its not rocket science

- So saying – our students are getting more diverse, challenging, have mental health challenges, are doing part-time work, are taught on-line, …

- It's the part of your job you will 99% certain MAKE THE MOST DIFFERENCE IN THE WORLD

PhD / Masters Students

- Recruit good ones

- Look after them

- They are future "colleagues" – treat them as such

- Don't treat them as "paper generators"

- Build up a research group (by yourself or with other PhDs / colleagues)

- Some students do really well ; most be moderately well ; some struggle – its really hard to tell which will be which!

- You would be amazed (or not) how many academics do/don't do things above ☹

Students (cont)

- Supervise & work with students as a team – "joint supervision" concept

- Be organized – you & student (Work plans! Agendas!! Minutes!!!)

- Manage reading/writing carefully

- Manage email carefully

- Its not your PhD…

- I'll come back to all this again shortly…

Tips

- Treat students well – they are the next generation of IT professionals – and academics!

- Be consistent – marking, feedback, treatment of students

- Be organised – students ate really annoyed by disorganised lecturers

- DON'T change assessment during semester

- Answer questions promptly, be available (email or office or forum)

- Give sufficiently detailed feedback

- Get expert help for students with challenges

- You would be amazed how many academics don't (or do) many of the above… (or – maybe you wouldn't)

Research

- Its usually part of your job to do this – whether "technical" research or computing education research (or both)

- Do what you enjoy / have passion for vs what will bring the grants/students/papers – yes, I really said that ☺

- But – its an area where the bean counters can… easily count! So they do

- Typical "KPIs"
    - RHD students / completions / placements
    - Papers in high repute venues (don't waste time on weak ones)
    - External grant income
    - Collaborations / relationships incl industry
    - And increasingly – "impact"

Publishing

- Quality, quality, quality

- I am not a fan of venue rankings / impact factor etc. I do think there is (some) merit in citations

- Avoid "junk" venues / "write-only" venues...

- Target conferences to network and have impact

- Target conferences / journals to have impact

- Journal or Conference? What ratio??

- Perseverance – not just publications but also grants – is really a massively undersold virtue…

  - About 25-30% of my papers rejected
  - About 30% of my grants rejected

Grants

- Its part of your job to get external resourcing… especially these days of tight budgets

- Identify your strengths, target realistic things, get help – lots of it!

- Matthew effect – be co-CI with experienced person

- Planning really helps – what do you need to do to become competitive (may take years to build up to)

- All money spends just as good – lots in industry to be had if you learn the ways to get it/build relationships

- If at first you don't succeed… (me: >20 rejects; 34 successes)

Collaboration & Networking

- Good relationships will really help you:
    - References for jobs / refereeing for grants, papers
    - Collaboration on papers, grants
    - Co-supervision
    - Help make your work better known

- Really need to develop these from PhD days

- Multi-disciplinary research – two schools of though…

- Watch out for exploiters! (sadly)

- Today / this week is a great time to start :-D

- Write a blog if you feel like it, join ResearchGate, linkedin etc
    - "Altmetrics" – fad or future??

Tips

- Prioritize – what is most important? Enjoyable? Long-term impact??

- Focus on quality

- Mix of journals and conferences is good

- Develop a thick skin (referees can be v. brutal!!)

- Develop perseverance – you'll need it!

- Recruit, develop, work with, look after RHD students

- Develop mutually beneficial collaborative relationships

Service

- No one becomes an academic to do service (well – almost no one!)

- BUT – it's a really important part of academic life

- Lots of kinds:
  - Service to uni – committees, course co-ordinator, associate Dean, HoD, Dean etc
  - Service to discipline – refereeing, organising conferences, Associate Editor/Editor etc
  - Service to community incl industry – consulting, short courses, schools, NGOs, professional societies, etc

- Its important and it can be very satisfying – yes, I said that too!

Leadership

- Big "L" and little "I"…

- Personally – I have found this to be a very satisfying part of my academic service (I suppose why I keep doing!)

  - The HR meetings even aren't always THAT bad – although…

- Have a chance to make a much larger difference

- Have a chance to mold others careers / directions (for the better)

- Are "in the loop" for changes etc

- Like all service – MUST DO IT TO BEST ABILITY

- If I do a bad job as Dean / HoD – EVERYONE suffers!!!

Tips

- Service is not why we became academics – but it IS important part of being an academic

- Increasingly difficult to get promoted without a good service portfolio

- Not just refereeing – organizing, uni service, service to wider community

- There should be (serious) consequences to those who don't do or don't do it / do it well (and increasingly there is)

- Its actually (mostly) enjoyable work – yes, its true!!

Moving jobs (within or out of or into academia…)

- Sometimes you are a round peg in square hole

- Sometimes "better" opportunities arise

- Sometimes family or other considerations outweight professional considerations (e.g. my UofA -> SUT…)

- Moving institution is HARD, no matter what support given

  - And moving countries even harder!

- Moving to industry / from industry much harder again

- Sometimes its best to stay put

- Sometimes its best to go

Tips

- Don't burn bridges!!! No matter how upset, under-appreciated, etc you might feel…
  - The grapevine has a way of making it all known too

- Look VERY carefully before you leap

- ASK for things you want / need – don't be shy!!

- Get EVERYTHING you want / are promised in writing (not email – written, signed contract)

- Grass is most certainly not always greener

- It can be really hard (if not impossible) to go back
  - Especially if leave academia

Work to live, not live to work

- There is MUCH more to life than work…
    - E.g. I have wife, 5 children
    - They are WAY more important than – what I am doing now ☺

- It's a tragedy when work comes to dominate your time/life

- Maintain outside work/professional area interests

- Maintain outside contacts, friends, activities

- Strive for BALANCE in life – work is one component

Please – get help if you find you need it (stress, financial, relationship, conflict, …)

Supervision

Outline

- The problem…

- My supervision philosophy

- Research Group & joint supervision

- Work plans

- Writing (and reading!) training

- Meetings – group and individual

- Email

- Career development

The Problem

- My example:
    - Head of school & Director of research centre
    - Associate editor, Trans on SE, IEEE Software
    - On several steering committees, many conf committees
    - Write 10-15 papers per year
    - Teach
    - And…

- Supervise ~10 PhDs; 2-3 hons projects; 3-4 small team project groups
    - How does one manage to do a good job of this???

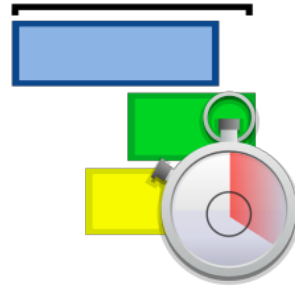## My (PhD) Supervision Philosophy

- ~~Student~~

- Junior colleague

- Mentor/mentoree

- Student makes the decisions; I advise

- Want to develop next generation of academics; next generation of industry R&D researchers

- PhD = research apprenticeship

- I even have a picture to show this … ☺

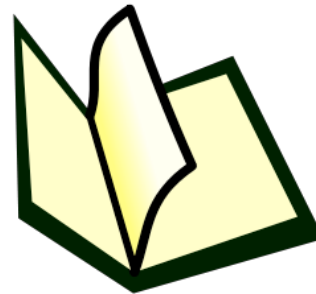John G's supervision Philosophies…   Swinburne

SCJC

YPNM

YMTD

DGEE

ITGT

PIGT

WIYT

OPSP

Tip 1 - Research Group/Joint supervision

- Get yourself a research group – create one with someone else if need to
  - Several students
  - 1-2 post-docs
  - 1-2 research assistants
  - 1-2 colleagues

- Get yourself a "joint supervisor"
  - Joint vs co-supervisor…
  - Joint supervision = joint planning; joint writing; joint meetings; joint problem-solving; joint everything
  - Hey – who was doing the paper work again…?

Tip 2 - Work Plans

- Organized people = (generally more) successful people

- Disorganized students = hard work

- A PhD is a project to manage (in essence, anyway)

- I like to have for every student:
  - Work plan (from proposal stage onwards)
  - Weekly report on progress/current/planned work
  - Discuss plan with student, joint supervisor, other students (in group)
  - Revise thesis work plan regularly (every 1-2 months)

Tip 3 - Writing (and reading!) training

- I like students to have thesis outline early (from start?!) in project

- Iterate on reports, papers, chapters:
  - Purpose/outline (10-15 bullet points)
  - Flesh out with illustrations, paragraph points
  - Share writing (papers)
  - Review chapter draft ONCE (unless very poor…)

- Reports VERY brief/to the point – I prefer PPT, "poster", 1 pager, bullet points vs paragraphs

- Literature review report one exception – in 1st 3-4 months; basis of lit review chapter; read lots!

Tip 4 - Meetings

- Group meetings throughout project

    - Lunch ☺, short reports, demos, workshop papers etc

- Weekly then as-needed

- Agenda up front (else no meeting)

- Action items

- Keep record of (prefer wiki)

    - Keep documents organized with

Tip 5 – Managing Email

-   I am a 150-200 a day (after spam deleted)!! :-o

-   To the point; short; as needed

-   Prefer meeting with PhD students ☺

-   Delete them all if they get overwhelming – if its really important then they'll come back…

How Students Can Help You…

- Supervision… (!!)

- Helping new students to acclimatize: library, lab, PC support, accommodation, networks…

- Teaching

- Admin

- Industry projects

- Visitors e.g. Chinese delegation example

- Career

- And of course – choose the right students!!!

Summary

- Prioritize – what is most important? Enjoyable? Long-term impact??

- Supervise & work with students as a team

- Be organized – you & student (plans!)

- Manage reading/writing carefully

- Manage email carefully

- Its not your PhD…

Research Planning

Outline

- Motivation

- Background

- The concept of the "Research Plan"

- Elements of a RP

- Using a RP – mentor and mentoree

- How NOT to use a RP…

- Summary

Motivation

- Research is the element of academic life many (most in my experience…) academics enjoy the most

- We also, like most people, like to be "successful":
  - advance science & engineering knowledge and practice;
  - publish papers in high repute venues;
  - secure grants to resource our research;
  - attract and work with talented students and colleagues;
  - advance our careers commensurate with this success;
  - have "impact" with our research – ultimately changing the field in which we work

But…

- Its (a lot) harder than we thought, were led to believe…
  - Competition for grants
  - Competition for resources
  - Finding and supervising students, post-docs
  - Building effective collaborations
  - Writing papers
  - Getting papers published
  - Need to spend time on other tasks
  - Lack of time

Background

- When I was Deputy Head Research for the Dept of Electrical & Computer Engineering at the University of Auckland…

- …we found ECRs (and many others – including several Profs!) were struggling to advance their research careers

- Dept (and Faculty) were struggling to improve research performance

- No effective mentoring programme existed

- We wanted to assist them – work with them and better support them individually and at Dept/Faculty levels

Background

- After talking with many researchers:

    - Found many had no clear idea where they were going, where they wanted to get to, where they were at now – nor what they were capable of

    - Found many discouraged by lack of grant success, rejections of papers, struggling to recruit good RHD students, struggling to develop effective collaborations

    - Found all had excellent training in scientific and engineering methods, many significant project management experience

    - Found most had no structured approach whatsoever to their work – research or teaching or professional development

    - Found they seldom conveyed this to HoDs, ADRs…

The concept of the "Research Plan"

- Actually *think* about one's (research) career: where at; going; want to get to; how to get there

- Capture key research goals, objectives, metrics – short range (1-2 years) and longer (3-5 years)

- Identify key needs, inhibiting issues

- Provide a mentor to work with researcher to assist

- Use to set and report PDR-style objectives

- Feed individual goals into research group, Department, Faculty planning processes (resourcing, external grant support, internal funding schemes, sabbaticals, etc)

Elements of a Research Plan

- The form I use here is a Departmental RP developed by myself and Dr Jim McMillan, research advisor to the Faculty of Engineering, University of Auckland

- Had other RPs: ECR-specific; for non-research active staff (to help them develop research activity); for HoDs (to capture DEPARTMENT RP vs individual…)

- Key Elements:
  - Research Vision and Directions
  - Statement of goals: "faculty" and "department"
  - Needs/limitations

Vision and directions

- Articulate these:

    - Research statement: area, key achievements to date, focus
    - Recent, current projects, key achievements
    - Key medium-term goals: "big hit" paper; promotion; grant; membership; editorial board; …
    - Key long-term goals

- We augmented this with a research grant abstract

    - Make people think about key short-term grant to achieve
    - Expected to submit – might need collaborators
    - Idea was to increase # and quality of grants from Faculty

        - Could apply to other outcomes e.g. RHD recruitment, industry, …

Goals

- "Faculty level":

  - Publications to submit – title, venue
  - Funding applications to submit – topic, granting body, collaborators
  - "research associates" – Hons, RHD, post-doc, …

- "Department level":

  - Incoming visitors – who, why, likely outcomes, how fund
  - Visits – where, why, likely outcomes, how fund
  - Conferences – which, why, likely outcomes, how fund
  - Involvement with Industry and Consulting – which companies, expected outcomes

Issues

- Limitations – what is limiting your research programme???

- Needs – state key needs (short term and longer term) – often described as "CAPEX Dreams" (i.e. equipment) by Engineers!

- Ways the Department / Faculty / University can help – just like it says!

  - We *really* wanted answers to this!
  - We couldn't "fix" all of these of course – but as an HoD/ADR/mentor its really, really useful to know and discuss…

Using a RP

- You can develop & use by yourself

  - I set my own research plan each year & review each year

- You can use with a research mentor – helps to set the scene for conversation

- Can augment the Academic Performance Review – again as a conversation piece, NOT a metrics-driven set of too weak / too ambitious targets…

- Very useful for feeding into Dept/Faculty planning – very hard to get this info otherwise

  - E.g. how can we best spend Dept/Faculty research $?

How not to use…

- As a bureaucratic exercise – "I've done my RP, now to file it away…" [This is easier said than done btw…]

- As a record of research planning – but with no action by researcher, mentor, HoD, ADR, Dean…

- Under-ambitious – if don't stretch oneself, will never achieve full potential

- Over-ambitious - need also to be realistic and work within one's capabilities; play to one's strengths

- To the exclusion of other academic goals:

  - Teaching – should have a plan too!

  - Leadership and service – should have a plan too!

Summary

- Academics – especially Engineering academics - are notoriously bad planners of their own careers, research

- A research plan forces one to identify current performance and behaviors and desired ones – and ways to start getting there

- A research plan helps articulate in a structured way these visions, directions, goals, limitations

- Instead of wanting "better research performance" as an individual or Dept/Faculty – actually does something about it… ("walk the talk" as we say in New Zealand…)

And finally – my tips for managing a busy life…

Slightly more detail about me…

- 3 current ARC grants, 1 NICTA grant

- 11 PhDs (6 main, 5 2nd / 3rd)

- [Currently not teaching a unit, but usually I do]

- 12 staff reporting directly to me (over 70 indirectly)

- 25 papers published / accepted in 2013 (10-30 pages each, 2-4 authors each)

- Over 100 papers refereed 2013

- Over 20 meetings per week on average 2013

- On the FICT workload model, I have been over 2,000 hours allocated each of the last four years (max is theoretically 1620 hours)

… and Dean of School of Software & Electrical Engineering from Jan 2014!!!

…and yet

- I don't work on the weekends

- I don't work in the evenings

- I have been Head / Dep Head / D Dean / about-to-be Dean for 12 of the past 13 years

- I'm the most productive researcher in SUCCESS (pick whatever metrics you want)

- I get excellent teaching evals

- I'm seen as a very reliable administrator (i.e. I get things done on time / good quality)

- I look after people (students, staff) pretty well (IMO anyway)

So how do I do it???

~~Crazy genius-type?~~

~~Completely self-deluded?~~

✓ ✓ Well-organised?

✓ Delegate well?

✓ ✓ ✓ Prioritise, prioritise, prioritise

Organised

- Use Outlook calendar very extensively

- Use reminders on laptop, iPhone exensively

- To-dolists DON'T work for me - I use my email inbox as my "to-dos" and "book" time in my calendar for specific tasks
    - If inbox scrolls off screen, I know I'm in big trouble!! ☺

- Try and estimate time carefully for tasks – not under, but not over either

- Balance effort on different tasks

- I stop after allocated time up – good enough is good enough!!!

- I just say when I can't do things – happens often!

- Try out keeping timesheet, different ways to organise your time

Delegation

- Starting to learn how to work well with an Executive Assistant!!! (its taken years)

- Starting to learn how to rely on others heavily (and appropriately) – students, post-docs, colleagues, family – helping them and myself

- Allowing others to make mistakes is generally a helpful thing for me and them

- Need to give authority with responsibility

- People will repay your confidence in them (many times over)

- Pretty good at NOT delegating when shouldn't (for range of reasons)

Prioritisation

- Family ALWAYS comes first

- People ALWAYS come first – world can survive pretty well without yet another John G paper I have found…

- 80/20 rule really works – its working out which is which is the hard bit!

- Some admin stuff despite being boring / frustrating / annoying HAS to be done and HAS to be timely – for everyone's sake

- Some things just can't be not done / done late / poorly done

- Sometimes have to let some tasks / people down

- Some things just don't get done – if its 4.45pm Friday, it can wait to Monday!!! (well, it will just have to!)

Finally…

- Life is too short to be under stress / pressure all the time

- Work needs to be enjoyable / fun

- Need to reduce the bad stuff / boring stuff / frustrating stuff as much as can, BUT do need to work out ways to cope with a certain amount of it – or find something else to do!

- Performance expectations have gotten out of hand in many fields including academia in recent years (well > 10!)…

- … but people are often their own worst enemies in terms of mis-spent time, lack of planning, lack of prioritisation

- There is more to life than work – much more!

- I could have written more, tidied this up, made notes, etc etc etc

  - But had other things needed to do!

Questions? Discussion…

Swinburne
▶think forward