

How to be an effective researcher

for postgraduate researchers

One-day version
Programme leader manual

Vitae resources: developing the
skills and careers of researchers

Vitae is supported by Research Councils UK (RCUK),
managed by CRAC: The Career Development Organisation
and delivered in partnership with regional Hub host universities

Conditions of use

'How to be an effective researcher for postgraduate researchers' published by The Careers Research and Advisory Centre (CRAC) Limited

Vitae, © 2014 The Careers Research and Advisory Centre (CRAC) Limited.

This document is made available to higher education institutions (HEIs) and Vitae members strictly for non-commercial use subject to the following conditions. Material from this document may be adapted, copied and reproduced in any medium by HEIs in the United Kingdom for internal and non-commercial, training and development purposes, provided in all cases that the original source is acknowledged as detailed below. Any material relating to the Researcher Development Framework (RDF) or Researcher Development Statement (RDS) is subject to the conditions of use detailed at www.vitae.ac.uk/rdfconditionsofuse.

UK HEIs outside of the UK, and other [Vitae member organisations](#) who operate outside of the UK HEI sector, may only use this document as detailed above with their own staff and registered students. You must contact enquiries@vitae.ac.uk for any other use, including but not limited to, use with partnered research institutes and other associated organisations which are not explicitly included in your Vitae membership agreement.

Intellectual Property Rights

All rights in material from this document shall remain with CRAC and, save as expressly set out in these terms or as permitted in accordance with the Copyright, Designs and Patents Act 1988 (or equivalent provisions under the laws of copyright in force in other countries), are reserved. The copyright and any other intellectual property rights in any adaptations of this document shall belong to and be assigned (by way of present assignment of future rights) to CRAC.

Acknowledgement

Any reproduction, including by way of adaptation, of these materials shall include the following acknowledgment: 'This resource has been adapted by [name of institution] for its own non-commercial use. It is based on the original resource, [name of resource] developed by Vitae, © 2014 The Careers Research and Advisory Centre (CRAC) Limited. www.vitae.ac.uk'

Other Uses

If material from this document is required for any purpose outside the permission contained in these terms including but not limited to (a) distribution or communication to the public (b) any commercial use, including use for-profit, for commercial advantage or for cost-recovery (c) use outside of the higher education sector in a manner not set out above, please contact enquiries@vitae.ac.uk or write to the following address:

Vitae, c/o CRAC
1st Floor, Sheraton House,
Castle Park,
Cambridge, CB3 0AX

Disclaimer

Whilst every effort has been made to ensure these materials are accurate and complete, CRAC is not responsible for any errors or omissions, factual or otherwise, and does not accept any liability arising out of any reliance placed on the information contained within these materials.

Variation

CRAC may revise these terms of use from time-to-time. Revised terms of use will apply to the use of the materials in this document from the date of the publication of the revised terms of use on our website. Please check www.vitae.ac.uk/resourcesconditionsofuse regularly to ensure you are familiar with the current version.

Contents

Acknowledgments	4
Background to the Effective Researcher programme	5
Introduction to the programme leader role and the manual	7
Course organisation	11
The hour before the programme starts	11
Introduction to the programme	12
Getting to know each other	14
Establishing common ground	16
Team Project Task (problem solving): Air vehicle challenge.....	17
Project Management 1: Tuning in to your PhD	21
Project Management 2: Planning your PhD.....	28
Review of the morning and preview of the afternoon.....	38
Working effectively with others task (research collaboration): Collaboration challenge.....	39
Working effectively with others (managing professional relationships): Try to see it my way.....	43
Making the most of your PhD	47
Review and close of the programme	48
Alternative activities	50
Project Tomorrow.....	50
Optional additional sessions.....	55
Working effectively with others: Project approaches.....	56
Your supervisor – same as you? different to you? (Part 1)	56
Working effectively with others: Perspectives	60
Your supervisor – same as you? different to you? (part 2)	60

Acknowledgments

The 'How to be an effective researcher programme' for postgraduate researcher was designed and developed by Sara Shinton and Janet Wilkinson, working with Dave Filipović-Carter, Keith Morgan and Jon Turner, for the Transferable Skills Programme at the University of Edinburgh and Vitae.

This updated one-day version of the programme has been developed based on the collective experience of Dave Filipović-Carter, Caron King, Sara Shinton, Paul Toombs and Janet Wilkinson,

The following materials have been used in, or have influenced, the development of this programme:

- A Chair in 10 Years? by Pauline Kneale, University of Leeds
- Achieving Progress in your PhD by Derek Pugh for the UK GRAD Programme (now Vitae)
- Barnga by S Thiagarajan & B Steinwachs
- Developing Research Teams by Mike Rawlins (Chalybeate) for the UK GRAD Programme (now Vitae)
- Introduction to Type and Coaching by Sandra Krebs Hirsh & Jane AG Kise, CPP Inc
- It's Goodnight from Me by Tom Pringle with Jon Turner and Ruth Gilpin for EPSRC and the UK GRAD Programme (now Vitae)
- Learning Styles by Peter Honey and Alan Mumford
- Project Management Toolkit by Sara Shinton and Robin Henderson for the UK GRAD Programme (now Vitae)
- The Tutor Toolkit by the UK GRAD Programme (now Vitae)

We have tried to identify the owners of all copyrighted material used in the programme and this manual, but would be pleased to acknowledge copyright of any material not identified if this is known.

Background to the Effective Researcher programme

Over recent years transferable skills have become an increasingly important element in PhD degree programmes. This has resulted from national initiatives such as the Research Councils' Joint Skills Statement and the Researcher Development Framework, Roberts' skills funding and the revised Quality Assurance Agency Code of Practice. Equally important has been the demand from postgraduate researchers and a developing view among universities, many supervisors and others supporting postgraduate researchers that providing appropriate skills training opportunities has a positive impact on the postgraduate researcher experience.

Sara Shinton, Janet Wilkinson and Jon Turner first started work on the 'How to be an effective researcher' programme in spring 2005. Their aim was to offer postgraduate researchers an experiential learning programme near the beginning of their PhD that focused on helping them to be more effective in their role. They incorporated their collective experience from other programmes, feedback from participants and supervisors on the key issues for first-year postgraduate researchers as well as existing approaches in terms of topics and different styles of training. They took into account the practicalities of running this sort of programme within a university and the constraints on postgraduate researcher availability, venues, facilitators and costs. They also considered the challenges of marketing this sort of programme to postgraduate researchers.

The result was the prototype for 'How to be an effective researcher': a two-day non-residential programme that uses experiential learning to address some of the key development needs of postgraduate researchers 3-12 months into their PhD. The programme was piloted in Edinburgh during summer 2005 and involved postgraduate researchers and staff from Strathclyde University as participants and observers to give an external, 'critical friend' view of the course.

The first responses to the pilot were very positive – participants enjoyed the programme and appeared to gain a greater understanding of their own style of working and steps they could take to becoming more effective in their role. The feedback was good enough for the team to approach the UK GRAD Programme with a request for funding to develop the programme further and extend it to other universities, starting with institutions in Scotland and Northern Ireland. The UK GRAD Programme agreed to provide funding during 2006 for programme development and piloting in four more institutions.

'How to be an effective researcher' generated significant interest and by January 2007, ten universities in Scotland and Northern Ireland were either running the programme or had pilots planned for 2007. The expansion of the programme involved working with those institutions to refine and make improvements to it in terms of content, flexibility and logistics. This fostered the process of making it adaptable to meet the needs of different audiences and purposes e.g. for part-time researchers or as staff development for supervisors and support staff, and examining different ways in which it could be built into a university or departmental PhD training programme.

This has been a genuinely collaborative project, with many institutions and individual facilitators contributing to the development of a programme and resources that are now freely available to UK higher education institutions through Vitae and its regional Hubs.

An extensive evaluation of the programme was conducted in 2010 and a report of the findings from this project is available at www.vitae.ac.uk/effectiveresearcher

The report highlighted that over 40 HEIs have been involved in delivering the programme to over 3000 researchers. In terms of quality, scale and scope, the programme has become a landmark in researcher development and was recognised as a finalist in the National Training Awards 2010.

In response to the evaluation project and the changing situation in researcher training and development since the two-day course was introduced, we have produced this one-day version of the programme.

Introduction to the programme leader role and the manual

Your role

As a programme leader for the 'How to be an effective researcher' programme, your role is to lead and manage the programme, to facilitate the delivery of the programme to the participants, and to foster the development of facilitators for the future.

- Your role will encompass responsibility as both the programme leader for the activities and also as a group facilitator.
- You will need to introduce and close each day as well as leading many of the plenary sessions and providing the theoretical frameworks within the programme.
- You also have a role to 'develop' the other facilitators you are working with by:
 - encouraging and supporting them as they work with their groups
 - encouraging them to take the lead for activities in the programme usually by agreement prior to the programme - and supporting them through this
 - ensuring that facilitators play to their strengths in the sessions they lead but also have the opportunity to develop lead facilitator capability as the programme progresses, while you support them.

What the programme leader manual contains

This is the 'master pack' for the programme leader and contains all the activity summaries, notes and alternative activities that will help you lead the programme and facilitate your group.

The programme leader materials are written in an informal style because the culture of the programme is relaxed – you'll be encouraged to dress casually and to create a relaxed and fun environment for your team and the participants.

How the programme leader manual is structured

This manual is delivered as a guide rather than a definitive set of actions – by the time you are leading the programme you should have been a programme facilitator at least a couple of times and should therefore use these opportunities to make notes in your copy of the programme leader manual before you come to lead the programme.

Each activity is structured as follows:

Title: includes overall timing for the session.

Purpose: defines the key aims and objectives of the session.

Process: provides an overview of activities and any other relevant information.

Structure: contains a breakdown of timings.

Resources: lists all the resources you require to complete the session successfully.

Detail: contains all the relevant guidance, supporting notes, discussion points and background information that you require to facilitate the session.

Alternative and optional activities are included in the last section of the manual to cater for differing circumstances within this one-day programme.

Learning outcomes

These are the learning outcome areas as mapped on to the Researcher Development Framework (RDF).¹ For conditions of use for the RDF please refer to www.vitae.ac.uk/rdfconditionsofuse.

The RDF is a professional development framework for planning, promoting and supporting the personal, professional and career development of researchers in higher education. It articulates the knowledge, behaviours and attributes of successful researchers and encourages them to realise their potential.

A primary outcome is defined as an outcome that is likely to be achieved by all participants irrespective of how the resource is presented. A secondary outcome is that which might be achieved but to a lesser extent than a primary outcome and will vary from participant to participant depending on how the training activity is delivered and what focus is presented.

Domain A: Knowledge and intellectual abilities		
A1 Knowledge base	P	S
1. Subject to knowledge		
2. Research methods – theoretical knowledge		
3. Research methods – practical application		
4. Information seeking		
5. Information literacy and management		
6. Languages		
7. Academic literacy and numeracy		
A2 Cognitive abilities		
1. Analysing		
2. Synthesising		
3. Critical thinking		
4. Evaluating		
5. Problem solving		
A3 Creativity		
1. Inquiring mind		
2. Intellectual insight		
3. Innovation		
4. Argument construction		
5. Intellectual risk		

Domain B: Personal effectiveness		
B1 Personal qualities	P	S
1. Enthusiasm		
2. Perseverance		
3. Integrity		
4. Self-confidence		
5. Self-reflection		✓
6. Responsibility		
B2 Self-management		
1. Preparation and prioritisation		✓
2. Commitment to research		
3. Time management		✓
4. Responsiveness to change		
5. Work-life balance		
B3 Professional and career development		
1. Career management		
2. Continuing professional development		
3. Responsiveness to opportunities		
4. Networking		
5. Reputation and esteem		

Domain C: Research governance and organisation		
C1 Professional conduct	P	S
1. Health and safety		
2. Ethics, principles and sustainability		
3. Legal requirements		
4. IPR and copyright		
5. Respect and confidentiality		
6. Attribution and co-authorship		
7. Appropriate practice		
C2 Research management		
1. Research strategy		
2. Project planning and delivery		✓
3. Risk management		✓
C3 Finance, funding and resources		
1. Income and funding generation		✓
2. Financial management		
3. Infrastructure and resources		

Domain D: Engagement, influence and impact		
D1 Working with others	P	S
1. Collegiality		
2. Team working		✓
3. People management		✓
4. Supervision		
5. Mentoring		
6. Influence and leadership		
7. Collaboration		
8. Equality and diversity		✓
D2 Communication and dissemination		
1. Communication methods		
2. Communication media		
3. Publication		
D3 Engagement and impact		
1. Teaching		
2. Public engagement		
3. Enterprise		
4. Policy		
5. Society and culture		
6. Global citizenship		

Primary (P) and secondary (S) outcomes highlighted (✓)

¹ www.vitae.ac.uk/rdf

Programme timetable

Time	Purpose of activity	Mapping to RDS	Core activity for this session	Ideal numbers	Alternative activities	Ideal numbers
09.15	Arrival of participants and refreshments					
09.30	Registration					
09.30	Introduction to the programme*					
09.35	Getting to know each other*	B1.5 B3.4	Postcards	Min 4 per group Max 6 per group		
10.00	Establishing common ground*	B2.3 B3.4 D1.2	Effective researcher poster	Min 4 per group Max 6 per group		
10.30	Team project task (problem solving)	A2.1 A3.5 B1 B2.1 B2.3 B2.4 C2.2 D1.2 D1.6	Air vehicle challenge	Min 4 per group Max 6 per group Max 4 groups (determined by equipment)	Project tomorrow	
11.15	Break					
11.30	Project management 1: Tuning in to your PhD	B3.2	Plenary session			
12.00	Project management 2: Planning your PhD	C2.2	Plenary session			
12.30	Review of the morning Preview of the afternoon		Plenary session			
12.35	Lunch					
13.15	Working effectively with others task (research collaboration)	A1.3 C1.2 C2.3 C3.3 B2.2 D1.7	Collaboration challenge	Groups of 3 (max 4) No max number of groups	Common purpose	Groups of 3 (max 4) No max number of groups
14.45	Break					

Time	Purpose of activity	Mapping to RDS	Core activity for this session	Ideal numbers	Alternative activities	Ideal numbers
15.00	Working effectively with others task (managing professional relationships)	D3.2 D1.7	Try to see it my way	Working in pairs/trios No max number of groups		
15.45	Making the most of your PhD		Plenary/Individual reflection			
16.00 16.15	Review and close of the programme		Postcards and review			

Note:

* The overall start to the programme comprises the introduction (about 5 mins), followed by 'Getting to know each other' (about 25 mins) and 'Establishing common ground' (about 45 mins). As such, the time can be seen as a single block of 75 minutes, allowing for slight variations between the timings of the three elements.

Course organisation

The hour before the programme starts

Check that in the kit you have the briefs and materials for the day's activities. (Note that the kit should have all that is necessary for up to about 20 participants).

Check on expected number of participants and prepare postcards for the 'Getting to know each other' activity.

Check/prepare materials for the first group activity – Team project task (problem solving): Air vehicle challenge.

Prepare groupings for Working effectively with others task (research collaboration).

Set room(s) out:

- table and chairs for each group of up to six participants
- two different coloured flip chart pens and one sheet of flip chart paper on each table
- 'U' shape of chairs for all participants
- learning journals on chairs
- two flip chart stands with flip chart paper
- two flip chart pads

Check with the local programme organiser the health and safety requirements and decide whether it is necessary to cover these and, if so, who will go through them at the start of the programme.

Introduction to the programme (5 minutes)

Purpose

Set the scene for the programme.

Process

Led by programme leader.

Introductions

Set the scene for why the institution and Vitae are running this programme and the overall purpose of it.

Obtain an idea of why the participants are taking part in the programme.

Talk about the process for learning and how the programme will work (learning cycle).

Structure

Who are we?	1 min
Why are we here?	1 min
Why are you here?	1 min
How will it work?	2 mins

Resources

Flip chart.

Detail

Who are we? 1 min

Introduce yourself (and supporting facilitator/s if appropriate):

- who you are
- your background
- your experience of working with postgraduate researchers

Why are we here? 1 min

Set the scene for why the institution and Vitae are running this programme and the overall purpose of it:

- government funding for personal skills training
- better researchers do better research
- relationship between the institution and Vitae.

Why are you here? 1 min

Ask participants their reasons for taking part in the programme.

Typical reasons might include to:

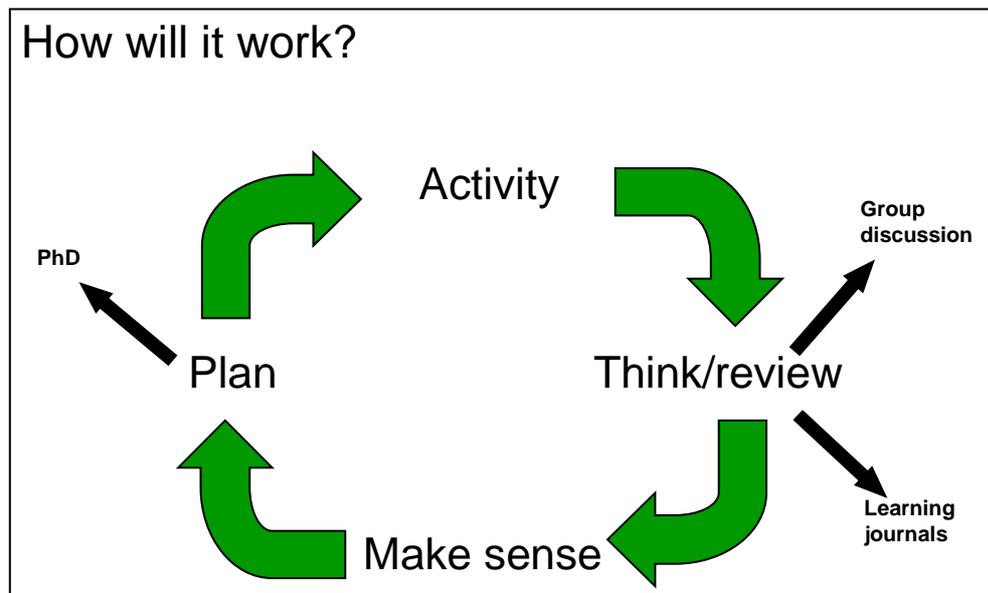
- share experiences with other researchers
- see what they are doing right/wrong as a researcher
- improve their research related skills
- help organise their three (or more) year project
- break the routine of their PhD (get out of the lab/office/library etc.)
- understand the PhD process better and their goals
- interact with others.

On page 8 of the participant learning journal under 'Initial thoughts' there is an opportunity for participants to jot down why they are participating. You could give them a couple of minutes at this point just to capture their own thoughts and get them used to the idea of using the learning journal as a tool for facilitating their learning.

How will it work?

2 mins

Talk about the process for learning and how the programme will work, refer to the learning cycle. There are details of this on page 20 of the participant learning journal.



Talk about expectations of what is required from both yourself/the facilitator team and the participants on this programme:

From yourself/the facilitator team:

- we will create a safe environment for you to learn
- we will set you a range of challenges
- there will be a balance between activity and review.

From participants:

- we need your participation
- you need to have respect for each other and the process
- use the opportunity to stretch yourself!

Note that there is emphasis on a safe environment – this may require specific mention if visitors from the university are present, or/and facilitators are known to participants.

The programme covers:

- looking at a PhD as a project
- how we work with other people
- collaboration with academics
- managing our relationship with our supervisor(s).

If timing for this session runs over, cut down on time for one/both of the next two introductory sessions.

Getting to know each other (25 minutes)

Purpose

This is an introduction exercise to enable participants to get to know each other. It is also a convenient way to begin forming random groups, within the overall group, in which the participants can work for the early part of the programme.

Process

Each participant has a piece of a postcard with the task of finding the other participants with the remaining pieces; then, as a group, to answer the questions on the back of the postcard.

Structure

Distribute postcard pieces – one to each participant	1 min
Participants find other group members	3 mins
Participants introduce themselves	8 mins
Participants answer questions on completed postcard	13 mins

Resources

Previously prepared and cut-up postcards.

Detail

Preparation

In the pack there should be sufficient different postcards for roughly one sort for up to six participants; there should be questions stuck to the back of each card.

Before you start the activity, you should cut up the postcards to create a jigsaw effect:

- cut into the right number of pieces (depending on the size of groups you want)
- participants are often late arriving or fail to attend, making it difficult to allocate them to groups in advance; postcards should be cut at the last minute so you can form small groups of up to six.

Example: If you have a group of 18 participants, you will need three postcards. Print off three sets of the questions and stick them to the back of each postcard. Then cut two of the postcards into five random parts, and one of them into six random parts. This will give you a total of 16 pieces, and will result in two groups of five and one group of six. Then when you are sure you have all expected 18 participants, take the two postcards you previously cut into five and cut one piece in half so that these postcards are now cut into six; and you have three groups of six. See the diagram at the end of this session.

Distribute postcard pieces – one to each participant **1 min**

Participants normally sit next to people they know so ensure that people who are sitting next to each other get pieces from different postcards.

Explain that you are going to give each participant a piece of a postcard.

Participants find other group members **3 mins**

Participants have to find others who have pieces that when joined together will make an exact whole postcard.

Observe the process is being followed and that groups are formed.

Participants introduce themselves

8 mins

Ensure that participants introduce themselves and that they move on to answering the questions.

Participants answer questions on completed postcard

13 mins

Facilitators observe.

Postcards – examples of text for the back of the postcards

In your group discuss the following:

- *What has been the best thing about doing a PhD so far?*
- *What has been the most challenging thing about doing a PhD so far?*
- *What is the main challenge facing you in the immediate or short term?*

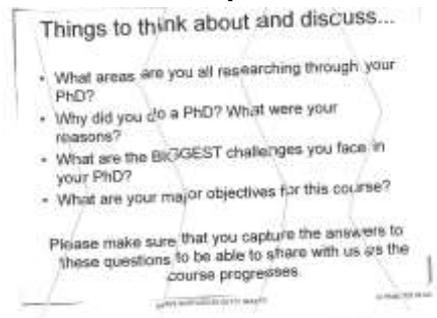
Please make sure that you capture the answers to these questions to be able to share with us as the programme progresses.

Postcards exercise – cut the postcards up so that there is one piece for each participant

Joined up front



Joined up back



Cut up front for a group of five

Cut up back for a group of five

If timing for this session runs over, if necessary, cut down on time for the next introductory session.

Establishing common ground

(30 minutes)

Purpose

To help participants to get to know each other and start the process of disclosure.

Process

Change groups

Create a poster for the group to represent what an effective researcher looks like.

Structure

Change groups and introductions

5 mins

Discuss and draw posters

17 mins

Presentations/discussions

8 mins

Resources

Flip chart paper and two different coloured pens for each group

Detail

Change groups and introductions

5 mins

Mix the groups

Discuss and draw posters

17 mins

Explain to the groups that they are to create a poster for their group representing what an effective researcher looks like. This should take the form of a picture or cartoon (rather than a list), which identifies the characteristics they think an effective researcher should have, rather than describing themselves.

This activity starts off the creativity process for participants, encouraging them to demonstrate their own awareness of themselves and their research.

Presentations/discussions

8 mins

Once completed, each group has a minute or two to present their poster to the plenary group.

As they describe their posters identify key messages, encourage others to contribute their thoughts and share experiences.

The posters can then be stuck on the wall and revisited later in the programme.

Team Project Task (problem solving): Air vehicle challenge (45 minutes)

(An alternative task, Project Tomorrow, can be found at the back of this manual)

Purpose

This is a team and project management exercise to start the group working together, and provides a foundation which can be drawn on later in the day as regards:

- working with other people
- effective planning and project management
- learning from doing and reviewing.

Process

Using the materials provided, the groups design and build a vehicle that will be entirely air-powered and can also travel along the ground. The equipment is not aimed to serve any particular design and should give participants the opportunity to be creative in their collaboration. Each group needs to produce something that will be involved in a test run at the end of the task.

Structure

Change the groups	5 mins
Design, build and test	25 mins
The competition	5 mins
Review in groups and note in participant learning journal	10 mins

Resources

Materials provided in the packs for teams: one pack for each team.

Each pack contains:

- eight paper straws (plastic ones will also work)
- four paper plates
- two large sheets of tissue paper (although some A4 paper would also work, or newspaper)
- small roll of sticky tape
- pair of scissors.

Participant brief

Materials required by facilitator/s:

- a mains powered desk fan or hairdryer (to be supplied by institution)
- masking tape to mark out the track (so as not to permanently mark floor!)
- tape measure to mark out distance/check marks on the track (although this could be 'guesstimated' if no tape measure is available).

The track

Make sure there is a mains power outlet nearby for the fan. Then use the masking tape to mark out a test track. This can be a simple straight of two parallel lines approximately 1.5m apart and 5m long. Mark out a starting line at one end and locate the fan about a metre away so that it is blowing straight up the track. Don't put the fan too close to the start line in case any of the designs are low to the ground.

Using approximately 10cm and 5cm lengths of tape, mark out one metre and half metre check marks along one side of the track so that any distances travelled can be quickly ascertained without having to get the tape measure out again.

Detail

Change the groups

5 mins

Design, build, and test

25 mins

Say to participants:

In this activity you will need to:

- work with other people
- plan and project manage.

You have 25 minutes to be ready to compete with the other groups.

Issue the participant brief and materials.

Walk around occasionally so that you can be seen by all the groups, but do not get involved by asking the participants questions.

However, do respond to their questions. They very rarely ask questions. Liken it to their relationship with their supervisor. If they ask for advice, they may get it. If they ask the supervisor to do something, they probably won't. If they ask:

- where the track is, tell them
- whether they can test their vehicle, tell them they can
- for more materials, hand them out
- based on your experience which is the best design, tell them.

At the early stages of the design time, set up the test track.

The competition

5 mins

Invite the groups to the test track.

Tell everyone that the vehicles have to stay on the track. No flying is allowed!

Make it fun. Encourage cheers and jibes.

Ask who would like to go first.

Ensure that the vehicle is within tolerance and behind the start line. Allow a group member to control the fan, ensuring that it does not go over the start line. Test each vehicle and after it has stopped, measure the position and move it from the track.

If two teams travel very similar distances, then you could either declare a draw or decide on a winner based on the degree of novelty in the construction or the amount of raw materials used.

As some vehicles may veer off to one side, you should be quite strict and only record distance that falls within the marked-up test track area. If the air vehicles run off into the distance and there is no room to extend the track, then switch the fan to a lower setting and re-test them all.

Review in groups and note in participant learning journal

10 mins

Following the activity, ask groups to return to their table/space and review.

If they need assistance, suggest they cover the following questions:

- how did you manage the planning for the exercise?
- how did you work as a team?

- who took the lead?
- was everyone involved?
- what roles did you all play?
- how did you manage the timekeeping for the challenge overall?
- what feelings did you have during the stages of the process?
- what might you do differently (as a group/as individuals) next time you face a task?
- what assumptions did you make?

Facilitate a plenary review, perhaps by taking one key learning point from each group.

Then refer to page 24 of the participant learning journal and give time for each person to make notes.

Air vehicle challenge kit:



Participant brief: Air vehicle challenge

Air vehicle challenge

Key skills

Working with others in the research environment
Effective working practices

Brief

In the next 25 minutes, your task is to work as a team to design, build and test run a novel air-powered vehicle.

At this stage of the design process, it is not a requirement that your vehicle is suitable for passengers, although it must travel along the floor and not be launched into the air. The size of your vehicle must not exceed 25cm in any one dimension.

The winning team will be the one whose vehicle travels the furthest along the marked test track. You have one attempt. An independent observer will record the greatest distance achieved.

Your team will be provided with a pack of building materials, nothing else can be included in your design or finished vehicle.

The only power available to your vehicle will be the wind, provided by the static generator behind the start line of the test track. Team members are not allowed to provide additional power to their vehicle, move the wind generator or enter the test track during an observed test run.

All vehicles will compete against each other at the end of the 25 minutes.

Review

The most important part of this task is the group review at the end.

Project Management 1: Tuning in to your doctorate (30 minutes)

Purpose

To draw together some of the experiences from the previous team project task and link these to the topic of project management.

To establish the basics of project management using participants' experience of managing their PhD.

To set the scene for the activities of the afternoon.

Process

Facilitated discussion led by the programme leader

Structure

What:

- what is expected of me?
- what resources do I have?
- what am I doing?
- what obstacles are in my way?

How:

- how am I going to achieve this?
- how will I overcome my obstacles?

Why:

- why am I doing this?
- why has the project been developed?
- why is this a 'unique and original' contribution?

Who:

- who am I responsible to?
- who will be able to help me?
- who will monitor my progress?
- who is interested in my work?

When:

- when does it finish?
- when do I know I have done enough?
- when are the internal deadlines?

Resources

Participants themselves: they can sit anywhere – either in their groups or not..

Detail

Key messages

Project management:

- aids your motivation in getting things done
- helps plan your time
- helps you to organise yourself and monitor your progress.

Getting started

Some questions that you could ask participants to get started:

- how do you feel about project management in the context of a PhD?
- how many of you have a formal project plan which is reviewed regularly?
- what are the benefits of project management?
- what are the barriers to effective project management?

Link to the participant learning journal

In the participant learning journal (page 9) there are a series of questions which form the basis of this session. If you are familiar with project management in the context of a PhD, you may be able to run this session based on these alone. Otherwise, a suggested script follows, which includes the key information for this session.

Suggested script

This session is designed to help you tune in to your PhD. We are not going to describe any formal project management tools (we'll talk about those later) but we will take you through the questions in the participant learning journal and elaborate on these to help you think through your research project and make the most effective start.

What

The first set of questions we'll look at are the 'WHAT' questions, but we are not going to start with 'What do I have to do to achieve my project?' because there is a step that has to come before this. The PhD is not like other qualifications where there is a clear structure and obvious hurdles to overcome at regular intervals – in this respect the UK PhD is very different from doctoral programmes in other parts of the world.

In the UK, you have an often loosely defined question or problem and as a postgraduate researcher, it is your responsibility to give that question a focus, determine how best to answer it and produce the necessary evidence to support your answer or argument. All this starts on day one of your doctorate – and helps to explain why a UK PhD is shorter than that of many other countries.

The UK system is changing and many of your departments will be introducing annual progression interviews and reports or taught elements, but fundamentally, a doctorate in the UK is relatively unstructured and offers a high degree of intellectual freedom.

So, with that context in place, we come to your first question:

What is expected of me?

Before you start to look at your project, you need to understand what the 'job description' of a PhD researcher is, both in terms of the generally accepted responsibilities you have (these will be described in your handbook or institutional code of practice) and in terms of what your supervisor expects from and of you.

This is best established during one of the first meetings with your supervisor, when you need to ask him or her what they see your role as being; how much control they want you to have over the project; whether they want you to organise meetings; how they see their role. If you can clarify their expectations of you at the start of the project, you are more likely to meet these and to develop a productive and professional relationship.

You should also ask the advice of other students, particularly those who are nearing the end of their doctorates – what do they think you should be doing at this stage? Bear in mind that your role will change as you become more skilled and knowledgeable, so these expectations need to be re-evaluated during the project.

What resources do I have?

At the start of a project, your first activities (in addition to a literature review) are likely to relate to the methodology you will use during the project. This might involve learning how to use a specific piece of equipment or model; learning how to conduct interviews to determine specific information, or learning a new technique. Don't restrict your understanding of resources to these very project-specific tools. Remember that the university and many of its staff are a resource – ensure that you make the best use of librarians (who are information management professionals); technicians (if relevant to your research area); research training staff; other academics (think about the role your co-supervisor could play in your project) and – again – other postgraduate researchers and research staff.

What am I doing?

Before you get too bogged down in the day-to-day activity on your project, take time to clarify your 'big' question – what is the contribution you want to make to your field? What is your motivation for doing the work? What impact do you want your work to have? How will it change the thinking in your field?

If you can work out these 'big picture' ideas at the start of the PhD, it will be much easier to ensure everything you do has value and is worth doing; you are more likely to avoid the 'dead ends'; it will be easier to monitor your progress and it will be easier to spot opportunities.

What obstacles are in my way?

As mentioned before, the PhD is more than a contribution to knowledge – it is about your development as a professional researcher. When employers of postgraduate researchers are asked about their additional attributes when compared to first-degree graduates, they frequently mention tenacity and ability to see solutions to problems that others have missed.

The reason for this is that your PhD is likely to be a series of obstacles that you have to overcome! You are going to be working at the limits of existing knowledge, so you will discover many unforeseen problems as you do your research. There are also many problems and obstacles that can be anticipated and will have been solved before – the trick is in determining which problems and obstacles are these...

In the early months of your work, start to ask other researchers – what have been the obstacles in your work and how have you overcome these? Start to ask them what they wished they had known at your stage and what advice they have. Others might be able to convey good research practice directly to you, rather than you having to learn for yourself through trial and error!

How

Now we'll look at the 'How' questions – the practical information you need to start your research and conduct it in an effective way. These questions are designed to help you work out your methodology – the approach you will take to tackle your research question.

You must be clear on the advantages and potential weaknesses of your approach and be able to defend its selection in your thesis and viva.

How am I going to achieve this?

Your answer to this question will help you to link your problem to the approach selected – it will also help you to understand what evidence you need to gather and where the gaps in your knowledge lie. By thinking this through at an early stage, you can also make best use of

your time and get the most value from your supervisor. Remember they can comment on your ideas and make suggestions before you have committed weeks or even months to a flawed methodological approach.

How will I overcome my obstacles?

There are two advantages to acknowledging potential difficulties at the beginning of the project; first, you can make a more realistic project plan which takes account of the time needed to overcome these difficulties. Second, you can approach your supervisor or other people in your supervision team for their suggestions and advice (we'll talk about this later).

Why

In reality the 'WHY' questions may come before the 'HOW' questions, since they are the prompts for you to understand your motivation and commitment to your project. But they may also help you identify potential beneficiaries of your work. These people or organisations may be willing to provide guidance or resources if they can see value in what you are doing.

Why am I doing this?

At the start of a PhD, there are two important reasons for working out your personal motivation. The first is that you may need to tap into this at low points of your research – you want to be able to remind yourself that the reward is one worth striving for! Additionally, you want to be able to spot opportunities along the way that will support these personal goals. These might relate to career goals (the chance to talk to potential employers or future supervisors), publishing your work or deciding which networks or bodies to join.

Why has the project been developed?

For some of you, your PhD project is your passion and may be a topic you have been formally or informally researching for some time. You have finally secured the funding to focus on your question. For you, the motivation to study this area is obvious, but you need to remember that this is an academic qualification and must meet a set of academic requirements. At an early stage you must ensure that you and your supervisor discuss how the project relates to the academic model and that they are satisfied that you will produce an appropriate contribution to the academic community.

For others of you, your supervisor will have secured the funding for the project. They will have written a proposal before you were involved in their research group – possibly before you had even made the decision to do a PhD. In this case there is a danger that much of the motivation and drive to study the topic is unclear to you. Unless you completely grasp the fundamentals of your project – what the research question is, what value the 'answer' will add and the strengths of your approach (the technique or method you will use) – you may struggle to develop a project plan or to share your supervisor's vision of the potential impact of the project. Again, sit down with them at an early stage and ensure that you have a common understanding.

Why is this a 'unique and original' contribution?

This goes back to the previous question – look ahead to the viva and thesis in which you will be expected to demonstrate that your work makes this 'unique and original' contribution to your field/discipline. Make sure that you and your supervisor are clear on what this may be; of course, accepting that it may change as the project develops. This understanding will be important as you make decisions along the way and it will help you decide a publishing strategy for your work.

Who

The 'WHO' questions (unsurprisingly) look at the human element of the project. We have touched on many of these in the earlier questions, but will reiterate these points here.

Who am I responsible to?

The bottom line is that you are the key person in this project – you will determine its success. If it fails, you are the person who will suffer most. Therefore, you are ultimately responsible to yourself. Beyond this ‘truth’ however, this question may be better expressed as ‘Who do I have a responsibility to?’

You are responsible to your supervisor, who will expect you to commit to the project, to your funding body, who may have their own expectations or demands, to the researchers in your group or department (particularly if you share resources or equipment), to your peers, who may use your ideas and work to develop their own research.

In a PhD, your responsibilities are self-managed and largely based on your integrity and the trust of others – if you publish work and your arguments are credible, your description of your evidence will be accepted. It is your responsibility to understand the principles in your field and to meet the ethical standards.

Who will be able to help me?

Another difference between a doctorate and other qualifications is that the help available isn’t always explicit. In taught programmes, there are facilitators, seminars and assessments to ensure your learning is on track. In a doctoral programme you need to work out for yourself what support you need and then to identify who can offer this. Most people will be happy to help, but they must be approached at the right time and in the right way. Again, more ‘senior’ research students are a great source of help as they are likely to have faced similar issues during their projects.

Who will monitor my progress?

A common source of anxiety during a PhD stems from the fact that the outputs are difficult to define: everyone knows they must write and defend a thesis, but the quality measures may seem vague at this point. How good does a thesis have to be? How much work must I do? How much evidence must I present to support my hypothesis?

Your supervisor has two main responsibilities in this area – at the outset to help you develop a project that is achievable and has the potential to be awarded a doctorate, and in the final stages, to review your written work and provide feedback to help you prepare a thesis of the required standard. They should react to your questions and requests for feedback during the doctorate programme, but many will not see it as their responsibility to monitor your activities closely.

It is therefore in your interest to understand the quality and quantity required to achieve a PhD and to monitor your own progress against these. You will definitely need the support of your supervisor to do this effectively and will need to develop your own time and project management. If you plan to remain in academia, these skills will be essential at the next stage of your career when you will be designing your own projects and applying for funding.

Who is interested in my work?

If we look at the institutional definition of a PhD, we can see that the work produced must make ‘a unique and original contribution’ and ‘be of publishable quality’. Both of these factors reflect the value that your work has to others. If you can have these beneficiaries in mind as you are doing the research and writing, you will find it easier to focus your activities and to convey the value of your work to editors and referees when you come to publish.

These beneficiaries are also potential sources of help; if they are interested in what you are doing, they may be willing to enter into a dialogue, share ideas or even act as mentors. Looking at this wider community might help you see potential collaborators or partners – essential for your future in academia. If you want to build a career in research outside academia, you will need to develop relationships with potential employers and find opportunities to make them aware of you throughout your doctorate. This is particularly important if you are working in a niche area where your skills and knowledge may only be of interest to a handful of employers.

When

Finally lets look at the timeline – the 'WHEN' questions give our projects a structure and can be useful to draw a line under the PhD, especially if your supervisor's enthusiasm for the topic isn't matched by your funding!

When does it finish?

You should aim to finish when your funding runs out! Don't expect your PhD to be your magnum opus that changes the face of your discipline. It is an important piece of work and needs to be good enough to pass the examination process, but it is also a period of training to be a professional researcher. Plan to finish on time – identify the goals and milestones that will keep you on track. After the PhD, you will be free to win a Nobel Prize at your leisure!

When do I know I have done enough?

As we just discussed, when talking about monitoring progress, you need to work this out for yourself with the support of your supervisor. Read other PhD theses as soon as you can to get a feel for the quantity and quality required. Ask your supervisor, co-supervisor and other academics what they look for when they examine a thesis and try to relate this to your own work and progress. Aim to publish (if this is possible for postgraduate researchers in your area) and to present your work to your community (at conferences or seminars) to help broaden your perspective on your work and to take account of other opinions in your arguments.

When are the internal deadlines?

These are becoming more common in institutions – post graduate researchers now often have to face a progression interview after 9-12 months of full-time (or equivalent) study. You should also see conferences as internal deadlines – if you are going to make the most of these opportunities and use them as opportunities to raise your visibility, you must have work ready to present.

Look for other 'deadlines' – can you spend time working with another group or in a different environment to learn a new technique or access a valuable primary source? Ensuring that your research is at the right stage to maximise the value of these opportunities creates deadlines. Fieldwork also often depends on careful planning, or research may be set back months or even a whole year.

If your work isn't subject to these external factors, then it is in your interest to create your own internal deadlines to break up the project into manageable chunks. Aim to write papers or chapters as individual elements of your work are created.

And in conclusion

So even if you are allergic to timelines and flowcharts, I hope these questions demonstrate to what extent you can plan and manage a research project.

If you want to know more – use the Vitae 'Schedule for success – planning your doctorate and developing your career' to understand more about typical deadlines in a PhD.

The other two general sites in your learning journal give information on project planning. While they aren't aimed at a research audience, I am sure you have the intelligence to translate their advice to your own situation!

In the next plenary session we will look at some tools that might help you to produce a more formal plan and for the rest of the programme we will give you a range of opportunities to 'test drive' project management and see how you can make it work for your research topic and your personal approach.

ALTERNATIVE QUESTIONS FOR DISCUSSION:

If I say 'project management' what does that mean to you?

What does a thesis look like?

What is expected?

What are the assessment criteria?

What are the expectations of your supervisor?

I suggest that you read two theses:

- your supervisor's PhD thesis
- a recent good one from your institution.

Why are you doing a PhD?

- when you hit your middle dip, and everyone does, remind yourself why you decided to do a PhD
- when you have the opportunity, which may be at a tangent, decide whether it will help your aim.

When will you know when you have done enough?

- I think I've done enough, do you agree?
- do you test out early on or wait until you have completed?

Project Management 2: Planning your doctorate (30 minutes)

Purpose

To introduce project management tools and techniques which can be applied to an academic research project.

Process

An introduction to four project management tools.
Each tool is outlined, followed by practice in groups.

Structure

Introduction	1 min
Mind mapping	7 mins
Drilling down	7 mins
Risk analysis	7 mins
Gantt charts	7 mins
Summary	1 min

Resources

Flip chart

Detail

Time is very tight for this session – it is important to keep things flowing, and not to get bogged down in the detail of any of the tools.

Key messages

Project management tools:

- are a way to tap in to years of expertise and development – they are the outputs of research into the ways projects go well and go wrong
- can be quite sophisticated. We are going to focus on simple tools which can be applied without a lot of expertise. If your project is complex or your supervisor recommends other resources, you may need to use more detailed methods
- are not designed to stifle your creativity or imagination; they are there to help you work through possibilities and to anticipate what might happen. Your project plan should be dynamic and regularly reviewed to account for new information and ideas.

This session introduces four such tools:

- Mind mapping
- Drilling down
- Risk analysis
- Gantt charts.

These should help you scope out your project and identify what else you need to know to take control of your research during the first 12 months.

Note to programme leader:

If you are familiar with project management in the context of a PhD, you may be able to run this session based on the activities and your own interpretations of the tools. Otherwise, a 'suggested script' follows, which includes the key information.

When you present the four tools, it is worth checking whether any of the participants are familiar with any of them, and, if they are, then clarifying what that familiarity is; – there is

often general awareness, but quite often coupled with a lack of clear understanding of how to apply the tools effectively in practice.

Suggested script

Introduction

1 min

In this session we will look at the tools that might help you to produce a more formal plan for your PhD project, or parts of it.

I'd like to introduce you to some popular tools that can be applied to research to help you manage the project more effectively.

Mind mapping

7 mins

The first tool, mind mapping, is commonly used as a memory aid or to organise information, but it is also a great way to stimulate your creativity.

A mind map is effective at the earliest stages of a project when it allows you to think about all the issues and factors which you need to take into consideration as you start to form a plan.

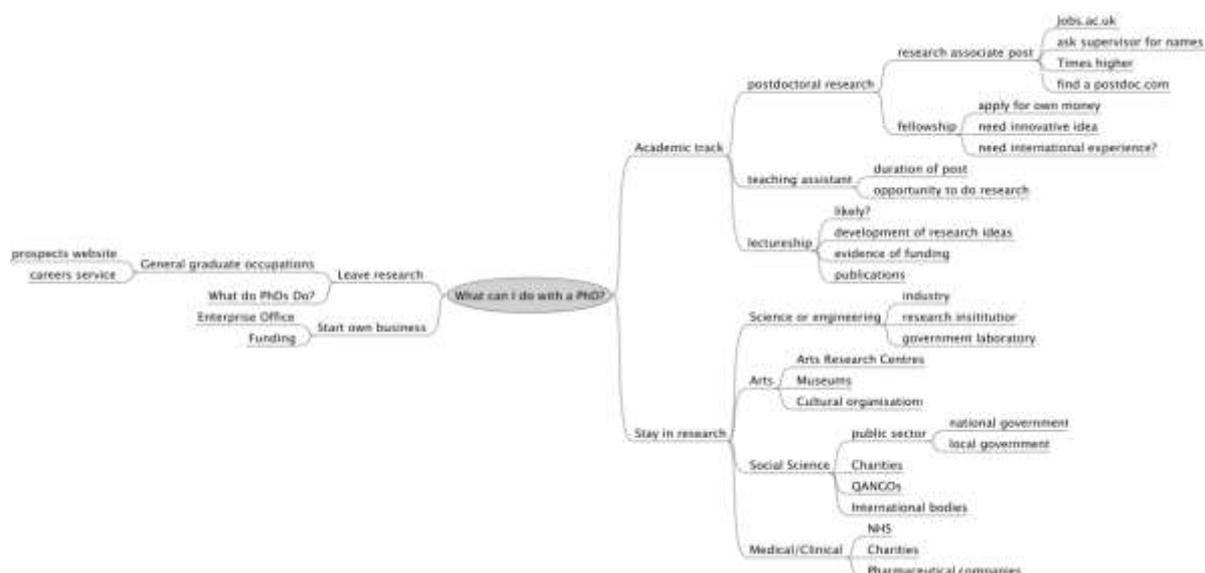
(See page 11 in the participant learning journal for more detail: www.mind-mapping.co.uk/make-mind-map.htm)

If you are unfamiliar with mindmaps, this site gives a good introduction to the topic and use of mind maps.)

Sketch out a mind map for the participants to see (although it will probably be familiar to many of them).

(One example is below. It was produced using *Freemind* (free mind-mapping software) which the participants are also referred to in their participant learning journal www.freemind.sourceforge.net/wiki/index.php/Main_Page.)

Example mindmap



Introduce the practice activity: planning a bank robbery

Group task 1

Working in small groups:

You have found a novel solution to the funding problems in your area although the means of securing this funding is dependent on careful planning...

At this stage we would like you to think through all the elements of this idea and produce a mind map to show your thinking.

Remember that at this stage, it is about creativity and identifying as many ideas as possible. Don't worry if these prove to be unworkable – suggesting an idea which can't be implemented might help you to see an idea which can work. (You might want to indicate parallels with brainstorming here.)

To get your funding you have decided to rob a bank. Please produce a mind map for the preparation, robbery and getting away!

Allow the groups just five minutes for the activity.

In the debrief you have two minutes to look at one or two examples. Comment on the fact that even though they don't know anything about robbing a bank (you hope) they have managed to come up with lots of ideas to do it.

Second tool - Drilling down

7 mins

Drilling down or a drill down comes at the next stage of a project when ideas have been generated and possibilities explored. It is about making decisions as to what is realistic and (most) effective.

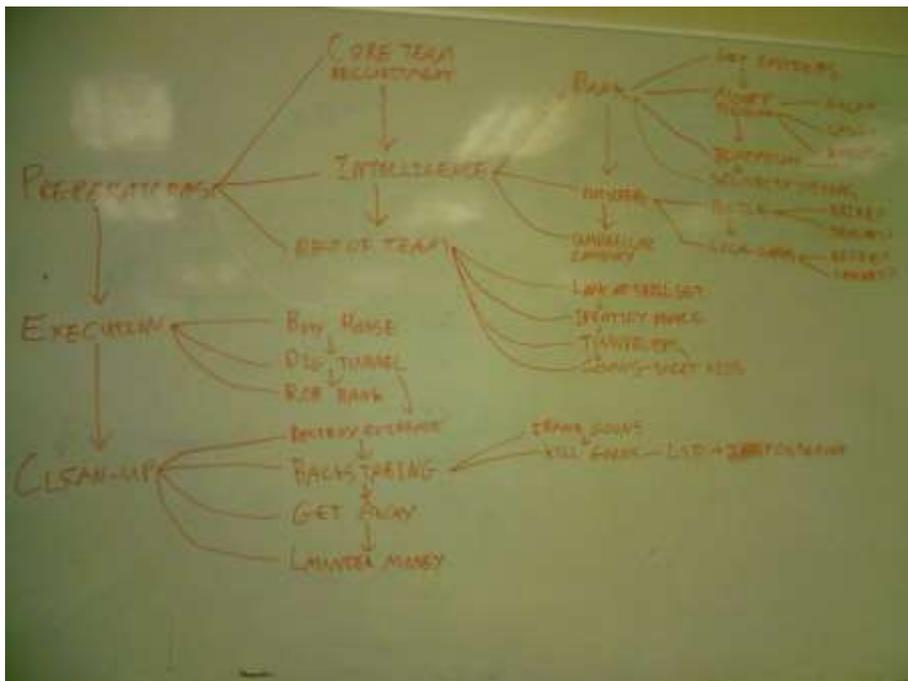
Drilling down is useful to help (more clearly) define the scope and aim of the project. It also helps you see all the tasks that must be completed for the project to be a success. The process breaks the tasks into smaller, more manageable 'packets' of work, which you can then more easily organise into a structure.

For your reference the participant learning journal points to a website to investigate drill down in more detail www.mindtools.com/pages/article/newTMC_02.htm

It may be useful to sketch out a drill down for the participants to see.

There is a photograph of one such example used on a previous programme. However, since the next task requires them to produce their own drill down, this need not be too detailed or take too long – it is just to give them the idea.

An example drill down used on a previous 'How to be an effective researcher' programme



Introduce the practice activity: drill down of the bank robbery

Group task 2

The next activity is to get the participants to turn their creative ideas into a more structured plan. You can either ask each group to produce a drill down for the whole robbery or allocate specific elements to different groups. These could include:

- establish how much money is in the bank
- establish how to get into the bank
- develop the plan for the time they will actually be in the bank
- how are the \$\$\$\$s to be removed from the bank?
- how do the robbers escape from the bank?

Again, they have really only seven minutes for this. And since there is not time for them to share their outcomes, while they are engaged in the task, you can walk around the groups ensuring that they are doing something different to the mind maps.

For your reference, these two tasks were inspired by an actual bank robbery that involved considerable planning. You can read about it at:

<http://news.bbc.co.uk/go/pr/fr/-/1/hi/world/americas/4133388.stm> and
<http://news.bbc.co.uk/go/pr/fr/-/1/hi/world/americas/4140350.stm>

Third tool - risk analysis

7 mins

Risk analysis should be done at all stages of a project. We will put it in at this stage to ensure that the plan isn't a utopian view that is going to fail as soon as the reality of life/research kicks in. Risk analysis looks at what could go wrong and tries to work out how to avoid or minimise potential problems.

There is a reference in the participant learning journal to a website to investigate risk analysis in more detail www.mindtools.com/pages/article/newTMC_07.htm

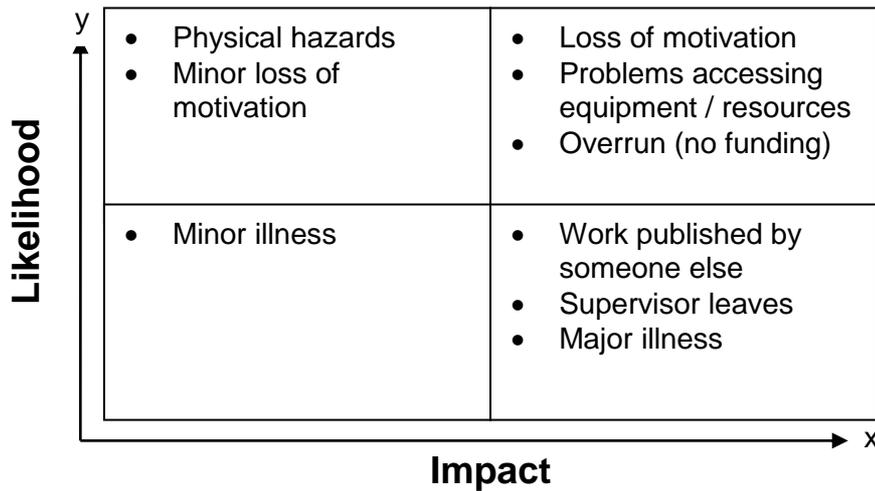
To illustrate this technique, solicit comments from the whole group and capture them on a flip chart.

Start with a blank flip chart. Ask the whole group:
What might go wrong during a PhD?

Elicit a list from participants; this may include:

- physical hazards (chemical/biological)
- access to equipment and resources
- going up wrong track
- methodology doesn't fit research question
- someone else publishes same work
- lose motivation
- supervisor leaves
- illness/personal problems.

Now arrange these risks according to the likelihood of them happening (vertical axis) and the impact if they do happen (horizontal axis). Some suggestions are illustrated on the next page to exemplify this process:



Organising the risks in this manner allows us to focus on them individually in proportion to their relative 'risk', i.e. likelihood x impact. Thus, it is probably more fruitful to focus on strategies to cope with risks that are more likely, rather than worrying overly about a very unlikely risk, even if it would have a very large impact.

Of the likely risks, these can be ranked into relative likelihood, and can also be addressed in relation to their likely impact. And all of these need to be factored into the drill-down structure as potentially new elements to include (be they monitoring, or actions to be taken to reduce risks).

Illustrate with an example drawing on an experience of a relatively foreseeable risk, and what strategies were used to avoid it arising or to cope with it if it did arise.

Much of the risk analysis in a PhD is already done for you – the university code of practice and the postgraduate student handbook will contain information on how to operate in an effective manner and will have been developed to avoid common problems.

Many of the books published on the topic of doing a PhD will include details of common pitfalls and advice on how to avoid these. The best source of information though is other postgraduate researchers – talk to second and third years about what they wish they had known at this stage, what they would have done differently and what you should look out for as your project develops.

Fourth tool – Gantt charts

7 mins

The next stage in project planning is to draw together the work of the mind map, as organised, structured and developed in the drill down, and build in the issues thrown up by the risk analysis. This stage involves both a timeline and allocation of resources, including clarifying which activities are dependent on which others, and which activities need to use the same resources and cannot occur simultaneously. The tool for doing this is a Gantt chart.

Brainstorm using flip chart

Again, this is probably best presented using one example on a flip chart and brainstorming from the group. You can return here either to your own drill-down example, perhaps with a risk analysis element added, or you can draw on the drill downs of the groups regarding the bank robbery. Taking one part of the drill down, work out what needs to happen, how long it will require, and when it needs to happen relative to the other activities (dependencies).

Two sets of examples are included below – use whichever you are more comfortable with, but don't try to use both – there isn't time.

Start by listing the activities and allocate duration, to each activity. Then add the time axis and allocate when the activity will take place.

The first example shows two Gantt charts for the bank robbery. They represent a first draft, and then a revision of the timings based on clarifications seen during the process of pulling together the first chart.

Example 1 - Gantt charts for a bank robbery

Activity	Dur- ation	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8
Set up team	1	■	■						
Rent house	0.5		■						
Set up business	1.5		■	■					
Operate business	6			■	■	■	■	■	■
Survey for tunnel	0.5		■						
Dig tunnel	5			■	■	■	■	■	
Dispose of waste	5			■	■	■	■	■	
Research vault	2	■	■						
Plan get away	1							■	■
Do it!	0.5								■

Activity	Duration	Wk1	Wk2	Wk3	Wk4	Wk5	Wk6	Wk7	Wk8
Set up team	1	■	■						
Rent house	0.5	X							
Set up business	1.5		■	■					
Operate business	6			■	■	■	■	■	■
Survey for tunnel	0.5	X							
Dig tunnel	5		X	■	■	■	■	X	
Dispose of waste	5			?	■	■	■	?	
Research vault	2	■	■						■
Plan get away	2				X	X			■
Do it!	0.5								■

Notes:

- need to rent house before you can set up business, and no reason not to do this even before team has been set up
- actually need to survey for tunnel before/at same time as renting house so that a suitable location is rented!
- presumably can start digging before the need to start disposing of waste, i.e. assume at least some degree of storage capacity. Likewise, disposal will need to continue even after digging complete (and needs to be factored in to minimise risk of detection)
- early planning of get-away provides more scope for effective risk analysis.

Example 2 - Gantt chart for the first semester of a PhD

Task	Duration (days)	Week 1	2	3	4	5	6	7	8	9	10	11	12
Register	1												
Meet supervisor	0.25 x 4	*		*				*				*	
Induction training	5												
Library training	1												
Literature survey	10												
Prepare lit. report	5												
Conduct lit. review	25												
Write lit. review	7.5												
Meet co-supervisor	0.25 x 2	*						*					
Develop initial response to proposal	5												

This is intended as a very rough sketch, just to illustrate the approach, rather than to offer any insights into structuring the first semester of a PhD!

And finally

1 min

Refer the participants to the notes and references in their participant learning journal (page 10 and 25).

Every project plan must be regularly reviewed and amended to adapt to new information and developments.

Review of the morning and preview of the afternoon (5 minutes)

Purpose

To review with participants what has been covered so far.

Process

Led by the programme leader.

Structure

Review of the day 3 mins

Lunchtime task, Participant learning journal –
Keep it simple 2 mins

Resources

Participant learning journal: Keep it simple, pages 13-14

Detail

An opportunity to review with participants what has been covered in the first half of the programme; and what to expect this afternoon.

Review of the day

3 mins

Review the participants' objectives for the programme:

- progress against objectives this morning
- any new objectives?
- any areas of particular focus?

What have we done so far?

- group work
- project management
- (perhaps personal preferences?)

What comes this afternoon?

- communication
- collaboration with others
- your impact on others
- the researcher/supervisor relationship
- (perhaps personal preferences?)

This is also a useful time to refocus everyone on the ideas that were produced in the morning regarding characteristics of an effective researcher.

Keep it simple

2 mins

Participants need to carry out one activity before the afternoon session starts. They should refer to pages 13-14 of the participant learning journal. This requires them to write a 50-word (fairly strict) statement describing what they are researching. It should capture the essence of their PhD, but should be written in such a way that any intelligent person, from any discipline, can understand it.

Working effectively with others task (research collaboration): Collaboration challenge (90 minutes)

Purpose

For participants to:

- communicate their research to others who may be less familiar with their area, field or discipline
- consider how they might collaborate in the future on a genuine research project that would combine their skills and professional research interests
- explore the prospect of collaborating with people they might not otherwise consider working with.

Process

Briefing from programme leader.

Participants follow actions and timings in their participant brief.

Structure

Introduction	2 mins
Form multi-disciplinary groups	3 mins
So that's what you do!	
Read research statements	5 mins
Discuss research statements	15 mins
Confirm understanding of research statements	5 mins
Greater than the sum of its parts	
Brainstorming	10 mins
Project selection and development	20 mins
Marketing the idea	10 mins
Present to research panel	20 mins

Resources

The first part of the activity relies on the participants having their 50-word summaries with them – you should have told them to complete this over lunch.

Participant brief

Note

Before the activity begins, participants should be pre-grouped, based on their research area. Try to group the participants so as to achieve as much diversity as possible between the different groups and their research topics; you can also refer to other factors for diversity – practice versus theory approach; stage of PhD, institution (if appropriate) etc. Aim for groups of three participants. If the numbers do not work out, organise in pairs if the research areas are extremely different; otherwise, try one group of four. This is a matter for discretion – either way will work.

If you have a good range of subjects and are able to mix them, then the session runs with each group finding an area of common ground and developing a novel research project (on any topic) which draws on the expertise of all those in the group.

Detail

Introduction

2 mins

Suggested script

Research is increasingly being done across the boundaries of subjects. Most of the UK Research Councils are keen to encourage collaborations between researchers whose

combined expertise can address problems which cannot adequately be addressed with a single perspective. In your participant learning journal (page 13) you will see excerpts from an EPSRC publication which describe many of the cross-disciplinary research projects they were funding a few years ago. The collaborations are now increasingly common.

Form multi-disciplinary groups

3 mins

Issue participant brief

Now it is your chance to develop an outline for your own collaboration. You will be allocated to groups of three (or two/four) with a deliberate mix of disciplines. Your challenge is to come up with a new project which will contribute to a question or problem of your choosing. The funding body will shortly announce their criteria for the next round of funding, so you have 25 minutes to get to know each other and to come to a level of understanding about each other's work. Start by reading each other's summaries and then ask each other questions until you understand:

- what the aim of their research is
- why the methodology they are using is suited to that problem
- what they hope to contribute to their field and what they have achieved so far.

Remember that you cannot use jargon or make assumptions about the other researchers' understanding of your research.

Participant brief:

So that's what you do!

25 mins

Simplifying something complex, without it becoming 'dumbed down' can be tricky. In your new groups this is what you will be attempting to do in this exercise.

Reading

5 mins

Exchange research statements so that everyone has a chance to read all the statements.

Acting as non-specialists, the others try to interpret your research statement – you will probably have to answer lots of questions about the context and purpose of your research.

Discussing

≈15 mins total

In turns, explain the essence of what you do.

Don't get bogged down in small detail; you have very little time!

Discuss only:

- the most interesting possible application or benefit of your work
- the main point of your research.

Interpreting

5 mins

Now confirm your understanding of each project by explaining what you understand to the rest of your group. Focus again on the benefits of the work and the main point of the research.

So, by the end of this phase of the activity, you should all understand each other's work well enough to summarise the key elements of that work.

By now you should have a basic grasp of the research being done by the others in your group. The next task is to work together to develop a novel research project using the expertise of everyone in the group and not merely the skills that any one group member might have. This doesn't have to relate directly to one or all of the existing projects, but it should be something you could realistically work on in the future i.e. a genuine collaboration based on your joint expertise.

Refer participants to their brief:

Greater than the sum of its parts

60 mins

Brainstorming

10 mins

Use the creativity hints from the introduction to generate as many potential ideas as possible. Anything goes at this stage!

Project selection and development

20 mins

Work up your best ideas into a basic proposal, focusing on the aim of the project, the motivation for working on this topic, your approach and the VALUE to each of the discipline areas (and the wider research community).

Marketing your idea

10 mins

Work up your ideas into a two minute presentation – remember that your audience is cross-disciplinary so NO JARGON!

Use visual aids or posters to help you get your point across.

You do NOT need to estimate funding or ask for money – just present the key facts about your proposed project.

The research panel

3 mins per project

All of you will present to the rest of your group and to a panel. The panel will ask you questions about your project, give you feedback on your idea and select which projects they would choose to fund. The panel will be looking for innovation:

- a simple explanation of the problem or issue you want to address (the 'what')
- the motivation for tackling this problem (the 'why')
- a relevant methodological approach (the 'how')
- anticipated outcomes and value of the project
- genuine collaboration with all research partners making a distinct contribution.

During the activity, circulate around the groups answering any questions or encouraging groups to move on with the task. Confirm with each group the time of the presentations.

Tell the groups where they will present and when.

Optional: after 10 minutes of project development you can ask to see a preliminary proposal outline.

Make sure they are proposing a genuine collaboration which is different from a project in their own field with a 'bolted-on' element from the other discipline – they should aim to come up with something that is 'greater than the sum of its parts' and must make this clear.

There are 20 minutes available for the presentations, questions, feedback and a review.

Allow each group to present for two minutes, then ask a few questions. Or allow the participants from other groups to ask questions; this is a good way of keeping them focused on listening to the other groups, rather than rushing to finish their own preparations!.

You are free to decide whether to award funding to all projects or only one. However, whatever approach you take, you must give each group feedback which includes positive points and suggestions for improvement. You should encourage the other participants to ask questions and give feedback to the groups but you need to manage this if the feedback is too blunt!

There is no specific plenary conclusion to this activity. However, it is a good idea to encourage the participants to write their thoughts in their learning journal (page 26).

Working effectively with others (managing professional relationships): Try to see it my way (45 minutes)

Purpose

- To enable participants to consider realistic questions about their progress towards a doctorate
- To appreciate the process of negotiating in the context of the types of problems likely to arise within the process of working towards a doctorate
- How to manage and improve professional relationships.

Process

Led by programme leader.

Structure

Introduction	3 mins
Preparation	15 mins
Case Study	22 mins
Review	5 mins

Resources

Role briefs – researcher and supervisor for each participant.

Detail

This session is not concerned with the content of each individual thesis, but rather with the participants' experience of the 'doctoral process'. That said, it is neither a group therapy session, nor a 'supervisor-bashings' opportunity! Specifically, it focuses on the process of negotiating in the context of the types of problems likely to arise within the process of working towards a doctorate, and the types of skills needed to prevent these problems arising, or to overcome them when they do arise. (Reference: Researcher Development Framework)

There is always a danger in these sessions that they will appear to suggest that everyone has a bad relationship with their supervisor. Not only is this self-evidently not the case, it is also not the aim of the session. Rather, the session is about managing and improving professional relationships – of which the doctoral researcher-supervisor relationship is just one example. And all such relationships, however positive they may be, need to be worked on to maintain them, and can almost invariably be (further) improved.

The scenario concerns an up-coming 'formal meeting' towards the end of the first year of study. The nature of this interview has been left neutral, allowing you to explain it in your introduction, ensuring it is in accordance with local practice, e.g. a first-second year progression meeting; a formal upgrade viva, etc.

Introduction

3 mins

Distribute the role briefs. Explain that the situation is based on a fictional scenario, but one that is likely to be authentic. Participants should be encouraged to draw on their own experience where possible.

Preparation

15 mins

Participants split into pairs/trios, and prepare for the meeting by first taking the situation of the supervisor and agreeing the issues/objectives the supervisor has for the up-coming meeting; then repeating the process for the researcher.

Case study

22 mins

Explain to the group how the case study will work.

Ask one group to describe what they think the objectives of the meeting are from the point of view of the supervisor and the researcher. Seek other views.

Then, ask another group to describe how they think the meeting might go. Ask:

- where might the meeting take place
- would any preparation be done before the meeting
- who starts the conversation
- what do they say.

At critical stages seek the views of the other participants and encourage someone to take over describing the meeting.

Often the situational role play will partially or totally 'break down' into a wider discussion. This can be harder to manage, but can produce some fruitful ideas and approaches.

Review

5 mins

Pull the learning together and ask the group to identify strategies for effective interaction with their supervisor.

This is a chance for you to share some of your own relevant experience.

Give participants time to refer to their participant learning journal to make some notes (page 26) and to look at further supporting notes for this session, pages 15-19.

Participant brief: Try to see it my way

PRE-MEETING BRIEFING FOR FRANKIE SCOTT

You are Frankie, a first-year postgraduate researcher approaching the end of your ninth month of research. In a fortnight you are going to have a formal meeting with your supervisor, co-supervisor and representatives from your school to review your progress over the first year of your studies.

Your supervisor, Professor Jones, is very busy and although you see him and your co-supervisor regularly around the building, you don't feel they take as much interest in you or your research as you imagined they would. After the first few months, they stopped initiating regular research meetings. You did set up a few after this but during the few you have had, Prof Jones didn't make many suggestions about what you have been doing nor volunteer many ideas to help you move forward in your project. You have no idea whether they are happy with your progress and you are now starting to worry about the meeting at which your future in the school will be decided. How can your supervisors make a fair judgement about your work and progress when they don't seem to know what is going on? How can you argue that you deserve to be kept on for a PhD when you aren't sure of the standard expected and haven't had much direction to give your project the momentum you need to be successful?

Last time you met, Prof Jones was busy writing a paper so you didn't really talk at all. You are just about to have another meeting, which was arranged, as usual, through the school secretary. She has told you that Prof Jones has an important meeting of the Faculty Examination Sub-committee in half an hour. But this time you are really determined to find out what is likely to happen in two weeks and how to make the best of the relationship you have with your supervisor.

Prior to this meeting, you should have clear in your mind the key issues you want Prof Jones to clarify to ensure that by the time you have the formal meeting, you will be in the best position to convince them that you can achieve a PhD, provided they, and especially Prof Jones, give you the supervision and direction you feel you are entitled to.

Your meeting starts in 15 minutes. Make your list now.

Participant brief: Try to see it my way

PRE-MEETING BRIEFING FOR PROFESSOR JONES

You are Professor Jones, a well-established researcher considered to be amongst the most 'research-active' in your school. You've achieved this because you worked hard to develop your independence as a researcher early in your career after doing a PhD in the UK and then a post-doc with one of the US 'superstars' in your field.

Early on in your PhD you realised that to be successful you needed to take ownership of the project and ultimately make a unique contribution to your field. You took the lead in setting up meetings with your supervisor and within six months of starting, you had learnt the skills needed to successfully apply your chosen methodology. Over the next 12 months you gradually had more and more input into the direction of the project and by the half-way point you were controlling your research. When reporting to your supervisor, you tended to describe what you had done, how this work was contributing to the theme of the research and what steps you planned to take next.

This type of active approach to research for the postgraduate researcher is now built into the university code of practice, so you feel that students have this kind of information readily to hand. Although you are considered to be a supportive supervisor, you feel that a PhD can only be awarded for independent work so you are careful to give students space to explore their own ideas, to develop their own interpretations about the work they have done and to identify the niche their work will have in their wider research area.

You are about to meet with Frankie, a first-year student who seems to be getting along OK at the moment. You don't sense Frankie is taking control of the project or has yet worked out how the work is going to make a useful contribution to the field. However, it is relatively early days and you hope that the upcoming formal meeting (due in two weeks, towards the end of Frankie's first year of study) will be a good wake-up call as this should make it clear where Frankie should be by now and point out any short-comings in the approach. You feel Frankie has the intellect to complete a good PhD, but hasn't yet made the transition from being a taught student who likes (needs?) to be told what to do.

You wonder what Frankie will have to say, and you are considering which issues you should raise to help to encourage Frankie along the path to the PhD.

Your meeting starts in 15 minutes. Make a list of these issues now.

Making the most of your PhD

(15 minutes)

Purpose

To reflect on the programme and make links back from the activities participants have undertaken to their PhD.

Process

Reflective time for participants to be able to spend on their own or in pairs to make the learning and activities of the day relevant to their personal situation.

Structure

To be determined by the programme leader.

Resources

To be determined by the programme leader.

Detail

This is a deliberately quiet, reflective time and participants will probably need some guidance from you to use the time productively.

Guide participants to think about:

- their objectives for the programme/their PhD
- what have they learnt from this programme
- how they will apply this learning
- what they want to change
- how they will make these changes?
- who is going to help them do it?
- how they will measure the change?

There is space in the participant learning journal on page 27 for them to reflect on this. You should encourage them also within this time to re-read some of their own learning journal observations, and maybe add notes to them if they feel it is appropriate.

Alternative 1:

As a start to this session, you could briefly walk the participants through what has been covered today as a trigger to reflection.

Alternative 2:

To introduce this session, you could refer back to the posters produced at the start of day (Establishing common ground) encouraging participants to specifically reflect on the skills they think an effective (or bionic) researcher might need/be expected to possess.

Note – If you are using the postcard activity (see next session), it is most effective if integrated within this reviewing process, as a mechanism to help participants achieve the objectives they have been setting themselves.

Review and close of the programme

(15 minutes)

Purpose

- to summarise the learning from the programme
- to elicit three action points from each participant
- to receive evaluation and feedback on the programme.

Process

To be determined by the programme leader.

Structure

Postcards	5 mins
Closure	5 mins
Programme evaluation/feedback	5 mins

Resources

Postcards – one for each participant and envelopes to put postcards in
Programme evaluation/feedback sheets.

Detail

Postcards 5 mins

Give each participant a postcard and an envelope; ask them to write a note to themselves on the postcard, put it in the envelope and address it to themselves. Collect in the envelopes with postcards so they can be sent out by the programme organiser at a later date.

You need to clarify whether this means an internal or external address. You can determine the timescale for this, but typically the postcards can be sent out six weeks or three months later. Confirm the date with the programme organiser.

Explain to participants that the purpose of the postcard is to enable them today to say something to themselves in six weeks'/three months' time.

You might want to focus them to a more specific variant, such as:

- give themselves three targets to have met
- note three key skills to focus on developing
- include something positive that they might need to hear!

Closure 5 mins

In closing the programme, this is your opportunity to cover the key learning points, answer any questions – your opportunity to be creative!

Here is a list of attributes of an effective researcher that you could use:

- know yourself and how you prefer to work
- be able to work with others the same as/different to you
- have a well-rounded plan that suits you and means you will finish in the timescale agreed
- be able to communicate your research to a variety of audiences
- be able to be collaborative and creative
- be able to manage professional relationships
- have confidence in asking for what you need
- be supportive of/supported by other researchers
- understand the contribution/originality of your research.

Programme evaluation/feedback

5 mins

Ask participants to complete a programme evaluation/feedback sheet.

End of programme

Alternative activities

Project Tomorrow

Alternative Team Project Task to Air Vehicle Challenge: (45 minutes)

Purpose

For participants:

- to try out some of the project planning tools in a context that is relevant to them
- to engage directly in the whole subject of skills training for researchers, making them think a little about other professional development opportunities they may wish to pursue during their doctorate.

Process

The activity is to be completed within their original working groups.

Issue the participant brief/project brief, which is self-explanatory:

- tuning in
- creative ideas generation
- compulsory planning
- preparing the proposal
- presenting proposal.

There is scope for timings to slip, especially when groups are slow to get going.

Support facilitators to run the activity and, as part of the exercise, act as consultants.

Structure

Introduction	1 min
The project	
• Tuning in	5 mins
• Creative ideas generation	5 mins
• Compulsory planning	5 mins
• Preparing the proposal	10 mins
• Presenting proposal	19 mins

Resources

Participant brief

Proposal form

Blank Gantt chart

Extra support facilitators to act as consultants

Detail

Generally, this activity seems to work well with all groups in plenary, if there is sufficient space for them each to have their own 'corner'. Alternatively, if break-out rooms are available, these can be used, but then extra care needs to be taken to ensure that all groups remain on schedule.

The participant brief is pretty self-explanatory. There is no trick here and nothing hidden – the instructions are meant to be clear, so feel free to offer clarification if requested or if you feel it is necessary. Where the brief is vague, this is so as not to restrict their thinking – basically, they can go for whatever scale of event they like, so long as they plan it, budget it, and justify it.

The brief also includes the timings for the activity, which is set to run for a total of 45 minutes. There is scope for these timings to slip, especially when groups are slow to get going. So, as well as trying to direct the timings centrally, you should circulate around the groups, dip in to the conversations, to clarify or nudge as appropriate.

Also, in the later stages of the activity, facilitators should act as consultants for the costings - it might be useful to agree some general guidelines for this before you all head off and give totally contradictory advice!

During the compulsory drill-down time, it might be useful to hand out the proposal forms (copy included after the participant brief), to act as a guide or prompt for participants.

Review panel

The session concludes with the presentations. It is worth giving strong feedback here – and experience suggests participants value genuine responses, rather than just soft praise. Draw on any relevant experience you have of designing such training programmes – the realism usually heightens the impact.

Suggested questions and ideas for the review panel to consider:

- does the proposal have an engaging name and clear vision?
- is it clear what differentiates this event from other training?
- are the benefits to people attending the event clear and achievable?
- do you think the group could successfully run the event?
- does the event provide sufficient impact for the funding requested?
- what is the scale and impact of the event (i.e. a big difference to a few people or a small difference to many?)
- is the proposed cost sensible?

At the end of the session you should prompt participants to capture their thoughts in their participant learning journal.

Participant brief: Project tomorrow

Overview

The **Researching Tomorrow Foundation** is an award-granting body that has a specific interest in funding projects that will help change the shape of the way we live our lives in 20-25 years' time.

A new initiative for this year will be a series of development events for emerging researchers, with the twist that these events are developed, designed and delivered by small groups of researchers from around the UK.

Budgets are flexible at this stage as the Foundation is keen to support a diverse range of events and looking for innovative ideas to improve the skills and effectiveness of researchers.

The project

As a team you have been asked to submit an initial proposal for funds from the Researching Tomorrow Foundation to run an event in 6-12 months' time (although this is flexible for more ambitious proposals). You are required to make a short presentation on your proposed ideas to request funds; this should detail why and how you think your event will help to make researchers more effective.

The Foundation is also interested in funding teams that have a primary focus on collaboration using the skills and experience within the research group. The key thing in this proposal is looking for innovation and evidence of wider thinking and not necessarily detailed prior knowledge of the event management – the ethos of the awards themselves is development of new skills, so all successful teams will have access to support from an experienced programme organiser.

The process is split into three parts:

Tuning in

5 mins

This time is set aside at the start of the activity for you to read the brief in full, to confirm that everyone in the group understands the problem and to note the timings.

Creative ideas generation

5 mins

During this time you should think about the development needs of researchers and come up with an idea for an event to address one or some of these needs. Be as creative as possible – your first ideas are likely to be the same as other groups and if the panel hears about three or four VERY similar events, only one will be funded.

Compulsory planning and drill-down time

5 mins

During this time you are expected to think about your event and how your group might put this proposal together. You will also be given access to consultants who have experience of working on events, can help you to identify the component parts of your event. You will not be producing a detailed plan in this time, but you should be exploring ways in which to make the event happen and starting to think about timings and resources.

This is thinking, planning and exploring time.

Preparing your proposal

10 mins

At this point you will be given a blank Gantt chart to complete in the next ten minutes.

You will also be required to pull together your presentation outlining your proposal to the Foundation; this should last no more than two minutes but should include the following areas:

- What is your proposal? What is it called?
- Why is it innovative? What are the key benefits to researchers attending your event?
- How does it use the skills of the group?
- Is there any other information that you feel is relevant to the Foundation?

This is 'doing time' and should involve all members of the group in at least one of: preparing the Gantt chart or preparing and practising the presentation.

Presenting your proposal

2 mins per group

Each group is asked to present their proposal, including their Gantt chart.

Key issues

Key things that the Foundation is looking for in the event proposal include:

- evidence of multi-disciplinary teams being able to work together
- innovation in using the skills of the group
- evidence of planning.

Participant brief: Project tomorrow

Project tomorrow proposal form

Title of your event or activity:

Target group (as well as brief details of the type of researcher being targeted – in terms of career stage, discipline or other). Please give estimated numbers of who will attend or engage in your proposed project:

Innovation (how does your project differ from training already provided by institutions, funding bodies or professional societies?):

Implementation (briefly describe what you will do and how):

Project management (how long the project will take; staff required; activity undertaken by each partner):

What do you hope to achieve?

Optional additional sessions

Please note that time has not been allocated to these sessions.

If you have a longer day these could be included.

You may decide to take small elements of the sessions and include them in the programme at an appropriate point.

Working effectively with others: Project approaches

Your supervisor – same as you? different to you? (Part 1)

(15 minutes)

Purpose

To explore how to work effectively with others despite having differences of approach.

Process

A session led by the programme facilitators.

Structure

Describe continuum	5 mins
Group divides	1 min
Questions x up to 5	9 mins

Resources

Flip chart stands with paper x 2

Detail

This session is (very) loosely based on Jungian psychology – if you are a Myers Briggs practitioner, you can use these notes to form the basis of running a session differently if you prefer, but they are written with the aim of being able to be used by all to work with differences of approach to time and project management.

This is a facilitator-led session: you set the scene for participants to examine any very productive or challenging relationship they have with their supervisor in relation to how they work and manage their PhD.

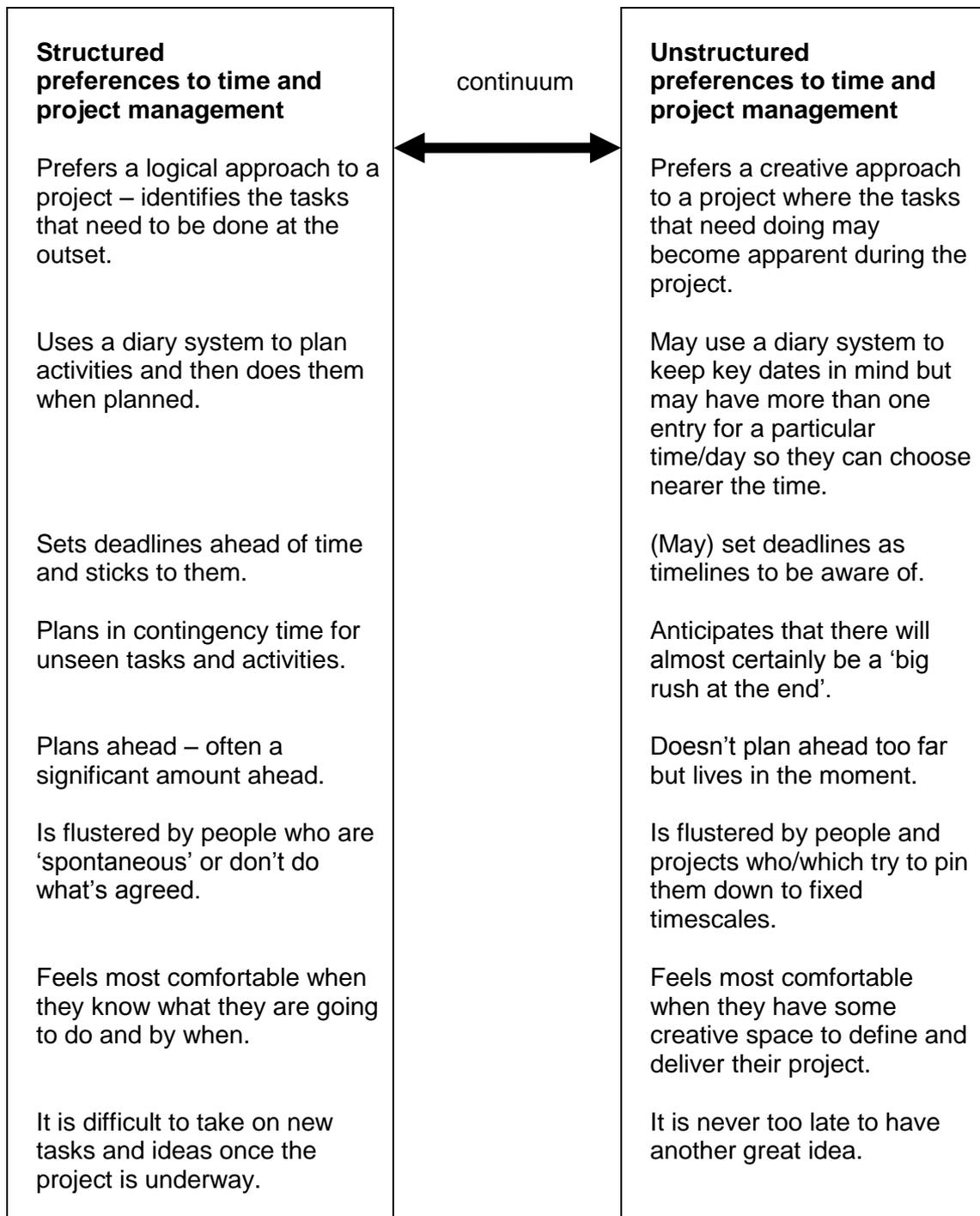
The start of this session is a good opportunity to examine the idea of ‘preference’ and how we all use a range of styles at different times, but have an instinctive preference to start in one particular place.

To run this session successfully, you should develop these themes into a discussion and exercises around approaches to time/project/activity management.

Describe continuum

5 mins

Using two blank pieces of flip chart paper outline two extremes at different ends of the spectrum of approaches to time and project management – use one word to chart up the statement with more explanation verbally using the wording below or your own explanation.



This factual and practical representation of the different approaches should have participants identifying more with one preference than the other although there may also be a group in the middle who 'do both' or 'do elements of both', which is fine – and you should stress that this is fine.

Group divides

1 min

In order to help participants decide on their major set of preferences, ask them to move towards the side of the room where the flip chart that most accurately reflects their preference is. Then split them into groups with four or five participants on each side of the room, and the middle if there is a group there.

Questions x 5

9 mins

Ask participants all or some of the following (or similar) questions to help cement these differences:

- you have a paper that is due to be with your supervisor for review by a week on Friday. Today is Tuesday. How are you getting on with it? How will you manage the time between now and next week?
- whilst you are writing a paper for your supervisor to review, the post arrives and in it is a first circular (not a call for papers), including a website reference, for a conference in Canada on a subject that is very relevant to you. How do you react? What drives that?
- you have a new element of your research to do. How do you get started?
- you work in a university building that has 24-hour access. How do you manage your work time within that period? What drives it?
- describe your desk/bench or office/area of the lab.

In each case, ask the question and give participants some time to talk within their small groups. Then, when the time feels right, bring them together to discuss their responses in plenary. Probably one group from each 'side' will suffice for you to be able to draw out some learning points/differences and similarities. Before you go on to the next question, check if anyone wants to move position, especially from the middle to one or other side (or indeed, from a side to the middle) – and be positive about this.

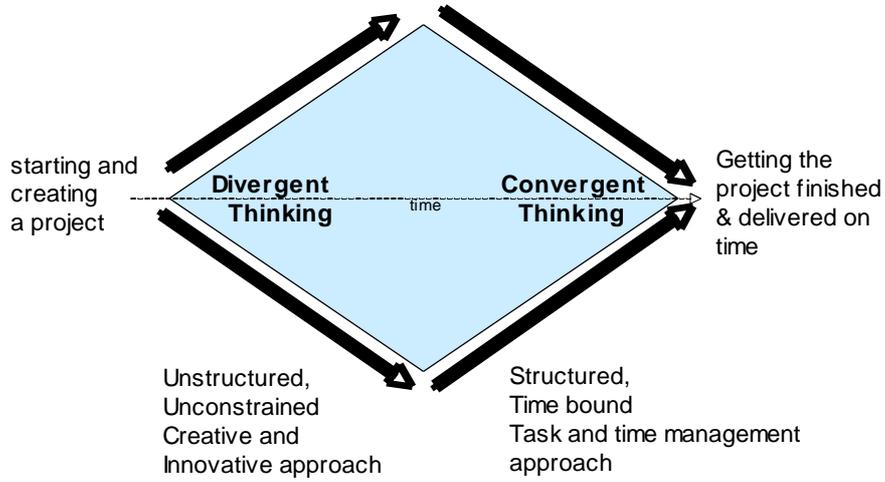
Finish this session by asking how these groups with different preferences:

- can work together effectively:
see what needs to be done from each instinctive preference to make projects happen, what are the 'coping strategies' they can suggest and share with each other.

The idea of divergent thinking and convergent thinking (diagram below) might be one you want to draw for participants to suggest how both sets of skills can be used to make a strong project happen

- do/don't reflect their relationship with their supervisor:
this is very effective if one or more participants has a 'light bulb' moment about how it accurately reflects their relationship with their supervisor and how stressful that can be.

different preferences working together



Working effectively with others: Perspectives

Your supervisor – same as you? different to you? (part 2)

(15 minutes)

Purpose

To work effectively with others who have different perspectives on the same PhD: the researcher and their supervisor.

Process

Led by the programme leader

Structure

Describe continuum

Group divides

Questions x 5

5 mins

1 min

9 mins

Resources

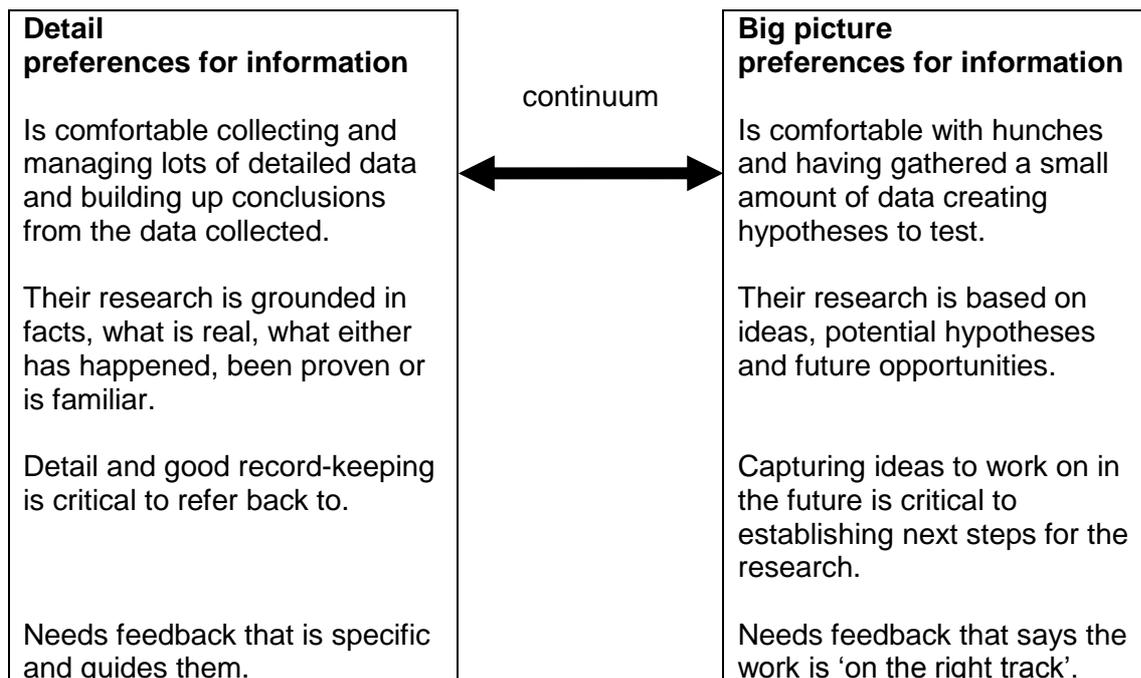
x 2 flip chart stands with paper

Detail

Similar to the previous session on approaches to project management, it is (very) loosely based on Jungian psychology around the dimensions of detail versus big picture thinking and how these conversations might cause harmony/difficulty between researcher and supervisor. You can use these notes as a guide or take the time to explore differences of approach that might arise in the researcher-supervisor relationship.

Again, this is a facilitator-led session: you set the scene for participants to examine where they have a very productive or challenging relationship with their supervisor in relation to how they work and manage their PhD.

Using two blank pieces of flip chart paper outline two different ends of the spectrum of approaches to information and ideas management – use one word to chart up the statement with more explanation verbally using the wording below or your own explanation.



Written communication is mainly very specific relating to data.

Written communication can seem quite vague relating to ideas.

This factual and practical representation of the different approaches should result in participants identifying more with one preference than the other, although there may also be a group in the middle who 'do both' or 'do elements of both', which is fine.

In order to help participants decide where their major set of preferences are, ask them to move towards the side of the room where the flip chart that most accurately reflects their preferences is; then split them into groups of four-five participants on each side (and the middle) of the room.

Ask participants all or some of the following (or similar) questions to help cement these differences:

When you are reading papers, what is your approach to reading the paper and what is it you are principally looking for in it?

Those with a preference for detail may be more likely to be looking to understand how the research was done and the practicalities of it, the facts involved, etc. and may hone in on particular sections to be able to understand this.

Those with a big picture preference might be more likely to be looking for the main themes and ideas that came out of it and more likely to skim read the whole paper looking for the 'big idea' contained in it.

When you are collecting data for your research, what is the process you go through regarding collecting the data versus creating the hypothesis – which comes first? How much data do you feel the need to collect?

Those with a preference for detail may collect considerable amounts of data before they start to draw conclusions and start to formulate a hypothesis.

Those with a big picture preference may collect some data, start to envisage the end result and the main themes and create a hypothesis early on that they then test.

You submit a paper to your supervisor for review – what are you looking for in return?

Those with a detail preference will be looking for specific feedback about what they have written and some clear indications of what they should be doing as a result of it. They will be relatively comfortable with a script 'marked in red' with comments and additional suggestions and uncomfortable with comments that are 'that's fine' or 'that's not what I expected'.

Those with a big picture preference will be looking to see if they are 'on the right track' and their ideas are heading in the right direction. They will be less comfortable with the detail-focused feedback, particularly if they don't get the big picture feedback they need 'you're doing fine' or 'this is what I'm expecting'.

In each case, ask the question, and then give participants four-five minutes to talk within their small groups. Then, when the time feels right, bring them together to discuss their

responses in plenary. Probably one group from each 'side' will suffice for you to be able to draw out some learning points/differences and similarities.

Before you go on to the next question, check if anyone wants to move position, especially from the middle to one or other side (or indeed, from a side to the middle) – and be positive about this.

Towards the end of the session, it is possible to draw the learning of how these two groups might work together and recognise where there might be gaps in communication.

Big-picture thinkers are useful for having big ideas and then drilling down to drive out the detail.

Detail-focused thinkers are useful to build up their picture of the whole from the collection of individual bits of data.

Finish this session by asking about how these groups with different preferences:

- do/don't reflect their relationship with their supervisor (often very effective if one or more participants has a 'light bulb' moment about how this accurately reflects their supervisor and how stressful that can be)
- can work together effectively and what needs to be done from each instinctive preference to make their PhD happen – what are the ways they can suggest and share with each other?



About Vitae

Vitae is supported by Research Councils UK (RCUK) and managed by CRAC: The Career Development Organisation. Vitae's vision is for the UK to be world class in supporting the personal, professional and career development of researchers.

To achieve our vision we have four aims:

- building human capital by influencing the development and implementation of effective policy relating to researcher development
- enhancing higher education provision to train and develop researchers
- empowering researchers to make an impact in their careers
- evidencing the impact of professional and career development support for researchers.

Vitae's work with higher education institutions

Vitae works with UK higher education institutions (HEIs) to embed professional and career development in the research environment. Vitae plays a major role in innovating, sharing practice and enhancing the capability of the higher education sector to provide world-class professional development and training of researchers. We do this both through national projects and through Hub activities.

The programme develops resources for use by trainers and others working with researchers; and provides opportunities for HEIs to share information and practice; develop ideas and approaches; and work collaboratively.

For further information about the range of our resources, email resources@vitae.ac.uk or visit www.vitae.ac.uk/resources

For conditions of use please refer to www.vitae.ac.uk/resourcesconditionsofuse

For further information about Vitae, email enquiries@vitae.ac.uk or visit www.vitae.ac.uk