

CARTA Curricula

*Resources to build research excellence and
multi-potential graduates*

*THE CONSORTIUM FOR ADVANCED
RESEARCH TRAINING IN AFRICA*

THE CONSORTIUM FOR ADVANCED RESEARCH TRAINING IN
AFRICA



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Videos

Welcome



These resources improve PhD training, build university systems to support research and research training, and provide support for future research leaders. Together, the four curricula can create a conducive environment for research excellence:

[PhD Training.](#)

[Supervision.](#)

[Institutional Support.](#)

[Graduate Grant-writing.](#)



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[cartacurricula/?p=4#oembed-1](https://pressbooks.pub/cartacurricula/?p=4#oembed-1)

Why should I use CARTA's materials?



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What are the CARTA Curricula and how do I use them?

How to use this book

One way to begin is to read the reasons, below, to use the CARTA Curricula. Another is to watch the video on our approach to pedagogy. You could also watch the other videos for a sense of the methods in action.

CARTA's PhD Training curriculum provides essential components for a research-based degree for a large number of disciplines. Importantly, it imparts transferable skills that will prove valuable for many careers going after graduation. The curricula teach inter- and cross-disciplinary skills essential for a 21 Century graduate. You can pick and choose or use them all. To train PhD students, you can either:

- Follow the [PhD journey](#) that CARTA developed, or
- Use the [Skills Index](#) to identify sessions to meet specific training needs.

If you teach some sessions online, we recommend that you use the interactive features of online learning platforms to ensure that the philosophy of learning together is not lost.

Why use this book?

From the evidence of formal evaluations and the fruits of practice, we are confident that the CARTA curricula are effective, appropriate, and timely.

The training was created and tested over the course of more than a decade by senior academics and teachers from a wide spectrum of disciplines and academic institutions across the world.

Originally designed for doctorates that focused on public and population health from any disciplinary perspective, the curricula can be adapted for almost any research-based PhD and institution.

The curricula focus on the benefits of multidisciplinary

In the 21st Century, PhDs must be able to understand and work across disciplines and CARTA’s training is focused on achieving that.

Participation and peer learning are highly effective

People learn more from talking to each other than from listening to someone lecturing them. The trick is to guide what they are talking about productively. Struggling together with a task leads to ‘light bulb’ moments as participants spark off one another.

CARTA’s approach to training is not conventional – these methods promote agency and are fun to teach. Participants in all CARTA’s trainings – from PhD students to senior university administrators and academics – enjoyed the sessions.



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The PhD training proved to work very well

CARTA PhD fellows were all staff at universities with full-time jobs, yet they took a comparable time as other students to complete their PhDs.

The curriculum produced high quality PhDs

By 2023, CARTA had enrolled 245 PhD fellows who had produced more than 2,800 peer-reviewed journal articles and raised over 31 million US dollars to support their research.

External evaluations found CARTA to be a model worth reproducing

The CARTA curricula can be adapted because they focus on the methods of how to teach (in addition to the content of what to teach). The CARTA complements the discipline-specific depth that a PhD requires. It does not replace it – rather, it teaches the transferable soft and hard skills required nowadays.

Research support is essential for a conducive environment

Professional and administrative staff are central, along with academics, to the mission of a university. The Institutional Support curriculum addresses their role and professional development in order to promote an environment in which researchers can thrive.

Informality creates synergy and networks

From solemn, senior professors to the most junior clerks, people are more likely to develop productive working relationships with colleagues once they interact in mutually respectful collegial environments, particularly if they had fun. The CARTA approach creates such possibilities.

You are invited to adapt CARTA ideas to meet your needs.

PhD Training

Critical skills for research-based doctorates and careers



Introduction

For you, the facilitator or organiser of doctoral training, this curriculum offers either a comprehensive, sequenced PhD journey or a selection of sessions to create or enrich your own programme. CARTA's approach to training is not conventional – these participatory methods promote agency, are fun to teach, and develop multi-potential 21st century researchers who can work across disciplines. Because the sessions focus more on *how* to teach, rather than the content of *what* to teach, you can use or adapt CARTA's approach for most research-based PhD programmes.

Watch this video as preparation for using this curriculum.





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Download [this curriculum](#) in full.

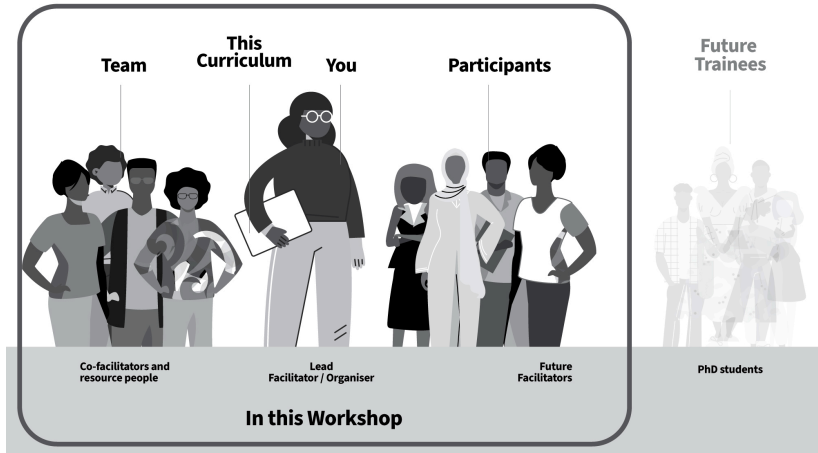
Overview

CARTA training is designed to enhance students' skills and knowledge along the pathway to a PhD and to guide and propel them through the research process. As the facilitator or coordinator of PhD training in your institution, you can choose whether to:

- Adopt or adapt the four sequential phases along the [PhD Journey](#), designed and tested by CARTA as a coherent program, or
- Search the [Skills Index](#) to identify sessions that teach specific competencies.

The PhD Journey groups training in four phases:

- Prepare Research Question and Protocol builds critical thinking, technical skills, and other core research competencies and methodologies.
- Focus on Methods introduces the concepts and software to plan, manage, and analyse both qualitative and quantitative data, as well as the idea and benefits of mixed methods research.
- Analyse Data and Write focuses on data presentation, the doctoral dissertation, and scientific writing, along with communication skills to disseminate results.
- Prepare for Post-graduate Life addresses professional development, grant writing, teaching, policy engagement and leadership.



Approach

Key to CARTA training is the idea of learning together, whether in person or in a blend of virtual and in-person. As students focus on group tasks and learn collaboratively, they develop and consolidate professional networks of researchers, peers, and mentors.

The CARTA approach is problem-posing and participatory, acknowledging the skills and experience that PhD students bring to the training. (Freire, 2020). It differs from the transfer or transmission of knowledge or facts to the passive learner, where the trainer is seen as possessing all essential information and trainees as 'empty vessels' needing to be filled with knowledge.

The choice of participatory method is deliberate: there is a coherence between values and the approach to sharing them. From the beginning, this curriculum recognizes all participants as thinking, creative people with the capacity for action. Each person is a contributor, bringing different perceptions based on their own experiences. This requires that you, as facilitator, make a conscious effort to use participatory methods to enable participants to grow in awareness.

Watch this video for more insight into CARTA's approach.



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Facilitation

Some people assume that facilitating a workshop will be an easy process, until they try doing it. The participatory method means that facilitators guide the workshop while appreciating that the participants are in charge. The facilitator's responsibility is to create an enabling environment that allows participants to learn from each other, come to an understanding, and pool their collective wisdom in resolving issues.

A good facilitator works as an ally to ensure that meetings, seminars, planning sessions, and workshops deliver the intended and desired outcomes. Not all facilitators are alike. Ideally, you will be able to identify and involve facilitators who understand the goals and can work to deliver the expected outcomes of this curriculum. CARTA recommends these attributes for facilitators.

Facilitator attributes

An unbiased perspective

Participants should feel comfortable that their opinions are welcomed and encouraged. An unbiased facilitator creates a neutral zone where alternative points of view can be shared and debated in a respectful manner. This is key to driving a constructive, productive discussion.

Sensitivity to individuals

To create and maintain an atmosphere of trust and respect requires the facilitator to be aware of how people are responding to the topics under discussion and to the opinions and reactions of others. Most people will not articulate their discomfort, hurt feelings, or even anger; instead, they silently withdraw from the discussion and often from the group. Sensing

how people are feeling and understanding how to respond to a particular situation is a critical skill of facilitation.

Sensitivity to the group

In any group, the whole is greater than the sum of the parts, and group 'chemistry' generally reflects shared feelings: eagerness, restlessness, anger, boredom, enthusiasm, suspiciousness, or even silliness. Perceiving and responding to the group's dynamic is essential to skilful facilitation.

Ability to listen

One way the facilitator learns to sense the feelings of individuals is by listening carefully, noting both the explicit meaning of words and their tone and implicit meaning. A good facilitator practices 'active listening.' They may repeat, sum up, or respond directly to what a speaker says to ensure that the speaker's meaning is correctly understood by the group.

Tact

Sometimes, a facilitator must say difficult things for the good of the group. The ability to do so carefully and diplomatically is critical. Examples include a group discussion dominated by one person or a group of silent participants. The facilitator must find a gentle, tactful way to engage the team so everyone can participate and get the most out of the session. Often, a participant asks a question, and then rambles on, eventually answering his own question. A capable facilitator knows how to diffuse these awkward moments and maintain a productive atmosphere.

Commitment to collaboration

Collaborative learning can occasionally seem frustrating and inefficient. At these moments, every facilitator feels tempted to take on the familiar role of the traditional teacher and to lead, rather than facilitate. However, genuine conviction about the empowering value of cooperative learning will help the facilitator resist a dominating role. Likewise, a good facilitator is willing to share facilitation with others in the group. The goal is always to conduct the best and most effective discussion. To that end, a good facilitator knows how to adjust his or her role accordingly.

A sense of timing

The facilitator needs to develop a sixth sense for timing: when to bring a discussion to a close, when to change the topic, when to cut off someone who has talked too long, when to let the discussion run over the allotted time, and when to let the silence continue a little longer.

Resourcefulness and creativity

Each group of participants presents different dynamics. Despite a well-planned agenda, discussions may not unfold as anticipated. A good facilitator should be able to think on their feet. This may mean changing direction in mid-stream, using other creative approaches to engage the group, or welcoming ideas from the group on how to shift the agenda. Good facilitators always have tricks up their sleeves that will help a group move forward while still keeping an eye on the overall objective of the meeting.

A sense of humour

As in most human endeavours, even the most serious, a sense of humour enhances the experience for everyone. A good facilitator appreciates life's ironies and is able to laugh at themselves and share the laughter of others.

Preparation

You will find detail on preparation for each session or sequence of sessions. In general, you may need to check how participants will access references that are not open-access. Some sources may require payment, an email request to authors, institutional log in, or a portal such as [Hinari](#).

In plenty of time, identify and engage the co-facilitators and other contributors for specific sessions. Advise facilitators to read the relevant sessions until they feel comfortable and confident with the material. Convene as a team until all members are on the same page. You may decide to run a [Training of Trainers](#) for [facilitators](#).

The PhD Journey

Sessions grouped in four phases

Prepare Research Question and Protocol

Sessions & Sequences

[Professional Development Plan – PhD](#)

[Multidisciplinarity](#)

[Gender and Health](#)

[Gender, Sexuality, and Values](#)

[Research Question and Methodology](#)

[Designing PowerPoint Slides](#)

[Health and Demographic Surveillance System](#)

[Field Visit](#)

[Academic Writing](#)

[Academic Citizenship Introduced](#)

[Research Concepts](#)

Focus on Methods

Sessions & Sequences

[Diagnostic Sessions](#)

[Research Development Clinics](#)

[Qualitative Methods](#)

[Quantitative Methods](#)

[When to Standardise and How](#)

[Academic Posters](#)

[Spiderweb: Social Determinants](#)

[Introduction to health economics](#)

Analyse Data and Write

Analyse Data and Write

[Scientific Blitz](#)

[Journal Club](#)

[Writing and Analysis Sessions](#)

[Work in Progress](#)

[Pitching Articles and Ranking Journals](#)

[Qualitative Data Analysis](#)

[Quantitative Data Analysis](#)

[Data Analysis Plan Revisited](#)

[Manuscript Club](#)

[Policy Engagement and Briefs](#)

Prepare for Post-graduate Life

Sessions & Sequences

[Grant Proposals](#)

[Teaching](#)

[Leadership](#)

[Advocacy and Influence](#)

Skills Index

Choose a skill from the list to find the sessions that cover it

Critical Thinking

- [Multidisciplinarity](#)
- [Research Question and Methodology](#)
- [Academic Writing](#)
- [Diagnostic Sessions](#)
- [Academic Posters](#)
- [Spiderweb: Social Determinants](#)
- [Journal Club](#)
- [Scientific Blitz](#)
- [Grant Proposals](#)

Analytical Thinking

- [Research Question and Methodology](#)
- [Health and Demographic Surveillance System](#)
- [Academic Writing](#)
- [Qualitative Data Analysis](#)
- [Quantitative Data Analysis](#)
- [Diagnostic Sessions](#)

- [Academic Posters](#)
- [Field Visit](#)
- [Spiderweb: Social Determinants](#)
- [Quantitative Data Analysis](#)
- [Qualitative Data Analysis](#)
- [Scientific Blitz](#)
- [Manuscript Club](#)
- [Work in Progress](#)
- [Grant Proposals](#)
- [Gender & Health](#)
- [Gender, Sexuality, and Values](#)

Scientific Reading & Writing

- [Pitching Articles and Ranking Journals](#)
- [Research Question and Methodology](#)
- [Research Concepts](#)
- [Academic Writing](#)
- [Journal Club](#)
- [Scientific Blitz](#)
- [Manuscript Club](#)
- [Work in Progress](#)
- [Writing a Grant](#)

Giving Feedback

- [Journal Club](#)
- [Manuscript Club](#)
- [Work in Progress](#)

Knowledge Translation

- [Designing PowerPoint Slides](#)
- [Field Visit](#)

- [Academic Posters](#)
- [Advocacy and Influence](#)

Research Leadership

- [Grant Proposals](#)
- [Professional Development Plan](#)
- [Leadership](#)
- [Pitching Articles and Ranking Journals](#)

Academic Citizenship

- [Teaching](#)
- [Professional Development Plan](#)

Social Justice

- [Gender & Health](#)
- [Gender & Sexuality](#)
- [Spiderweb: Social Determinants](#)
- [Scientific Blitz](#)
- [Advocacy and Influence](#)

Multidisciplinarity

- [Spiderweb: Social Determinants](#)
- [Health and Demographic Surveillance System](#)
- [Journal Club](#)
- [Diagnostic Sessions](#)
- [Spiderweb: Social Determinants](#)

Technical Depth

- [Research Question and Methodology](#)

- [Health and Demographic Surveillance System](#)
- [Qualitative Methods](#)
- [Academic Posters](#)
- [Quantitative Data Analysis](#)
- [Qualitative Data Analysis](#)
- [Writing a Grant](#)

Scientific Communication

- [Designing PowerPoint Slides](#)
- [Journal Club](#)
- [Academic Posters](#)
- [Pitching Articles and Ranking Journals](#)
- [Manuscript Club](#)
- [Work in Progress](#)

Project Management

- [Health and Demographic Surveillance System](#)
- [Field Visit](#)
- [Grant Proposals](#)
- [Leadership](#)
- [Advocacy and Influence](#)

Ethics

- [Field Visit](#)
- [Grant Proposals](#)

Training of Trainers

To implement this curriculum effectively, facilitators must be well prepared. This ToT workshop builds or refreshes the skills and background knowledge of your team.

Download the [ToT workshop](#).

Multidisciplinary

Jigsaw puzzle, 9 sessions, 1 week

This set of interconnected sessions introduces a range of skills and concepts through participatory activities focused on a specific question. The example in the video concerns the social determinants of under-five mortality in Uganda.

Students:

- Reflect on the philosophies of knowledge within their own disciplines.
- Recognise the contribution of other disciplines and the importance of multidisciplinary.
- Learn efficient ways to search for, read, critique, summarise, and reference academic articles.
- Identify, through a literature search, their discipline's contribution to exploring, describing and evaluating interventions in order to understand the specific question you have chosen.
- Understand and use the concept of social determinants of health and the social levels at which they operate.
- Collectively construct a research framework.

Preparation

Engage resource people well in advance of the sessions. In addition to yourself/selves as facilitator/s, identify and invite a researcher or librarian to introduce database searches and support students as they work.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=24#oembed-1>

To schedule these sessions over the course of a week, you could use or adapt CARTA's sample timetable.

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30		Session 2: Form Disciplinary Teams	Session 5: Read Academic Articles		Session 9: Conduct a Multilevel Analysis of Social Determinants of Health
		Session 3: Discuss Epistemology			
10:30	Break	Break	Break	Break	Break
10:45		Session 3 continued	Session 6: Manage References	Session 7: Synthesise Findings	
12:45	Lunch	Lunch	Lunch	Lunch	Lunch
13:45		Session 4: Search Databases	Session 6 continued	Session 8: Present Contributions by Discipline	
15:45	Break	Break	Break	Break	Break
16:00	Session 1: Introduce these sessions	Session 4 continued	Session 6 continued	Session 8 continued	Reflections on the week
17:00					Evaluations



Download [the curriculum](#) for this jigsaw puzzle.

Sessions

Session 1. Introduce Multidisciplinarity | 30 minutes

Announce the question that you have chosen as a focus for this jigsaw or series of interlocking sessions. In the video example, the question was:

What does your discipline contribute to our understanding of the determinants of mortality and morbidity among under-fives?

Explain that students will research what their discipline contributes to our understanding of this question by conducting a literature review. To do this effectively, the next sessions will support them to discover:

- How their discipline has studied and learned about the topic and with what methods.
- How to define their literature search and use databases such as PubMed®, POPLINE, Cochrane Library.
- How to read and analyse academic papers.
- How to manage citations.

In addition to working within their own disciplines, students will exchange knowledge about their disciplines with peers in the larger group. They will recognise the value of sharing knowledge from different perspectives to address challenges in public health (or any other field).

In the last stage of this jigsaw, students will focus on the social determinants of health. Drawing from the findings of their literature reviews, students will identify the different levels at which factors have impact, from individual to global. Together, they will then map the causal factors per level, in order to create a research framework.

Session 2. Form Disciplinary Teams | 2 hours

PhD students may come from a range of different disciplines. In public health, they may study – for example – medicine, nursing, environmental health, epidemiology, demography, therapeutic sciences, psychology, or sociology. This introductory activity serves to break the ice, as well as forming the groups in which students begin research into their specific disciplines.

Preparation

As the facilitator

- Decide on a specific public-health issue as the focus of these sessions, such

as the determinants of mortality and morbidity among under-fives. Prepare a set of statements to read out, as in the examples in Step 1.

- Prepare the task instruction on a flipchart or PowerPoint slide.
- Choose or clear an open space for the students to move around in.

Outcome

By the end of the session students can define their own discipline.

In addition, students get to know each other.

Steps

Time	Step	Who
45 minutes	1. Form teams	Facilitator with full group
15 minutes	2. Introduce the task	Facilitator
1 hour	3. Describe each discipline	Students in teams

Step 1. Form teams by discipline

45 minutes

Invite the students to gather in the open space. Explain that they should move between two sides of the room in response to each of your statements:

- One side labelled 'agree', that is, 'this is true for me'.
- The other side labelled 'disagree', that is, 'this is not true for me'.

Make your series of statements. In response, students choose which side of the room to move to. Encourage a relaxed atmosphere to break the ice; students first get to know each other through responding to non-judgemental and possibly amusing statements.

You might state, for example:

"I have travelled to East Africa before".

"I watch football."

"I can ride a bicycle."

“I can drive a car.”

“I like to do karaoke.”

You can also prompt revelations and brief comments about gender norms and roles.

“I have a child.”

“I have changed a baby’s nappy/diaper.”

After a while, make statements about disciplines, such as:

“I am a medical doctor/specialist.”

“I am an epidemiologist/biostatistician.”

“I am a sociologist/anthropologist.”

Students who choose ‘agree’ after these last statements are now forming disciplinary teams. Keep going until everyone is grouped. You may need to split or join groups until each team has three to five members. If you only have one dentist, for example, you might have them join a small group of clinicians. If you have too many social scientists, you could divide them into smaller teams, such as sociologists and anthropologists.

Step 2. Introduce the task

15 minutes

Introduce the overall task for this series of sessions, in relation to the specific public-health issue that you have chosen. Ask a question, for example: What does your discipline contribute to our understanding of the determinants of mortality and morbidity among under-fives?

Explain that each team will research what their discipline contributes to our understanding of the issue by conducting a literature review. It is important that they limit their search to key papers from their discipline only. After an initial search, the group must agree on 10 papers that make the greatest contribution.

For now, though, in this first step, each group discusses what their discipline

is. You may combine those with related expertise in one group, for example grouping epidemiologists with biostatisticians.

Step 3. Describe each discipline

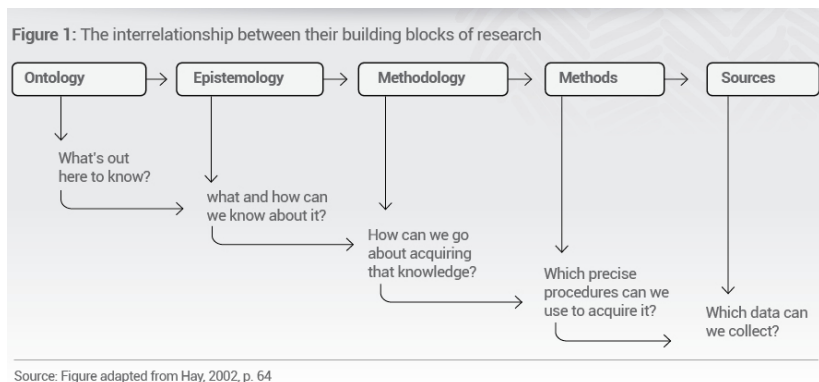
1 hour

In their teams, students define their discipline. They begin to develop a list of search terms, and a search strategy, to identify literature on the contribution of their discipline to the issue. This process continues through other sessions in this set.

Session 3. Discuss Epistemology | 2 hours

Different paradigms – perspectives on reality and knowledge – imply different ways of doing research. With reference to their own disciplines, ask students to trace the connections between:

- Ontology (what is reality?).
- Epistemology (how can I know reality/what and how can we know about it?).
- Methodology (how do I go about acquiring this knowledge?).
- Methods (what methods do I use?).



Preparation

The session must be highly interactive, even conversational. Draw students into the issues, intervening in the discussion with definitions, information or clarification, as necessary.

Your objectives as facilitator are to:

- Demystify the philosophy of knowledge.
- Establish or reinforce different paradigms of research and how these link to different methodologies.
- Analyse which research paradigms and methodologies are applied in different disciplines.
- Introduce students to a mental map and appropriate concepts to navigate different methodologies and methods that they will apply as researchers.

For your presentation (Step 2):

- Read James [Scotland](#): *Exploring the philosophical underpinnings of research: relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms.*
- Use or adapt the figure *The interrelationship between the building blocks of research.*
- Use or adapt the table *Perspectives of reality and knowledge have implications for research approaches.*

Outcomes

By the end of the session, students can:

- Discuss epistemology and the links to methodology.
- Describe the epistemology of their own discipline.

Steps

Time	Step	Who
30 minutes	1. Discuss questions about knowledge	Small groups
30 minutes	2. Present answers	Full group
15 minutes	3. Present: Implications of perspectives for research	Facilitator
45 minutes	4. Discuss the epistemology of each discipline	Teams by discipline

Step 1. Discuss questions about knowledge

30 minutes

Organise students into at least five mixed-discipline groups and assign questions for each group. If you have more than four, some groups can discuss the same set of questions.

Group 1

- What is 'knowledge'?
- What are we trying to know and why?
- What is 'research'?

Group 2

- Whose knowledge counts?
- What do we use the knowledge for?

Group 3

- Whose knowledge counts?
- What do we use the knowledge for?

Group 4

- What is 'evidence'?
- Is there a difference between 'evidence' and 'proof'?
- Does 'evidence' count, and why?

Group 5

- What types of research are commonly used?
- What is 'the best' type of research?

Step 2. Present answers

30 minutes

Each small group presents their answers to the full group. Explain that they should not repeat or duplicate if they have the same answers, add only new ideas.

Step 3. Present: Implications of perspectives for research

15 minutes

Begin by consolidating the ideas emerging from students' presentations. In your presentation:

- Show the links between ontology, epistemology, methodology and methods
- Present different research paradigms
- Outline the epistemology and methodology that link to each paradigm

Step 4. Discuss the epistemology of each discipline

45 minutes

Students return to their disciplinary groups. Each group discusses the ontology and epistemology of their discipline. Students consider which research paradigms are dominant.

In a later session in this series, each disciplinary group will present the main points from their discussion. For now, they prepare two or three slides to outline the methodology and methods commonly used within their disci-

pline. How do they answer research questions such as the one that they are tackling?

What does **your discipline** contribute to our understanding of the determinants of mortality and morbidity among children under five?

Session 4. Search Databases | 6 hours

Students are introduced to useful scholarly databases and learn to search effectively for information for specific research needs. A librarian or researcher presents and demonstrates key sites and tools. They remain available to support students as they put their new skills into practice.

Preparation

- As the key facilitator, brief the resource person/people on the learner-centred, participatory approach. You can show them what it looks like in [this](#) and other videos. <https://youtu.be/KU9YzKJDEk4>
- Identify in advance the databases that are available to your group of students. Ensure that the resource person is familiar with them and uses them in their presentation.
- Equipment: Each student needs their own laptop and Wi-Fi access. The resource person needs a projector connected to their laptop and a screen to project onto. Test all equipment in advance.

Guides for the resource person and/or students:

- [Hinari training portal](#) for low-income countries only (does not include Nigeria or South Africa).
- US National Library of Medicine [PubMed Tutorials](#), accessible to all.

Additional reading:

- Eysers, J.E. (1998). [Searching bibliographic databases effectively](#). *Health*

Policy and Planning 13, 339-342.

- Shultz, M. (2007). [Comparing test searches in PubMed and Google Scholar](#). *J Med Libr Assoc.* 95(4): 442-445.

Outcomes

By the end of the session, students can:

- Identify and access electronic databases appropriate to their discipline/s.
- Understand how to use database search techniques and search terms such as keywords/text words and subject headings.
- Transfer search skills to other databases.
- Store and organise information systematically and transparently.
- Understand how to keep track of the search process and to stay up to date.

Steps

Time	Step	Who
2 hours	1. Introduce and demonstrate databases and searches	Resource person with full group
4 hours	2. Search for relevant papers in your discipline	Students

Step 1. Introduce and demonstrate databases and searches

2 hours

The resource person presents information using a projector to demonstrate steps. Here is one possible sequence. Your resource person may offer alternatives.

Develop a search strategy

- Define 'search strategy' and explain its importance.
- Explain keywords, synonyms, truncation, wild cards, and controlled vocabulary such as Medical Subject Headings (MeSH).

Introduce PubMed® and title/abstract searching

- Apply filters such as study design (e.g. systematic reviews), age and date of publication.
- Scan initial results for relevance.
- Make any amendments to strategy if necessary and re-run the search.

Customise search strategies developed for use in other databases

- Tailor this to the databases that are accessible in your and the students' institutions.
- Find out which symbols each specific database uses, e.g. * or ?
- Run searches and scan the results for relevance.
- Re-run the search if necessary.

Introduce Research4Life using Hinari Access to Research for Health Program as an example to access full-text journal articles.

Step 2. Search for relevant papers in your discipline

4 hours

Students apply what they have learned in order to search for relevant papers from their own disciplinary perspective. Teams define their search strategy.

Facilitator/s and resource people help students to search in the most appropriate database, with the appropriate search terms and syntax for each.

Crucially, they remind students to *exclude* references that may be relevant but are not from their discipline.

Session 5. Read Academic Articles | 2 hours

Students learn effective ways to read and analyse journal articles and to synthesise scientific evidence for their literature reviews for this particular activity, their doctoral research, and their future careers as researchers.

Preparation

As the facilitator

- Select a journal article for students to analyse and print copies or share the link.
- Watch and prepare to introduce the video [How to read a journal article](#).
- Download and prepare to use or adapt the PowerPoint presentation: [How to read a scientific paper](#).

Additional reading:

- Ecartot, F., Seronde, M. F., Chopard, R., Schiele, F., & Meneveau, N. (2015). [Writing a scientific article: A step-by-step guide for beginners](#). *European Geriatric Medicine*, 6(6), 573–579.

Outcomes

By the end of the session, students can:

- Describe how a journal article is organised.
- Explain the key steps in reviewing a journal article.
- Identify the challenges of reading journal articles and explain how to miti-

gate them.

- Analyse a journal article relevant to their research.

Steps

Time	Step	Who
20 minutes	1. Watch a video introduction	Students
40 minutes	2. Present: How to read a journal article	Facilitator
30 minutes	3. Analyse a journal article	Students in pairs
30 minutes	4. Present and discuss analyses	Full group

Step 1. Watch a video introduction

20 minutes

Encourage students to pay attention to key points in the video: [How to read a journal article](#). Project it onto a screen or share the YouTube link for students to watch on their own laptops. Invite questions and discussion afterwards.

Step 2. Present: How to read a journal article

40 minutes

Use or adapt the PowerPoint presentation: [How to read a scientific paper](#). If relevant to your field, explain the IMRaD format for the structure of scientific papers: Introduction, Methods, Results, and Discussion. Invite questions and discussion.

Step 3. Analyse a journal article

30 minutes

Students pair up to do a critical analysis of the journal article you have chosen. Explain that each pair should review the title, abstract, introduction, methods, results, and discussion sections of the article. They should check for keywords that are relevant to their search terms or research topic, and then answer these questions:

- Is the title informative?
- Does the abstract include relevant keywords?
- Does the introduction contain the aim of the study?
- Do the methods relate to the primary outcomes?
- Do the results answer the research question?
- Does the conclusion emanate from the results?

Step 4. Present and discuss analyses

30 minutes

In the full group, pairs take turns to present their analysis of the paper. Allocate time for discussion after each short presentation.

Session 6. Manage References | 6 hours

This session introduces students to the basics of reference management software (RMS) to enable them to:

- Create a library of references.
- Automatically build a bibliography/reference list in MS Word.
- Collect and store both citations and full-text articles from literature searches across various databases.

Preparation

As the facilitator

- Engage a suitable resource person/people in plenty of time. Ensure that they are familiar with the software, the steps and the participatory approach to learning and teaching.
- Review resources to use with your students, such as:
- Webinar: [How to use Mendeley Reference Manager](#).
- Webinar: [Discover Mendeley Reference Manager](#).
- PowerPoint: [Mendeley Software Features](#).
- Various [Reference Management Tools](#).

For the students

Students need laptops and Wi-Fi. They download free Mendeley software before the session.

Outcomes

By the end of the session, students can:

- See the value of using RMS to keep track of reading materials and to enable effective and consistent referencing.
- Store and organise references in a searchable database.
- Easily convert referencing styles to suit publication requirements.
- Apply key functionality within RMS to effectively save, organise and edit references, and to access a range of referencing styles.
- Produce accurate, consistent in-text citations.
- Generate reference lists or bibliographies within academic writing by linking an RMS to MS Word using the 'cite while you write' feature.
- Share collections of references (libraries) with others for collaborative purposes.

Steps

Time	Step	Who
20 minutes	1. Introduce reference management	Facilitator
20 minutes	2. Create a library	Students
30 minutes	3. Populate a library	Students
20 minutes	4. Download a web importer and MS Word plug-in	Students
30 minutes	5. Create citations and generate a bibliography	Students
4 hours	6. Search and export references	Students

Step 1. Introduce reference management

20 minutes

Explain reference management software (RMS) and compare Mendeley and other packages. Use a PowerPoint presentation from [Research4Life: Author's Hub](#).

Step 2. Create a library

20 minutes

Guide students to create a library and explore the library interface.

Step 3. Populate a library

30 minutes

Each student populates the library they have created, manually and from databases.

Step 4. Download a web importer and MS Word plug-in

20 minutes

Students become familiar with using these tools. Support them to:

- Download a Mendeley web importer to the MS Word to allow “cite as you write” in MS Word.
- Install a Mendeley MS Word Plugin using Mendeley Desktop application.

Step 5. Create citations and generate a bibliography

30 minutes

Students use the Cite While You Write (CWYW) feature to create citations and generate a bibliography automatically.

Step 6. Search and export references

4 hours

Supervise students as they apply newly learned techniques to search for relevant papers. They use RMS software to export references to the Mendeley library they have created. Guide them to:

- Search and identify articles on “under-five mortality” (or key words from their own research topics) in PubMed or CINAHL.
- Save relevant articles in Mendeley Web version using the Web Importer and then synchronise with the Mendeley Desktop version.
- Search another database such as Elsevier ScienceDirect and repeat the steps above.
- Practise citing references from Mendeley Desktop version in an MS

- Word document or in a manuscript they are developing.
- Generate a References list at the end of the document.
- Choose a citation style such as APA 7th edition or BMC Public Health and check how citation styles adjust themselves in the manuscript.

Session 7. Synthesise Findings | 2 hours

In discipline-specific teams, students conduct a literature search, select and discuss 10 key papers, and prepare a presentation to describe the contribution of their own discipline to our understanding of (for example) under-five mortality.

Outcomes

By the end of the session, students can:

- Select discipline-specific papers that address the issue.
- Synthesise findings from key papers.
- Develop a short presentation as a group.

Steps

Time	Step	Who
20 minutes	1. Introduce the task	Facilitator
20 minutes	2. Conduct a literature search	Students
20 minutes	3. Select key papers	Students
30 minutes	4. Discuss and synthesise findings	Students
30 minutes	5. Prepare a short presentation	Students

Step 1. Introduce the task

20 minutes

Ask students to answer the question:

What is the contribution of your discipline to our understanding of under-five child mortality?

Explain the steps to follow.

Step 2: Conduct a literature search

20 minutes

Individual students use their literature search skills to identify papers that address the topic. Emphasise that they must choose only papers from their own discipline.

Step 3: Select key papers

20 minutes

In their discipline-specific teams, students narrow the list of papers to 10 key ones.

Step 4: Synthesise findings

30 minutes

Each team discusses the findings from the key papers and then synthesises what this demonstrates in answer to the question:

What is the contribution of your discipline to our understanding of under-five child mortality?

Step 5: Prepare a presentation

30 minutes

Each team prepares a presentation to summarise their answers to the question. Recommend one slide per minute and give a time limit of eight minutes per presentation.

Session 8. Present Contributions by Discipline | 2 hours

In this learner-led session, students present the contribution of their discipline to the understanding of a public health problem. They also share their insights into the epistemology of their discipline.

Preparation

As the facilitator

- Watch or re-watch the CARTA video: [Multidisciplinarity](#). Note that this is an aid to your preparation, not for students.

Outcomes

By the end of the session, students can:

- Discuss the role of the different disciplines in solving public health problems.
- Discuss how the epistemology and methodologies of any discipline shape the types of contributions that that discipline can make.

Steps

Time	Step	Who
90 minutes	1. Present: The role of our discipline	Discipline-specific teams to whole group
30 minutes	2. Discuss presentations and insights	Whole group

Step 1. The role of our discipline

90 minutes

Each team takes a turn to present their findings in PowerPoint. They have eight minutes per group, plus five minutes for follow-up questions of clarity.

Step 2: Discuss presentations and insights

30 minutes

Invite the full group to identify any 'Aha!' moments and what caused them.

Ask:

What did you learn for the first time from these presentations?

What have you learned from the jigsaw so far?

Session 9. Conduct a Multilevel Analysis of Social Determinants of Health | 2 hours

Drawing on their literature reviews, students work in discipline-specific groups to cluster social determinants at different levels: individual, household, community, national, and global. They explore the links between them. Together as a full group, students map out a conceptual framework.

Preparation

As the facilitator

- Watch or re-watch the CARTA video: [Multidisciplinarity](#). Note that this is an aid to your preparation, not something to show students.
- Prepare a presentation to define and explain 'social determinants of health'.
- Bring sticky notes in five different colours, and string.
- Set up a board with headings matching the colours of the post-it notes:
- Individual | Household | Community | National | Global

Outcomes

By the end of the session, students can:

- Explain the social determinants of health.
- Apply a multilevel framework to analyse how social determinants operate at different levels.

Steps

Time	Step	Who
20 minutes	1. Present: Social determinants of health	Facilitator
30 minutes	2. Identify social determinants	Students in discipline-specific groups
60 minutes	3. Create a multilevel framework	Full group
10 minutes	4. Trace the impact of social determinants	Volunteers, full group

Step 1. Present: Social determinants of health

20 minutes

Introduce the concept to the whole group, with examples. Invite questions and comments. Explain the activity to come and distribute sets of sticky notes. Explain which colour signifies which level: individual, household, community, national and global.

Step 2: Identify social determinants

30 minutes

In their discipline-specific groups, students draw on the findings from their literature searches to identify various social determinants of the specific public-health issue. (The example in the video is under-five mortality and morbidity in Uganda). For each determinant, the group discusses the level at which it operates: individual, household, community, national or global. Examples could be:

- Health knowledge at the individual level.
- Household income at household level.
- Distance from the nearest clinic at community level.
- Policy at national level.
- Migration at a global level.

They write down each social determinant on a sticky note in the relevant colour.

Step 3: Identify social determinants

60 minutes

In the full group, invite a spokesperson from each small group to place their sticky notes in the relevant section (as demonstrated in the video). For each

determinant, the student explains why they decided it should fit at that level and how it operates as a social determinant. Encourage discussion, especially if the determinant is not placed at the correct level.

Explain that, together, the group has created a research framework, and populated it. Discuss the ways in which different disciplines contribute important and often very different kinds of knowledge.

Step 4: Trace the impact of social determinants

10 minutes

Describe a different case – for example, a 40-year-old man who develops Diabetes Type 2. Invite one or more volunteers to use string to trace how social determinants might influence health outcomes in this case.

Research Question and Methodology

Sequence, 6 sessions, 1 week

This sequence of sessions supports students to define a strong research question and formulate the study design and methods that will enable them to address it effectively. CARTA designed these steps for doctoral students in public health, but you can adapt them for many other fields of study.

Download [the curriculum](#) for this sequence of sessions.

Sessions

Session 1. Overview of the Research Process | 2 hours

Explain and discuss the doctoral research process and the steps involved. Students identify their own areas of strength and areas where they need to develop or acquire skills.

Outcomes

By the end of the session, students can:

- Describe and analyse the research process.
- Identify which skills they need to develop further.

Preparation

- Watch and read the resources for this session. Prepare introductions and follow-up questions (Step 1).
- Create a presentation to explain the research process, with follow up questions (Step 2).
- Print copies of this article for students or share the link:
Sim, K. N., & Butson, R. (2017). [Visualizing the Doctoral Research Process](#):

An Exploration into Empirical Research Processes of Emerging Researchers. *International Journal of Learning, Teaching and Educational Research*, 42–59.

Further open-access reading for you as facilitator and for your students:

- Alon, U. (2009). [How To Choose a Good Scientific Problem. *Molecular Cell*](#). September 24. Cell Press.
- Niraula, S.R. (2019). [A review of research process, data collection and analysis](#). *Insights in Biology and Medicine*, 3(1), 001–006.

Self-assessment

Each student identifies their own doctoral research process, areas of strength and capacities that need further development.

Steps

Time	Step	Who
30 minutes	1. Introduce the research process	Videos
30 minutes	2. Form disciplinary teams	Facilitator
30 minutes	3. Discuss the steps	Students in pairs
30 minutes	4. Present 'easy' and 'difficult' steps	Each student to the full group

Step 1. Introduce the research process

30 minutes

Introduce this YouTube video, screen it and ask follow-up questions:

- Waller, L.R. (2021). RESEARCH 1 – 2 – [THE RESEARCH PROCESS](#).

Step 2. Explain the research process

30 minutes

Use a PowerPoint presentation as the basis for a short lecture on the research process. Invite students' questions and comments.

Step 3. Discuss the steps

30 minutes

Students pair up to read the Sim and Butson article – [A review of research process, data collection and analysis](#). They discuss which steps they find easier and which ones more difficult.

Step 4. Present 'easy' and 'difficult' steps

30 minutes

In the full group, each student takes a turn to explain which step/s in the research process they find easier and which more difficult, and why.

Suggest that it is not necessary to repeat what someone has already said. Encourage discussion. For example, after someone presents, ask:

- Who else has difficulty with this step?
- Can anyone in the group suggest how to overcome this difficulty?
- What strategies can we use to overcome this?
- Does anyone know of a good resource to assist with this?
- Does anyone have a reading or textbook chapter to suggest to solve this problem?
- How can you find a solution?
- Should we search now and see what we can find?

Make clear that neither you as the facilitator nor the PhD supervisors have all the answers. The point is to identify what students need and help them find ways to meet that need. Other PhD students, especially in a multidisciplinary group, may have answers. Encourage students to see each other as a resource and to set up ways to meet in person or virtually throughout their PhD journey.

Session 2. A Research Question and Objectives | 6 hours

Each doctoral student develops and revises their PhD research question (quan-

titative or qualitative). To support this process, they review and apply the PICOT and SPIDER frameworks.

Outcomes

By the end of these steps, students can:

- Describe how to develop a quantitative-research question using the PICOT(S) framework.
- Use the SPIDER framework to develop a qualitative-research question.
- Develop their research questions and specific aims.

Preparation

Read these resource articles:

- Vandenbroucke, J.P., & Pearce, N. (2018). [From ideas to studies](#): How to get ideas and sharpen them into research questions. *Clinical Epidemiology*, 10, 253–264.
- Mitchell, R.D., O'Reilly, G.M., Phillips, G.A., Sale, T., & Roy, N. (2020). [Developing a research question](#): A research primer for low- and middle-income countries. *African Journal of Emergency Medicine*, 10, S109–S114.
- Riva, J.J., Malik, K.M.P., Burnie, S.J., Endicott, A.R., & Busse, J.W. (2012). [What is your research question?](#) An introduction to the PICOT format for clinicians. *The Journal of the Canadian Chiropractic Association*, 56(3), 167–71.
- Methley, A. M., Campbell, S., Chew-Graham, C., McNally, R., & Cheraghi-Sohi, S. (2014). [PICO, PICOS and SPIDER](#): a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC health services research*, 14(1), 1-10.

Watch the YouTube videos and select which ones to screen:

- Binghamton University Libraries. [PICO: A Model for Evidence-based Research](#)
- Clinical Information Sciences. Creating a [PICO question](#)
- Aliria Muñoz Rascón. (2021). [Introducing PICO\(T\) Questions](#)
- Swarna, R. (2019). [Various Techniques for Formulating the Research Questions-SPIDER](#)

- MeanThat & Authentic Data Science. (2016). 1.7 [Research Aim, Questions and Objectives](#)

With reference to these resources, develop PowerPoint presentations for Steps 2 and 5.

Test all physical equipment and/or web-based platforms.

Self-assessment

Each student:

- Develops their own doctoral research question and objectives.
- Participates in giving, receiving and discussing feedback from facilitators, other students and their supervisor.

Steps

Time	Step	Who
30 minutes	1. Screen videos: PICO(T) and SPIDER frameworks	Facilitator to full group
30 minutes	2. Present on developing a research question	Facilitator
1 hour, 30 minutes	3. Present research questions for feedback	Students in groups
30 minutes	4. Screen videos on stating research objectives	Facilitator to full group
30 minutes	5. Present on research objectives	Facilitator
2 hours, 30 minutes	6. Present research questions for feedback	Students in groups
Afterwards	7. Revise research questions and objectives	Individual students

Step 1. Screen videos: PICO(T) and SPIDER frameworks

30 minutes

Introduce and screen the YouTube video/s you have selected. Ask follow-up questions.

- Binghamton University Libraries. [PICO: A Model for Evidence Based Research.](#)

- Clinical Information Sciences. [Creating a PICO question.](#)
- Aliria Muñoz Rascón. (2021). [Introducing PICO\(T\) Questions](#)
- Swarna, R. (2019). [Various Techniques for Formulating the Research Questions-SPIDER](#)

Step 2. Present on developing a research question

30 minutes

Deliver your PowerPoint presentation to the group and invite questions for discussion.

Step 3. Present research questions for feedback

1 hour, 30 minutes

In groups, each student presents their research question for feedback from peers first and then facilitators. Key guiding questions:

- Is the research question clear and focussed?
- Is the question researchable?
- Does the research question speak to the real problem?

Step 4. Screen videos on stating research objectives

30 minutes

Introduce and screen the videos:

- Swarna, R. (2019). [Various Techniques for Formulating the Research Questions-SPIDER](#)
- MeanThat & Authentic Data Science. (2016). 1.7 [Research Aim, Questions and Objectives](#)

Ask and invite follow-up questions.

Step 5. Present on research objectives

30 minutes

Give a short lecture, using your PowerPoint. Invite students' follow-up questions and facilitate discussion.

Step 6. Present research questions for feedback

2 hours, 30 minutes

In groups, each student presents their research questions for further feedback from peers first and then facilitators. Discuss whether the research question has improved. Refer to the guiding questions:

- Is the research question clear and focussed?
- Is the question researchable?
- Does the research question speak to the real problem?

Step 7. Revise research questions and objectives

Afterwards

Equipped with the information from this process and feedback on their own drafts, each student revises their own research question and specific objectives.

Session 3. The Concept of the Research Gap | 8 hours

Students identify the research gap that their own doctoral research will aim to fill. As part of this process, students conduct extensive literature searches around the research gap.

Outcomes

By the end of these steps, students can:

- Describe the use of theory in identifying research gaps.
- Discuss the use of systematic reviews in identifying research gaps.
- Define the research gap that their doctoral research will fill.

Preparation

Read the resource articles:

- Vandenbroucke, J. P., & Pearce, N. (2018). [From ideas to studies](#): How to get ideas and sharpen them into research questions. *Clinical Epidemiology*, 10, 253–264.
- Hargreaves, S., et al. (2020). [Identifying research questions for HIV, tuberculosis, tuberculosis-HIV, malaria, and neglected tropical diseases through the World Health Organization guideline development process](#): a retrospective analysis, 2008–2018. *Public Health*, 187, 19–23.
- Oldekop, J. A. et al. (2015). [100 key research questions for the post-2015 development agenda](#). *Development Policy Review*, 34(1), 55–82.
- Zhang, H., & Shaw, R. (2020). [Identifying research trends and gaps in the context of COVID-19](#). *International Journal of Environmental Research and Public Health*, 17(10).
- Wintersberger, D., & Saunders, M. (2020). [Formulating and clarifying the research topic](#): insights and a guide for the production management research community. *Production*, 30, 1–8.

Watch these YouTube videos and prepare introductions and follow-up questions for the screening session:

- PHILO-notes. (2020). [How to identify a research gap?](#)
- Academic English Now. (2020). [3 easy ways to identify the research gap.](#)

With reference to these resources and beyond, develop a PowerPoint presentation for Step 2. Test all physical equipment and/or web-based platforms.

Self-assessment

Each student:

- Defines their own doctoral research gap.
- Participates in giving, receiving and discussing feedback from facilitators, other students and their PhD supervisors.

Steps

Time	Step	Who
1 hour	1. Screen and discuss videos	Facilitator, full group
1 hour	2. Present on the research gap	Facilitator
2 hour	3. Present research gaps for feedback	Small groups
4 hour	4. Revise research gaps	Individual students

Step 1. Screen and discuss videos

1 hour

Introduce and screen the videos:

- PHILO-notes. (2020). [How to Identify a Research Gap?](#)
- Academic English Now. (2020). [3 easy ways to identify the research gap.](#)

Facilitate a follow-up discussion.

Step 2. Present on the research gap

1 hour

Deliver your PowerPoint presentation to the group and facilitate a follow-up discussion.

Step 3. Present research gaps for feedback

2 hours

In groups, each student presents their research gap for feedback from peers first and then facilitator/s. Key guiding questions:

- Is the research gap clear and focussed?
- Does the research gap bring out the problem?
- Is the research gap worth investigating and filling?

Step 4. Revise research gaps

4 hours

Equipped with the information from this process and feedback on their own drafts, each student goes on to revise the research gap that their own research study aims to fill.

Session 4. Quantitative Research and Methods | 4 hours

Doctoral students must select the most appropriate methods to address their research question. This session introduces three main types of quantitative method:

- quantitative description
- research that reveals causality
- research to assess interventions

Outcomes

By the end of these steps, students can:

- Explain different quantitative research designs and their application in the field of public health.
- Discuss the strengths, weaknesses, opportunities and limitations of quantitative health research methods.
- Discuss the appropriateness of different quantitative methods in answering specific research questions.

Preparation

As the facilitator

- Read all the references for this session.
- Prepare a lecture or video tutorial to introduce quantitative research (Step 1).
- Test all physical equipment and/or web-based platforms.

Students must read at least the abstracts for all the articles.

Essential reading – a cohort study

- Trang, N.H., Hong, T.K., Dibley, M.J. (2012). Cohort profile: [Ho Chi Minh City Youth cohort – changes in diet, physical activity, sedentary behavior and relationship with overweight/obesity in adolescents](#). British Medical Journal Open. Feb 15;2(1):e000362.

Essential reading – case-control studies

- Akpalu, J. et al. (2011). [Metabolic syndrome among patients with cardiovascular disease in Accra, Ghana](#). Ghana Medical Journal. December; 45(4): 161–166.
- Choi, Sun Mi et al. (2014). [The impact of lifestyle behaviours on the acquisition of pandemic \(H1N1\) influenza infection: a case-control study](#). Yonsei Medical Journal. March. Vol 55, number 2.

Essential reading – cross-sectional studies

- Askarian, M., & Maharlouie, N. (2012). [Irrational antibiotic use among secondary school teachers and university faculty members in Shiraz, Iran](#). [International Journal of Preventative Medicine](#). December; 3(12): 839–845.
- Napolitano, F. et al. (2013) [Public knowledge, attitudes and experience regarding the use of antibiotics in Italy](#). PloS 1, December, Vol 8. www.plosone.org

Additional reading

Doll, R., & Hill, B. H. (1958) [Smoking and carcinoma of the lung](#). British Medical Journal, 1950,739-748.

Morris, S. (2018). [Measuring health equity in small areas. Findings from Demographic Surveillance Systems](#). INDEPTH Network, 2006/2018

Internet resources for students to explore

- [The Research Methods Knowledge Base](#)
- [BMJ Resources for readers](#) (Not open access but your institution may have access.)

Assessment

Focus on students' ability to demonstrate their understanding of quantitative methods.

Steps

Time	Step	Who
40 minutes	1. Introduce quantitative methods	Facilitator
1 hour, 20 minutes	2. Read and analyse articles	Small groups
2 hours	3. Present and review reading reports	Groups to full group

Step 1. Introduce quantitative methods

40 minutes

In this didactic session, define relevant terms and distinguish between quantitative methods that:

- Give a quantitative description.
- Reveal causality.
- Assess intervention/s.

Suggest the advantages and disadvantages of the different methods and when to use them.

Step 2. Read and analyse articles

1 hour, 20 minutes

Students form groups. Each group reads a different article from the list and then prepares a brief presentation.

In their report, the group identifies the quantitative method used in the paper they read (quantitative description, causality or intervention assessment) and addresses these questions:

- Was that quantitative approach the best option?
- Was there any alternative?
- What were the strengths and weaknesses of the design?

Step 3. Present and review reading reports

2 hours

Each group presents the report on the article/s they read to the full group. They receive feedback from peers first and then facilitators: Did the group capture the quantitative methods used, the possible alternatives and the strengths and weaknesses of the design?

Session 5. Qualitative Research and Methods | 4 hours

Qualitative research methods are increasingly important to answer social questions and address complexity, so students need to learn about them and conduct their own qualitative research.

This session introduces qualitative research to students with little or no prior knowledge of its basic concepts and approaches. It asks:

- What is qualitative research and what are its philosophical foundations?
- Why conduct qualitative research?
- When is it appropriate to use qualitative research?
- What are the key characteristics of qualitative research and how do these differ from those of quantitative research?
- How do qualitative researchers think?

Outcomes

By the end of these steps, students can:

- Describe their understanding of qualitative research in terms of research paradigms and worldviews.
- Demonstrate thinking like a qualitative researcher.
- Explain when qualitative research is the right method to choose for a study.
- Distinguish key characteristics of qualitative research from those of quantitative research.

Preparation

- Read the references for this session.

- Prepare a lecture or video tutorial to introduce qualitative research.
- Select a photograph for Step 2. It could show any scene, such as a market-place, school, lecture room, or hospital.
- Test all physical equipment and/or web-based platforms.

Essential reading for students

- O'Brien, B.C., Ruddick, V.J. & Young, J.Q. (2016). [Generating Research Questions Appropriate for Qualitative Studies in Health Professions Education](#). Academic Medicine. Vol. 91, No. 12. e16
- Busetto, L., Wick, W., & Gumbinger, C. (2020). [How to use and assess qualitative research methods](#). Neurological Research and practice, 2, 1-10.
- Tenny, S., Brannan, G. D., Brannan, J. M., & Sharts-Hopko, N. C. (2017). [Qualitative study](#). NIH.

Assessment

Individual assessment: Draft then rewrite paragraphs describing the photograph.

Group assessment: Make categorisations from the group exercise.

Steps

Time	Step	Who
40 minutes	1. Introduce qualitative methods	Facilitator
30 minutes	2. Describe a photograph	Individual students
2 hours	3. Distinguish between qualitative and quantitative research	Small groups
50 minutes	4. Share feedback	Full group

Step 1. Introduce qualitative methods

40 minutes

Address the question: 'Why study the world using qualitative methods?'

Give examples of qualitative research in the health sciences (or your field). Invite and discuss questions.

Step 2. Describe a photograph

30 minutes

Give each student a copy of or link to the photograph of a scene or human activity and ask them to write a paragraph describing what they see.

Step 3. Distinguish between qualitative and quantitative research

2 hours

In groups, students read two articles.

Quantitative research:

- Constantine, M.G., Wallace, B.C., & Kindaichi, M.M. (2005). [Examining contextual factors in the career decision status of African American adolescents](#). *Journal of Career Assessment*, 13(3), 307–319.

Qualitative research:

- Tucker, E. L., Smith, A. R., Daskin, M. S., Schapiro, H., Cottrell, S. M., Gendron, E. S., ... & Maass, K. L. (2019). [Life and expectations post-kidney transplant](#): a qualitative analysis of patient responses. *BMC nephrology*, 20(1), 1-10.

Next, ask each student to read out the paragraphs they wrote about the photograph in Step 2 to the rest of their group. With the insights they gained from the readings, the group categorises each paragraph as ‘qualitative’ or ‘quantitative’.

Now that they have a sense of how qualitative researchers think, invite students to redraft their initial description of the photograph. This time they incorporate as many of the characteristics of qualitative research as possible. Alternatively, give students a different photograph to describe from a

qualitative way of thinking, drawing on their insights from the assignment so far.

Step 4. Share feedback

50 minutes

In the full group, invite students to share their paragraphs and categories (either quantitative or qualitative). They give each other feedback, focusing on the ability to identify the different elements of quantitative and qualitative research.

Session 6. Research Design and Methodological Choices | 4 hours

A design for qualitative research describes:

- The purpose of the research.
- The role of the researcher/s.
- The stages of research.
- The method of data analysis.

In this set of steps, students learn how to develop a problem statement from a topic of interest and to craft research questions and aims. Discuss how all of this adds up to objective-driven design. To help students to decide on an approach for their own research, introduce and explain five of the most common qualitative research designs.

Outcomes

By the end of these steps, students can:

- Distinguish between the different designs used in qualitative research.
- Define a central phenomenon in qualitative research.
- Write a good qualitative purpose statement and a good central question.
- Select a research design that appropriately addresses the research question.

Preparation

- Read the references for this session.
- Prepare a lesson or video tutorial to introduce the five most common designs for qualitative research (Step 1).
- Prepare a lesson or video tutorial explaining how to identify a central phenomenon, develop a good qualitative purpose statement, and a central question (Step 3).

Essential (re)reading

- O'Brien, B.C., Ruddick, V.J. & Young, J.Q. (2016). Generating Research Questions Appropriate for Qualitative Studies in Health Professions Education. *Academic Medicine*. Vol. 91, No. 12. e16
- Busetto, L., Wick, W., & Gumbinger, C. (2020). How to use and assess qualitative research methods. *Neurological Research and practice*, 2, 1-10.
- Tenny, S., Brannan, G. D., Brannan, J. M., & Sharts-Hopko, N. C. (2017). Qualitative study.NIH

Self-assessment

Individual assessment

Write short explanations of designs identified in a selected article journal.

Group assessment

Identify purpose statements and research questions.

Steps

Time	Step	Who
40 minutes	1. Introduce qualitative methods	Facilitator
30 minutes	2. Describe a photograph	Individual students
2 hours	3. Distinguish between qualitative and quantitative research	Small groups
50 minutes	4. Share feedback	Full group

Step 1. Introduce qualitative methods

40 minutes

Explain the five most common designs for qualitative research:

- ethnography
- grounded theory
- case studies
- narrative
- phenomenology

Step 2. Match journals with designs

30 minutes

Guide students to access various academic journals and locate examples of studies representing each of the five designs. Each student then answers these questions:

- What types of journals carry each of the qualitative methods above?
- For one of the qualitative designs, select at least one representative article. What research topic, research purpose and questions did it include?

Step 3. Identify strengths and limitations of designs

1 hours

In groups, students discuss each of the five designs, pointing out strengths and limitations of each one.

Step 4. Explain central phenomenon and purpose statement

30 minutes

Explain the process of identifying a central phenomenon and developing a good qualitative purpose statement and a central question.

Step 5. Write central statements and questions

40 minutes

Ask students in their groups to write a paragraph of a central phenomenon, a good qualitative purpose statement, and a central question.

Step 6. Tie it all together

40 minutes

Invite feedback and discussion from students as you review and summarise the learning from this session. Explain how everything in this process relates to objective-driven design.

Professional Development Plan – PhD

Session, 2 hours

This session introduces Personal Development Planning (PDP), a structured and supported process. Individuals:

- Reflect on their own learning, performance and achievements.
- Plan for their personal, educational and career development.

For doctoral students, the goal is to complete the PhD and progress towards research leadership as an independent researcher. This planning process reinforces students' capacity to review, plan and take responsibility for their learning and career advancement. It requires rigorous and frank assessment of one's strengths and weaknesses, underpinned by the agenda of lifelong learning and development.

Download [the curriculum](#) in full.

Outcomes

By the end of the session, students can:

- Identify their medium-term ambitions, including completion of the PhD.
- Plan steps towards achieving these ambitions.
- Use a template to develop their personal development plans.

Preparation

As the facilitator, summarise your own career path as a short introduction (Step 1). You might want to consult other references, such as:

- Verlejs, J. 2015. [Shape your career – design your professional development plan](#): rationale and workshop template. Rutgers.
- Das, D. [An Assignment on Personal and Professional Development](#).
- Hulme, C., Lisewski, B. (2010). [Support structures for facilitators of student personal development planning](#): lessons from two departmental case studies. Journal of Further and Higher Education, 34:2, 137-148, DOI: 10.1080/

03098771003695429.

- Clegg, S., Bradley, S. (2006) [Models of Personal Development Planning: practice and processes](#), British Educational Research Journal, 32:1, 57-76, DOI: 10.1080/01411920500402003.

Review available options for PDP templates (Step 2) and share one or more with your students. Options include:

- [Interactive CPD Toolkit](#): A Step-by-Step Guide to Progress your Career and Record your Continuing Professional Development (CPD). Jobs.ac.uk2010).
- [Individual Development Plan \(IDP\)](#) for Graduate PhD Students at UD. University of Delaware.
- Santosh, P et al. (2013). [Personal development plans – Practical pitfalls](#). Trends in Anaesthesia and Critical Care 3(4):220–223, DOI:10.1016/j.tacc.2013.04.003.

Steps

Time	Step	Who
20 minutes	1. Introduce the PDP	Facilitator
40 minutes	2. Fill in the template	Individuals
20 minutes	3. Describe and discuss PDPs	Students in pairs
20 minutes	4. Present the partner's ambitions	Students in plenary
20 minutes	5. Introduce the concept of a mentor	Facilitator

Step 1. Introduce the PDP

20 minutes

Present a summary of your own career path in the format of a PDP to introduce the concept. Keep it brief and allow time for questions.

Step 2. Fill in the template

40 minutes

Each student defines their own long-term ambitions and the knowledge and experience needed to achieve these ambitions.

Step 3. Describe and discuss PDPs

20 minutes

In pairs, each student takes a turn to describe their ambitions to their partner. Ask them to listen attentively and critically.

Step 4. Present the partner's ambitions

20 minutes

Back in the full group, each student gives a summary and critical analysis of their partner's ambitions.

Step 5. Introduce the concept of a mentor

20 minutes

How can a mentor help their mentee to develop? Give a short introduction to the concept of a mentor and invite questions and discussion. Afterwards, and where appropriate, contact potential mentors or encourage students to do so. Remind students to review their PDPs regularly over the course of their PhD journey.

Gender and Health

Session, 2 hours

This session introduces the topic of gender as a determinant of health. Women and men have different roles and responsibilities and different social realities. This is due not only to biological differences but also to socially determined gender norms and differential access to, and control over, resources. These gender norms, roles and relations impact women's and men's health.

Download [the curriculum](#) for this session.

Outcomes

By the end of the session, students can:

- Identify and discuss gender as one of the determinants of health.
- Appreciate how gender intersects with other determinants of health.
- Distinguish between factors affecting men's and women's health.
- Identify factors common to women and men of a specific social group, e.g. rural/urban, poor/rich.

Preparation

Drawing on the references below, prepare a short presentation to introduce the topic (Step 1).

Distribute these readings to students the day before the session, together with the assessment task:

- Arber, S. 1997. [Comparing inequalities in women's and men's health](#): Britain in the 1990s. *Social Science & Medicine*, 1997; 44(6):773–87.
- Weber, A.M., et al. 2019. [Gender norms and health](#): insights from global survey data. *The Lancet* 393.10189: 2455-2468.
- O'Neil, A., Scovelle, A. J., Milner, A. J., & Kavanagh, A. 2018. [Gender/sex as a social determinant of cardiovascular risk](#). *Circulation*, 137(8), 854-864.
- Batist, J. 2019. [An intersectional analysis of maternal mortality in Sub-Saharan Africa](#): a human rights issue. *Journal of global health*, 9 (1).

Prepare slides or flip charts for each of the three discussion groups – one on

the health of adults in general, one on the health of men, one on the health of women (Step 2).

Assessment

Give students an article to read and ask each one to write a summary, following these steps:

- Include details about the paper: title, author(s), and whether it is a research study, a review article, or chapters from a book.
- Outline the main thesis or argument in no more than five or six lines: What is the paper about? What is it telling us about how gender influences health status?
- Describe how the article builds the arguments towards the main thesis.
- It is not necessary to cover every point made in the paper or paraphrase it page by page. Just pull out the main threads. Present a few (no more than three) tables or graphs if these will contribute substantially to illustrating the arguments.
- Conclude with your own reactions to the paper. Did you find the paper useful? In what ways? Are there some points you do not quite agree with? Why?

Steps

Time	Step	Who
10 minutes	1. Introduce the topic of gender and health	Facilitator
40 minutes	2. Compare characteristics of health by gender	Groups
20 minutes	3. Present on health of adults/ men/ women	Groups to plenary
40 minutes	4. Discuss health factors	Facilitator, plenary
10 minutes	5. Summarise social factors affecting health	Facilitator

Step 1. Introduce the topic of gender and health

10 minutes

Give a short presentation on gender as a determinant of health.

Step 2. Compare health factors by gender

40 minutes

Divide participants into three groups. Give each group a set of the questions on what makes a person healthy – on a flipchart or slide.

- Group 1 answers questions about the health of adults in general.
- Group 2 answers questions about the health of men.
- Group 3 answers questions about the health of women.

Each group records their responses to the relevant questions:

- What are the characteristics of any healthy adult / a healthy man/ a healthy woman?
- What are some of the factors contributing to good health for all adults / for adult men/ for adult women?
- What are some of the factors that contribute to ill health for adults generally/ adult men/ adult women?
- Of the factors listed in questions 2 and 3, which are social and which are biological?
- Are there differences in health status across different social groups of adults generally, adult men and adult women? If yes, what are they, and what are some of the reasons for these differences?
- What are the differences, if any, between the social and biological causes of ill health for adults in general/ adult men/ adult women?

Step 3. Present on healthy adults, men, women

20 minutes

Each group – 1, 2, 3 – takes a turn to present their answers.

Step 4. Distinguish between health factors

40 minutes

Invite and facilitate a discussion to distinguish between factors that:

- Affect women's health, that are common to women and men of a specific social group (e.g., rural/urban, poor/rich).

- Arise from women's biological differences from men.
- Relate to gender-based differences in roles and norms.
- Relate to access to and control over resources.
- Arise from differences in power between women and men within the same social group.

Group factors on the flip charts or virtual boards.

Step 5. Summarise social factors affecting health

10 minutes

Health is a socially constructed reality: a product of the physical and social environment in which we live and act. Differences in people's health status, including gender differences, arise not only from biological differences but also from differentials in social and economic status.

Gender, Sexuality and Values

Session, 2 hours

This session asks each student to explore and articulate their feelings and values around gender and sexuality. They reflect on how attitudes to these concepts evolve and change over time and how their own values may affect their research.

Download [the curriculum](#) for this session.

Outcomes

By the end of the session, students can:

- Articulate what it means to be male or female in their particular culture/s and how this has changed over time.
- Clarify and articulate their feelings, values and attitudes on gender and sexuality.
- Discuss their thinking around power, social status, and discrimination against certain people or groups.
- Illustrate, with examples, how gender and sexuality intersect.
- Express how personal perspectives on gender and sexuality affect their work.
- Explain why and how they can integrate concepts of gender and sexuality into their research.

Preparation

Consult these resources and share with your students, as appropriate:

- Hall, K., Levon, E., & Milani, T. M. (2019). [Navigating normativities](#): Gender and sexuality in text and talk. *Language in Society*, 48(4), 481-489.
- Ferfolja, T., & Ullman, J. (2017). [Gender and sexuality in education and health](#): Voices advocating for equity and social justice.
- Seidu, A. A., Darteh, E. K. M., Kumi-Kyereme, A., Dickson, K. S., & Ahinkorah, B. O. (2020). [Paid sex among men in sub-Saharan Africa](#): Analysis of the

demographic and health survey. *SSM-population health*, 11, 100459.

- Sani, A. S., Abraham, C., Denford, S., & Mathews, C. (2018). [Design, implementation and evaluation of school-based sexual health education in sub-Saharan Africa](#): a qualitative study of researchers' perspectives. *Sex Education*, 18(2), 172-190.
- Finlay, J. E., Assefa, N., Mwanyika-Sando, M., Dessie, Y., Harling, G., Njau, T., ... & Bukenya, J. (2020). [Sexual and reproductive health knowledge among adolescents in eight sites across sub-Saharan Africa](#). *Tropical Medicine & International Health*, 25(1), 44-53.

Drawing on these papers, prepare a short lecture to introduce concepts of gender and sexuality (Step 1).

Provide cards and flipchart sheets, or online boards, for word associations and grouping (Step 2).

Make enough copies of the [Values Exercise](#) (Step 3) or share it online.

Steps

Time	Step	Who
10 minutes	1. Introduce gender and sexuality	Facilitator
30 minutes	2. Explore gender, culture, sexuality and stereotypes	Groups
10 minutes	3. Clarify values around gender and sexuality	Individuals
10 minutes	4. Describe and discuss values	Groups of 4
10 minutes	5. Summarise how values shape research	Facilitator
	6. Self-assessment	Individuals

Step 1. Introduce gender and sexuality

10 minutes

Give a short lecture to introduce the concepts of sexuality and sexual orientation.

Step 2. Explore gender, culture, sexuality and

stereotypes

30 minutes

In groups, students brainstorm words that they associate with sexuality and write them on cards. Then ask them to place each word in the most appropriate “circle of sexuality” on flipcharts or virtual boards. Include these among the circles:

- Sensuality.
- Intimacy.
- Sexual identity.
- Sexual health and reproduction.
- Sexual power over others.

Step 3. Clarify values around gender and sexuality

10 minutes

Students read the 10 statements of the [Values Exercise](#) and use them to reflect on and clarify their personal attitudes and values around gender and sexuality. They complete the questionnaire, indicating whether they ‘agree’, ‘disagree’ or ‘don’t know’.

Step 4. Describe and discuss values

10 minutes

In groups, students discuss some or all of these questions:

- How does it feel to confront values that you do not share?
- What did you learn from this experience?
- Did you change your opinion about any of the issues?

Step 5. Summarise how values shape research

10 minutes

Summarise how personal values on gender and sexuality shape every researcher’s theoretical perspectives and methodological choices. Discuss

how clarifying values is an ongoing process: it is normal to re-evaluate our attitudes as we grow and mature, and as we gather new knowledge and experiences.

Step 6. Self-assessment

Ask students to reflect on the exercise to clarify [values](#) (Step 3). Each student writes a short piece in response to this question:

- How will the value clarification exercise contribute to your work and to your own personal growth?

Health and Demographic Surveillance System

Session, 2 hours

In this session, you introduce the Health and Demographic Surveillance System (HDSS) as an instrument of monitoring demographic, epidemiological, and health transitions. Students learn about the data collected in a HDSS and about the existing sites in Africa including:

- Nairobi HDSS (Kenya).
- Iganga-Mayuge HDSS (Uganda).
- Rakai Health Sciences Program (Uganda).
- Agincourt HDSS (South Africa).

Download the [curriculum](#) for this session.

Outcomes

By the end of the session, students can:

- Describe the structure of a HDSS.
- Analyse the types of data collected by HDSS.

Preparation

If you have a colleague who works or worked in a Health and Demographic Surveillance Site, invite them to join this session.

This session also works really well if your students are doing a field trip to a HDSS.

Consult these resources as the basis for preparing this session, in particular the presentation (Step 2). Select ones to share with students.

- Let's Learn Public Health. (2017). [Public Health Surveillance](#) – a brief overview.

- APHRC. (2019). [The Nairobi Urban Health and Demographic Surveillance System](#).
- Global Health with Greg Martin. (2018). [Epidemiological transition](#).
- [IN-DEPTH Network](#). 2021.
- [Iganga-Mayuge HDSS](#). 2021.
- Kahn, K., Collinson, M. A., Xavier Gómez-olivé, F., Mokoena, O., Twine, R., Mee, P., Tollman, S. M. (2012). [Profile: Agincourt health and socio-demographic surveillance system](#). International Journal of Epidemiology, 41(4), 988–1001.
- Zia, N., Loeb, M., Kajungu, D., Galiwango, E., Diener-West, M., Wegener, S., Bachani, A. M. (2020). [Adaptation and validation of UNICEF/Washington group child functioning module at the Iganga-Mayuge health and demographic surveillance site in Uganda](#). BMC Public Health, 20(1).
- McLean, E., Dube, A., Saul, J., Branson, K., Luhanga, M., Mwiba, O., Crampin, A. C. (2017). [Implementing electronic data capture at a well established health and demographic surveillance site in rural northern Malawi](#). Global Health Action, 10(1).
- Waiswa, P., Akuze, J., Moyer, C., Kwesiga, D., Arthur, S., Sankoh, O., Mwangangi, M. N. (2019). [Status of birth and pregnancy outcome capture in Health Demographic Surveillance Sites in 13 countries](#). International Journal of Public Health, 64(6), 909–920.
- Kim Streatfield, P., Khan, W. A., Bhuiya, A., Hanifi, S. M. A., Alam, N., Bagagnan, C. H., Byass, P. (2014). [Adult non-communicable disease mortality in Africa and Asia: Evidence from INDEPTH Health and Demographic Surveillance System sites](#). Global Health Action, 7(1).

Self-assessment

Students reflect on how HDSS data in their own countries might supplement their doctoral research data requirements.

Steps

Time	Step	Who
30 minutes	1. Watch the Iganga-Mayuge HDSS video	Facilitator, students
30 minutes	2. Describe an HDSS in Africa	Facilitator
40 minutes	3. Present the HDSS in your country	Groups, then plenary
20 minutes	4. Wrap up	Facilitator

Step 1. Watch the Iganga-Mayuge HDSS video

30 minutes

Screen the [video](#) about the Iganga-Mayuge HDSS. Invite discussion on the question of a HDSS in a resource-poor setting.

Step 2. Describe a HDSS in Africa

30 minutes

Give your presentation, covering the structure of a HDSS, data collected and challenges. Refer to existing HDSS in Africa, including:

- Nairobi HDSS (Kenya).
- Iganga-Mayuge HDSS (Uganda).
- Rakai Health Sciences Program (Uganda).
- Agincourt HDSS (South Africa).

Emphasise that HDSS sites have longitudinal data – information about particular cohorts of people over time – which allows for particular kinds of research:

- Researchers can investigate causality more easily through cohort studies than with other study designs.
- Many intervention studies can be nested in HDSS sites.
- It is possible to draw random or systematic samples from these sites.
- Researchers can investigate groups of particular interest – such as people with TB, single-parent households, or people who live close to a health service – and compare them with the rest of the cohort that do not have that characteristic.

HDSS sites have longstanding relationships with their research community. You may want to engage your students in discussing:

- The ethical implications of this relationship and researchers' responsibility to the community.
- The notion of research fatigue in the community: what that means and how it can be overcome or avoided.

Step 3. Present the HDSS in your country

40 minutes

Students discuss health and demographic systems in their own countries and in relation to their own research. (They may need to search for information.) If there is no HDSS in their own countries, then divide them into groups and allocate articles and videos – a different site for each group. Groups should be about 5 to 10 people. Ask them to consider issues including:

- Data collection tools.
- Availability of data.
- Challenges.
- The kind of research that such a site can accommodate.
- The kinds of questions that may be answered by using the data already generated by these sites.

Groups present their discoveries to the plenary.

Step 4. Wrap up

20 minutes

Drawing on the group presentations, present conclusions, and invite students' responses.


Field Visit and Review

Session, 2 hours

A field visit to an active, relevant, research environment makes an extremely effective teaching tool. Depending on the students' area of research, choose a specific location and identify teachable moments. In a laboratory, for example, point out safety requirements, specific techniques and how to record lab data.

The example below illustrates a visit to a Health and Demographic Surveillance Site (HDSS), a rich opportunity for research that involves clinical work, social sciences, education, town planning, governance or engineering, among others.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1218#oembed-1>

Download the [curriculum](#) for these sessions.

Outcomes

By the end of the session, students can:

- Record and discuss different types of observations during a field visit (structured and unstructured).
- Choose different methods to record observational data and field notes.
- Analyse cultural awareness and the ethics of collaborating in research with study populations.

Preparation

For you, the facilitator

Organise an appropriate field visit, including all logistical arrangements. If a

field visit to a community is not possible or if students are engaging virtually, organise a virtual tour to a [Health and Demographic Surveillance Site \(HDSS\)](#). You could do both, making sure that the learning from each session event is different and complementary. Share relevant preparatory questions with the students well before the visit (Step 1).

Consult these resources as you create a presentation on participant observation and field notes (Step 4):

- Kawulich, B. B. (2005). Participant observation as a data collection method. *Forum Qualitative Sozialforschung*, 6(2). <https://doi.org/10.17169/fqs-6.2.466>.
- Tessier, S. (2012). From field notes, to transcripts, to tape recordings: Evolution or combination? *International Journal of Qualitative Methods*, 11(4), 446–460. <https://doi.org/10.1177/160940691201100410>.
- Deggs, D., & Hernandez, F. (2018). Enhancing the Value of Qualitative Field Notes Through Purposeful Reflection. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2018.3569>.
- Kahn, K., Tollman, S. M., Collinson, M. A., Clark, S. J., Twine, R., Clark, B. D., Garenne, M. L. (2007). Research into health, population and social transitions in rural South Africa: Data and methods of the Agincourt health and demographic surveillance system. *Scandinavian Journal of Public Health*, 35(SUPPL. 69), 8–20. <https://doi.org/10.1080/14034950701505031>.
- Hinga, A. N., Molyneux, S., & Marsh, V. (2021). Towards an appropriate ethics framework for Health and Demographic Surveillance Systems (HDSS): Learning from issues faced in diverse HDSS in sub-Saharan Africa. *BMJ Global Health*, 6(1). <https://doi.org/10.1136/bmjgh-2020-004008>.
- Mbondji, P. E., Kebede, D., Soumbey-Alley, E. W., Zielinski, C., Kouvidila, W., & Lusamba-Dikassa, P. S. (2014). Health information systems in Africa: Descriptive analysis of data sources, information products and health statistics. *Journal of the Royal Society of Medicine*, 107, 34–45. <https://doi.org/10.1177/0141076814531750>.

Assessment

Each student submits their field notes and each group gives their PowerPoint presentation to you or a co-facilitator for assessment and feedback.

Steps

Time	Step	Who
30 minutes	1. Brief students on keeping field notes	Facilitator
1 day	2. Conduct field visit	Facilitator, students
60 minutes	3. Share field notes and experiences	Small groups, plenary
30 minutes	5. Generate a framework for field observation	Facilitator, students

Step 1. Brief students on keeping field notes

15 minutes

Present key points and then lead a discussion on what to observe and record during the field visit – and why these choices are important. Invite students' input on the elements a researcher needs to gather in order to tell a story.

For unstructured field notes, ask students to observe and record what interests them during the field trip. For structured field notes, and depending on your purpose or field, give them examples of what to look out for. You may want them to note, for instance:

- Demographics: do they see mainly old people or mainly young people?
- Indicators of wealth or poverty.
- How residents respond to having visitors looking at them.
- What infrastructure is available?
- The quality of roads or drainage.

Whatever you ask them to observe depends on what you want them to learn and remember.

Step 2. Conduct a field visit

1 day

The aim of the field visit can vary, to take advantage of ongoing research in the geographic location where you are holding the training. The field visit might:

- Illustrate how health systems function or how a health service works with others to improve access to care, or deals with the social determinants of health.
- Provide the basis for discussing and understanding the ethics of research.
- Give students insight into the logistics of how to do research, such as:
 - How long an interview takes.
 - How to ensure confidentiality.
 - How to ensure privacy.
 - How to make sure that an interviewee understands informed consent and agrees (or refuses).
 - How to ensure quality control in research data collection.

The field visit should give students practical exposure to what it really means to be in the field. You might say: “When you are asking personal questions, where and how would you conduct the interview so that the interviewee’s wife or husband or child can’t hear? If someone else is listening, this influences the information that they give you, which would make your research less valid.”

“You get out of the classroom; you get into the field; you see the real world and you start thinking: How does my research play out in the real world situation and how does that real world situation impact on the data that I gather?”

Step 3. Share field notes and

90 minutes

In groups, students discuss their experiences and observations. They compare their field notes:

- Any challenges they encountered.
- What they observed.
- How they structured their notes.

Step 4. Generate a framework for field observation

30 minutes

Draw on the group presentations to lead discussion. Focus on:

- The importance of deciding what to observe and record.
- The elements needed to tell a story.
- The headings – who, what, where, when, why and how – that make a framework for observation and field notes.

Academic Citizenship Introduced

Sequence, 4 sessions, 2 days

In this sequence of sessions, students reflect on the concept of “academic citizenship” and the ethical responsibilities of all members of the academic community.

The university plays a unique role in society by creating, developing and conveying knowledge through research and education in order to meet society’s needs. To acknowledge the fundamental principles of autonomy – ensuring researchers the freedom to identify research questions – many universities have signed the Magna Charta Universitatum and joined the International Association of Universities.

Within this CARTA Curriculum, students revisit these critical questions towards the end of their PhD journey.

Download the [curriculum](#) for this sequence of sessions.

Sessions

Session 1. Academic Citizenship and Research Integrity | 2 hours

As an academic citizen, each student will take responsibility for quality in research and education. They commit to collegial collaboration for society’s benefit and to counteracting misconduct and plagiarism in both research and education. In this session, you present and discuss what this means, in international terms, as practised in your institution and in students’ individual understanding.

Outcomes

By the end of the session, students can discuss and appreciate the benefits and responsibilities of academic citizenship.

Preparation

As the facilitator

To present the concept of academic citizenship to students (Step 1), prepare notes and/or slides to summarise common views within academia globally and provide examples of how to handle misconduct, including plagiarism.

Consult these resources as the basis for your presentation and share them with your students.

- Macfarlane, B. (2007). [Defining and Rewarding Academic Citizenship](#): The implications for university promotions policy. *Journal of Higher Education Policy and Management*, 29(3), 26 –273.
- Macfarlane, B. and Burg, D. (2018). [Rewarding and Recognising Academic Citizenship](#). Leadership Foundation for Higher Education.
- [The Magna Charta Universitatum](#).
- International Association of Universities: [Vision & Mission](#).
- University of Alberta. [What is Academic Citizenship?](#)
- Wits University. (2023). [Managing risk and harm in research ethically](#).

For participants

Before the session, read the resource materials and reflect on these questions:

- How are the fundamental values of universities lived at your institution?
- How are academic citizenship and responsibilities handled at your institution? Have you been introduced to them during your studies?
- How do you as a researcher avoid being involved in academic misconduct, particularly considering the hierarchy that exists between senior and junior researchers?
- How could you, as a leader, contribute to the academic citizenship?

Self-assessment

Each student writes up their individual commitment to observe academic honesty and integrity, and to address dishonest academic practices.

Steps

Time	Step	Who
45 minutes	1. Present “academic citizenship”	Facilitator, full group
45 minutes	2. Discuss academic citizenship in practice	Small groups
30 minutes	3. Discuss the connection with social change	Plenary

Step 1. Present “academic citizenship”

45 minutes

During your presentation, engage the group in discussing how researchers and teachers practise academic citizenship in order to:

- Maintain ethics in education and research.
- Influence change for to improve people’s quality of life.

Step 2. Discuss academic citizenship in practice

45 minutes

Divide students into groups of four or five and invite them to discuss:

- In what concrete ways does your institution put academic citizenship and responsibilities into practice at each level: university leadership, among colleagues, in PhD and postdoc programs?
- How does your institution handle academic misconduct, such as plagiarism?

Step 3. Discuss the connection with social change

30 minutes

How is academic integrity related to social change to improve the quality of people’s lives? Invite and facilitate a discussion of the students’ views and their conclusions from the readings.

Session 2. Researcher Identifiers | 2 hours

A researcher identifier is a permanent numerical code assigned to a researcher.

The identifier identifies the researcher in a given digital environment, such as an institutional information system or publications database. It assigns to that researcher the scholarly production of which they are the author, including datasets, articles, books and book chapters, media stories, theses, protocols, patents articles, patents, scholarships, and funded projects.

In this session, students learn how to create and update accounts on three important identifier platforms: ORCID (Open Researcher and Contributor Identifier), Google Scholar and ResearchGate.

Outcomes

By the end of these steps, students can:

- Create accounts with ORCID, Google Scholar and ResearchGate.
- Update their ORCID, Google Scholar and ResearchGate accounts.

Preparation

- Develop a short presentation to introduce research identifiers (Step 1).
- Prepare a step-by-step guide to creating and updating an account to give students. Alternatively, find and share links to such guides.
- Ahead of your demonstration (Step 2), test all physical equipment and/or web-based platforms.
- Remind participants to bring their own laptops to the session.

Assessment

Each student creates an account with ORCID, Google Scholar, and ResearchGate (or alternative identifiers). After the session, students populate their accounts and share a link with you or another facilitator for feedback and assessment.

Steps

Time	Step	Who
15 minutes	1. Introduce research digital identifiers	Facilitator
1 hour	2. Create identifier accounts	Facilitator, individuals
45 minutes	3. Plan to populate and update accounts	Plenary

Step 1. Introduce research digital identifiers

15 minutes

Explain what research digital identifiers are, how they work, and why researchers need them. Introduce the specific ones available and the key strength of each.

Step 2. Create accounts

1 hour

Use a projector to demonstrate how to create an account in ORCID, Google Scholar, and ResearchGate. Students create accounts on their own laptops. They populate one of the platforms with the information they have available – a profile picture, institutional address/es, ongoing projects and publications.

Step 3. Plan to populate and update accounts

45 minutes

Invite and facilitate a discussion of students' reflections on the exercise. Ask how they plan to continuously update accounts.

Session 3. Research Ethical Review Process | 2 hours

Research ethics make up an important part of advanced academic learning. At the beginning of a research career, a doctoral student must become familiar with and adhere to appropriate ethical, legal and professional frameworks, obligations, and standards. In this session, students reflect on ethical issues related their research topic and plan their ethical approval process.

Outcomes

By the end of these steps, students can:

- Describe the role, composition and functioning of Institutional Review Boards (IRBs).
- Write research protocols with human rights protection in mind.

- Identify and discuss ethical issues related to their research.

Preparation

For you, the facilitator

Develop a presentation to introduce ethical issues surrounding research and the ethical review process (Step 1). Consult these resources for your presentation and select which ones to share with students.

- All European Academies (Allea). (2023). [The European Code of Conduct for Research Integrity](#).
- Association of Social Anthropologists (UK). (1999). [The Ethical Guidelines for Good Research Practice](#).
- [Institutional Review Board \(IRB\)](#).
- [The Research Ethics Guidebook](#).

These courses and resources are available online from the Global Health Training Network:

- [Good Clinical Laboratory Practice](#). 7 Modules
- [ICH Good Clinical Practice E6 \(R2\)](#). 60-minutes

For students

Assign reading ahead of the session and ask students to come prepared to describe:

- Key ethical issues surrounding their chosen PhD topics.
- Ways to address and navigate key challenges.

Self-assessment

Students reflect on the ethical issues relevant to their topics of study and submit a short summary to you or a co-facilitator for feedback.

Steps

Time	Step	Who
40 minutes	1. Introduce the ethical review process	Facilitator
40 minutes	2. Identify specific ethical issues	Small groups
40 minutes	3. Share conclusions and issues	Each group to plenary

Step 1. Introduce the ethical review process

40 minutes

Present an introduction to research ethics in general. Explain that ethical processes may delay research. Students need to familiarize themselves with the ethical review process from the outset and consult their supervisor or mentor for clarification and guidance. Your presentation could outline specific aspects such as:

- Principles of research ethics and moral theories.
- Research ethics regulation and management.
- IRB processes.
- Research in vulnerable populations.
- Informed consent.
- Standard of care.
- Conflict of interest.
- Meaning of secrecy and confidentiality.
- Compensation.
- Stored specimens.
- Post-trial management and publication.
- Research non-compliance.
- Clinical trial management.
- Good Clinical Practice (GCP) and Good Clinical Laboratory Practices (GCLP).
- Good research practice, research integrity and scientific misconduct.
- Examples and procedures for establishing, preventing, and sanctioning misconduct and fraud.
- Material transfer agreements (MTA) and when and why to use them.

Step 2. Identify specific ethical issues

40 minutes

Divide students into groups of five. Each one describes, briefly, the ethical challenges they anticipate in relation to their PhD research topic and how they might address them.

Step 3. Share conclusions and issues

40 minutes

Invite a representative from each group to summarize the key ethical issues that emerged from their discussion. Facilitate feedback to each group and a discussion of emerging issues.

Session 4. Community Engagement | 4 hours

This session introduces common effective ways to engage communities throughout the research process. Guide students to:

- Choose, read and summarize case studies involving community engagement.
- Reflect on the respective goals and resources of researchers, and partner communities.
- Identify criteria to evaluate research studies that involve community engagement.

Outcomes

By the end of these steps, students can:

- Articulate different definitions of community engagement in research and discuss their operating principles.
- Discuss criteria for proposals involving community participation in research.
- Discuss the strengths, weaknesses, opportunities, and limitations of selected case studies of community engagement in research.

Preparation

For you, the facilitator

Develop a presentation or talk to introduce community engagement in research (Step 1).

Consult and share resources, such as:

- Syed M. Ahmed, Ann-Gel S. Palermo (2010). [Community Engagement in Research](#): Frameworks for Education and Peer Review. *Am J Public Health*. 2010 Aug; 100(8): 1380–1387. doi: 10.2105/AJPH.2009.178137.
- Sarah E Asuquo et al. (2021). [Youth engagement in HIV prevention intervention research in sub-Saharan Africa](#): a scoping review. *J Int AIDS Soc*. 2021 Feb; 24(2): e25666. Published online 2021 Feb 10. doi: 10.1002/jia2.25666.
- Bridget Pratt, Tanya Seshadri, Prashanth N. Srinivas (2020). [What should community organisations consider when deciding to partner with researchers?](#) A critical reflection on the Zilla Budakattu Girijana Abhivrudhhi Sangha experience in Karnataka, India *Health Res Policy Syst*. 2020; 18: 101. Published online 2020 Sep 11. doi: 10.1186/s12961-020-00617-6.
- Belinda-Rose Young et al. (2020). [Community–University Partnership Characteristics for Translation](#): Evidence From CDC’s Prevention Research Centers. *Front Public Health*. 2020; 8: 79. Published online 2020 Mar 20. doi: 10.3389/fpubh.2020.00079.
- Melody S. Goodman et al. (2021). [Reaching Consensus on Principles of Stakeholder Engagement in Research](#). *Prog Community Health Partnersh*. Author manuscript; available in PMC 2021 Feb 7. Published in final edited form as: *Prog Community Health Partnersh*. 2020; 14(1): 117–127. doi: 10.1353/cpr.2020.0014.
- Morenike Oluwatoyin Folayan et al. (2019). [Community stakeholder engagement during a vaccine demonstration project in Nigeria](#): lessons on implementation of the good participatory practice guidelines. *Pan Afr Med J*. 2019; 34: 179. Published online 2019 Dec 5. doi: 10.11604/pamj.2019.34.179.18458.

Compile links to or copies of case studies for students (Step 2).

Assessment

Note students' ability to demonstrate their understanding of the processes of the community engagement in research.

Steps

Time	Step	Who
40 minutes	1. Introduce community engagement in research	Facilitator
80 minutes	2. Read and discuss case studies	Small groups
2 hours	3. Discuss community engagement as method	Each group, plenary

Step 1. Introduce community engagement in research

40 minutes

Present definitions of community engagement as a research method. Describe operating principles the relative roles and responsibilities of researchers, and community members. Invite and facilitate ideas and exchange.

Step 2. Read and discuss case studies

1 hour, 20 minutes

Divide students into groups. Each group reads one of the case studies and prepares a brief presentation to explain the research topic, population and methods, and answer these questions:

- Was that community engagement research the best option for that topic?
- Was there any option?
- What were the strengths and weaknesses of the design?

Step 3. Discuss community engagement as method

2 hours

A representative from each group presents their summary and answers. Facilitate discussion and conclude with a summary of main points from this sequence of sessions.

Designing PowerPoint Slides

Sessions, 2.5 hours

Good research communication skills are important for your students' PhD journeys and beyond. In this session, guide them to “package the message” effectively, using PowerPoint. Key presentations are likely to include:

- The research proposal.
- Doctoral progress.
- Seminar and conference contributions
- Teaching.
- The final thesis to examiners.

Making good PowerPoint slides alone is not enough: students must also learn to deliver a memorable presentation.

Download the [curriculum](#) for this session.

Outcomes

By the end of the session, students can:

- Design their own PowerPoint slides.
- Deliver PowerPoint presentations effectively.

Preparation

Gather examples of PowerPoint slides that demonstrate common mistakes or top tips.

To demonstrate how to design PowerPoint decks, prepare steps to project. Ensure that you can project these steps online or on a screen.

Check that each student has their own laptop and PowerPoint program.

Consult these resources. You may decide to share one or more with your students.

- [How to Create a PowerPoint Presentation.](#)
- [Cartwright, J. \(2022\). 17 PowerPoint Presentation Tips to Make More Creative Slideshows.](#)
- NCSL. (2017) [Tips for Making Effective PowerPoint Presentations.](#)
- Smith, B. (2021) [60 Effective PowerPoint Presentation Tips & Tricks \(To Improve Your Skills\).](#)

Assessment

Students submit their designed PowerPoint slides for feedback from you or a co-facilitator.

Steps

Time	Step	Who
15 minutes	1. Present the use of PPTs in research	Facilitator
90 minutes	2. Demonstrate and practise PPT design	Facilitator, students
15 minutes	3. Present PPT tips	Facilitator
30 minutes	4. Present and discuss PPTs	Individual students, group

Step 1. Present the use of PPTs in research

15 minutes

Give a short introductory presentation about the use of PowerPoints in research and common design mistakes.

Step 2. Demonstrate and practise PPT design

90 minutes

Demonstrate important design points, including how to:

- Make slides less crowded.
- Use fonts, colours and templates.
- Drawing tables, figures and flow charts.
- Record narration for voice-over PowerPoints.

- Add videos to slides.

Each student works on their own laptops to design a set of PowerPoint slides to show elements of their own research concept or proposal.

Step 3. Present PPT tips

15 minutes

Present tips on the delivering PowerPoint presentations that audiences will understand and remember.

Step 4. Present and discuss individual PPTs

30 minutes

Select a few students and ask them to present their PowerPoint slides to the group. Invite constructive feedback from other students. Encourage a lively, supportive atmosphere. Finally, invite feedback from co-facilitators and give your own comments.

Research Concepts

Sessions, 2 days

Over these two days, you support students to write and present their own PhD research concepts. Here, each student demonstrates that they will undertake a systematic inquiry: collect data, document critical information and analysis, and interpret that data in accordance with appropriate methodologies as set by the professional fields and academic disciplines relevant to their topic of interest.

Download the [curriculum](#) for these sessions.

Outcomes

By the end of the session, students can:

- Describe components of a research concept.
- Write a coherent PhD research concept.
- Present their research concepts using PowerPoint.

Preparation

Develop points and gather resources for a conversation about research concepts. Where possible, refer to work and ideas from this group of students.

Consult this and other relevant resources, and then share with students:

- Raganit, R. (2022). [How to Write a Concept Paper for Academic Research: An Ultimate Guide.](#)

Assessment

On the second day, students present their concepts to facilitators and peers for feedback.

Steps

Remind students about the elements of a research concept that they have covered up to this point:

- Conducting a literature search, reading journal articles critically, managing citations.
- Identifying the research gap, developing research questions, making appropriate methodological choices.
- Deepening skills in academic writing and communication.
- Planning to conduct ethically sound research in accordance with principles of scientific integrity, ethical guidelines, and Institutional Review Boards (IRB) requirements.

On the first day, support students build on all these elements in order to rewrite their own research concepts and prepare PowerPoint slides. Then on the second day, each student presents their research concept using PowerPoint slides. The audience of facilitators and peers give constructive feedback.

Academic Writing

Sequence, 8 sessions, 4 days

Introduction

To teach the crucial skills of academic writing and critical thinking, CARTA partnered with an organization called ESE:O. The ESE:O-CARTA [manual](#) – A Critical Approach to Scientific Reading and Writing – provides basic skills to help students to write a doctoral thesis and other academic texts, including research articles and book chapters, that are well structured, logically coherent and engaging.

These modules provide an introduction, covering the essential framework and concepts of the method. The manual is directed to students themselves, to follow as individuals or together.

Ideally, integrate Academic Writing with the [Research Question and Methodology](#), especially the session related to the research gap.

Download the [curriculum](#) for these sessions.

To schedule these sessions over four days, use or adapt CARTA's timetable.

	Monday	Tuesday	Wednesday	Thursday
8:30	Session 1: Body, voice and motivation	Session 2 continued	Session 4: Titles and sentences	Session 6: Teaching while doing Session 7: Criticism
10:30	Break	Break	Break	Break
10:45	Session 1 continued	Session 2 continued Session 3: The research gap	Session 5: Working with concepts	Session 8: Presentations
12.45	Lunch	Lunch	Lunch	Lunch
13.45	Session 1 continued	Session 3 continued	Session 5 continued	Session 8 continued
15.45	Break	Break	Break	Break
16.00 – 17:45	Session 2: Methodology	Session 3 continued	Session 5 continued	Session 9: Wrapping up

Background

This programme of modules is based on ESE:O’s Training of Trainers methodology, a multifaceted method developed by instructors with experience in different fields: critical thinking, writing and publishing, body expression, music, poetry, social sciences, human rights, and leadership). The methodology promotes critical thinking, a pluralistic exchange of ideas, and writing as a tool for social change.

Approach

Aligned with CARTA’s approach and principles, the ESE:O methodology:

- Considers reading and writing as part of the thinking process, and vice versa.
- Approaches reading–thinking–writing as a cultural practice that involves “learning by doing” in the real world.
- Develops social, communication, attitudinal, and intercultural skills.

- Is metacognitive: in other words, each time a participant completes a cycle, they gain awareness of the steps they are taking and can replicate them.
- Is flexible and procedure based.
- Follows a series of simple and easily applied steps that can be adapted to the needs of each writer.
- Works through collaborative interaction between students and facilitators, teamwork, peer review, and micro role-playing. This helps build critical thinking, planning, and writing skills as well as the capacity to participate concretely and effectively in real-life discursive communities.
- Uses a “training of trainers” perspective to build participants’ competencies so that they can go on to transmit their skills and knowledge to others.
- Promotes self-learning and the empowerment of writers.
- Trains writers in the use of digital and information technology.
- Has been developed and tested for over 15 years in different languages, cultures, and continents.

Core Ideas

This introduction to critical thinking and academic writing builds 15 core ideas.

1. The importance for a PhD thesis of the research (knowledge) gap, research problem, and research questions.
2. Critical discussion, rather than reproduction, of existing knowledge.
3. Helping writers gain confidence to use their own voice and perspective from the start and contribute their own thoughts and conclusions to the debate.
4. Developing a stance when engaging with the literature.
5. Identifying the key idea and holding focus on it (“the heart of the matter”).
6. The importance of logical coherence, continuity, and cohesion in developing an argument in writing.
7. How to use titles, subtitles, paragraphs, and topic sentences.
8. Understanding what concepts are and their role in scientific research,
9. The ability to describe and discuss a conceptual framework.
10. Familiarity with mind-maps as a creative tool to generate ideas.
11. The circular and self-reinforcing nature of writing and self-editing.

12. The importance of developing a productive reading habit and reading/note-taking technique. A good reader helps make a good writer.
13. The importance of peer review: role-playing as author and editor. Peer review is used throughout the workshop.
14. Writing as a collaborative activity: building a writing community, consulting experts, mutual support, solidarity and encouragement.
15. Academic integrity: referencing, plagiarism and publishing.

Voice

With this methodology, writers learn to develop and value their own voice to participate effectively in different communities. For this purpose, the approach combines cognitive, affective, and social competencies. It stimulates excitement and creativity in the writing process from the start by showing the rewards as well as the challenges in all their transdisciplinary dimensions.

The aim is to strengthen writers' voices so that they produce an impact on their desired audiences by legitimising and authenticating their discourse. By using international writing standards, publications acquire value as interventions in the world and contributions to change.

Sessions

Session 1: Body, Voice and Motivation

In these initial sessions, students get to know each other and bond. Through thoughtful and creative steps – journals, interviews, poetry, performance – they bring their full selves into the process of thinking and writing.

Outcomes

By the end of this session, students can:

- Work together, participate and collaborate.
- Understand a poem as a text that expresses a central theme or emotion in a few words and shares many features with academic texts, such as title (central idea), structure (beginning, middle, end), rhythm, verbal economy and precision, repetition.

- Keep a journal of memories and reflections about the learning process as a cognitive, emotional, intercultural and social experience: reflexive and metacognitive writing.

Preparation

Find short YouTube videos on mindfulness; warm-up (stretching and breathing exercises); ice breaker exercises; posture, breathing and voice exercises.

Test hyperlinks and/or audiovisual equipment.

Allocate co-facilitator roles.

Assessment

Observe and note students' strengths and weaknesses in:

- Understanding and following instructions.
- Meeting time restrictions.
- Speaking with confidence.
- Expressing views clearly and precisely.
- Having no fear of revealing doubt or uncertainty.
- Having no fear of revealing doubt or uncertainty.
- Communicating successfully with others..
- Ability to avoid unnecessary jargon.

Steps

Time	Step	Who
60 minutes	1. Warm up	Facilitators
60 minutes	2. Interview peers	Pairs, plenary
120 minutes	3. Present self and partner	Pairs to plenary
20 minutes	4. Exercise posture, breathing, voice	Videos, plenary
55 minutes	5. Analyse and perform a poem	Individuals, plenary

Step 1: Warm up

60 minutes

Share greetings and briefly present the facilitators.

Screen a five-minute YouTube video that engages students in a mindfulness exercise.

Engage students in 20 minutes of warm-up, stretching, and basic breathing exercises, and then 20 minutes of ice-breaking body exercises also using YouTube videos.

Invite students to keep a Personal Learning Journal for memories, feelings and reflections about the learning process as a cognitive, emotional, intercultural and social experience.

Step 2: Interview peers

60 minutes

For 30 minutes, students interview each other in pairs, asking about:

1. Name and relevant personal information, family and hobbies.
2. Motivation for doing a PhD.
3. Any previous experience with academic writing and publishing, including courses and/ or workshops.

For the next 30 minutes, invite students to note or share their reflections on the task – what did they learn; feel; notice about themselves and others (metacognition).

Step 3. Present self and partner

120 minutes

Co-facilitators split roles: one is the animator/ facilitator and the other observes and take notes.

Each student ‘interviewer’ in turn stands up, speaks up and presents themselves. Then they present their ‘interviewee’ in no more than two minutes. Keep strict time.

For the next 30 minutes, invite students to note or share their reflections on the task (metacognition).

Step 4. Exercise posture, breathing, voice

20 minutes

Engage students in posture, breathing and voice exercises, drawing on YouTube videos.

Step 5. Analyse and perform a poem

55 minutes

Invite students, working individually for 15 minutes, to:

- Search for a favourite poem or poetic song lyric.
- Underline its title.
- Write down its main idea (the heart of its meaning).
- Look for and underline examples of repetition and rhyme.
- Notice how it summarizes feelings and ideas – its ability to be a WHOLE work in just a few words).
- Note how it conveys different aspects of and variations on the same theme.
- Think about how to perform the poem to maximum effect. Annotate the text to show posture, expression, voice volume and tone.

For the next 25 minutes, volunteers read out the poem or lyric they chose.

For the last 15 minutes, focus on specific poems and invite discussion of:

- Cohesion and coherence.
- Beginning, middle and end.
- Rhythm, rhyme and repetition.
- Capacity to summarise and show different aspects and variations of a theme in a few words.

Session 2: Methodology

Introduce the basics of the ESE:O methodology. Students learn and practise the principles of paragraph construction as they think and write about their motivation to do a PhD.

Outcomes

By the end of this session, students can:

- Reflect on their personal motivation to begin a doctoral research project, embrace the importance of motivation as the driving energy of a text and learn to identify this element in peer-reviewing others' work.
- Understand the basic elements of the ESE:O methodology and workshop objectives; key framework concepts such as motivation and peer review; and the available workshop resources.
- Appreciate the importance of basic structural features of academic writing, such as title and subtitles.
- Grasp the principles of effective paragraph construction
 - That paragraphs should focus on a single idea.
 - How to open paragraphs (topic sentences).
 - Where to locate data and argument
 - How to close paragraphs.
- Perform reflexive and metacognitive writing by keeping journals of their memories and reflections about the learning process as a cognitive, emotional, intercultural and social experience.

Preparation

Develop or source Powerpoint/s to introduce ESE:O methodology.

Locate and prepare to screen videos or share links.

Test hyperlinks and audiovisual equipment.

From the Manual, access and share with students:

Module 1, pp. 10–20

Module 4, pp. 58–70

Self- and peer assessment

[Rubric 1: Motivation.](#)

Steps

Time	Step	Who
100 minutes	1. Introduce ESE:O methodology	Facilitator
60 minutes	2. Summarise motivation for PhD	Individuals, facilitator
Own time	3. Write in the Learning Journal	Individuals
70 minutes	4. Warm up	Videos, plenary
95 minutes	5: Discuss titles and sentences	Videos, plenary
75 minutes	6: Peer review of motivation summaries	Pairs

Step 1: Introduce ESE:O methodology

100 minutes

Present the ESE:O methodology, concepts, guiding principles, objectives and literature review workshop. Describe the key resources and demonstrate where students can find the Academic Writing [videos](#) and the ESE:O-CARTA Manual: A Critical Approach to Scientific Reading and Writing (the [Manual](#)). Share the assessment rubrics.

Open a Q and A discussion.

Step 2. Summarise motivation for PhD

90 minutes

Using the poem exercises as a starting point, speak about the ‘heart of the matter’, motivation and desire. Point out that writing a PhD is a long-distance race, a marathon, and so the student needs to pace themselves with a daily writing, thinking, and reading routine.

Ask students to write a 50-word paragraph with their ‘heart of the matter’ motivation and desire to contribute / change the world, from their particular field of knowledge. Allow ten minutes.

Stress how fundamental it is to understand what they are doing and why they are doing it. Each student needs to:

- Think it out, unpack it and probe its weak areas.
- Reflect on it repeatedly during the PhD journey and discuss it with

teachers and peers.

- Focus on the contribution, justification, and relevance for their local context.

Without losing sight of their motivation, each student now expands their 50 words to 100, using [Rubric 1: Motivation](#).

Step 3. Write in the Learning Journal

In their own time

Either in the evening or the next morning, each student takes Learning Journal time – reflecting on the day.

Step 4: Warm up

70 minutes

Share greetings and briefly present the facilitators.

Screen a five-minute YouTube video that engages students in a mindfulness exercise.

Engage students in 20 minutes of warm-up, stretching, and basic breathing exercises, and then allow 20 minutes for Learning Journal.

Step 5: Discuss titles and sentences

90 minutes

Screen and discuss Video 1. [Structure: titles and subtitles](#).

Screen and discuss Video 2. [Paragraphs and topic sentences](#).

Step 6: Peer review of motivation summaries

70 minutes

Students pair up and, for 25 minutes, review each other’s paragraphs using [Rubric 1: Motivation](#). Invite volunteers to discuss the results of their review in plenary.

Session 3: The Research Gap

The first steps along their PhD journey develop and strengthen students' motivation, critical awareness and writing ability, so that they can draft – to the highest scholarly and ethical standards of their scientific community – a short presentation of their research idea, the research gap it fills and its potential impact.

Outcomes

By the end of this session, students understand more deeply:

- The functions of structure in an academic text, including titles and subtitles.
- The importance of well-structured paragraphs.
- What a topic sentence is, what its functions are, and how to write one.
- How sentences are formed and four common errors in writing sentences.
- The concept of the research gap and its centrality in the literature review.
- The distinction between a research gap and a policy gap.
- How to synthesise a research idea (the “heart of the matter”) in a few words.
- Authors' combined roles as writers and editors.
- The importance in writing of constructive criticism, editing and self-editing.

Preparation

Review the [Checklist: The research gap](#).

Locate and prepare to screen videos or share links.

Test hyperlinks and audiovisual equipment.

From the [Manual](#), access and share with students:

Module 2.3, pp. 23-27

Self- and peer assessment

[Rubric 2: Research gap](#)

[Rubric 3: Motivation and research gap](#)

Steps

Time	Step	Who
20 minutes	1. Discuss the research gap	Video, facilitator
25 minutes	2. Identify their own research gap	Individuals
60 minutes	3. Review peer's research gap	Pairs
60 minutes	4. Report back on peer review	Individuals, plenary
105 minutes	5: Conduct a collective review	Plenary
15 minutes; own time	6: Reflect and re-edit	Individuals

Step 1: Introduce ESE:O methodology

20 minutes

Screen and discuss the [video](#) on the Research Gap.

The research gap is about gaps or deficits in knowledge (not in public policies). Explain the difference with examples. Once they have reviewed the scientific literature, each student's task will be to establish that the gap exists, describe it as precisely as possible, and demonstrate its importance.

Step 2: Identify their own research gap

25 minutes

Each student underlines the heart of the matter in the 100-word paragraph they wrote earlier. They now write a 50-word paragraph identifying and describing the research gap. As a result, their text is now a maximum of 150 words and must include a working title and five keywords. They refer to [Rubric 2](#) and [Rubric 3](#).

Step 3: Review peer's research gap

60 minutes

Students pair up and review their partner's text. As an editor, they focus on the Research Gap, ensuring that:

- There is only one 'heart of the matter' (they underline it).
- The research gap is directly related to the heart of the matter

- The research gap refers to a gap in knowledge and not in public policy.
- The description of the gap is complete and clear (no jargon, no long and confusing sentences).

For this task, they refer to [Rubric 2: Research gap](#).

Then, as an editor, they review the working title for the ‘heart of the matter’ and the keywords, as clarified in referring to the video on [Structure](#) and [Rubric 3: Motivation and research](#).

Once they are done, they discuss their feedback with the writer. In the conversation between writer and editor, the editor makes sure s/he got it right and allows the writer to explain it better and adjust the title if necessary.

Step 4: Report back on peer review

60 minutes

The editor in each pair reports back to the group (out loud) on:

- The number of words.
- What is the heart of the matter (reads out a quote from the text).
- The suggested working title.

The writer comments on the experience and outcomes of the exercise.

Step 5: Conduct a collective review

105 minutes

Begin with a 10-minute mindfulness exercise. Then screen the video on Paragraphs and topic sentences for the second time and discuss it.

Explain and then lead a collective review. With your co-facilitators, choose a selection of students’ 150-word texts to show on screen (live or online). For each one, facilitators and students together:

- Comment on how the text is structured overall: sentences and paragraphs.
- Comment on how paragraphs are structured. Each paragraph should

have one, single central idea; start with a short and concise topic sentence, followed by the development of the central idea or argument, and end with a conclusion or a connection to the next paragraph (the ‘hamburger’ principle).

- Identify topic sentences, and how well they serve their purpose.
- Discuss the formation of sentences, identifying errors.

Step 6: Reflect and re-edit

15 minutes, own time

Invite students to reflect on this session in their learning journals.

Explain the ‘homework’ to complete this session. In their own time, each student re-edits their own 150-word text, ensuring that sentences, paragraphs and topic sentences are effective. They use [Rubric 3: Motivation and research](#) for guidance and refer to the [Checklist: The research gap](#).

Session 4: Titles and Sentences

In this session, you use your students’ own work to give a general introduction to the essential components of effective academic writing. In particular, focus on title, keywords, topic sentences and construction.

Outcomes

By the end of this session, students can:

- Detect when and why a text is well or poorly constructed.
- Spot the central argument or point of a paragraph (the ‘heart of the matter’).
- Judge the quality of a title and compose one.
- Grasp the principles of effective paragraph construction
- Choose viable keywords.
- Ensure that paragraphs are not too long and contain only one main idea
- Craft a concise topic sentence to start a paragraph.
- Make sure that the sequence of ideas is logical.
- Use the appropriate connector when necessary to improve the flow of sentences and paragraphs.

- Write, edit and polish until the whole text works effectively.

Preparation

Locate and prepare to screen videos or share links.

Test hyperlinks and audiovisual equipment.

Print copies of the [Checklist: Titles, keywords and sentences](#) or share online.

From the Manual, access and share with students:

Module 4, pp. 58–71

Module 3, pp. 49–51

Module 2.3, pp. 23–27

Steps

Time	Step	Who
20 minutes	1. Warm up	Video, facilitator
15 minutes	2. Write in Learning Journals	Individuals
85 minutes	3. Discuss paragraphs	Plenary

Step 1: Warm up

20 minutes

Screen a five-minute YouTube video that engages students in a mindfulness exercise.

Engage students in 15 minutes of warm-up, stretching, and basic breathing exercises.

Step 2: Write in Learning Journals

15 minutes

Students reflect on the day.

Step 3: Discuss paragraphs

In their own time

Show eight texts that you and your co-facilitators pre-selected. For each one in turn, ask students of the paragraph complies with the [checklist](#):

- How strong is the title?
- Are the keywords appropriate for the field of inquiry?
- Are the keywords specific and precise enough?
- Do the keywords add search possibilities not already in the title?
- Is the language and meaning clear?
- Are topic sentences effective?
- Are paragraphs well-constructed and a reasonable length?
- Is unnecessary background information avoided?
- Do the citations appear relevant to documenting the research gap?
- Does the text end on a strong note?

To guide class discussion, follow these points:

1. Only work on one main idea in each paragraph.
2. Create a topic sentence for that main idea/ paragraph. Explain why topic sentences need to be succinct and precise.
3. Reinforce the main idea at the end of the paragraph/ connect with following paragraph.
4. Use connectors effectively to help logical coherence and flow. Ask students to give examples of connectors and to explain their function.
5. Discuss paragraph length and structure: Why aim for short paragraphs? Explain the hamburger model.
6. Cultivate rhythm and argument in the sequence of paragraphs (like a poem).
7. Read your text out loud.
8. Avoid unnecessary background and end strongly.
9. Find effective keywords.
10. Use references to enrich a text.

Show and discuss examples of single paragraphs written by other students as part of their literature review chapter that illustrate effective paragraph construction.

Session 5: Working with Concepts

Many students have difficulty understanding what concepts are and grasping the central role of concepts in scientific research. They are frequently confused with, for example, issues or hypotheses. In this module, guide students to fellows to identify the key concepts in their research question, find literature that discusses them and explain their meaning.

Outcomes

By the end of this session, students can:

- Understand concepts and their role in scientific research.
- Understand the difference between conceptual and empirical issues.
- Spot the key concepts in a scientific discussion.
- Develop ideas about the relationship of concepts with one another and their pertinence to the research question.
- Search for journals with relevant discussions of concepts and issues.
- Use words precisely and make them count.
- Understand the importance of references to the research argument and how to cite them correctly.
- Construct a reference list correctly.

Preparation

Source a video and/ or prepare a PowerPoint presentation on “concepts and conceptual frameworks”.

From the [Manual](#), access and share with students:

Module 3, pp. 41–48

Steps

Time	Step	Who
20 minutes	1. Focus on mindfulness	Video, facilitator
45 minutes	2. Discuss concepts	Video, facilitator, all
100 minutes	3. Identify the concepts they are using	Small groups
45 minutes	4. Report back on identifying concepts	Groups to plenary
40 minutes	5. Edit and polish texts	Individuals
90 minutes	6. Expand texts	Individuals
15 minutes	7. Write in Learning Journals	Individuals
Own time	8. Finalise expanded texts	Individuals

Step 1: Focus on mindfulness

20 minutes

Invite students to join a mindfulness exercise.

Step 2: Discuss concepts

45 minutes

Begin by explaining what concepts are and their role in scientific research. Screen a video and/or present PowerPoint slides on “Concepts and conceptual frameworks”, followed by Q and A.

Clarify how the main ideas that students expressed in their paragraphs – just like all research questions and the knowledge gaps they fill – involve the use of concepts. The concepts a student uses need to be defined and discussed with reference to the scientific literature and current usage.

Step 3: Identify the concepts they are using

100 minutes

In break-out rooms, small groups of five students each, led by a single facilitator, discuss concepts. Each group selects a rapporteur to take notes.

The facilitator shows each student's paragraph in turn. The author reads their text aloud to the group, followed by discussion.

The group locates and lists the key concepts in the text. The author explains how they understand the concepts (a formal definition is not required). The group discusses:

1. Are there any potential problems in the way the concepts are understood and/or used in the text?
2. Are the concepts used consistently and is their meaning clear in the context?
3. Is the relationship between the concepts clear?

Step 4: Report back on identifying concepts

45 minutes

Begin with a five-minute mindfulness exercise. Then rapporteurs report back on the texts that were analysed in their group. They identify problem areas and challenges that arose in the discussion, especially regarding the correct identification of concepts and the difference between a discussion of concepts and a discussion of empirical issues.

Step 5: Edit and polish texts

40 minutes

Each student edits and polishes their texts, integrating comments in relation to concepts, the main ideas, connectors, the structure of paragraphs and topic sentences.

Step 6: Expand texts

90 minutes

Ask students to produce a longer version (350–400 words) of their research idea (“the heart of the matter”) and research gap. Below, they should include a brief discussion (approximately 200 words) of three key concepts, closely related to their research idea and gap. They should name each concept,

followed by a short paragraph discussing its meaning, citing at least three authoritative and reputable sources for each concept. (Citations are not part of the word count). At the end, they should list references, including at least three key references for the research gap, as well as at least three per concept.

The total length of text should now be 600 words. The text must have a title, author name, author affiliation, five keywords and a list of references at the end (not included in word count).

Step 7: Write in Learning Journals

15 minutes

Students reflect on session 5.

Step 8: Finalise expanded texts

Own time

Students finalise the work on their texts.

Session 6: Teaching while Doing

Here, each student uses a detailed assessment rubric to review the expanded paragraph of a peer. Students develop the capacity as critics and editors to give constructive feedback to help the author improve their work.

Outcomes

By the end of this session, students can:

- Use a detailed rubric to assess the work of another writer.
- Give constructive commentary to another writer.

Preparation

Print copies of [Rubric 4: Final version of 600-word research gap and concepts text](#) or share online.

Peer-assessment

Based on Rubric 4.

Steps

Time	Step	Who
5 minutes	1. Share a mindfulness exercise	All
55 minutes	2. Review a peer's text	Pairs

Step 1: Share a mindfulness exercise

5 minutes

Show a video or lead a mindfulness exercise.

Step 2: Review a peer's text

55 minutes

Each student reviews the text that a partner produced in Session 5. Taking the critic/editor role, students use the detailed assessment [Rubric 4: Final version of 600-word research gap and concepts text](#). When you explain the task, stress the importance of “general comments” to orient the writer in the revision process.

Session 7: Criticism

In this session, students learn to absorb criticism, adjust their work and move ahead.

Outcomes

By the end of this session, students can:

- Summarise ideas and arguments in an effective PowerPoint presentation.
- Adjust and reformulate text to correct problems identified by a reviewer.

Steps

Time	Step	Who
60 minutes	1. Prepare a PowerPoint presentation	Individuals

Step 1: Prepare a PowerPoint presentation

60 minutes

Each student receives comments on their expanded text from their peer reviewer on [Rubric 4: \(Final version of 600-word research gap and concepts text\)](#). They prepare a three-slide PowerPoint presentation of their research idea, incorporating the reviewer's comments.

Session 8: Presentations

This session focuses on the student projecting their ideas. Each student has three minutes to present their research idea with a three PowerPoint slides. The group comments on each presentation, using an assessment rubric, and then reflects on the experience in their Learning Journals. Finally, they discuss the Learning Journal.

Outcomes

By the end of this session, students have:

- Developed their capacity to speak in public: attitude, good posture, strong and clear voice, speed, good start and good finish.
- Gained skills in giving a strong first impression and an effective ending to a presentation.
- Developed the capacity to keep to time limits when speaking in public.
- Developed their capacity to evaluate public speaking.

Preparation

Prepare to lead a discussion of the Learning Journal as a protected time to note memories and reflections about the learning process, as a cognitive, emotional, intercultural and social experience.

Steps

Time	Step	Who
5 minutes	1. Focus on mindfulness	Video, facilitator
15 minutes	2. Note reflections in Learning Journals	Individuals
130 minutes	3. Present and review PowerPoints	Individuals to plenary
45 minutes	4. Discuss presentations	Facilitator, plenary
15 minutes	5. Reflect on Session 8 in Learning Journals	Individuals
60 minutes	6. Discuss the Learning Journal	Facilitator, plenary
60 minutes	7. Evaluation and wrap up	Facilitator, plenary

Step 1: Focus on mindfulness

5 minutes

Invite students to join a mindfulness exercise.

Step 2: Note reflections in Learning Journals

15 minutes

Step 3: Present and review PowerPoints

130 minutes (excluding breaks)

Each student presents the PowerPoint slides they prepared in Session 7. Ask one student to volunteer as the timekeeper – they must keep strictly to time: no more than three minutes per presentation.

Students note their comments on each PowerPoint presentation using [Rubric 5: Three-slide PowerPoint presentations](#).

Step 4: Discuss presentations

45 minutes

As the facilitator, lead a group discussion of the presentations based on the criteria of Rubric 5.

Step 5: Reflect on Session 8 in Learning Journals

15 minutes

Students note their reflections on this session.

Step 6: Discuss the Learning Journal

60 minutes

As the facilitator, lead a group discussion on the Learning Journal.

Step 7: Evaluation and wrap up

60 minutes (excluding break)

Students provide feedback on the content and organisation of the eight sessions. Conclude with a celebratory wrap-up activity.

Note: Within CARTA, these sessions introduce an ongoing process of writing tasks with deadlines and feedback, that continues over the students' PhD journey.


Scientific Blitz

Session, 30 minutes daily, 24-hour preparation

A structured debate on a provocative and relevant topic, the Scientific Blitz pits two students against each other, one as the presenter and the other as the opponent, to argue for or against a pre-assigned topic. The Scientific Blitz:

- Marks the punctual start of the day.
- Engages students in scientific debate.
- Puts students' database-search skills to use in identifying relevant literature.
- Alerts students to the broader social and scientific context of their research.
- Requires students to read rapidly and develop arguments to support the claim they have been assigned.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1746#oembed-1>

Download the [curriculum](#) for this session.

Outcomes

By the end of a series of Scientific Blitz sessions, students can:

- Rapidly cover the background to an important research question.
- Identify materials in databases and condense them into short oral contributions.
- Feel comfortable with the concept and practice of scientific debate.
- Reflect on and critique the social and scientific context of specific research.

Preparation

As facilitator

Coordinate these sessions with your program. CARTA timetabled a Blitz every weekday over a four-week period, in-person.

Prepare a list of topic statements per day and a key reference for each topic. Select suitable articles from CARTA's selection online or from your own reading.

Identify and announce two speakers for each Blitz: one student as the lead speaker for the motion, and another as the opponent.

Hand out or share the link to the key reference per Blitz to all participating students 24 hours in advance (no earlier!)

The two speakers

Expand their knowledge on the subject by searching relevant databases.

Prepare their arguments for or against the topic statement.

All participating students

Read the key reference for the day.

Find and read other materials around the selected topic.

Steps

The facilitator opens the session and monitors time strictly.

The speaker has ten minutes to introduce the topic, describe the controversy and present their argument.

The opponent has two minutes to present their views.

The speaker has five minutes to respond to the opponent and defend their view.

The facilitator opens the floor for an eleven-minute general discussion.


Spiderweb – Social Determinants

Session, 90 minutes

Through a physical activity in the same room, students acquire the skills to use the social determinants of health and gender framework, to understand health issues, and inform health policies and interventions.

In a group, students read a case study aloud. By answering your question “But why?” at important moments, they identify the social determinants underlying the gender and public health issues in this life history. Using string, they spin a physical “web” and recognise how these different factors intertwine. They take turns to propose strategies to address each factor and, in this way, thread by thread, they dismantle the web. Finally, they discuss what they have learned from this activity.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1784#oembed-1>

Download the [curriculum](#) for this session.

Outcomes

By the end of the session, students can distinguish between factors:

- That are common to men and women within a specific social group.
- That arise as a consequence of biological differences between men and women.
- That are related to gender-based differences in roles and norms and access to and control over resources, and the power relations between men and

women, within the same social group.

Assessment

You or a co-facilitator might want to assess students' participation in the group exercise and discussion.

Assessment

Read the case study, [Miriam's story](#), and mark the points at which you will ask "But why?" (no more than ten or twelve points).

Print copies of Miriam's story for each student.

Have a ball of twine or string or wool and a large pair of scissors.

Prepare the venue – a fairly large room – by marking lines on the floor with chalk or masking tape to create and label [five big sections](#).

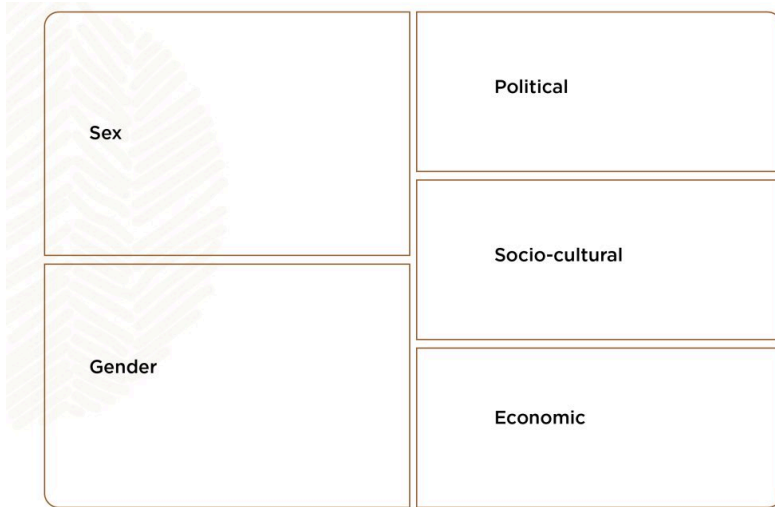
In one half of the room, label three sections with three factors that women have in common with men of the same social group:

- Economic
- Socio-cultural
- Political

Divide the other half of the room, into two squares and label them:

- Sex
- Gender

Make each of the five sections large enough for five people to stand in it.



Steps

Time	Step	Who
5 minutes	1. Introduce the spiderweb	Facilitator
20 minutes	2. Spin the web	Facilitator, students
15 minutes	3. Cut the web	Facilitator, students
5 minutes	4. Discuss how factors link	Facilitator, students
10 minutes	5. Discuss gender	Facilitator, students
10 minutes	6. Discuss social determinants and the rights framework	Facilitator, students
10 minutes	7. Connect social determinants with the multi-level framework	Facilitator, students
10 minutes	8. Discuss conclusions	Facilitator, students

Step 1. Introduce the spiderweb

5 minutes

Explain that this session refreshes the concept of the [social determinants](#) of health. But the spiderweb exercise also distinguishes between the determinants that affect both men and women and those that affect men and women differentially, either because of their biological or gender-based differences. Explore how these factors may be interlinked.

Step 2. Spin the web

25 minutes

Give each person a copy of [Miriam's story](#). Students stand in a circle around the marked area of the floor, with you as facilitator in the centre.

Invite a student to read aloud a sentence or concept and then stop them to ask, "But why did this happen?" For example:

Facilitator: "Miriam stopped schooling after her second grade. But why?"

Participant: "Her school was three kilometres away from the village."

Facilitator: "But why?"

Participant: "The village was poor and far from the capital so there was no school."

Facilitator: "But why?" ...

Participants may reach the conclusion that it was a political issue (not enough voters for a candidate to seek their vote, so no need to provide services to this small village). This last answer would affect both boys and girls in Miriam's village. This factor could be classified as economic (the backwardness of the village), or as political (the village's lack of bargaining power to secure resources).

Once a participant identifies that the reason is that the village is powerless, ask, "So how would you classify this factor?" If the participant says it is an economic factor and the others agree, she or he stands in the section labelled "economic". Standing in the centre with the ball of twine, you hold

one end of the twine and throw the ball to the participant standing in the “economic” square.

Probe further: “Could you classify it as any other factor?” Another participant may say “political”. They go and stand in the “political” square and the person standing in the “economic” square throws the ball to her or him, while holding the twine. Now all three of you are linked by the twine.

Another volunteer continues reading. The story reveals another reason that Miriam stopped schooling: her father did not think education was necessary for girls. A participant classifies this as a “gender” factor. Ask if others agree and if they do, the participant stands in the “gender” square and the ball of string passes to him or her.

Keep up a brisk pace. After each “But why?”, participants call out and classify factors rapidly, and a new participant enters speedily into the web.

This continues, until the story is complete and the whole group is tied into a complex spiderweb of the factors underlying Miriam’s ill health.

Step 3. Cut the web

15 minutes

When the spiderweb is complete, with all participants standing entangled in it, challenge them to find the point at which they can cut the web. What interventions could they make which would make a difference to Miriam’s situation?

You could ask participants to respond from a specific vantage point. For example:

Facilitator: “If you were a local activist, where would you cut the web?”

Participant: “I would intervene to help Miriam stand up to her husband’s violence; I would give her shelter in my house, and help her farm her land.”

Facilitator: “If you were the nurse at the clinic, where would you cut the web?”

Participant: “I would be sensitive to signs and symptoms of battering in women who come to the clinic. I would help her find shelter and social support through a suitable agency.”

Facilitator: “If you were from the department of health of the national government, where would you cut the web?”

Participant: “I would advocate for one-stop centres within major hospitals to help women affected by domestic violence.”

And so on.

As each participant answers, use the scissors to cut them free. After three or four such examples, participants return to their seats for debriefing and discussion.

Step 4. Discuss how factors link

10 minutes

Ask participants for feedback, beginning with their feelings about the exercise.

How did you feel when you were entangled?

What lessons do you draw from the exercise?

What do you think the entanglement signified?

Many participants feel hopelessly trapped as the spiderweb is spun. They cannot imagine that it will be possible to unravel the problems. Cutting through some parts of the web gives insight into possible actions that individuals or groups can take, no matter how complicated a situation appears, or at which level a person is able to intervene: individual, community or national.

Point out that the key to cutting the complex web may lie in starting with the woman herself: create space for her to reflect on her situation, interact with others and see that change is possible.

Draw attention to the fact that many gender factors were also classified as socio-cultural, for example the reason for Miriam's circumcision or her early marriage. Raise this point for discussion: culture and tradition are not gender neutral and may become tools for discrimination against women. They are likely to be the parts of the spiderweb that are the most difficult to cut through.

Ask "Where is it appropriate to cut the web?" Economic, socio-cultural, and political factors that affect women's health are so intertwined with factors related to gender and sex, that they seem to mesh into one. While it is important to see these links, it is equally important to separate them out analytically, to identify where it is most appropriate and effective to cut the web.

Step 5. Discuss gender

10 minutes

Ask: "Which factors affect women exclusively?"

Explain that the web exercise identified:

- Factors that affect women predominantly or exclusively, for example female circumcision, early marriage, and intimate partner violence.
- Factors that affect men and women in Miriam's community, for example the distance from the school and the health centre.

Emphasise that it is important to analyse health issues in this way. For example, women in a community are suffering from iron-deficiency anaemia. This may be because of:

- Something common to both women and men, such as hook worm infestation, or
- Women's biological differences from men, such as malaria infection during pregnancy, or
- Gender differences, such as discrimination in food allocation leading to malnutrition.

Each of these cause calls for a completely different intervention.

Unravel sex, gender and other factors. Ask participants for examples of sex and gender factors – as opposed to economic, socio-cultural and political factors – that operate at various levels, and that may be responsible for a health condition or problem. Point out that, unless one carries out an analysis to unravel gender and sex from other factors underlying a problem, interventions may not address the causes, and may in fact further undermine women’s position. Many such examples exist, for example:

- Targeting women for health education assuming that ignorance is the cause of their malnutrition, when in fact it may be gendered discrimination in food allocation.
- Not dealing with men and safe sex, but testing and treating women for sexual transmitted infections.

Step 6. Discuss social determinants and the rights framework

5 minutes

Draw participants’ attention to the links between a social-determinants perspective and a rights framework in relation to health. Understanding the social causes underlying ill health also helps identify the economic, socio-cultural, civil, or political rights involved. Violating or neglecting these rights may underlie the health problem. Addressing these violations or neglect would create conditions that enable good health.

Step 7. Connect social determinants with the multi-level framework

10 minutes

Factors affecting health (those common to both sexes and those specific to women) can be divided into the five levels of the multi-level framework: individual, household, community, national, and international. For example:

- Miriam’s father’s attitude to the education of girls is a gender factor operating at the household level.

- The absence of a school in the community is an economic or political factor operating at the community level.

With both frameworks as tools, we are better able to analyse and address health issues.

Step 8. Discuss conclusions

10 minutes

Invite participants to share their conclusions. Emphasise these main points:

- We should distinguish between health determinants common to women and men and those that are sex and gender-related, because each of these sets of factors requires a different type of intervention.
- When we analyse a health situation or a specific health problem, we should explicitly consider the gender dimension, and its links to other determinants of the problem.
- We should base the design of interventions on such an analysis and take into account the potential impact of these interventions on gender power relations.
- Health problems caused by multiple factors need a multi-pronged strategy. When multiple factors cause a problem, we may need a multi-pronged strategy to address them simultaneously.
- A social-determinants perspective forces us to look at the issues of rights. When we analyse a health situation this way, we can identify rights that are being neglected or violated, and that may be contributing to the health problem. Addressing these rights violations or neglect will create the necessary conditions for addressing the health situation.

Work in Progress


60 minutes

In their work-in-progress (WIP) presentation, each doctoral student talks about a part of their research study in a meaningful way to a small multidisciplinary audience of peers and faculty. This gives them practice, with feedback, in:

- Saying something well and briefly.
- Developing a good PowerPoint presentation.
- Addressing those outside their own discipline, as in a conference setting.

The WIP presentation can focus on something unfinished, such as a table they are interpreting in the light of their overall work.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=2097#oembed-1>

Download the [curriculum](#) for this session.

Outcomes

By the end of the session, students can:

- Present scientific work clearly and succinctly within a limited time.
- Debate and defend scientific work.
- Explain their research to others outside their own discipline and specialisation.
- Receive and respond to critical comments.

Preparation

Coordinator/s

Organise a small group of students and faculty (up to eight people) for WIP ses-

sions.

(Alternatively, a WIP presentation can be an open forum).

Organise a suitable venue with projector and screen.

Session presenter

Prepares a 15-minute presentation with PowerPoint slides.

Highlights an aspect of their work.

Submits the presentation at least two days beforehand to the assessor/s.

Session chair

Other students take this role in turns over the series of WIP sessions.

They practise their chairing skills, such as opening and closing the session and inviting input and feedback from the assessors and peers.

Assessors

Assign this role to two or three facilitators or trainers, including at least one from a different discipline.

The assessors review the presentation in advance and prepare questions.

Assessment

- Assessors note attendance and active participation by all students in the group.
- The student who presented goes on to consolidate the feedback and send a copy to their supervisor/s for review and follow up.

Steps

Time	Step	Who
15 minutes	1. Present an aspect of the research	Student presenter
30 minutes	2. Respond to the presentation	Assessors, peers
15 minutes	3. Manage and respond to critique	Student presenter

Step 1. Present an aspect of the research

15 minutes

The student presents an aspect of their research project to members of their pre-assigned WIP group of peers and facilitators. The chair introduces the presenter and ensures that s/he stops at 15 minutes.

Step 2. Respond to the presentation

30 minutes

The chair invites responses, first from the assessors, then from the rest of the audience.

The assessors begin with positive responses, then ask straightforward, clarifying, building up to more challenging questions, and pointing out areas for improvement (no more than ten minutes total per assessor).

Other students and facilitators offer views on the presenter's project and ask for clarification.

Step 3. Manage and respond to critique

15 minutes

The presenter can respond to critical feedback, ask, counter, and seek advice.

Introduction to Health Economics

2 hours

This session introduces students to:

- Economic concepts and their relevance to decisions around the allocation of health care resources.
- The application of economic tools to health care systems and public health in low- and middle-income countries.
- The central issues in health economics and health policy involved in the management of primary health care
- Topics such as methods of economic evaluation, setting priorities using health economics, and the interface between health economics and health policy.

Outcomes

By the end of the session, students can:

- Explain the key concepts, principles and theories of economics within the context of the health system with a focus on low- and middle-income countries.
- Analyse a health system in a low and middle-income setting from an economic perspective.
- Describe the complexities involved in providing equitable health care in low- and middle-income countries.
- Assess the most cost-effective health intervention program/ technology based on methods/approaches and principles of economic evaluation of the health care.
- Explain the roles and limitations of markets and incentives in health system.

Preparation

As facilitator

Share links to resources before the session.

Develop or source a presentation on study designs, methods, and evaluation approaches in health economics.

Develop or source a presentation on the economic evaluation of the health care.

Develop quizzes based on the reading and presentation.

Students

Read at least the first three resources before the session.

Reading

- Kernick, D.P. (2003). Introduction to health economics for the medical practitioner. *Postgraduate Medical Journal*; 79:147-150.
- Martin, I.M. (2001). Introduction to health economics for physicians. *The Lancet*; 358 (9286): 993-998.
- *Medicine Journal*; 19:198-201.

Additional reading

- Folland, S., Goodman, A.C., Stano, M. (2010). *The Economics of Health and Health Care* (7th Edition)
- Drummond, M.F., Sculper, M.J., Torrance, G.W., O'Brien, B.J., Stoddart, G.L. (2007). *Methods for Economic Evaluation of Health Care Programmes* (3rd edition). Oxford University Press.
- Folland, S., Goodman, A. and Stano, M. (2016). *The Economics of Health and Health Care*. Pearson International Edition Seventh Edition. Routledge. ISBN-10: 1292020512 or ISBN-13: 978-1292020518
- Witter, S., Ensor, T., Jowett, M. and Thompson, R. (2015). *Health Economics for Developing Countries: A Practical Guide*. KIT Publishers. ISBN-13: 978-9460221316 ISBN-10: 9460221319
- Dayo Obure, C., D.O., Jacobs, R., Guinness, L., Mayhew, S., Integra Initiative, Voss, A., (2016). Does Integration of HIV and Sexual and Reproductive Health Services Improve Technical Efficiency in Kenya and Swaziland? An Application of a Two-Stage Semi Parametric Approach Incorporating Quality Measures. *Soc Sci Med*. 151: 147-156. doi: 10.1016/j.socscimed.2016.01.013

Assessment

- Quizzes, online or in person: 20%
- Practical assignment after the session: 70%
- Participation in discussion: 10%

Steps

Time	Step	Who
30 minutes	1. Present and discuss an overview of health economics	Facilitator, students
30 minutes	2. Present and discuss economic evaluation	Facilitator, students
60 minutes	3. Evaluate a healthcare case	Plenary, pairs
Afterwards	4. Submit an assignment	Students

Step 1. Present and discuss an overview of health economics

30 minutes

Present a PowerPoint overview of study designs, methods, and evaluation approaches in health economics. Engage students in discussing how they relate these to their prior knowledge of research designs and methods.

Step 2. Present and discuss economic evaluation

30 minutes

Develop students' understanding of the economic evaluation of health care. Use a PowerPoint slide deck and participatory methods to involve the group in the discussion.

Step 3. Evaluate a healthcare case

60 minutes

With your support, students identify real or hypothetical healthcare cases that require an economic evaluation. In pairs, they discuss what methods

and principles of economic evaluation they would apply to assess the most cost-effective health program or technology related to the case/s they identified.

Step 4. Submit an assignment

After the session

Each student searches for economic evaluations of health programs related to the topics covered in the session. They write up a (brief) critical review of these evaluations and submit it to you or another facilitator for assessment and feedback.

Session 2. A Heading with Caps | 6 hours

Each doctoral student develops and revises their PhD research question (quantitative or qualitative). To support this process, they review and apply the PICOT and SPIDER frameworks.

Preparation

As the facilitator

Read the resource articles:

- Bulleted list
- etc

Watch the YouTube videos and select which ones to screen:

- Bulleted list
- etc

With reference to these resources, develop PowerPoint presentations for Steps 2 and 5.

Test all physical equipment and/or web-based platforms.

Outcomes

By the end of these steps, students can:

- Bulleted list

Self-assessment

Each student:

- Does this
- That

Steps

Time	Step	Who
30 minutes	1. Present and discuss an overview of health economics	Facilitator, students
30 minutes	2. Present and discuss economic evaluation	Facilitator, students
60 minutes	3. Evaluate a healthcare case	Plenary, pairs
Afterwards	4. Submit an assignment	Students

Step 1. Present and discuss an overview of health economics

30 minutes

Present a PowerPoint overview of study designs, methods, and evaluation approaches in health economics. Engage students in discussing how they relate these to their prior knowledge of research designs and methods.

Step 2. Present and discuss economic evaluation

30 minutes

Develop students' understanding of the economic evaluation of health care. Use a PowerPoint slide deck and participatory methods to involve the group in the discussion.

Step 3. Evaluate a healthcare case

60 minutes

With your support, students identify real or hypothetical healthcare cases that require an economic evaluation. In pairs, they discuss what methods

and principles of economic evaluation they would apply to assess the most cost-effective health program or technology related to the case/s they identified.

Step 4. Submit an assignment

After the session

Each student searches for economic evaluations of health programs related to the topics covered in the session. They write up a (brief) critical review of these evaluations and submit it to you or another facilitator for assessment and feedback.

Research Development Clinics

60 minutes, weekly over a one-month period, or as needed

Organise relevant advisors to assist PhD students to develop a high-quality proposal. Schedule four clinic sessions for each student. Here, advisors provide one-on-one support to address specific problems identified in the [diagnostic session](#) as the student develops their research protocol. The objectives of the four clinics are:

- Clinic 1 – to define the research **question** and objectives.
- Clinic 2 – to discuss the research **methods** to ensure they will meet the objectives.
- Clinic 3 – to detail the **logistics** of the research (Is it feasible, given time and other resource constraints?).
- Clinic 4 – to develop a **data analysis plan**.

Outcomes

After the series of clinics, the PhD student should have at least a strong draft of a research protocol, including:

- Research question
- Objectives
- Methods
- Logistics
- Data analysis plan

Preparation

The course coordinator

- Identify, invite, and allocate the most appropriate advisor (trainer, facilitator, or mentor) to each student, with reference to the notes from their diagnostic clinic session.
- Invite each student's PhD supervisor to read their student's notes and

attend the clinics. The supervisor's buy-in and involvement is essential to ensure that the student has unified guidance.

The student

- They must be clear about how they want to use the session and prepare questions beforehand.
- For clinic 1, they write down their research question and a summary of the background to the question (max 500 words).
- They should collate any documents or files that might be useful, for example papers or data sets they might want to refer to during any clinic.
- They must arrive promptly for their appointment, with their preparatory work.

References to support data analysis plans

- [Tong et al. consolidated criteria for reporting qualitative research \(COREQ\)](#): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*; Volume 19, Number 6: pp. 349–357.
- [Vandenbroucke et al. Strengthening the Reporting of Observational Studies in Epidemiology \(STROBE\)](#): Explanation and Elaboration. *PlosMedicine* October 2007. Volume 4; Issue 10: e297.

Steps

The allocated advisor meets with the PhD student for one hour per week for four weeks to discuss, in turn:

1. The research **question** and objectives.
2. The research **methods** (will they result in data that meets the study objectives?)
3. The **logistics** of the research (Is it feasible, given time and other resource constraints?)
4. A **data analysis plan**.

After the first clinic, the student writes a summary (maximum 500 words

but may be shorter) of the key points agreed with the advisor. The student emails this to the advisor, their PhD supervisor and you, the coordinator/facilitator, within 24 hours. This enables the advisor to see if the student understood what was said. The notes also enable you, as coordinator, to identify and schedule a suitable advisor for this student's next clinic.

Between clinics, the student works on their protocol and prepares questions for the next appointment with the advisor.

Journal Club

85 minutes, weekly or as scheduled

In a small group (at least three members), students take turns to play a different role at each meeting of the club: Chair, Presenter, and Discussant. A facilitator observes the structured discussion and, only at the end, offers brief comments.

Give careful thought to the journal papers and other articles that you choose for journal clubs. How to run a journal club is a useful exercise in itself, but in addition the form and/or content should also be useful for the students.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=2201#oembed-1>

<https://pressbooks.pub/cartacurricula/?p=2201#oembed-1>

Download the [curriculum](#) for this session.

Outcomes

After a series of journal-club meetings, students can:

- Participate in and organise a journal club.
- Critically read and discuss a paper.
- Present a ten-minute overview of a journal article.
- Offer peer review and discussion.

Selecting articles

Give careful thought to the articles you choose for the journal club. An article is unlikely to meet every criterion but look for those that meet at least one of the following objectives. The article:

- Demonstrates very good writing.

- Illustrates how to write up quantitative research well.
- Illustrates how to write up qualitative research well.
- Is an example of a good mixed-methods paper.

really bad and made errors that can be discussed (such as methodological errors or unethical practices).

- Demonstrates a useful approach in action – for instance a good case-control study, a good implementation-science study, or how a project dealt with gender issues

For CARTA, criteria included that the piece:

- Illustrates that excellent research can and does come from African researchers in Africa.
- Demonstrates an issue that is relevant to African research leadership.

As in the video, you might choose pieces that are not journal articles – op-ed columns, for example, or newspaper features that focus on research findings or needs related to your students’ area of study.

Preparation

Facilitators

Identify and distribute articles for discussion, to include accessible pieces such as blogs and magazine articles as well as academic papers.

Allocate roles (Chair, Presenter, and Discussant) for each meeting, ensuring that each participant has a turn to play each role in subsequent journal club meetings.

Presenter

Reads the article thoroughly.

Seeks help for anything they do not understand.

Outlines what the article says, noting:

What is the background to the topic of the paper? Why does the topic matter?

Who are the authors and where do they come from?

How was the study funded?

What was the research question or objective of the study?

What methods were used?

What in summary were the key results?

What did the author/s conclude?

Discussant

Reads the article thoroughly.

Seeks help for anything they do not understand.

Outlines their critique of the article, noting:

How might the funding and/or authorship affect the study conclusions?

Were the methods appropriate?

Are the author's conclusions justified by the results presented?

What are the implications of the study results and conclusions?

All participating students

Read the article/s, noting:

Are the objectives of the study clear?

Are the methods clearly described?

Does the results section give you all the information you need to understand the data?

Do you agree with the conclusions the authors draw from the data?

Assessment

The facilitator grades participants from 1 to 10, according to this rubric.

Steps

	Chair: Ensured optimal room layout, began and ended session on time, ensured that speakers kept to time, actively solicited participation from all group members, summarised discussion thoroughly.
8-10 Excellent	<p>Presenter: Contextualized the paper well, discussed authors of paper, gave cogent summary of methods, highlighted important results, summarised conclusions comprehensively.</p> <p>Discussant: Provided a thorough critique of the methods, explored whether conclusions were justified, thoroughly discussed implications of results and conclusions, explored potential conflicts of interest, identified 2-4 points for group to discuss.</p> <p>Chair: Arranged reasonable room layout but could be improved, kept time in most instances, made some attempt to stimulate discussion, summarised one or two of the main points.</p>
4-7 Average	<p>Presenter: Provided some background for the paper, but omitted important elements, gave cogent summary of methods but omitted important aspects, reported results without highlighting key information for wider group, summarised only some conclusions.</p> <p>Discussant: Provided a reasonable critique of the methods used, gave somewhat superficial account of implications of results and conclusions, identified only one point for group discussion.</p> <p>Chair: Made no attempt to reorganize the room despite non-conductive layout, started and ended session late, made no attempt made to restrict Presenters to allotted time nor to stimulate discussion, deferred to facilitator, failed to summarise discussion.</p>
1-3 Below Standard	<p>Presenter: Did not contextualise the paper, read methods as written rather than summarising, read results verbatim, failed to report author conclusions, summarised only some conclusions.</p> <p>Discussant: Did not critique methods, failed to discuss wider implications of results and conclusions, failed to identify points for group discussion.</p>

The Chair, Presenter, and Discussant arrive early to arrange the room for a group discussion.

The Chair opens the session, keeps time, ensures participation by everyone, facilitates discussion by posing questions or summarising points, closes the session and thanks the Presenter, Discussant, participants, and facilitator.

The Presenter has ten minutes, without PowerPoint slides, to outline what the article says.

The Discussant has ten minutes, without PowerPoint slides, to critique the

article, stimulating discussion by highlighting concerns and uncertainties about the article

After 45 minutes of discussion, the facilitator can intervene, if necessary, to comment on:

If the discussion is in fact focused on the merits/ content/ interpretation of the article.

If key points are being missed.

At the end of the session, the facilitator has five minutes for brief feedback, as constructive as possible, noting potential for improvement and possibly drawing on this checklist:

Room layout allowed eye contact for everyone.

Journal club started and finished on time.

Presenter kept to time.

Presenter gave a clear and accurate description of the paper.

Presenter provided appropriate background information.

Discussant kept to time.

Discussant drew out points of concern and/or uncertainty that stimulated discussion.

Discussant understood what points to critique.

Everyone in the room contributed to the discussion.

Chair was able to stimulate discussion (if necessary).

Diagnostic Sessions

At least two 45-minute sessions, about a month apart

Diagnostic sessions support students to identify their needs so that they can go on to access one-on-one support in a series of [Research Development Clinics](#).

Students identify challenges and gaps and decide on the kinds of support they need in order to make progress. As course coordinator, you allocate the best available facilitator, trainer, or mentor to provide the necessary expertise to meet each student's requirements.

The interactive nature of the session enables students to communicate their needs effectively and make consistent and measurable progress. Within a diagnostic session, the facilitator requires the student to map out a clear strategy to achieve a series of critical goals in order to complete their research.

Outcomes

After this exercise, students can:

- Be self-critical.
- Receive critique of their PhD protocol and proposal.
- Offer constructive peer support to other PhD students.
- Identify resources (human and literature) and use them to develop their PhD proposal.

Preparation

As course organiser

- Identify and invite a range of suitable and available facilitators and mentors – in addition to students' own supervisors – to play advisory roles.
- Allocate a suitable facilitator to each student.
- Ensure the availability of a well-spaced physical space or virtual learning platform such as Zoom.

Students

- Prepare ahead to ensure they get maximum benefit from the student-led

session.

- Identify the kinds of expertise they need in (for example) writing and conceptualising, demography, epidemiology, biostatistics, or qualitative research methods.

Steps

PhD students meet in small groups or one-on-one with a facilitator. Each student describes to the group and/or the facilitator their project and progress.

With the assistance of the facilitator, they identify the support that would enable them to progress.

The student writes up notes detailing what they agreed with the facilitator.

Pitching Articles and Ranking Journals

2 hours

This session introduces students to the basic principles of:

- Journal ranking.
- Selecting appropriate journals to submit to.
- Submitting an article.

All researchers aim to communicate their research findings to a scientific audience in a reputable peer-reviewed journal. This is one of the criteria for assessing the quality of a scholar's work and thus all scholars need to develop manuscripts and cover letters that capture the attention and approval of editors and reviewers.

To select an appropriate outlet to disseminate their research findings, researchers need to understand journal rankings.

Outcomes

By the end of the session and follow-up activity, students can:

- Discuss the importance and limitations of the various rankings.
- Select an appropriate journal for an article from their PhD thesis.
- Submit an article to an appropriate journal.

Preparation

As the facilitator

Prepare or source an introduction to journal ranking.

Students read

Garfield, E. (2003). [The meaning of the Impact Factor](#). *International Journal of Clinical and Health Psychology*, 3 (2), 363–369.

[Publishing quality article in an impact factor journals](#). Academia Publishing House (2013).

Other references

Fedderke, J. W. (2013). [The objectivity of national research foundation peer review in South Africa assessed against bibliometric indexes](#). *Scientometrics*, 97(2), 177–206. (Access via your institution).

National Library of Science: [MEDLINE Overview](#).

[Scopus database](#).

Web of Science: [Institute for Scientific Information \(ISI\) Journals](#).

Assessment

Facilitator/s assess the article that each student prepares for submission and the covering letter.

Steps

Time	Step	Who
30 minutes	1. Introduce journal ranking	Facilitator
15 minutes	2. Introduce pitching articles	Facilitator
45 minutes	3. Identify relevant journals	Small groups by discipline
15 minutes	4. Write a paragraph about a suitable journal	Individuals
15 minutes	5. Discuss surprises and challenges	Plenary
Own time	6. Prepare an article to submit	Individuals

Step 1. Introduce journal ranking

30 minutes

Present an introduction that includes some or all of the following content.

Identify journal metrics:

- Impact factor.
- Google Scholar Metrics.
- h-index.

- i10-Index.
- Scopus analytics.

Why journal ranking matters:

- Appointment and promotion of academic staff or research position.
- Evaluation of grant applications.
- Application for consultancy jobs.
- Global university ranking.

Critique of impact factors:

- Self-citation: authors cite themselves often to manipulate their metrics.
- Bias towards English language journals.
- Field of study that the journal belongs to determine the impact factors.

Predatory publishers and journals:

- Beall's list.

Databases of accredited journals:

- Yale University Library guide.
- MEDLINE.
- ISI list.
- IBSS list.
- Scopus/Elsevier/Science Direct.
- Directory of Open Access Journals.
- JStor, AJOL, PLOS One, Taylor and Francis, Taylor and Francis, Biomed Central (BMC), Springer, Sage publications.
- University library portals.

Determining genuine publishers and relevant journals:

Think. Check. Submit.

Step 2. Introduce pitching articles

15 minutes

Explain that scholars can pitch (or 'sell') an article to a journal by:

- Sending an advance letter, detailing the research, or
- Sending a cover letter together with the manuscript.

Suggestions for pitching an article:

- Make sure that the objectives of the article are clear to the editor.
- Demonstrate that your work builds on the existing literature and contributes

significantly to the body of knowledge.

- Submit your manuscript to a relevant journal and follow all the instructions to authors.
- If there is no response after four or five weeks, send a follow-up email to ask about the status of the submission.
- If the editor or reviewers request revisions (major or minor) to your manuscript, respond carefully to reviewers' comments and revise the manuscript accordingly.
- If your manuscript is rejected decision, thank the editor for the comments, address the feedback, and submit the revised article to a different journal.

Step 3. Identify relevant journals

45 minutes

Students working in related disciplines form small groups, about four people in each group. Using indexes, groups identify and discuss journals that are relevant for their work.

Step 4. Write a paragraph about a suitable journal

15 minutes

An exercise for each student:

Identify a new journal you have not heard of before and write a short paragraph about why it is suited for a specific chapter or finding from your dissertation or thesis.

Step 5. Discuss surprises and challenges

15 minutes

In the plenary, students discuss what they learned from the activities, what surprised them, and what challenges they encountered.

Step 6. Prepare an article to submit

Own time

After the session, each student prepares at least one manuscript from their PhD thesis, using the format of the journal they identified during the exercise (Step 4). They submit the prepared manuscript to the facilitator and, later, present their articles in the [Manuscript Club](#)

Academic Posters

75-minute session

Individual and group work

45-minute review and critique session

As the culmination of training in methods, students work in groups to synthesise complex data from both quantitative and qualitative research to produce conference-quality posters. The project concludes with scoring and discussion by peers and facilitators.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=2266#oembed-1>

Download the [curriculum](#) for this session.

Outcomes

By the end of this assignment, students can:

- Synthesise qualitative and quantitative data.
- Summarise and convey research findings in verbal and visual forms.
- Use Microsoft PowerPoint to create a poster.
- Critically evaluate poster designs.

Preparation

As coordinator

Ensure that students in small, multidisciplinary groups (about four members in each) complete the background sessions before designing posters, including working with the chosen datasets.

Identify, brief, and engage experienced facilitator/s to lead the poster-design session and later the evaluation exercise.

Facilitators

Prepare a PowerPoint poster template and send it to all students.

Share “Trips and Tricks” [handout](#).

Collect and display examples of good and flawed posters for discussion. You may want to put them up on the wall for viewing and discussion.

Prepare scoresheets and print copies for all students and facilitators multiplied by the number of groups. (Each individual needs a separate [scoresheet](#) for each poster)

Organise to print the groups’ completed posters.

Students in multidisciplinary groups

Bring the data sets they have already analysed.

Set aside time to work on their poster.

Assessment

All students as well as facilitators assess the posters. The coordinator calculates the final scores. Each poster is assessed by peers and facilitators according to the criteria on the [scoresheet](#).

Poster Scoresheet

Criterion	Explanation	Mark out of maximum
1. Title	Title reflects the study focus and design	5
2. Background	Background is clear and focused. Based on evidence.	10
3. Aim & objectives	Study's research question, aim and/or objectives clearly defined	10
4. Methodology	Both quantitative and qualitative methods described with sufficient detail	10 (5/ method)
5. Data management & analysis	Both methods covered as well as mixed-methods considerations explained	15 (5/ method)
6. Results	Key results aligned presented, aligned with study aim	20
7. Use of tables & visuals	At least one quantitative and qualitative visual incorporated into presentation; quality of the visuals	10
8. Conclusions		10
9. Overall presentation	Poster demonstrates good use of colours, layout, font and visuals for an overall look	10
Total		100

Steps

Time	Step	Who
5 minutes	1. Introduce the communication of findings	Facilitator
30 minutes	2. Identify features of good and bad posters	Facilitator, all
10 minutes	3. Demonstrate a PowerPoint poster template	Facilitator
30 minutes	4. Brainstorm and plan poster production	Groups
Own time	5. Design a poster	Each group
45 minutes	6. Critique the posters	All, facilitator

Step 1: Introduce the communication of findings

20 minutes

Explain that, as researchers, one of our responsibilities is to communicate our research findings effectively to funders, study populations, other

researchers, and the public. Scientific posters are one way to communicate findings.

Step 2. Identify features of good and bad posters

30 minutes

Viewing the examples you prepared, invite students to discuss what makes a good poster and what makes a bad poster.

Step 3. Demonstrate a PowerPoint poster template

10 minutes

Show the students how PowerPoint can be used to create a poster, or invite students with experience to demonstrate.

Step 4. Brainstorm and plan poster production

30 minutes

Form multidisciplinary groups of four students per group. Each group brainstorms on how to go about representing the data and designing the poster. They allocate tasks between themselves and a timeline to meet the deadline.

Step 5. Brainstorm and plan poster production


Own time

Between sessions, each group designs a poster. They submit the pdf to you by the deadline, so that you can have the posters printed before Step 6.

Step 6. Critique the posters

45 minutes

Display the printed posters. Allow enough space for people to view easily. Explain the process and distribute scoresheets to the students and all available faculty members. Once everyone has viewed and recorded their votes on the score sheets, an experienced guest facilitator leads the full group



from one poster to the next, inviting constructive comments, and pointing out any features that others have not remarked on. At the same time, a coordinator or facilitator, tallies up the scores and announces the winning team at the end of the session.

Qualitative Data Analysis

Sequence, 5 sessions, 5 days

Qualitative data analysis is an iterative process in which researchers use rigorous techniques to make sense of text, videos, photos, audio files and other data forms. The qualitative approach usually generates an enormous volume of textual data and so, increasingly, researchers adopt software programs to manage qualitative analysis tasks. While software cannot substitute for the thinking necessary in qualitative analysis, the programs have become almost essential for a researcher to get the most out of their data within the shortest time possible.

In this sequence of training sessions, refer back to earlier sessions on [Qualitative Methods](#), revisit approaches to the analysis of qualitative data, and offer classes, including practical sessions, on the use of computer-assisted qualitative data analysis software (NVivo). Remind students that software will help them manage their data, but the analysis relies essentially on the capability, patience, and attentiveness of the researcher.

Schedule the sequence on [Quantitative Data Analysis](#) immediately before or after this sequence and relate both to the sequence on the [Data Analysis Plan](#).

Outcomes

By the end of this sequence of sessions, students can:

- Discuss the epistemological orientations guiding qualitative research.
- Identify the best approach for analysing, presenting, and making sense of their qualitative data.
- Appropriately code qualitative data.
- Use qualitative data analysis software for managing and analysing their data.

Preparation

References

- Castleberry, A., & Nolen, A. (2018). [Thematic analysis of qualitative research data](#): is it as easy as it sounds? Currents in pharmacy teaching and

learning, 10(6), 807-815.

- Adu, P. [Preparing the presentation of qualitative findings](#): considering your roles and goals. Blogpost.
- University of Hall (2019). [NVivo 12 Instructional Videos](#). Uni Hall Library.

Well before these sessions:

- Provide NVivo software for each student or confirm that all students have the program and that it is functional.
- Develop or find practice exercises for each session. Make sure that you and the resource persons test all the exercises.

Approach

For each session, use a hands-on approach to introduce common practices in qualitative data analysis. After any instruction or demonstration on your own screen, give students specific exercises to enable them to practice.

Assessment

Set practical tasks based on students' data and research focus, to assess whether students are able to understand the steps.

Set and assess daily assignments that require students to apply the learning to work their own ongoing research.

Steps

Time	Step
Session 1. Philosophies of Qualitative Analysis	1 day
Session 2. The NVivo Software Interface	1 day
Session 3. Codes and Coding	1 day
Session 4. Advanced Data Structuring and Query Tools	1 day
Session 5. Practical Steps and Write Up	1 day

Session 1. Philosophies of Qualitative Analysis | 1 day

Cover these elements over the course of the day:

- Modes of thinking for qualitative data analysis.
- Some common approaches to qualitative analysis (including thematic, narrative, content, ethnographic, auto-ethnographic analysis).

Provide a step-by-step guide to conducting thematic and content analyses, with practical examples.

Assign and assess exercises.

Session 2. The NVivo Software Interface | 1 day

Combine explanations and practical exercises to cover these elements over the course of the day:

- Preparing transcripts and other files sources for use in NVivo.
- Importing sources, creating/exporting outputs, working with other files (including Excel, and references).
- Basic visualisation tools.
- Using memos, annotations, and links (see also and memo).

Assign and assess exercises.

Session 3. Codes and Coding | 1 day

Cover these elements over the course of the day:

- Understanding codes.
- Coding approaches in NVivo (including basic coding, in vivo, auto-coding, code description).
- Coding queries: running them, saving and reporting results (including coding matrix).

Assign and assess exercises.

Session 4. Advanced Data Structuring and Query Tools | 1 day

Cover these elements over the course of the day:

- Classifications (cases and sources).

- Sorting and disaggregating data using classifications and codes.
- Running crosstabs and multidimensional tables.

Assign and assess exercises.

Session 5. Practical Steps and Write Up | 1 day

Cover these elements over the course of the day:

- “Some practical steps to get you going”.
- Framework matrix, maps, and charts.
- Generating outputs (exporting and tracking memos, annotations and see also link).
- Practical guides for write up (dos and don’ts, contextualisation and ethnographic summaries, and using tables in report writing/manuscripts).

Quantitative Data Analysis

Sequence, 4 sessions, 5 days

A crucial step along the PhD journey is the processing, analysis, and interpretation of the data that students have collected. These data could be:

- Quantitative, where value is measured by use of numbers, or
- Qualitative, usually semi-structured data or textual data from interviews, or
- Mixed methods – a combination of qualitative and quantitative.

This sequence of sessions develops students' skills in the use of quantitative analysis software. Specifically, students will learn:

- Cleaning and preparation of data for analysis.
- Data manipulation, including the creation of new variables by recoding and mathematical computation.
- Data summarisation.
- Bivariate analyses for quantitative and variables outcomes.
- Multivariable analyses for quantitative outcomes.
- Interpretation of commonly reported estimates, significance test results including confidence intervals.

Schedule the sequence on [Qualitative Data Analysis](#) immediately before or after this sequence. Your students will need those skills if they are to be successful researchers and teachers.

Outcomes

By the end of this sequence of sessions, students can:

- Prepare do-files.
- Clean data and prepare the dataset for analysis in line with the objectives.
- Create new variables and modify existing ones.
- Run bivariate and multivariable analyses and interpret results.

Preparation

Engage specialist co-facilitator/s and resource persons to support students.

Consult and share resources:

- StataCorp. 2021. Stata 18 [Base Reference Manual](#). College Station, TX: Stata Press.
- [Stata 18 documentation](#).

Well before these sessions:

- Provide STATA software for each student.
- Require all students to ensure that their installed STATA software is functional.
- Send three practice datasets to students, one each for analysis of quantitative data and longitudinal data.
- Send students an introduction to quantitative data analysis and a document with sample commands for the training sessions.
- Develop or find practice exercises for each session. Make sure that you and the resource persons test all the exercises.

Approach

For each session, each day, follow these guidelines:

- Use the STATA software throughout. Skills learnt on STATA should enable students to use other software.
- Use a practical hands-on approach to introduce the basic statistical concepts. Project or share your own screen to demonstrate the techniques involved (in data cleaning in preparation for analysis, data manipulation to create new variables, data exploration and summarisation, and significance testing). Also demonstrate the key manipulation procedures for longitudinal data.
- After your demonstration, students run the commands as you instruct them to. Remind them to ask questions if they encounter any challenges.
- Progress slowly through the sessions to enable slow learners to follow. Remind students that they can copy commands from the document and paste them in the STATA command window.
- Give students a practice exercise at the end of each session.
- At the end of each day of the training, give assignments to the students.

Assess students' logfiles each day and give feedback.

Assessment

- Assess and give feedback on students' practice exercises with their data, based on topics covered during each session.
- Students must submit logfiles (and tables constructed from STATA output in some cases) for all assignments. Check the logfiles for errors in use of commands and application of principles.
- Students submit their do-files for assessment.
- If necessary – for example, if you run this sequence intensively over a single week – allow students additional time to submit exercises for assessment and feedback.

Steps

Time	Step
Session 1. Import Data and Prepare for Analysis	1 day
Session 2. Data Manipulation	1 day
Session 3. Analysis of Categorical Data	1 day
Session 4. Data Cleaning, Longitudinal Data, Do-Files	1 day
Session 5. Revision and Recap of Quantitative Data Analysis	1 day

Session 1. Import Data and Prepare for Analysis | 1 day

Cover these elements over the course of the day:

- Review of basic statistics.
- STATA windows.
- Logfiles.
- Importing files from Excel and other software.
- Data exploration and summarisation, data inspection and editing, labelling variables.

Each student submits their data analysis plan for you or a co-facilitator to review.

Session 2. Data Manipulation | 1 day

Cover these elements over the course of the day:

- Data manipulation.
- Creating new variables (recoding and adding value labels, computing).
- Analysis of quantitative data (t test, ANOVA, Correlation, Linear regression).

Each student submits their logfiles for you or a co-facilitator to assess.

Session 3. Analysis of Categorical Data | 1 day

Cover these elements over the course of the day:

- Analysis of categorical data (cross-tabulations, Chi square tests, logistic regression).
- Introduction to factor analysis.

Each student submits their logfiles for you or a co-facilitator to assess.

Session 4. Data Cleaning, Longitudinal Data, Do-Files | 1 day

Cover these elements over the course of the day:

- Data cleaning.
- Merging files.
- Working with longitudinal data (reshaping datasets between wide and long formats).
- Preparation of do-files.

Each student submits their logfiles for you or a co-facilitator to assess.

Session 5. Revision and Recap of Quantitative Data Analysis | 1 day

Cover these elements over the course of the day:

- Revision and recap.
- Questions.

After this five-day sequence, provide follow up for students who need further support with commands or other analytic procedures.

Manuscript Club

90 minutes per sessions

Students meet in small groups to discuss their draft chapters and articles, and offer critical but constructive feedback to one another. Students are in charge of the manuscript club, but facilitators attend and may comment on work. Unlike the [Work in Progress](#) session, students present only manuscripts in draft form in the manuscript club.

Overall, the manuscript club advances collaborative and peer learning. Students gain skills in offering and receiving critical feedback that will help them to excel as authors and reviewers in future.

Outcomes

By the end of a series of manuscript-club sessions, students can:

- Present draft articles or chapters to peers and facilitators.
- Use good, constructive feedback to improve their manuscripts.
- Respond professionally and in a collegial manner to critical review comments.
- Provide critical input on scientific work in the light of academic standards.

Preparation

As facilitator

Assign students to small groups for a series of manuscript clubs.

Schedule dates on which:

- Each student presents their article or chapter to their allocated group.
- Each student has a turn to chair their allocated group.

Engage and schedule at least one co-facilitator to attend each group's sessions. Provide guidelines for reviewing manuscripts and for chairing sessions.

Students

Distribute their paper to members of their group – other students and facilitator/s – two days before they are scheduled to present it.

Students and facilitators

Each read and review the manuscript ahead of the session, providing constructive criticism.

Assessment

As the facilitator, assess each student in the group according to:

- Active participation in manuscript club (attendance and feedback).
- Manuscript presentation.

Each student consolidates the feedback they receive, including suggestions for clarification and revision, and send a copy to their supervisor.

Steps

Time	Step	Who
Beforehand	1. Prepare the room	Presenter
10 minutes	2. Present the draft manuscript	Presenter
7 minutes each	3. Give feedback	Each peer
As needed	4. Respond and ask for clarification	Presenter
As needed	5. Add further feedback	Peers (and facilitator)
As needed	6. Summarise main points	Session chair
As needed	7. Give feedback on the session	Facilitator

Step 1. Prepare the roomstrong>

Beforehand

The presenter arrives early and arranges the room for small-group discussion.

Step 2. Present the draft manuscript

10 minutes

TAll participants have already read and prepared their feedback. Here, the

presenter briefly outlines the key messages in their manuscript and identifies any issues they are facing.

Step 3. Give feedback

7 minutes

Each of the other students has seven minutes to provide feedback. The chair notes key points as well as keeping responses within the time allocated.

Step 4. Respond and ask for clarification

As needed

The presenter has time to respond – thank the group for feedback, clarify any confusion, and seek clarification.

Step 5. Add further feedback

As needed

Other students have the opportunity to provide additional comments.

All participants give their notes on the manuscript to the presenter.

Step 6. Summarise main points

As needed


The chair synthesises critical themes across the reviews.

Step 7. Give feedback on the session

As needed

The facilitator provides overall feedback on the manuscript club and suggestions for improvement. They note for example whether:

- The manuscript club started and finished on time.
- The presenter and discussants kept to time.
- The presenter gave a clear and accurate description of their paper and the areas in which they were seeking assistance.

- 
- Discussants provide feedback in an organised fashion, starting with the positive, including uncertainties and suggestions, and did so within the suggested time.
 - Everyone in the room contributed to the discussion.
 - The chair synthesised the discussion points accurately.

Data Analysis Plan Revisited

Session, 90 minutes

Before researchers began data collection, they developed a [data analysis plan](#) to guide them from the initial stages of summarising and describing the data through to testing the hypotheses. At this point – as they return from the field with the data to answering their research question – guide them to revisit and refine their data analysis plan for quantitative, qualitative, and mixed-method studies.

Research questions are often framed broadly and need to be clarified and funnelled down into testable hypotheses and action steps. Having a clear plan of action is also important for research integrity and quality, as it guards against data-driven results and allows analyses to be reproduced.

Your aim, as the facilitator, is to give practical support to students to put their research thoughts into a plan of action in order to meet the objectives of their studies.

Schedule this session before or after the sequences on [quantitative](#) and [qualitative](#) data analysis.

Outcomes

By the end of this sequence of sessions, students can:

- Discuss the essentials of a good data analysis plan.
- Identify the ingredients of a good data analysis plan.
- Create an appropriate data analysis plan for a quantitative, qualitative or a multi-method study.
- Generate dummy tables for quantitative data analysis based on specific study objectives.

Preparation

For you, as the facilitator

Prepare guidance (Step 1).

For students

Ensure that students prepare or revise their data analysis plan and dummy tables (for quantitative analysis) before the session.

Steps

Time	Step	Who
15 minutes	1. Present (quantitative) data analysis planning	Facilitator, full group
45 minutes	2. Peer review data analysis plans	Small groups
30 minutes	3. Revise data analysis plans and tables	Individual students

Step 1: Present (quantitative) data analysis planning

15 minutes

In your presentation, remind students of the essence of a good data analysis plan:

- A plan of action.
- An investigator's guide.

Note the key elements in creating a data analysis plan:

- Research questions or objectives (what to examine).
- Study design (how the questions will be addressed or examined).
- Data sources, study population – specifying the inclusion/exclusion criteria.
- Study measures: detailed definitions and derivations (including categorisation used, if any).
- Research instruments (tools and questions to be used).
- Definition of variables in terms of:
 - Main exposure variables.
 - Outcome variable(s) and independent variables.
 - Level of measurements – nominal-, ordinal-, interval-, and ratio-

level variables.

- Levels of analysis (univariate, bivariable, and multivariable analysis).
- Level of acceptable significance.
- Proper tests.

Note other details to consider including in a data analysis plan:

- Other covariates, including potential confounders and mediators.
- Sub-groups: does the main effect vary by sub-groups of participants?
- Missing data and methods for dealing with missing data (such as coding missing values as separate categories, imputation methods).
- Sequence of planned analyses, including:
 - Statistical methods.
 - How hypotheses will be tested.
 - How potential confounders and biases will be assessed and addressed.
- Planned tables and figures, dummy tables.

Step 2: Peer review data analysis plans

45 minutes

In groups of four, students review each other's data analysis plans.

Step 3: Revise data analysis plans and tables

30 minutes and after the session

Individual students revise their data analysis plans and tables in light of guidance and peer reviews. They submit their revised plans for you or co-facilitators to review.

Grant Proposals

Sequence, 4 sessions, 1 week

In teams, students collaborate to produce a research proposal and grant application for review by an expert panel. The proposal should be based on the requirements of an actual funding stream, appropriate for an early career researcher.

Through this integrated series of sessions, students experience the process of preparing a research proposal for a personal award or small grant, from the first germ of an idea through to having a proposal ready for submission. They learn in practice how to develop a line of argument for post-doctoral research, explaining:

- Why the research is important.
- What gap in knowledge the research question addresses.
- Why the chosen methods are appropriate.
- What ethical issues are involved and how they will address them.
- What resources they are requesting – their grant budget – and why they are justified.
- How to receive feedback and the evaluation of a proposal.

Grant Writing is a critical component of CARTA's PhD training program, as participants must put into practice all the knowledge, skills, and topic expertise they have gained along the learning journey as a PhD candidate. It contributes to essential competencies including critical thinking, research leadership, and research management.

Watch this video to prepare for the session:



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=2391#oembed-1>

Download [the curriculum](#) for this sequence.

Sessions

Timetable

Use or adapt this timetable to hold these integrated sessions over one week.

Monday	Tuesday	Wednesday	Thursday	Friday
Teams develop proposals	Teams develop proposals	Teams develop proposals	Budget research proposals (Session 3)	
Team dynamics (Session 2)	Teams develop proposals.			Feedback and evaluation (Session 4)

Session 1. Research Proposal | 12 hours

Students work in multidisciplinary teams to develop a fundable project.

Provide a fictitious or mock call for proposals – or use or adapt an actual one – to serve as the basis for interactive group work. Small groups compete with each other to develop the most promising proposal, from the germ of an idea through to a proposal ready for submission. Much of the time, groups work on their own or ask you or co-facilitators for guidance.

Outcomes

By the end of the session, students can:

- Distinguish between the different phases of a project life cycle.
- Use planning tools to design a project.
- Develop a project proposal based on scientific evidence.

Preparation

- Identify and adapt a funding call for the students to respond to – or create a mock call.
- Identify and engage co-facilitators to provide guidance over the course of the week. They must understand the process of grant-writing and the structure of the session so that they can offer guidance.

- Organise external reviewer/s to assess the proposals, provide constructive feedback to each group, and select the winning proposal.
- Arrange a prize for the winning team. (In the video, CARTA provided the winners with iPads.)
- Organise physical or virtual meeting spaces for team work.
- Divide students into multidisciplinary teams.
- Prepare introductory presentations and planning tools.

Assessment

Reviewers rate the proposals and provide feedback.

Steps

Introduce concepts and examples of proposal development, the project cycle, and the log frame, and share templates. Introduce concepts and examples of planning tools and share templates.

Allocate protected periods of time for teamwork.

Announce and celebrate the winning team once you receive the reviewers' decision and feedback.

Session 2. Team Dynamics | 6 hours

Introduce students to the factors and tasks that make for an effective team.

- At the macro level, they must consider how to set goals and procedures, make decisions, and distribute roles.
- At the meso level, they must understand how to ensure mutual cooperation and collaboration, and how to handle difficult situations.

Working groups and teams are dynamic constellations that go through different phases in order to work together as effectively as possible. "The whole is greater than the sum of its parts." This principle describes collaboration in union, when individuals work together in a cooperative effort and together reach something much better than individuals could achieve separately.

Outcomes

By the end of these steps, students can:

- Identify their personal strengths, available resources, and experience in groups and teams.
- Analyse and integrate their own (work) culture into the work of their proposal teams.
- Identify group dynamic processes and success factors for beneficial teamwork.
- Evaluate the relevance of effective teamwork and possible challenges of working in teams.

Preparation

Find or prepare presentations on:

- Effective teamwork.
- Conflict management.
- Theoretical frameworks of human behaviour, in relation to teamwork.
- Group dynamics (dealing with feedback, cultural differences, resistance).

Create or source and distribute worksheets on individual strengths.

Assessment

Team-management presentations

Steps

Time	Step	Who
As needed	1. Identify strengths and experience	Pairs
As needed	2. Reflect on working culture/s	Facilitator, individuals, small groups
As needed	3. Discuss group dynamics	Plenary
As needed	4. Develop a code of conduct	Groups, plenary

Step 1: Identify strengths and experience

As needed

Introduce the topic of effective teamwork to the full group. Note that:

Working groups and teams are dynamic constellations that go through different phases in order to work together as effectively as possible. Success of teams depends on various factors such as: proper leadership, how goals and procedures are set, decision-making, role distribution, and attitudes towards cooperation, and collaboration

In pairs in break-out rooms, students identify their personal strengths, available resources, and previous experience in groups and teams.

Pairs report back in plenary.

Step 2: Reflect on working culture/s

As needed

Introduce the topics of conflict management and theoretical frameworks of human behaviour in teamwork. Students reflect on, and assess team dynamics and effectiveness, in their own workplace. They share these points in groups of four. Around their group table, each student introduces the strengths of their neighbour.

Step 3: Discuss group dynamics

As needed

Introduce the building blocks of effective team management, communication and feedback techniques, diversity, and dimensions of cultural differences, and dealing with resistance. Discuss challenges and success factors – including working as a virtual team.

Step 4: Develop a code of conduct

As needed

In their project groups, students develop a team code of conduct on a

flipchart or PowerPoint. The code sums up the way the team proposes to work together effectively and deal with any conflict. A team spokesperson presents the code of conduct for each group in the plenary.

Session 3. Budget a Research Proposal | 4 hours

This session equips students with the skills and knowledge to develop the budget for a grant proposal and deal with budgeting issues.

Outcomes

By the end of the session, students can:

- Identify the resources needed for a research study.
- Estimate costs of identified resources.

Preparation

As facilitator

Source budget template/s, video/s and PowerPoints on this topic.

Students

Read the budget requirements for the mock call for proposals.

List any queries or questions for discussion.

Assessment

Included in the feedback (Session 4).

Steps

Time	Step	Who
As needed	1. Introduce the budget	Facilitator
As needed	2. Identify the necessary resources	Groups
As needed	3. Fill the budget template	Groups

Step 1. Introduce the budget

As needed

Include essential definitions in your introduction.

- The budget is a key element of a grant application, itemising the projected costs of a proposed project.
- The budget plan indicates to prospective funders how you will organise the project and spend the money over a given period. They can see where their money would go.
- The budget justification demonstrates that your project is well conceived. It minimises the risk that sponsors will arbitrarily reduce or eliminate budget categories. Sponsors/ funders have a good idea of what a project should cost, so they can generally tell if you are over- or under-budgeting.

Step 2. Identify the necessary resources

As needed

In their project groups, students read and discuss the sections on resources and costs in the call for proposals, and any additional guidance by that funder.

Share any additional resources (video, PowerPoint) and invite students to call on you or co-facilitators if they have queries.

Step 3. Fill the budget template

As needed

In their project groups, students discuss:

- Budget template for the grant call.
- Budget items.
- Budget costing.

Each group fills in the budget template for the call.

Session 4. Feedback and Evaluation | Allow 12 hours

Students learn how proposals are evaluated and how to receive and handle feedback from reviewers.

Outcomes

By the end of the session, students can:

- Describe the evaluators' criteria for assessment.
- Identify best practices and lessons learned for proposal development.
- Explain how they will develop successful grant proposals in their future research career.

Preparation

Students

Submit the research proposals they have developed in response to the mock call.

Guest reviewers

Review the group proposals.

Provide feedback on each proposal.

Identify the winning group.

Facilitators

Find or prepare "indicators of a winning proposal".

Invite three people from among the proposal reviewers and facilitators, to participate in a concluding Q&A / panel discussion on grant proposals.

Assessment

Grant proposal (groups).

Participation in discussions and group (individuals).

Steps

Time	Step	Who
As needed	1. Review feedback	Plenary
As needed	2. List indicators of a winning proposal	Groups, plenary
As needed	3. Conclude the grant-writing assignment	Plenary, panel

Step 1. Review feedback

As needed

Allow at least a day for reviewers to give feedback. Then share and discuss in plenary the feedback on each proposal. Explain the most significant points in each set of feedback. Invite and respond to students' questions and comments.

Step 2. List indicators of a winning proposal

As needed

In their groups, students begin a list of indicators, drawing on the feedback on their proposals.

In plenary, combine the lists and suggest any missing items. Share the final list with all participants.

Step 3. Conclude the grant-writing assignment

As needed

In plenary, raise and discuss broader issues around grant application.

Introduce a three-member panel of reviewers and facilitators to respond to students' questions about grant applications.

Announce and applaud the winning proposal

Teaching

Sequence, 5 sessions, 1 week

This sequence of sessions builds students' knowledge and skills in designing and facilitating learning.

Each student updates or develops a statement of their philosophy of education. Together, they learn about and discuss:

- Different teaching styles for large classes.
- Virtual, blended or in-person approaches.
- Designing courses and curricula.
- Using advanced technologies for teaching and learning.

By the end of this sequence of sessions, each student outlines a proposal: How I can contribute to the teaching of research methods at my institution?

Download [the curriculum](#) for this sequence.

Sessions

Timetable

Use or adapt this timetable to hold these integrated sessions over one week.

Monday	Tuesday	Wednesday	Thursday	Friday
Teaching with Purpose/ Politics of Education (Session 1)	Curriculum Design	Teaching Large Classes (Session 4)	Tech Tools (Session 5)	Tech Tools
Curriculum: Backward Design (Session 2)	Learning Theories and Teaching Strategies (Session 3)		Tech Tools	Feedback and evaluation (Session 4)

Session 1. Teaching with Purpose/Politics of Education | 3 hours

Encourage participants to think of teaching as part of the mission of social development. Teaching is never only about the transfer of disciplinary content.

This session introduces participants to the concept and teaching philosophy of the citizen Scholar. Emphasise that teaching helps to shape the citizens of tomorrow and that this fosters the core objective of universities: to develop thoughtful individuals capable of reason and care for community.

Outcomes

By the end of the session, students can:

- Translate the relevance of teaching to social, political, and economic development in their local context.
- Work in teams to develop an intervention at their university that encapsulates the development of Citizen Scholars.
- Describe the philosophical basis of Citizen Scholar.
- Identify disruptions facing university education.
- Describe the proficiencies and attributes that citizens of tomorrow need in order to contribute to society.

Preparation

Create or source a presentation to introduce the concept of the Citizen Scholar.

Read, share, and draw on:

Arvanitakis, J., and Hornsby, D.J. (Eds). (2016). Universities, Citizen Scholars, and the Future of Higher Education. Critical University Studies Series. Palgrave MacMillan Publishers.

Assessment

Each group's 'intervention document', conceptualising how they can foster the Citizen Scholar within their own teaching environments. (Step 2.)

Steps

1. Present the concept of the Citizen Scholar and invite discussion.2. In small groups, students conceptualise and write up an intervention to foster the Citizen Scholar within their own teaching environments.
2. Back in plenary, engage students in discussing the philosophical bases of the Citizen Scholar.

3. What types of disruption do universities face, locally and globally? Discuss in plenary.

Session 2. Curriculum: Backwards Design | 6 hours

This session covers the process of using ‘backwards design’ to develop a lesson plan: by aligning performance goals, assessment, and learning objectives to lead to content and learning activities.

Participants discuss the elements of a curriculum and the relationship between them:

- Performance goal.
- Learning objectives.
- Content.
- Learning activities and assessment.

Students design their own lesson plan using the backwards design approach and, give and receive, feedback in pairs. They will be able to apply these same backwards design principles to develop a course or a full curriculum.

Outcomes

By the end of these steps, students can:

- Describe the backwards design curriculum development process.
- Write measurable learning objectives in relevant learning domains, using Bloom’s taxonomy of educational objectives.
- Apply the alignment of backwards design elements.
- Create a lesson plan for a course they currently teach.
- Evaluate the lesson plan of a peer and give productive feedback.

Preparation

Line up this video to screen in the session: [Backward Design Overview with Examples](#)

Prepare or source a short presentation on productive feedback.

Source and share Bloom’s taxonomy and the Backward Design template (annotated).

Prepare or source a short presentation on the use of rubrics and an example of a rubric to share with students (rubric to assess a lesson plan).

References:

Crocker, W. [Backward Course Design](#). Center for teaching, Western University, Canada.

Stevens, D. D., & Levi, A. J. (2005). [Introduction to Rubrics](#): An assessment tool to save grading time, convey effective feedback and promote student learning. Sterling, VA: Stylus Publishing; pp. 96-97.

Assessment

Complete lesson plan.

Steps

Time	Step	Who
As needed	1. Learn about backward design	Individuals
As needed	2. Identify a performance goal	Individuals
As needed	3. Describe assessment of learning objectives	Individuals, plenary
As needed	4. Apply Bloom's taxonomy	Plenary, individuals
As needed	5. Create a complete lesson plan	Individuals
As needed	6. Evaluate a peer's lesson plan	Plenary, pairs

Step 1: Learn about backward design

As needed

Students read the references and watch the [video](#).

Step 2: Identify a performance goal

As needed

As introduced in the video, learning priorities are established by long-term performance goals—what it is we want students, in the end, to be able to do with what they have learned. After discussing this idea as a group, each par-

ticipant identifies a performance goal for a lesson that they teach in a current course.

Step 3: Describe assessment of learning objectives

As needed

Use slides to present on productive/ constructive feedback. Each student will go on to include a formative assessment task in their lesson plan.

Step 4: Apply Bloom's taxonomy

As needed

Share links to a graphic and verb lists, as you introduce the three domains of Bloom's taxonomy and discuss the structure of a learning objective. Each student will go on to define the learning objectives of their lesson in relevant learning domains.

Step 5: Create a complete lesson plan

As needed

Each student creates a lesson plan for a course they currently teach, applying everything they have learned in this session, to align curriculum elements and complete the backward design planning template.

Step 6: Evaluate a peer's lesson plan

As needed

Introduce the use of rubrics with an example. In pairs, students use the rubric to evaluate each other's lesson plans.

Session 3. Learning Theories and Teaching Strategies

| 8 hours

Introduce students to learning theories. Emphasise the constructivist learning

theory as a paradigm for teaching and learning, and discuss its implications for teaching in higher education.

Students differentiate between different teaching strategies and assess their value and applicability.

Outcomes

By the end of the session, students can:

- Identify and explain their educational philosophies.
- Analyse how educational philosophies influence the choice of teaching strategies.
- Distinguish between constructivist learning theory and other learning theories.
- Explain learner-centred teaching strategies.
- Select and justify learner-centred teaching strategies to deliver the lesson plan they developed in the previous session.

Preparation

As facilitator

Print copies or share links:

- Cohen, L.M. (1999). Educational Philosophies [Self-Assessment](#).
- [Educational Philosophies Self-Assessment Scoring Guide](#).
- [28 Student-Centered Instructional Strategies](#).

Prepare or source a presentation on constructivist and other learning theories. (Step 5).

Students

Pre-reading:

- Mukhalalati, B.A., and Taylor, A. (2019). [Adult learning theories in context](#): a quick guide for healthcare professional educators. *Journal of medical education and curricular development*, 6, p.2382120519840332.
- Stefaniak, Jill E., and Monica W. Tracey. [An exploration of student experiences with learner-centered instructional strategies](#). *Contemporary Educational Technology* 6, no. 2. (2015): 95-112.

Additional reading

- Shah, R.K. [Effective constructivist teaching learning in the classroom](#). Shanlax International Journal of Education 7, no. 4. (2019): 1-13.
- Howles, Les. [How Instructional Designers Work and Think in Online Higher Education](#): A Review of The Learner-Centered Instructional Designer: Purposes, Processes, and Practicalities edited by Jerod Quinn. eLearn 2021, no. 10. (2021).

Assessment

Tables highlighting the differences between constructivist learning theory and, for example, behaviourism, and cognitivism. (Groups).

A revised lesson plan that describes and justifies instructional methods. (Individuals).

What they discovered about themselves as educators. (Self-assessment).

Steps

Time	Step	Who
As needed	1. Identify one's own educational philosophy	Individuals
As needed	2. Relate philosophy to teaching strategies	Groups, plenary
As needed	3. Distinguish between learning theories	Facilitator, groups
As needed	4. Explain learner-centred teaching strategies	Groups by institution
As needed	5. Select method/s to deliver the lesson plan	Individuals

Step 1. Identify one's own educational philosophy

As needed

To identify and explain their educational philosophies, each student completes the [self-assessment](#) and then uses the [guide](#) to score themselves.

Step 2. Relate philosophy to teaching strategies

As needed

Within groups, pairs of students report to each other what they learned about themselves as educators.

Then the full group analyses how individual educational philosophies, influence the choice of teaching strategies.

Step 3. Distinguish between learning theories

As needed

Give a presentation to introduce constructivist learning theory.

In groups, and with reference to their reading of [Mukhalalati, B.A., and Taylor, A., 2019](#), students create a table of the differences between constructivist learning theory and others such as behaviourism and cognitivism.

Step 4. Explain learner-centred teaching

As needed

If your workshop includes participants from different institutions, group them by institution for this step.

In groups, and with reference to [28 Student-Centered Instructional Strategies](#), students identify the teaching strategies that are most common in their institutions.

Step 5. Select method/s to deliver the lesson plan

As needed

Using Mia Macmikeen's summary of [28 learner-centered instructional methods](#), each participant selects the learner-centred instructional methods they will use in the delivery of the lesson plan they developed previously. They justify their choice of method/s in the revised lesson plan that they submit for assessment.

Session 4. Teaching Large Classes | 3 hours

This session introduces participants to the challenges and opportunities of large-class teaching. For teaching and learning with adults – known as andragogy – many methods, based on empirical research, exist. Once the instructor

engages with appropriate teaching and assessment strategies, a large class can become an opportunity.

Outcomes

By the end of the session, students can:

- Analyse challenges of large class teaching.
- Evaluate opportunities of large class environments.
- Demonstrate importance of andragogical delivery strategies such as active learning.
- Evaluate the importance of continuous assessment opportunities.

Preparation

Create or source a presentation to introduce:

- The challenges and opportunities of teaching large classes.
- Teaching strategies and assessment moments for large classes.

References

- Hornsby D.J., Osman, R., and De Matos Ala, J. (Eds). (2013) [Teaching Large Classes](#): Interdisciplinary Perspectives for Quality Tertiary Education. Higher Education Series, SUN Press.

As for Session 1:

- Arvanitakis, J., and Hornsby, D.J. (Eds). (2016). [Universities, Citizen Scholars, and the Future of Higher Education](#). Critical University Studies Series. Palgrave MacMillan Publishers.

Additional reading

- De Matos Ala, J., and Hornsby, D.J. (2015) [Introducing International Studies: Student Engagement in Large Classes](#). International Studies Perspectives. 16(2):156-172. doi: 10.1111/insp.12036.

Assessment

Lists of active learning strategies and assessment strategies.

Steps

Time	Step	Who
As needed	1. Present large-class teaching	Facilitator, plenary
As needed	2. Evaluate methods and strategies	Small groups

Step 1. Present large-class teaching

As needed

Present on the challenges of large-class teaching and invite discussion and analysis, with reference to [Arvanitakis, J., and Hornsby, D.J. \(Eds\). \(2016\)](#).

Then present on the opportunities and invite discussion, with reference to [Hornsby D.J., Osman R., and De Matos Ala, J. \(Eds\). \(2013\)](#)

Step 2. Evaluate methods and strategies

As needed

In their groups, students list active learning strategies and discuss how to integrate active learning into their classrooms.

They go on to list assessment strategies and discuss how to integrate continuous assessment into their teaching.

Session 5. Presentation and Tech Tools | 12 hours

In this session, teach the basic principles involved in the presentation of scientific information, and of typography in writing reports, and scholarly papers.

As educators, your participants are expected to use best practices in digital technology for teaching and research communication. In this session, cover four main areas:

1. Graphic and information design. Design in visual communication is a requirement and not a cosmetic add-on. Work through the basics of typography, graphics, and color as well as the fundamentals of layout: arranging text and images on a page according to an aesthetic scheme and for the purpose of clarification.
2. Intermediate and advanced PowerPoint. This Microsoft presentation soft-

ware is underutilised and is misused. Guide participants to become sophisticated users of PowerPoint.

3. **Storytelling.** This angle on communication is experiencing a renaissance in communication across all professions and disciplines. Encourage your participants, using storytelling concepts for a presentation as a whole, with different acts, a story arc, and where appropriate a touch of drama.
4. **Typography.** Good typography is part of good writing. As writers of scholarly works, your students must hold their documents to the same standards as professionally published material. There are no technical barriers to achieving the same results.

Outcomes

By the end of the session, students can:

- Distinguish good and poor informational and visual design.
- Produce graphics and animations, and construct tables based on best practices in design.
- Use best practices in scientific storytelling to organise and deliver presentations.

Preparation

Engage or involve a co-facilitator, resource person, or instructor with video experience to support students' hands-on activities.

Download a free 30-day trial of video capture and editing software, [Camtasia](#). Prepare or source a short “how-to” presentation on recording, editing, and rendering video. (Step 2).

Prepare or source a presentation to introduce digital tools. (Step 3).

Additional reading and viewing

[NMC 2014 Horizon Report](#) or more recent versions of this annual resource, providing information on short, medium, and long-term trends in educational technology and instruction.

[Leading Voices in Higher Education: Jeff Selingo](#) YouTube video on the disruption of higher education and the use of technology.

[Write Like a Professor](#) video playlist on writing a research term paper, an example of what can be done with instructional video.

Assessment

1-minute video profiles.

30-second videos.

Steps

Time	Step	Who
As needed	1. Present large-class teaching	Facilitator
As needed	2. Evaluate methods and strategies	Students
As needed	3. Produce and critique presentations	Students

Step 1. Introduce digital tools

As needed

Introduce the goals of the session and present a concise overview of digital concepts, strategies, and tools in academic research and teaching.

Screen and discuss this 12 min video by J. R. Carey [15 digital ideas in teaching](#).

Step 2. Produce video profiles

As needed

Give a short “how to” lecture on recording, editing, and rendering video.

Screen the first four sets of [Camtasia tutorials](#). Share the link so that students can refer back for guidance.

With guidance from an instructor, students create a one-minute digital profile.

Step 3. Produce and critique presentations

As needed

Introduce digital tools and concepts in teaching including:

- The use of Learning Management Systems (LMS).
- Online, hybrid courses.
- MOOCs.
- The use of Skype in teaching.
- Producing video playlists.

Participants learn to produce better quality video by recording narration separate from screen capture, and then synching the two. With the support of an instructor, students record, edit, and render a 30-second video.

In plenary, and with reference to text and video resources, students view and critique each other's presentations.

Leadership

Sequence, 6 sessions, one week

Students benefit from collective discussion, important reading, and guidance from you and other facilitators as well as their peers as they look ahead to their post-PhD lives. They revisit their plans, identify their values and develop a conscious philosophy and ethics of leadership, and consider their future responsibilities and career options.

Download [the curriculum](#) for this sequence.

Steps

Timetable

Use or adapt this timetable to hold these integrated sessions over one week.

Monday	Tuesday	Wednesday	Thursday	Friday
Professional development plan (Session 1)	Qualities and Philosophy of a Leader (Session 2)	Academic Citizenship and Plagiarism (Session 4)	Career Planning (Session 5)	Work-Life Balance (Session 6)
Leading academic institutions	Hubs, Collaborations, and Partnerships (Session 3)			

Session 1. Professional Development Plan (Post-grad) | 2–4 hours

Towards the end of their PhD journey, each student creates a professional development plan (PDP) – or re-visits the one they developed earlier. The PDP documents the student’s goals, the skills and competencies they must develop to achieve these goals, and steps along path to continuous improvement and career development after graduation.

This session is an opportunity for each student to:

- Reflect on their long-term career ambitions post-graduation.

- Re-visit, review, and refine the professional development plan they developed at the start of their PhD journey (OR to develop one for the first time).
- Consider progress, challenges, and necessary modifications of this plan.
- Learn to use material on the web for professional development.

Outcomes

By the end of the session, students can:

- Identify long-term ambitions and ways to pursue them
- Use a template to develop their professional development plans

Preparation

Facilitators

Source and distribute a template for professional development plans.

Resources

[Interactive CPD Toolkit](#)

Varlejs, J. (2016). [Shape your career](#) – design your professional development plan: rationale and workshop template.

NHS (UK) Professional Support Unit. [E-learning, Support and Self-Review Modules](#).

Students

Review the [professional development plan](#) that they developed early on the PhD journey.

Assessment

Students submit their professional development plans for assessment

Steps

Time	Step	Who
As needed	1. Explain the purpose of a PDP and mentor	Facilitator
As needed	2. Develop individual PDPs	Individuals, pairs, plenary

Step 1. Explain the purpose of a PDP and mentor

30 minutes

Give a short explanation of:

- The form and purpose of a professional development plan.
- The idea of a mentor to support personal development.

Invite students to discuss the difference in roles between mentors and supervisors

Step 2. Develop individual professional development plans

30 minutes

Working individually with the template, students note their long-term ambitions and the knowledge and experience they will need to achieve them.

Those who developed PDPs earlier modify them:

- What has changed, for example in your ambitions for the future?
- What additional skills and experience do you now realise that you will need?
- What has proved, with time and experience, to be unnecessary?

In pairs, students describe their ambitions to each other, outlining what they need in order to achieve them. In plenary, students take turns to describe their discussion partner's plan.

Session 2. Qualities and Philosophy of a Leader | 2-4 hours

Students reflect on their values and develop a conceptual understanding of the ways in which these values affect their career development. The session challenges students to adopt professional principles that sustain successful careers as leaders in the academic environment. They reflect on the key qualities of a good research leader and discuss how leadership differs from management.

Outcomes

By the end of the session, students can:

- Discuss their values and motivation for accepting leadership responsibilities.
- Understand how values of equity and equality affect the role of a leader
- Appreciate the differences between a leader and manager.

Preparation

Read and share with students:

- Fletcher KA, Friedman A, Piedimonte G. (2019) [Transformational and Transactional Leadership in Healthcare Seen Through the Lens of Pediatrics. J Pediatr.](#) 2019 Jan; 204:7-9.e1. doi: 10.1016/j.jpeds.2018.10.007
- Roberts, C. (2023) [Checklist for Personal Values.](#)

Steps

Time	Step	Who
As needed	1. Introduce the qualities of a leader	Facilitator, groups
As needed	2. Understand how equality and equity affect leadership	Facilitator, groups

Step 1. Introduce the qualities of a leader

As needed

Introduce leadership qualities, identifying key features of a good leader and, conversely, a good manager.

To discuss in groups of four, ask students:

- Consider an example of a good leader in your professional life.
- Are they a transactional or a transformational leader?
- What values guide them?
- How did they acquire these values?
- Have they been able to lead positive development in the university/institution, and if so, how?

Step 2. Explain the research process

As needed

Introduce a discussion about how values of equity and equality affect the role of a leader. Distinguish between a leader and a manager.

Pose these questions for students to discuss in groups of four:

- What are the differences between a leader and a manager?
- What outcomes would you expect from good leadership?
- How would you acquire the essential capacities of good leadership?
- What is the role of leadership in your professional development plans?
- Is there a difference between male and female leadership?
- How do the values of equity and equality affect leadership?

Session 3. Hubs, Collaborations, and Partnerships | 2–4 hours

This session uses a case-study approach to engage students in exploring how to build and sustain research hubs. As a future research leader post-PhD, a student needs skills in developing collaborations and networks. By forging and supporting such networks, research hubs can provide the critical mass to solve research question and translate research into public use.

Outcomes

After this session, a student should be able to establish a network of equal parties in research.

Preparation

As facilitator

Prepare an introductory presentation. Identify a suitable call for proposals or research question as an example on which to focus discussion. Distribute the call for proposals to students, together with links to resources:

- Sharma M. and Razzaque B. [Research capacity strengthening in South Asia:](#) based on the experience of South Asian Hub for Advocacy, Research and Education on Mental Health (SHARE)

- Shaik, A. [A brief guide to research collaboration for the young scholar](#). Working with other scholars can boost your profile, but some arrangements are more likely to lead to publication

Students

Read the call for proposals/ research question

Read the resource articles

Steps

Time	Step	Who
As needed	1. Introduce the topic and terms	Facilitator
As needed	2. Discuss the pros and cons of research collaboration	Small groups

Step 1. Introduce the topic and terms

As needed

Give an overview of the topic, including a definition of terms.

- In academic research, the term collaboration implies an equal interaction between researchers who are pursuing and testing common research questions. Those parties need to agree on the conditions for the collaboration, as reflected in publications, grants, and responsibilities. Common types of collaboration include networks, coalitions, strategic alliances, and public–private partnerships.
- The term partnership usually implies that the partners are not equal. For example, one partner may provide the knowledge to sustain the policy impact by the other partner. A process of knowledge translation may be necessary to use the knowledge developed through the research. Many collaborations and partnerships involve researchers of differing stature, funding status, and types of home institution.

Ask participants about their own experiences of establishing a research hub or participating in one.

Introduce the call for proposals or research question, as the basis for discussion

Step 2. Discuss the pros and cons of research collaboration

As needed

In groups of four or five, with one as rapporteur, students reflect on the call or research question and discuss:

- What would you expect from a research collaboration?
- What are the advantages and disadvantages of collaborating compared to working as a single researcher?
- What caveats would you make about establishing a research partnership?
- What would a scientist and a partner from another field expect from working together?
- What do geographic integration and idea integration mean for the establishment of a research hub?

In plenary, rapporteurs share the main points from their groups.

Draw out the main points from the discussion, as you conclude the session.

Session 4. Academic Citizenship and Plagiarism | 2-4 hours

What knowledge and skills does a research leader need in order to counteract scientific misconduct and plagiarism both in research and in education?

The university, plays a unique role in society by creating, developing, and conveying knowledge through research and education. Many universities have signed the [Magna Charta Universitatum](#) and/or joined of the International Association of Universities, aligning themselves with values including the selection of research questions and course content that will equip graduates to meet societal needs. As an academic citizen, one takes responsibility for quality in

research and education – which also means the responsibility to counteract scientific misconduct and plagiarism both in research and education.

Outcomes

By the end of the session, students can:

- Identify scientific misconduct and plagiarism in research and education.
- Describe the freedom and responsibilities associated with the academic citizenship.

Preparation

Print copies and/or share links:

- [The Magna Charta Universitatum](#)
- [International Association of Universities](#), vision and mission

Additional reading

- Horbach and Halfman, (2019). [The extent and causes of academic text recycling or 'self-plagiarism](#), Research Policy, vol48, no2, 492-502, March2019, (open access)

Steps

Time	Step	Who
As needed	1. Identify scientific misconduct	Facilitator, groups, plenary
As needed	2. Define freedoms and responsibilities	Facilitator, groups

Step 1. Identify scientific misconduct

As needed

Introduce common, global views of academic citizenship, within the scientific community and in society in general. Provide examples and draw on your own experience to give advice on how to handle misconduct, including plagiarism.

Divide students into groups of four or five people, with one as rapporteur, to discuss:

- How do you as a (relatively) young scientist avoid scientific misconduct and plagiarism?
- How do you introduce your own undergraduate students to the consequences of plagiarism?

Group rapporteurs share main points from discussions in the plenary for further exchange.

Step 2. Define freedoms and responsibilities

As needed

Ask students to discuss, first in groups and then in plenary:

- How are academic citizenship and responsibilities handled at your institution: by the university leadership, among colleagues, and in PhD and postdoc programs?
- Did your institution introduce you to the freedom and responsibilities associated with the academic citizenship?
- How do you plan to address misconduct in research and education?

Session 5. Career Planning | 2-4 hours

From the basis of their updated professional development plans, students discuss options for their post-PhD career paths, both within and beyond academia and research. As facilitator, take a student-centred approach, responding to the plans and questions of the group, as well as referring to your own experience and that of your co-facilitators. Useful themes include:

- Interaction and possible integration between the roles of researcher, teacher, and manager.
- Raising funds for research.
- Sources of material and other forms of support and guidance.
- The importance of a mentor, and the differences between a mentor and a supervisor.

Outcomes

By the end of the session, students can analyse different career paths and opportunities post-PhD.

Preparation

Create or source a presentation about post-PhD career paths, opportunities, and funding – academic and non-academic.

For students

Jensen, D.G. (1999). [First Encounters with Behavioural Interviewing](#)
Vitae: Realising the Potential of Researchers. (undated). [Career Options for Researchers](#).

Steps

Time	Step	Who
As needed	1. Present career paths	Facilitator
As needed	2. Analyse post-PhD options	Small groups

Step 1. Present career paths

As needed

Give a short presentation to open discussion about post-PhD career paths, opportunities, and funding – academic and non-academic.

Step 2. Analyse post-PhD options

As needed

Ask students in small groups to share their thinking about their options after graduation. Key questions to consider:

- What career guidance does your university provide?
- Based on your personal development plan, what support do you need to pursue your ambitions?
- What career outside of academia could you consider?
- What support would you want to provide to the next generation of researchers?
- What are your experiences of applying for a job?

Session 6. Work–Life Balance | 2-4 hours

This session addresses work–life balance. Share strategies to improve workplace standards, safety, and well-being. Research shows that employees perform less effectively when they have trouble balancing work and personal life. Conflicts and tensions between the demands at work and tasks at home:

- Have a disheartening effect
- Increase the risk of health problems.
- May be associated with declining birth rates, continued discrimination against women in the labour market, and constraints on well-being and quality of life.

In a competitive, corporate culture, many of us tend to lead unbalanced lives. Harmonising one’s work and life is important for retaining good health and increasing work achievement and satisfaction.

“Work-life balance is the lack of opposition between work and other life roles. It is the state of equilibrium in which demands of personal life, professional life, and family life are equal.”

Outcomes

By the end of the session, students can:

- Appreciate the benefits of achieving a healthy work–life balance.
- Identify the signs and effects of an unbalanced life.
- Identify strategies and techniques to improve well-being and achieve better balance.
- Handle work and personal stress more effectively.

Preparation

Create or source a presentation on the benefits and necessity of life–work balance.

References

- O’Loughlin, James (2009). How to balance your life: Practical ways to achieve work-life Balance. Allen &Unwin. ISBN 10:1741756464. ISBN

13:9781741756463

- David J. McNeff (2021). *The work-life Balance Myth*. McGraw-Hill Education.
- Michal Stawicki (2014). *Master your time in 10 minutes a Day: Time management tips for anyone struggling with Work-Life Balance*. Createspace Independent Publishing platform. Volume: 4. ISBN 10:1500187739. ISBN 13:978150018773

Self-assessment

Steps

Time	Step	Who
As needed	1. Present the benefits of work-life balance	Facilitator
As needed	2. Identify the signs of imbalance	Plenary
As needed	3. Design strategies for well-being	Individuals, groups
As needed	4. Handle stress differently	Plenary

Step 1. Present the benefits of work-life balance

As needed

Introduce the necessity and benefits of a healthy work-life balance, and the risks of not achieving balance.

Step 2. Identify the signs of imbalance

As needed

Following on from your presentation and the reading for this session, invite students to discuss signs and effects of poor work-life balance.

Step 3. Design strategies for well-being

As needed

Each student develops strategies, grouped under headings such as:

- Employer resources.

- Tips in time management.
- Goal setting.
- Optional ways to work.

In small groups, they contribute to a joint PowerPoint deck on strategies for life–work balance.

Step 4. Handle stress differently

As needed

Groups present and discuss their PowerPoint slides.

Altogether, students discuss how people can try to handle work and personal stress differently. You might choose to guide the conversation to cover:

- Stress management
- Work in a physical work environment
- Work at home / in a home office

You might give feedback at the end.

Advocacy and Influence

Sequence, 7 sessions, one week

In this sequence of sessions, you deepen students' understanding of the factors that influence decision-makers to make change, and of the circumstances in which research can contribute towards change. Consider a broad range of 'decision-makers', including politicians, health-service managers, senior faculty, directors of research institutions, and community leaders.

In particular, students:

- Describe the advocacy process and ways of influencing decision-makers.
- Identify the factors that influence decision-makers and decision-making processes.
- Identify key advocacy strategies that are used to influence social change.
- Explain how to use evidence to influence decision-making on policy and practice through what is known as 'knowledge translation'.
- Identify opportunities to influence decision-makers, as well as the mechanisms that may be appropriate to each opportunity.
- Develop their capacity and skills in communicating research findings to maximise uptake and impact.

By the end of these sessions, each student produces a policy or knowledge brief from components of their PhD work.

Download [the curriculum](#) for this sequence.

Steps

Timetable

Use or adapt this timetable to hold these integrated sessions over one week.

Time	Step	Who
As needed	1. Present the benefits of work–life balance	Facilitator
As needed	2. Identify the signs of imbalance	Plenary
As needed	3. Design strategies for well-being	Individuals, groups
As needed	4. Handle stress differently	Plenary

Session 1. Stakeholder Analysis | 2–4 hours

To whom should a researcher direct their advocacy efforts? A process called stakeholder analysis, enables researchers to identify those to target in order to influence relevant policy and practice.

Outcomes

By the end of the session, students can:

- Identify potential stakeholders to be targeted for influencing policy relating to doctoral research findings.
- Develop a stakeholder analysis relevant to findings from their doctoral research.

Preparation

As facilitator

Create or source a presentation to define policy and advocacy.

Print copies or share links:

- Schemeer, K. (2000). [Stakeholder analysis guidelines](#). Policy Toolkit for strengthening health. Partnership for Health Reform, Abt Associates Inc, 2000.
- Hutahaean, M.(2016). [The importance of stakeholders approach in public policy making](#). Advances in Social Science, Education and Humanities Research, 2016, 84: 462-466.

Students

Read the two key texts

Assessment

Groupwork presentations and feedback from peers and facilitators.

Steps

Time	Step	Who
As needed	1. Define 'policy' and 'advocacy'	Facilitator
As needed	2. Develop a stakeholder analysis	Individuals
As needed	3. Discuss challenges of stakeholder analyses	Plenary

Step 1. Define 'policy' and 'advocacy'

As needed

Give a short explanation of the meaning of these two terms. Explain stakeholder analysis as the essential first step in developing an advocacy strategy: identifying those with the interest and influence to use these particular research findings to make change.

Step 2. Develop individual professional development plans

As needed

As guided by the key reading – (Schemeer, 2000) – each student develops a stakeholder analysis relevant to findings from their doctoral research.

Step 3. Discuss processes and challenges of stakeholder analyses

As needed

In plenary, students reflect on the steps involved in stakeholder analysis and any challenges they encountered, with input from you and any co-facilitators.

Session 2. How Research Can Influence Change | 2-4 hours

In this session, case studies demonstrate how research findings can inform new policies or improve the effectiveness of existing programs. Students learn about effective influence strategies in practice, along with policies that incentivise the collection of data and use of evidence. These approaches have primarily been applied to social and human-services programs, but a wide variety of government programs could benefit from building and using evidence.

Outcomes

By the end of the session, students can:

- Explain, step by step, how to use research to influence policy.
- Identify the diverse forms that knowledge brokers use to translate findings for decision-makers or the public.

Preparation

Read and share with students:

- Lavis, et al. (2009). SUPPORT tools for evidence-informed health policy-making (STP) 14: Organising and using policy dialogues to support evidence-informed policymaking, *Health Research Policy and Systems*, 2009, 7 (Suppl 1): S14. doi:10.1186/1478-4505-7-S1-S14.
- Hofman, K., and Tollman, S. (2013). Population health in South Africa: A view from the salt mines. www.thelancet.com/lancetgh Vol 1 August 2013: e66-e67 4.

Create or source a presentation to summarise the steps involved in using research to influence policy. (Step 1).

Source three suitable case studies. (Step 2).

Steps

Time	Step	Who
As needed	1. Explain how to use research to influence policy	Facilitator, students
As needed	2. Identify different means to influence policy	Pairs

Step 1. Explain how to use research to influence policy

As needed

Give your presentation: the steps involved in using research to influence policy and then involve students in discussion.

Step 2. Identify different means to influence policy

As needed

In pairs, students analyse one of three case studies.

Case study 1: The use of research findings to develop a drama to engage a local community to take up an issue.

Case study 2: Policy dialogue and ongoing engagement in Hofman, K., and Tollman, S. (2013).

Case study 3: Community members make a presentation to parliament or city council or health service managers, using findings from community monitoring.

Back in the plenary, each pair describes what they learned from the case study. Summarise the means that the pairs identify.

Session 3. Knowledge Translation and Transfere | 2-4 hours

Participants draw on the case studies in Session 2 and ask themselves:
How could my research influence various, relevant stakeholders?
And how best could I translate my evidence to reach and influence them?

Students examine current evidence around implementation strategies – the ‘translation’ of evidence into programs, policy, and practice. They deepen their understanding of:

- Knowledge translation and knowledge transfer.
- Assessing public-health evidence and its application.
- Engaging with multidisciplinary teams, stakeholders and citizens/the public to influence change.
- Implementing evidence in practice to improve safety, quality, and practice.

Outcomes

After this session, students can:

- Evaluate knowledge transfer models and frameworks.
- Identify the effectiveness of knowledge transfer strategies.
- Explain knowledge transfer and evidence-based practice.
- Identify which of the vehicles used by knowledge brokers to translate and transfer knowledge to decision-makers, or the public, may be most appropriate for their own research findings.

Preparation

As facilitator

Create or source an introductory presentation on knowledge transfer models and frameworks. (Session 1).

Create or source a presentation to explain knowledge transfer in relation to evidence-based practice. (Session 3).

Students

Read the resource articles

- Sudsawad, P. (2007). [Knowledge translation](#): Introduction to models, strategies, and measures. Austin, TX: Southwest Educational Development Laboratory, National Center for the Dissemination of Disability Research.
- Strauss, S., Tetroe, J., Graham, I. (2009). [Knowledge Translation in Health Care](#): Moving from Evidence to Practice. Wiley-Blackwell.
- Grimshaw, J.M. et al. [Knowledge translation of research findings](#). Implementation Science. 2012, 7:50 Implementation Science.

Steps

Time	Step	Who
As needed	1. Present knowledge transfer frameworks	Facilitator
As needed	2. Discuss the effectiveness of the models	Plenary
As needed	3. Discuss knowledge transfer	Facilitator, plenary
As needed	4. Compare vehicles for knowledge transfer	Groups, plenary

Step 1. Present knowledge transfer frameworks

As needed

Give your presentation to explain knowledge transfer models and frameworks, including definitions of *knowledge translation and knowledge transfer*.

Step 2. Discuss the effectiveness of the models

As needed

Invite students to identify knowledge transfer strategies and discuss their effectiveness, with reference to their reading of Sudsawad (2007).

Step 3. Discuss knowledge transfer

As needed

Briefly introduce and explain knowledge transfer in relation to evidence-based practice, and invite participants to discuss their own experiences, and their responses to reading Strauss et al (2009).

Step 4. Compare vehicles for knowledge transfer

As needed

In small groups of four or five, with one as rapporteur, students identify and compare the vehicles that knowledge brokers use for knowledge translation to decision-makers. Each student thinks about which 'vehicle/s' may be most suitable to transfer the knowledge that will emerge from their own research study.

Session 4. Cases of Evidence Influencing Policy | 2-4 hours

Students deepen their understanding of knowledge translation by learning from the experience of advocates who have used research in different contexts to enable different kinds of change.

Outcomes

After this session, students can:

- Discuss how other researchers have used evidence to influence social change.
- Apply policy evidence approaches to their own PhD research.
- Analyse the complexity of policy change on diverse issues in diverse contexts, the potential roles of research in influencing policy or services or public perspectives, and the related challenges that arise.

Preparation

As facilitator

Create or source presentations to introduce:

- Case studies of policy-evidence strategies. (Step 1).
- The complexity of policy change and the roles and challenges of evidence to influence policy. (Step 3).

Students

Read the resource article:

Oliver, K., & Cairney, P. (2019). [The dos and don'ts of influencing policy](#): a systematic review of advice to academics. *Palgrave Communications*, 5(1), 1-11.

Steps

Time	Step	Who
As needed	1. Discuss policy-evidence case studies	Facilitator, groups, plenary
As needed	2. Apply policy-evidence approaches	Individuals
As needed	2. Apply policy-evidence approaches	Facilitator, plenary

Step 1. Discuss policy-evidence case studies

As needed

Give your presentation to introduce case studies of researchers who have used evidence to influence social change.

In small groups, students discuss the case studies. Each group focuses on

a different case study and then groups take turns to summarise their case study in plenary.

Step 2. Apply policy-evidence approaches

As needed

In this practical exercise, individuals draw on the case study examples to outline an advocacy strategy to use the (potential) findings of their PhD study to influence policy.

Step 3. Analyse the complexity of policy change

As needed

Introduce:

- The complexity of policy change on diverse issues in diverse contexts.
- The potential roles of research in influencing policy, or services, or public perspectives.
- Related challenges that may arise.

In their groups and giving examples, students analyse the complexity and challenges of the policy–research nexus.

In plenary, groups present their conclusions. Peers and, finally, you and co-facilitators give feedback on the presentations.

Session 5. Policy Briefing Documents | 2-4 hours

Orient participants to policy briefs:

- What they are.
- How to create them.
- How effective they can be as a mechanism for facilitating knowledge transfer.

Students develop an understanding of how researchers and advocacy groups

distil research findings into core evidence and arguments that are clear and brief enough to capture the attention of the targeted decision-makers.

Outcomes

By the end of the session, students can:

- Describe the key components of a policy brief.
- Explain the purpose of a policy brief for a particular context.
- Critique policy briefs.

Preparation

As facilitator

Create or source a presentation to introduce components and types of policy briefs.

Check equipment including sound if you are going to screen videos.

Prepare to screen the [video](#) 'Dandora E case' or share the link with students.

Identify and engage a guest to present their experience and example of translating research into a policy brief. Make sure that they are familiar with the session objectives as well as the participatory [CARTA approach](#).

Source helpful how-to videos on developing policy briefs to screen or share.

Students

Read the resource articles:

- Oliver, K., & Cairney, P. (2019). [The dos and don'ts of influencing policy](#): a systematic review of advice to academics. *Palgrave Communications*, 5(1), 1-11.
- Oliver, K., Innvar, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). [A systematic review of barriers to and facilitators of the use of evidence by policy-makers](#). *BMC Health Services Research*, 14(1), 2.
- Lavis, J., N., Permanand G., Oxman, A. D., Lewin, S., & Fretheim, A. (2009). [SUPPORT Tools for evidence-informed health Policymaking \(STP\) 13](#): Preparing and using policy briefs to support evidence-informed policymaking. *Health Research Policy and Systems* 2009, 7(Suppl 1):S13.

Assessment

Assign and assess an essay on the use of policy briefs to influence the tobacco

industry. (Individuals).

Assess infographics. (Groups).

Assess contributions to and conclusions of group reflections on the Dandora case study.

Steps

Time	Step	Who
As needed	1. Describe types and components of policy briefs	Facilitator
As needed	2. Explain contextual policy-brief strategies	Video, guest, groups
As needed	3. Critique policy briefs	Groups

Step 1. Describe types and components of policy briefs

As needed

Give your presentation on the components of a policy brief and examples of the different types of policy brief.

Step 2. Explain contextual policy-brief strategies

As needed

Screen the [video](#) of the Dandora case or share the link.

Introduce a guest to describe (briefly) their experience of translating research into a policy brief.

Refer to examples from the video, the guest's experience, and the reading in order to explain how to develop a policy brief for the particular context.

Include factors such as:

- The problem that the research addresses.
- The goals and interests of the relevant decision-makers.
- The interests and potential influence of groups and allies who could play an intermediary role in advocating change.

In groups and in relation to their own research or one of the cases, students work together to create an infographic for a policy brief.

Step 3. Critique policy briefs

As needed

With reference to [Lavis \(2009\)](#) and other resources, students work in groups to critique range of policy briefs.

In plenary, each group presents their critique.

Session 6. 'The Elevator Pitch' | 2-4 hours

To communicate research findings succinctly (in four to six short sentences) is a critical skill for capturing busy people's interest. In this session, students experiment in creating an 'elevator pitch' – a brief, persuasive speech to spark the busy listener's interest in one's research, project, idea, or product – or in oneself.

A good elevator pitch – or 'soundbite' – should last no longer than a short elevator ride of 20 to 30 seconds, hence the name. It should be interesting, memorable, and succinct. Each student must therefore convey what makes their research unique.

Outcomes

By the end of the session, students can:

- Provide a short, precise, verbal profile of their research.
- Summarise the key components of their research work in less than three minutes.

Preparation

Check equipment including sound if you are going to screen videos.

Prepare to screen the video '[The Elevator Pitch](#)' or share the link with students.

Create or source a short introduction to the value of communicating an issue succinctly. See the detail in Step 1.

Students

Read the resources:

- Uyen. (2013). [Elevator Pitches for Scientists](#): What, When, Where and How.

- Sumner, A., et al. (2011). [What shapes research impact on policy?](#) Understanding research uptake in sexual and reproductive health policy processes in resource poor contexts. Health Research Policy and Systems, 2011, 9 (Suppl1) S3. Section on Policy Ideas / Narratives pages 6–7.

Assessment

Peer and facilitator critique of one-minute elevator pitches.

Steps

Time	Step	Who
As needed	1. Write a summary of one's research profile	Facilitator, individuals
As needed	2. Present and review elevator pitches	Groups

Step 1. Write a summary of one's research profile

As needed

Show the [video](#) and give your short introduction to the value of communicating an issue succinctly, with examples of effective, brief communication for change.

Before you underline the need to be succinct, emphasise the importance of appropriate framing of the message to match the analysis of the interests of decision-makers in this specific context and moment in time. The narrative must address the current policy agendas of decision-makers.

The writer must be clear:

Who is my target audience?

What is the entry point to capture that audience's interest?

Students work individually to write 150 words – to take less than a minute to deliver – to summarise their research study (research profile), using this format:

What problem does my research address? (from the entry point of the audience's

understanding of the problem).

What do my research findings indicate in relation to the problem?

Why are these findings credible? (quality/scope of research).
What recommendations emerge from my findings? (that your audience could act upon).
The most important difference this change will make is ... (define).

Step 2. Present and review elevator pitches

As needed

Divide the students into groups of five each and ensure that each student has seven minutes: one minute to present their message and six minutes for peers to give feedback and constructive critique.

Session 7. Develop a Policy Brief | 2-4 hours

Each student develops a policy brief on their own research findings. They identify their target audience: the decision-makers whom they aim to influence.

Outcomes

By the end of the session, students can:

- Identify key evidence and messages from their research that they should disseminate to relevant stakeholders to promote progressive social change.
- Draft a policy brief for relevant decision-makers.
- Identify key components and effectiveness of a policy brief.

Preparation

Draw on the resources to create two short introductions:

- To this session as a whole.
- To the essential components of an effective policy brief.

Check equipment including sound if you are going to screen videos.

Prepare to screen the video [How to Make a Concept Map](#) or share the link with students.

Prepare a wall or space for participants to display their briefs OR share the briefs in emails, OR organise a virtual space for sharing briefs.

Students

Read the resources

- Wiki: [Make a Concept Map](#).
- DeMarco, R., & Tufts, A. K. (2014). [The mechanics of writing a policy brief](#). Nurse Outlook 62: 21-224.

Peer assessment

All submit their policy briefs.

Each participant critiques the policy briefs of three peers.

As the facilitator, review and give feedback on the briefs.

Steps

Time	Step	Who
As needed	1. Identify key evidence and messages	Facilitator, individuals
As needed	2. Target the specific audience	Individuals
As needed	3. Identify components of an effective policy brief	Facilitator, individuals
Afterwards	4. Critique three peers' briefs	Individuals

Step 1. Identify key evidence and messages

As needed

This is the first step in developing a policy brief for each student's own research findings. Introduce the session and the process of generating a conceptual map.

After any necessary clarifications, students work on their own to create an infographic for the policy brief from their own research findings, drawing on the resources.

Step 2. Target the specific audience

As needed

Students draft a policy brief from their own findings, tailored to the specific audience they have identified.

Step 3. Identify components of an effective policy brief

As needed

Give your presentation, revisiting the components of an effective policy brief.

Students work individually, each developing a policy brief from their own research findings. When they are done, they print a copy or share by email, or on an online platform.

Step 4. Critique three peers' briefs

As needed

Each student now reviews the briefs produced by three peers. They share their critiques in person, or on the wall or on an online platform.

Qualitative Methods

Sequence, 11 sessions

Qualitative research uses various methods to collect data that are not numerical in nature (texts, videos, diagrams). When used in research with humans, it is essential in improving our understanding about why things happen as they do.

This curriculum separates qualitative from quantitative methods but only for the purposes of planning and organising. In practice, CARTA strongly recommends that you combine these areas through an integrated and multidisciplinary approach. This sequence provides logical steps to build sufficient qualitative skills for PhD students to appreciate the process and contribution of qualitative research. However, it is best taught in tandem with quantitative approaches to research.

Students gain and practise skills and understanding of qualitative methods through integrated activities, in particular:

[Posters: Applying Research Methods](#)

[Spiderweb – Social Determinants](#)

[Journal Clubs.](#)

Qualitative methodology is introduced in an earlier sequence in this curriculum:

- [Research Question and Methodology](#)

A later sequence – once researchers have collected data – revisits the analysis of qualitative data:

- [Qualitative Data Analysis](#)

Download [the curriculum](#) for this sequence.

Outcomes

By the end of this sequence of sessions, together with the sessions on quantitative and mixed methods, students can:

- Select the appropriate research study design for their chosen study.
- State the limitation(s) of various research methodologies.

- Understand how to generate, manage and analyse qualitative data.

Timetable

Your institution and resources will determine how you schedule this training.

You might:

- Use a four-week block release system. This is cost effective when convening students from different geographies.
- Run the sequence a week or a few days at a time, to pace the input to your cohort of students and bring different disciplines together.

In whatever way you schedule and integrate this training, students need to meet certain milestones in order to move ahead on their PhD journey. Most important is to bring students together to:

- Support and motivate each other. Students who are skilled in one area assist those whose strengths lie elsewhere.
- Reinforce the value of multiple views on an issue.
- Teach certain aspects that individual supervisors would otherwise have to cover.

This sequence of sessions, together with sessions on quantitative and mixed methods, supports students to:

- Develop or strengthen their PhD research protocol.
- Understand the methods that are used in qualitative research
- Gain or strengthen core skills in data management and analysis.
- Evaluate different research methods and select the most appropriate design for their research.

Preparation

For you as the facilitator

These books and papers are useful references for this sequence of sessions.

- Becker, H. S. (1998). *Tricks of the Trade: How to Think About Research While Doing It*. Chicago: University of Chicago Press.
- Berg, B. L. (2001). *Qualitative Research Methods for the Social Sciences* (4 ed.). Boston: Allyn and Bacon.

- Bernard, H. R. (2006). *Research Methods in Anthropology* (4 ed.). Lanham: Altamira.
- Bradshaw, M. B., & Stratford, E. (2010). *Qualitative research design and rigour*.
- Bryman, A. (2012). *Social Research Methods* (4 ed.). Oxford: Oxford University Press.
- Charmaz, K. (2014). *Constructing Grounded Theory* (2 ed.). London: SAGE.
- Flick, U. (2014). *An Introduction to Qualitative Research* (5 ed.). London: SAGE.
- Hammersley, M., & Atkinson, P. (2007). *Ethnography: Principles in practice* (3 ed.). London: Routledge.
- Mantzoukas, S. (2008). [Facilitating research students in formulating qualitative research questions](#). *Nurse Education Today*, 28(3), 371-377.
- Ritchie, J., Lewis, J., McNaughton Nicholls, C., & Ormston, R. (2013). *Qualitative Research Practice* (2 ed.). London: SAGE.
- Seale, C. (1999). [The Quality of Qualitative Research](#). London: SAGE.
- Silverman, D. (2015). *Interpreting Qualitative Data* (5 ed.). London: SAGE.

A number of these sessions involve work in small groups. Identify appropriate skilled quantitative researchers to act as resource people in order to:

- Participate as small-group facilitators.
- Answer students' questions in open discussion.
- Provide input and guidance during group activities.
- Discuss their personal experiences of conducting qualitative research.

Ensure that resource people are familiar with the participatory [approach](#), have read all the sessions that make up this sequence, and engage informally, rather than giving lectures or instructions.

You can run this sequence of sessions as face-to-face teaching, on-line or a blend of the two. For online elements, organise an online platform where students upload and comment on exercises. Ensure that you have tech support on hand.

Assessment

To track and evaluate students' progress and capacities, review their:

- Protocol writing skills.
- Qualitative data analysis exercise.
- Quantitative data analysis exercise.
- Use of qualitative data analysis software.

Sessions

Session 1. Research Paradigm | *As needed*

In this session, portray critical thinking as a core academic skill, essential for developing a research proposal. Your aim is to train PhD students to question and reflect on their own knowledge and on information or evidence presented to them. Students gain the skills to interpret the world as it is, from subjective experience and to apply meaning-oriented research methodologies that rely on a subjective relationship between the researcher and participants.

Qualitative research techniques are used to help us understand how people interpret and interact within their social environment. Interpretive research is a paradigm based on the assumption that social reality is multi-layered and complex, shaped by human experiences and social contexts (ontology). A single phenomenon can have multiple interpretations and is therefore best studied within its socio-historic context by reconciling the subjective interpretations of its various participants (epistemology).

Outcomes

By the end of the session, students can:

- List research paradigm properties.
- Describe the difference between positivism and interpretivism.
- Define interpretivist qualitative research paradigm.
- Describe the scientific qualitative research process.
- Differentiate research analysis from any other analysis.

Preparation

Invite experienced qualitative researchers to read students' comments and give feedback.

Develop or source a presentation to introduce concepts.

Steps

Introduce, explain, and invite students' questions and discussion on:

- Qualitative research thinking.
- Research paradigm properties in interpretive qualitative research.
- Positivism versus interpretivism.
- Stages in designing qualitative research.
- Everyday vs research analysis.

Session 2. Research Study Designs | *As needed*

Research study design is a framework, or the set of methods and procedures used to collect and analyse data on variables specified in a particular research problem. Highlight the importance of a clear study design in a research protocol.

Qualitative research design is extensively used for studying human behaviour, opinions, themes and motivations and entails a systematic inquiry into social phenomena in natural settings. Phenomena can include (but are not limited to) how people experience aspects of their lives, how individuals and/or groups behave, how organizations function, and how interactions shape relationships.

This session introduces qualitative study designs commonly used in research related to public and population-health, including:

- Grounded theory.
- Ethnography.
- Action research.
- Phenomenological research.
- Participatory action research.

Outcomes

By the end of this session, students can write up a clear study design as part of their research protocol. Specifically, they can:

- Identify the most commonly used qualitative designs in public and population health research.
- Describe the main features of six types of qualitative research designs.
- Critique the design sections of qualitative research studies.

Preparation

Develop or source a presentation to introduce the most common types of qualitative research design.

Invite experienced qualitative researcher/s to participate in order to:

- Share their lived experiences of conducting qualitative research (Step 2).
- Give input in response to student groups' critiques of qualitative papers (Step 3).

Print copies or share the link to the key resource:

Tong, A., Sainsbury, P., Craig, J. (2007). [Consolidated criteria for reporting qualitative research \(COREQ\)](#): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, Volume 19, Issue 6, December 2007, pages 349–357

Steps

Time	Step	Who
As needed	1. Introduce qualitative research design	Facilitator
As needed	2. Present lived experience of qualitative research	Invited researcher/s
As needed	3. Critique qualitative papers	Small groups
As needed	3. Present and discuss critiques	Groups to plenary

Step 1. Introduce qualitative research design

As needed

Give a presentation to introduce the most common types of qualitative research design.

Step 2. Present lived experience of qualitative research

As needed

An invited researcher describes their lived experience of conducting specific designs of qualitative research. They identify and explain which design/s they used and why. Invite questions from students and discussion.

Step 3. Critique qualitative papers

As needed

Divide students into small working groups. Give them three published qualitative research articles to critique, using the COREQ list in [Tong, A \(2007\)](#).

Step 4. Present and discuss critiques

As needed

Each group presents their critique in brief. Invite discussion about the exercise. Include input from the invited researcher/s.

Session 3. Formulating a Qualitative Research Question | 8 hours

This session guides PhD students to design their research questions and to link these to study aims, objectives and methods. A good research question does not automatically lead to credible research, but a poorly conceived one is likely to create problems at every stage of research.

Formulating a research question requires a reflective and interrogative process – explain that the researcher goes back and forth and redefines the question until they reach the right formulation. The process is connected with other aspects of the study including:

- The theoretical and conceptual framework.
- The research design.
- Data collections methods.
- Prior research findings.

- Practical issues.
- Contexts in which a study will be conducted.

“The research process – the order in which you do things, the methods you use – will depend on the question that you ultimately decide on.”

In qualitative studies, the ongoing process of questioning is integral in understanding the unfolding lives and perspectives of others. Throughout the research process, as things come up, the researcher’s understanding might shift. This is why a qualitative research question often contains terms such as “lived experience”, “personal experience”, “understanding”, “meaning” and “stories”.

Outcomes

By the end of the session, students can:

- Describe factors to consider when formulating a research question.
- Differentiate qualitative from quantitative research questions.
- Formulate an appropriate qualitative research question.

Preparation

Create or source a presentation to introduce the process of developing research questions.

Identify and invite a qualitative researcher to facilitate and guide each small group as students formulate research questions.

Prepare to screen or share the link to this video on [Developing a Qualitative Research Question](#).

Steps

Time	Step	Who
As needed	1. Explain the process of developing research questions	Facilitator
As needed	2. Select a research topic	Small groups

Step 1. Explain the process of developing research questions

As needed

In your presentation and discussion, cover these topics:

- Qualitative vs quantitative research questions.
- How research questions account for tentative theories about the phenomena.
- Reflexivity in developing qualitative research questions.
- Writing good qualitative questions.

Screen and discuss the [video](#).

Step 2. Select a research topic

As needed

Divide students into small groups, with an experienced qualitative researcher to facilitate each group as they work together to:

- Select a research topic.
- Formulate a qualitative research question, study aim, and specific objective.

Session 4. Sampling Strategies for Qualitative Research | 4 hours

Qualitative researchers make sampling choices to enable a deep understanding of the phenomenon they are studying. In this session, examine:

- Sampling techniques that qualitative researchers typically employ.
- Types of samples that qualitative researchers are most likely to use.

Provide guidance on choosing an appropriate sampling strategy for a study design, covering: determining the sample size and the use of theoretical saturation.

Outcomes

By the end of these steps, students can:

- Justify the application of various qualitative sampling techniques.
- Identify the different types of sampling techniques.
- Explain how the principle of saturation is applied in qualitative research.

Preparation

Develop or source a presentation to explain qualitative research sampling.

Steps

Time	Step	Who
As needed	1. Explain qualitative research sampling	Facilitator
As needed	2. Develop a sampling strategy	Small groups
As needed	3. Share and compare sampling strategies	Plenary

Step 1. Explain qualitative research sampling

As needed

In introducing qualitative research sampling, cover:

- Types of qualitative sampling techniques commonly used in health research including purposive, snowball, theoretical sampling.
- Sample size for qualitative research.
- Data saturation.

Step 2. Develop a sampling strategy

As needed

In the same small groups from the previous session, students develop a sampling strategy for their chosen qualitative research topic. Small-group facilitators provide responsive input.

Step 3. Share and compare sampling strategies

As needed

Groups present and compare their sampling strategies.

Session 5. Qualitative Data Collection Methods | As needed

Typical qualitative research is flexible, open ended, and responsive to the context. In the same way, the steps of data collection and analysis tend not to be separate and consecutive. Sampling, data collection, analysis, and interpretation are related to each other in an iterative manner. The researcher makes informed decisions along the way with regard to the choice of methods and how to implement them. This may entail several back-and-forth steps between data collection and analysis. New insights and experiences may necessitate a revision of the research question and/or the research design as a whole. The process ends when saturation is achieved.

Various data collection methods are used in qualitative research, including:

- In-depth interviews.
- Focus group discussions (FGD).
- Case studies.
- Narratives.
- Observations.
- Life histories.
- Body mapping.
- Discourse analysis.

The most common methods, particularly in healthcare research, are the first two – interviews and focus groups.

In this session, introduce data collection methods that are commonly used in qualitative research and facilitate your students' deeper knowledge of and skills in using some of these methods.

Outcomes

By the end of these steps, students can:

- Select an appropriate data collection method for the research question.
- Design a semi-structured interview guide.
- Conduct in-depth interview.
- Voice record and transcribe data.

Preparation

Develop or source a presentation to introduce methods of qualitative data collection.

Identify and invite a qualitative researcher to speak informally, from personal experience, about methods of data collection in qualitative research and to engage in discussion with students and answer their questions.

Assessment

Assess and give feedback on students':

- Semi-structured interview guide.
- FGD video critique.
- Transcripts.

Steps

Time	Step	Who
As needed	1. Introduce methods of qualitative data collection	Facilitator
As needed	2. Discuss experience of data collection	Resource person
As needed	3. Design a data-collection tool	Small groups
	4. Conduct, review and transcribe IDIs	Individual students
	5. Introduce and critique an FGD	Individuals, group
	6. Conduct an observation exercise	Individuals, plenary

Step 1. Introduce methods of qualitative data collection

As needed

Give or share a PowerPoint presentation on qualitative data collection methods.

Step 2. Discuss experience of data collection

As needed

Experienced qualitative researcher/s whom you invited share their real-life experiences and address students' questions.

Step 3. Design a data-collection tool

As needed

In their established small groups and with facilitators' support, students design an interview guide aligned with the research question each group chose in the earlier session.

Step 4. Conduct, review and transcribe in-depth

As needed

Using the designed interview guide, each member of the small group conducts an eight-minute interview, video records it and uploads it to the shared online platform.

Then ask participants to reflect on the exercise. What did they learn about the process as well as from the answers to the questions? Play a few of the videos to the full group and invite constructive discussion. Drawing out broader lessons from the activity.

Each student audio-records the first 20 minutes of their interview and transcribes it. Students upload their transcriptions to the learning platform for your feedback.

Step 5. Introduce and critique a FGD

As needed

Show the video of one of the focus group discussions. Students watch the video, critique it, and either upload their comments on the learning platform or discuss their comments in plenary.

Step 6. Conduct an observation exercise

As needed

Show another of the videos and ask students to hand write their observations. In plenary, draw lessons from the exercise.

Session 6. Qualitative Data Management and Analysis | *As needed*

In this session, provide an overview of data management and analysis. Introduce qualitative data analysis approaches including:

- Qualitative content analysis.
- Narrative analysis.
- Discourse analysis.
- Thematic analysis.
- Grounded theory (GT).
- Interpretive phenomenological analysis (IPA).

Your aim is to equip students to write a compelling data analysis plan as part of their research protocol. Their plan must include strategies to ensure that their qualitative data is reliable.

‘Reliability’ in qualitative research refers to the stability of responses to multiple coders of data sets. It can be enhanced by detailed field notes that the researcher record on a device and then transcribes.

‘Trustworthiness’ is achieved by credibility, authenticity, transferability, dependability, and confirmability in qualitative research.

To achieve reliability and trustworthiness requires long engagement in the field and the triangulation of data sources, methods, and investigators to establish credibility. In qualitative research, researchers recognise that the results will be subject to change and instability, rather than seeking reliability.

Outcomes

By the end of the session, students can:

- Describe strategies to ensure reliability of qualitative research data.
- Define specific strategies and techniques including triangulation, participant validation, the strategic sequencing of methods, thick description, dialogic engagement, multiple coding and structured reflexivity practices.
- Differentiate various approaches to qualitative data analysis.
- Describe iterative, recursive and triangulation features in qualitative data analysis.

Steps

Cover these topics:

- Ensuring validity of qualitative data.
- Triangulation, participant validation, the strategic sequencing of methods, thick description, dialogic engagement, multiple coding, and structured reflexivity practices.
- Differentiating between various approaches to qualitative data analysis.
- Iterative, recursive, and triangulation features in qualitative data analysis.

Session 7. Selecting Software to Manage Qualitative Data | *As needed*

Open a discussion with your students on the role, benefits, and limitations of the various qualitative data analysis software programs. The number of researcher-designed (and -tested) software programmes for qualitative data analysis continues to grow, offering a variety of choices. Students need the skills to identify software programmes, compare them and use them in practice.

Outcomes

By the end of the session, students can:

- Describe various software programmes available for managing qualitative data.
- Identify the pros and cons of using software for qualitative analysis.

Preparation

Prepare or link to:

- A presentation on software (Step 1).
- A set of criteria for reviewing software programmes (Step 3).
- Guidance on how to write about software (Step 5).

Identify three qualitative research journal articles in which the methods section documents the use of software (Step 2).

Steps

Time	Step	Who
As needed	1. Give overview of qualitative data-analysis software programs	Facilitator
As needed	2. Critique methods sections on software	Resource person
As needed	3. Review programmes against criteria	Small groups
As needed	4. Discuss pros and cons of software	Individual students

Step 1. Give overview of qualitative data-analysis software programs

As needed

Present or share a PowerPoint to give an overview of software programs.

Step 2. Critique methods sections on software

As needed

Ask students to review three qualitative research journal articles. Their critique must focus on how each of the methods sections documents the use of software. Each student uploads a summary of their critique to the platform and comments on others' critiques.

Step 3. Review programmes against criteria

As needed

Each student identifies two qualitative data management programmes to compare and contrast against a set of criteria (including cost, functionality and collaboration). They upload and comment on their conclusions on the platform or in groups or plenary.

Step 4. Discuss pros and cons of software

As needed

Engage students in discussing the general considerations that affect the decision whether to use software to analyse qualitative data. Together, review common features of qualitative data analysis software.

Step 5. Write about software in

As needed

Provide guidance on how to write about students' chosen software in their research protocols.

Session 8. Life Histories | 1 hour

Introduce this unique qualitative methodology – life histories or event histories.

Outcomes

By the end of this session, students can:

- Describe life histories as a qualitative method.
- Appreciate the strengths of life histories as a research method.
- Outline the steps in conducting a life history.

Preparation

Atkinson, R. (2012). [The Life Story Interview as a Mutually Equitable Relationship](#). Handbook of interview research: Context and method. London: SAGE Publications.

Session 9. Coding Qualitative Data in NVivo | 8 hours, spread over a week

Coding is a key component of most qualitative data paradigms. This session equips students with the skills to apply thematic analysis coding in NVivo, covering the main steps:

- Initial coding.
- Generating a codebook with a team.
- Generating themes.
- Applying thematic coding to qualitative transcripts.

The session is framed around NVivo software, but you can substitute with any other qualitative data management programme.

The session is divided into three distinct sections, which you can space out over the course of a week. Students build on what they learned about qualitative analysis (Session 6) in order to develop qualitative coding skills. Students then apply their coding skills to the transcripts for the project on [Posters: Applying Research Methods](#).

Outcomes

By the end of this session, students can:

- Describe the steps required to code qualitative data.
- Create a project for qualitative analysis in NVivo.
- Create inductive and deductive codes in NVivo.
- Apply a codebook to code transcripts in NVivo.

Preparation

As facilitator

- Ensure you have the transcripts for the project on [Posters: Applying Research Methods](#) and can share them with the students (Step 1).
- Source online tutorials and provide students with links (Step 1).
- Prepare or link to a PowerPoint presentation on creating a code book (Step 2).

For students

For this session, students prepare to create a Project and upload transcripts onto NVivo on their personal laptops.

They read and come prepared to discuss this paper:

- Erlingsson, C. and Brysiewicz, P., (2017). [A hands-on guide to doing content analysis](#). African journal of emergency medicine, 7(3), pp.93-99.

Assessment

See the project on [Posters: Applying Research Methods](#).

Steps

Time	Step	Who
30 minutes	1. Upload transcripts	Individual students
90 minutes	2. Learn how to develop a codebook	Individual students
3 hours	3. Learn how to manage coding	Plenary
2 hours	4. Develop a codebook	Small groups
45 minutes	5. Share codebooks	Plenary
90 minutes	6. Code transcripts	Individual students

Step 1. Upload transcripts

30 minutes

In this self-guided step, students follow online tutorials in order to set up the software and upload transcripts.

Step 2. Learn how to develop a codebook

90 minutes

Explain or remind students how different qualitative approaches are linked to analysis. Present or link to guidance on how to develop a codebook. (Remind the students that not all study designs use a codebook.)

Step 3. Learn how to manage coding/em>

3 hours

Re-visit the introduction to qualitative software, with a focus on managing data and coding. Engage students in a plenary discussion.

Step 4. Develop a codebook

2 hours

In their established small groups and using transcripts from the poster project, students:

- Identify broad deductive and inductive codes.
- Define each of these codes.
- From each broad code, identify and define sub-codes.

Together, they agree a set number of transcripts (two or three).

Step 5. Share codebooks

45 minutes

Groups share their codebooks in person or on an online platform. Encourage peer learning and discussion.

Step 6. Code transcripts

90 minutes

Individual students use their group's codebook to start coding transcripts.

Session 10. Qualitative Write Up and Data Visualisa-

tion | 3.5 hours

To deepen students' analysis and support knowledge translation, this session models ways to convey qualitative analysis, through both writing and visuals. After preliminary coding in the previous session, students learn about ways to describe and visualize data, skills they go on to practice in the project on [Posters: Applying Research Methods](#), to deepen analysis and support knowledge translation.

Introduce best practices in writing up qualitative analysis, including details that address the issues of trustworthiness and reliability. Provide examples of how themes and codes can be presented visually, both as part of the analysis process and for communicating results.

Outcomes

By the end of this session, students can:

- Apply scientific writing skills to write up one theme and code.
- Address trustworthiness and reliability in their write-up.
- Describe different methods of data visualisation.
- Visually depict the relationship between codes and themes.

Preparation

Develop a presentation to summarise principles and examples of write-ups and data visualisation (Step 1).

Collect examples from publications for students to discuss (Step 1).

Steps

Time	Step	Who
1 hour	1. Present principles and examples	Facilitator
1 hour	2. Write up themes	Individual students
90 minutes	3. Develop visuals of codes	Groups

Step 1. Present principles and examples

1 hour

Draw attention to key principles of writing up qualitative themes and different forms of data visualisation. Include examples from publications for PhD students to comment on and discuss during the session. Remind PhD students about reliability and trustworthiness and invite discussion on how to address these issues when writing up findings.

Step 2. Write up themes

1 hour

Each student writes up one of their group's themes, including at least two codes within the theme in the form of a paragraph, and share their write up online. Each student comments on the write-up of at least one other member of same group.

After the session, you or a co-facilitator reviews all submissions. Post or share overall feedback in the form of a voice-note or written comments, noting strengths and areas to improve.

Step 3. Develop visuals of codes

90 minutes

Each group develops a visual of their qualitative codes to be included in their project on [Posters: Applying Research Methods](#).

Session 11. Case Studies | 90 minutes

A case study is a research approach that aims to gain an in-depth understanding of a complex, multi-faceted issue in its real-life context. It is one of the most widely used research designs in the field of public health. In this session, describe this qualitative research design and show how to apply it to address a public health issue. Outline the key concepts, the methods, the steps and the criteria to assess the quality of a case study as a research study.

Outcomes

By the end of this session, students can:

- Describe key concepts (case, unit of analysis) of a case study design.
- Identify the individuals most responsible for developing this approach.
- Describe the different types of case study design (multiple, unique, embedded level of analysis).
- Formulate a research question for which a case study would be an appropriate design.
- Describe the process of conducting a case study (both the data collection methods and analysis).
- Assess critically the validity and the quality of a case study research.

Preparation

Design a presentation using concrete examples of research studies to illustrate the key concepts of the case study as a qualitative research method (Step 1).

Instructional materials:

- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., Sheikh, A. (2011). [The case study approach](#). BMC Medical Research Methodology; 11:100.
- Ridde, V., Turcotte-Tremblay, A.M., Soares, A., et al (2014). [Protocol for the process evaluation of interventions combining performance-based financing with health equity in Burkina Faso](#). Implementation Science. 9:1-12
- Atkinson, S. (1998). [From vision to reality](#): implementing health reforms in Lusaka, Zambia. Journal of International Development. 4:631-639.

Additional reading:

- Flyvbjerg, B. (2006). [Five Misunderstandings About Case-Study Research](#). Qualitative inquiry, 12:219-245.
- Yin, R.K. (2013). [Validity and generalization in future case study](#) evaluations. Evaluation, 19.
- Yazan, B. (2015). [Three Approaches to Case Study Methods in Education](#): Yin, Merriam, and Stake. The Qualitative Report, 20:134-152.
- Rolfe, B., Leshabari, S., Rutta, F., Murray, S.F. (2008). [The crisis in human resources for health care and the potential of a 'retired' workforce](#): case

study of the independent midwifery sector in Tanzania. *Health Policy and Planning*, 23:137-149.

- Powell, B.J., Proctor, E.K., Glisson, C.A., et al. (2013). [A mixed methods multiple case study of implementation as usual in children's social service organizations](#): study protocol. *Implementation Science*, 8:92.

Steps

Time	Step	Who
As needed	1. Present key concepts and examples	Facilitator
As needed	2. Create a case study design	Individuals or groups

Step 1. Present key concepts and examples

As needed

Invite students to share their own understandings, experiences and questions concerning the case study design, as you explain these elements:

- The definition of a case study design.
- The role of the main authors.
- The main principles and key concepts of the approach.
- Types of case study designs.
- The process of conducting a case study.
- Main pitfalls to avoid.
- Assessing case study research.

Step 2. Build a case study design

As needed

In this practical exercise, students build a case study design. They:

- Formulate a research question.
- Define the case, the unit of analysis, the data collection methods and the data analysis plan.

When to Standardise and How

1.5 hours

In a presentation followed by a practical exercise, guide students to understand what standardisation is, why it is important in population health studies and how to do it.

Outcomes

By the end of the session, students can:

- Explain why standardisation is important.
- Perform standardisation.

Preparation

Develop a lecture based on concrete examples of research to illustrate the key concepts related to standardisation. (Step 1)

Prepare the practical exercise. (Step 2)

Instructional materials:

- Preston, S., Houseline, P. & Guillot, M. (2001) [Demography](#): Measuring and Modeling Population Processes, Malden MA: Blackwell, pp. 21-28.

Further reading:

- Palmore, J.A., & Gardner, R.W. (1994) [Measuring Mortality, Fertility and Natural Increase](#): A Self-Teaching Guide to Elementary Measures, 4th Edition, Honolulu: East-West Center, pp. 9-34.
- Hennekens and Buring. (1987). [Epidemiology in Medicine](#). Pp 70-73; 85-86.
- Ahmad, O.B., Boschi-Pinto, C., Lopez, A.D., Murray, C.J.L., Lozano, R., Inoue, M.
- (2001). [Age standardization of rates](#): A new WHO standard. GPE Discussion Paper Series: No.31.
- Ezeh, A.C., and Dodoo, F.N. (2002). [Institutional Change and the African Fertility Transition](#): The Case of Kenya. African Population and Health

Steps

Time	Step	Who
30 minutes	1. Present key concepts and examples	Facilitator
1 hour	2. Practice the steps	Individuals

Step 1. Present key concepts and examples

30 minutes

The student presents an aspect of their research project to members of their pre-assigned WIP group of peers and facilitators. The chair introduces the presenter and ensures that s/he stops at 15 minutes.

Step 2. Practice the steps

30 minutes

Through this practical exercise making use of Excel, students gain:

- An overview of crude death rate (CDR), age specific death rates (ASDR),
- An appreciation of the importance and limitations of each of the concepts.

Writing and Analysis Sessions

Various timings

Writing and analysis sessions (WAS) are protected timeslots for the student to analyse, talk through, and write up the evidence from the research data. One or more carefully selected facilitators are present and available (in-person or virtually) during these sessions to provide guidance in preparing the thesis and writing the manuscript – the student has only to ask for advice. As regular ‘writing retreats’, these sessions provide opportunities for students to focus on their writing without interruption.

Outcomes

By the end of a series of WAS, students can:

- Generate a sound analysis and report, based on study objectives.
- Develop a work plan and activities to ensure improved analysis and writing for timely PhD completion.
- Create a practical approach to solve issues experienced during analysis and write-up.

Preparation

Schedule writing and analysis sessions at regular intervals or more intensively, for example during a residential program.

As facilitator or coordinator

Select and invite facilitators with extensive research experience as well as analytical and mentoring skills.

For an in-person session

Prepare the physical venue.

Ensure access to small break-out rooms for participants to work privately or with assigned facilitators.

For a virtual session or virtual elements

Ensure access to good internet.

On the virtual learning platform (such as Zoom), set up multiple rooms to enable participant–facilitator interactions without disruptions.

References

- James Scott. [Data analysis write-ups](#) | (n.d.). Retrieved 3 January 2022.
- Goldberg, A. E., & Allen, K. R. (2015). [Communicating qualitative research](#): Some practical guideposts for scholars. *Journal of Marriage and Family*, 77(1), 3–22. Institutional access
- Lama, T. P., Khatry, S. K., Katz, J., LeClerq, S. C., & Mullany, L. C. (2017). [Illness recognition, decision-making, and care-seeking for maternal and newborn complications](#): A qualitative study in Sarlahi District, Nepal. *Journal of Health, Population and Nutrition*, 36(1), 45–58.
- Munn, Z., Porritt, K., Lockwood, C., Aromataris, E., & Pearson, A. (2014). [Establishing confidence in the output of qualitative research synthesis](#): The ConQual approach. *BMC Medical Research Methodology*, 14(1), 1–7.
- [Top 10 tips for writing a dissertation data analysis](#). (2016, July 27). Oxbridge Essays.

(Self-)Assessment

Students may submit a work plan, listing activities to ensure timely completion of their PhD.

Steps

Time	Step	Who
15 minutes	1. Present an aspect of the research	Student presenter
30 minutes	2. Respond to the presentation	Assessors, peers
15 minutes	3. Manage and respond to critique	Student presenter

Elements of the WAS can include:

- One-on-one support.
- Small-group interactions between students from related disciplines in breakaway rooms.

- Opportunities for the student to ask their assigned facilitator for assistance in addressing challenges during the analysis stage.

Content

General points for facilitators and students to keep in mind.

Principles of good data analysis and writing

Organization of data.

Questions under the study.

Data and model.

Results of data analysis.

Substantive conclusion

Considerations for analysis and writing

Relevance of data to research purpose.

Essential points that emerge from the analysis of data.

Capacity to identify trends, patterns, and themes within the data.

Various theoretical interpretations while writing.

Balance between pros and cons of these different perspectives.

Assertions supported with tightly argued reasoning and empirical backing.

Audience/ reader of study findings.

Details to be included in analysis and writing

Acknowledging the limitations of the study as well as the strengths.

Developing collaboration

Identification and approaching the relevant facilitator to indicate where more support is needed.

Networking and interactions with peers to discuss common concerns.

Quantitative Methods

Sequence, 18 sessions

This curriculum separates qualitative from quantitative methods but only for the purposes of planning and organising. In practice, CARTA strongly recommends that you combine these areas through an integrated and multidisciplinary approach. This sequence is best taught in tandem with qualitative approaches to research and mixed methods.

Students gain and practise skills and understanding of quantitative methods through integrated activities, in particular:

- [Posters: Applying Research Methods.](#)
- [Journal Clubs.](#)

Qualitative methodology is introduced in an earlier sequence in this curriculum:

- [Research Question and Methodology.](#)

A later sequence – once researchers have collected data – revisits the analysis of quantitative data:

- [Qualitative Data Analysis.](#)

Download [the curriculum](#) for this sequence.

Outcomes

By the end of this sequence of sessions, together with the sessions on qualitative and mixed methods, students can:

- Select the appropriate research study design for their chosen study.
- State the limitation(s) of various research methodologies.
- Understand how to generate, manage, and analyse research data.

Schedule

Your institution and resources will determine how you schedule this training. You might:

- Run the sequence a week or a few days at a time, to pace the input to your cohort of students and bring different disciplines together.

In whatever way you schedule and integrate this training, students need to meet certain milestones in order to move ahead on their PhD journey. Most important is to bring students together to:

- Support and motivate each other. Students who are skilled in one area assist those whose strengths lie elsewhere.
- Reinforce the value of multiple views on an issue.
- Teach certain aspects that individual supervisors would otherwise have to cover.

This sequence of sessions, together with sessions on qualitative and mixed methods, supports students to:

- Develop or strengthen their PhD research protocol.
- Understand the methods that are used in qualitative research
- Gain or strengthen core skills in data management and analysis.
- Evaluate different research methods and select the most appropriate design for their research.

Preparation

A number of these sessions involve work in small groups. Identify appropriate skilled qualitative researchers to act as resource people in order to:

- Participate as small-group facilitators.
- Answer students' questions in open discussion.
- Provide input and guidance during group exercises.

Ensure that resource people are familiar with the participatory [approach](#), have read the relevant sessions that make up this sequence, and engage informally as well as giving lectures or instructions.

You can run this sequence of sessions as face-to-face teaching, on-line or a blend of the two. For online elements, organise an online platform where students upload and comment on exercises. Ensure that you have tech support on hand.

Sessions

Session 1. Introduction to the Quantitative Sessions |

2 hours

This session prepares students for the rest of this sequence on quantitative research. Here, you:

- Encourage students to think about how to link their objectives with their analysis.
- Examine the different data types.
- Consider outcome variables, exposure variables, and potential confounders.
- Highlight the importance of collecting correct, high-quality data
- Emphasise the need for a data management plan
- Preview expectations of subsequent sessions.

Outcomes

By the end of the session, students can:

- Identify and use different data types appropriately (quantitative/ discrete or continuous data).
- Identify their primary and secondary outcome variables and the potential confounders.
- Explain the importance of a well-structured data management plan to ensure that they have quality data, includes all required variables, for analysis.

Preparation

As facilitator

Develop or source a data set and activity.

Prepare or source an introductory presentation.

References

John, C. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 3rd edition. University of Nebraska, Lincoln: SAGE Publications, ISBN: 1412965578

Kathryn, P. (2007). Mixed Method Designs: A Review of Strategies for Blending Quantitative and Qualitative Methodologies. *Mid-Western Educational Researcher*, 20(4), 35-38

Bryman, A. (2014). *Social Science Research Methods*, 5th Edition. Oxford, UK: Oxford University Press.

Gary, K., Robert, O. K., and Sidney, V. (1992). *Designing Social Inquiry*. Princeton, NJ: Princeton University Press.

Students

Must have their research topic and objectives.

Assessment

Assess and give feedback on group exercise

Steps

Introduce or re-visit these topics:

- Types of data.
- Outcome variables, exposure variables and potential confounders /effect modifiers.
- Data management and data entry requirements.
- The need for statistical models. Provide a data set and the related exercise. Students to work on in small groups to identify types of data, outcome and exposure variables, and data management.

Session 2. Measures of Central Tendencies | 2 hours

This session gives students in all fields of public health a grounding in the basic concepts of epidemiology – the study of the distribution and determinants of health and disease in different human populations and the application of methods to improve disease outcomes.

Use the reproductive-debut example to guide students to:

- Understand, use, and value simple statistical measures: mean, median, range, and variance.
- Discuss the interpretation and generalisability of data, and concepts of bias.

- Begin to develop the skills to read, interpret, and evaluate health information from published epidemiologic studies.
- Appreciate the notion of confidentiality and sensitivity in sexual and reproductive health data
- Learn ways to protect the privacy of research subjects.

Outcomes

By the end of this session, students can:

- Analyse data and calculate simple statistical measures (range, mean, median, mode, and standard deviation).
- Discuss generalisability, and how this particular sample may influence it.
- Discuss bias (e.g., self-exclusion by not filling it in) and how this may play out in a population-based survey.
- Describe confidentiality and how/if it was adhered to in the example ‘study’ and how people felt about filling in this form.

Preparation

As facilitator

Develop a form on reproductive information through an online tool (Google sheet for example), something like this:

Time	Step	Who
15 minutes	1. Define “a policy brief”	Facilitator
45 minutes	2. Screen and discuss a case study	Facilitator, plenary
30 minutes	3. Learn about knowledge translation	Guest speaker, plenary
45 minutes	4. Develop a policy brief	Individuals or groups
45 minutes	5. Present outlines and discuss conclusions	All students, facilitator

Note that you require prior data collection. Send the form to the students the day before the session with this request:

Please fill in and return this form. For the variables marked *, please fill in information related to the first time you were a co-parent in a pregnancy irrespec-

tive of whether you are male or female and irrespective of whether the pregnancy resulted in a live birth or not and the first time you were a co-parent for a child which was born. If you have never had sex, or never been a co-parent of a pregnancy or birth or have never been married, please leave blank.

Students

Fill in the form well before the session.

References

- John M Last (2001). [A Dictionary of Epidemiology](#). 4th edition. Oxford University Press.
- Miquel Porta (2008). [A Dictionary of Epidemiology](#). 5th edition. Oxford University Press.
- Kabacoff, R. (2015). *In Action: Data Analysis and Graphics with R*. 2nd Edition. Shelter Island, NY: Manning Publications Co.
- Longest, K.C. (2014). *Using Stata for Quantitative Analysis*. Thousand Oaks, CA: Sage.

Assessment

Steps

In groups, students analyse the data from the forms.

In plenary, present findings and explain each was calculated and what they mean – focus on issues of central tendency.

Present findings in a bar graph with a distribution drawn over it – focus on measures of spread.

Interpret the data.

Discuss generalisability, and how this particular sample may influence it.

Discuss bias (e.g., self-exclusion by not filling it in) and how this may play out in a population-based survey.

Introduce anonymity and privacy in relation to this 'study'.

Discuss confidentiality and how/if it was adhered to in this 'study': how did participants feel about filling in this form?

Session 3. What is My Exposure, What is My Out-

come? | 2 hours

This session supports students in framing their research question in such a way that they can clearly identify the exposure and outcomes. It enables students to understand a range of concepts concerning exposure and outcome variables, to refine their research questions, and to apply this knowledge in their own research process.

Outcomes

By the end of the session, students can:

- Describe the exposure(s) that relate to their research question.
- Describe the outcome(s) that relate to their research.
- Appraise and critique their own and other students' research questions.

Preparation

As facilitator

Create or source a presentation to introduce the concepts.

Students

Must have their research questions and objectives.

Steps

Introduce the relevant concepts and the exercise for work in groups. Individually and in groups of four, students discuss the exercise: to develop and refine their research question. Ensure that you and co-facilitators are available to provide support as peers review each other's questions, ask questions of clarification, and provide constructive criticism.

Session 4. Statistical Bias | 90 minutes

Introduce and discuss the concept of statistical bias: a feature of a statistical technique or of its results in which the expected value of the results differs from the true quantitative parameter being estimated. Cover:

- The definition of statistical bias.
- Types of statistical bias.

- The effect of statistical bias on the research results.
- Strategies to control these types of biases.

Outcomes

By the end of these steps, students can:

- Discuss the concept of statistical bias.
- Identify types of statistical bias.
- Explain the sources of statistical bias.
- Describe how to avoid statistical bias.

Preparation

As facilitator

Create or source a presentation to introduce the concepts.

Create or source scenarios for students to work on in groups.

References

Grimes, D. A., & Schulz, K. F. (2002). [Bias and causal associations in observational research](#). *The Lancet*, 359(9302), 248–252. (Access through your institution.)

Krause, M. S., & Howard, K. I. (2003). [What random assignment does and does not do](#). *Journal of Clinical Psychology*, 59(7), 751–766. (Not open access.)

Assessment

Assess individual participation and group assignments.

Steps

Explain the concepts and invite questions and discussion. Students work on scenarios in small groups. Individuals apply the concept to their proposed research studies.

In plenary, groups present their work for discussion.

Session 5. Confounding and Effect Modification | 90 minutes

Study results can be considerably distorted by the presence of an extraneous factor (a confounder) and effect modification by a third factor (interaction). In this session:

- Introduce the concepts of confounding and effect modification in epidemiology.
- Describe methods of controlling them in both study design and data analysis.

Effect modification and confounding are difficult concepts to understand and distinguish from each other.

Confounding is defined as a distortion in an association that is seen when the exposal factor of interest is muddled with other factors that related to the outcome. The word 'confounding' is derived from Latin "confundere" meaning to mix or muddle.

Effect modification is seen when various effects are brought about among different subgroups by an exposure and this can be handled by doing stratification. Effect modification is associated only with the outcome of the study, but not the exposure. In this session the theory as well as the practical side of these issues will be discussed. It will cover the definition of both topics, approaches to control for confounding and effect modification.

Preparation

As facilitator

Create or source a presentation to introduce concepts.

Identify research examples where effect modification and confounding are present.

References

Shapiro, S. (2008). [Causation, bias and confounding: a hitchhiker's guide to the epidemiological galaxy. Part 1. Principles of causality in epidemiological research: time order, specification of the study base and specificity.](#) J Fam Plann Reprod Health Care. 34: 83-7.

Shapiro, S. (2008). [Causation, bias and confounding: a hitchhiker's guide to the epidemiological galaxy Part 2. Principles of causality in epidemiological research: confounding, effect modification and strength of association.](#) J Fam

Plann Reprod Health Care. 34:185-90.

Pearce, N. and Greenland, S. (2014). Confounding and Interaction. In: Handbook of Epidemiology. Ahrens and Pigeot I, eds. New York: Springer, pp 659-684.

Grimes and Schulz (2002). [Bias and causal associations in observational research](#). Lancet 2002; 359:248-52.

Greenland, S. and Morgenstern, H. (2001). [Confounding in health research](#). Annu Rev Public Health. 22:189-212. (Request pdf.)

John, M. L. (2014). A Dictionary of Epidemiology. Oxford University Press:4th Edition: P. No. 14, 37, 57

Kahlert, J., Gribsholt, S.B., Gammelager, H., Dekkers, O.M., Luta, G. (2017). [Control of confounding in the analysis phase](#) – an overview for clinicians. Clin Epidemiol. 2017 Mar 31;9:195-204. doi: 10.2147/CLEP.S129886. PMID: 28408854; PMCID: PMC5384727.

Assessment

Steps

Introduce the concepts of random and systematic error, and then cover the concept of confounding in detail, using examples (such as smoking and lung cancer; maternal age and Down Syndrome; the relationship between obesity and cardiovascular disease, confounded by age).

Discuss methods of controlling for confounding during the design and analysis stages of research. Invite students' participation and input.

Work through examples for testing for confounding are worked through. Introduce the concept of effect modification.

Discuss methods of controlling for effect modification during the analysis stage of research. Introduce and discuss ways to distinguish between confounding and effect modification, using an example.

To conclude, summarise the differences between confounding and effect modification.

Session 6. Validity and Reliability | 90 minutes

“Any research can be affected by different kinds of factors which, while

extraneous to the concerns of the research, can invalidate the findings.”- Seliger and Shohamy, 1995.

Every researcher wants to be certain that their research findings are precise, valid, and reliable. But there are many threats to validity and reliability. This session covers

- The meaning of validity and reliability and the differences between them.
- Threats to validity and reliability.
- Measurement of validity and reliability.
- Measures to ensure high validity and reliability.

Outcomes

By the end of the session, students can:

- Describe types of validity and reliability and their importance.
- Differentiate validity from reliability.
- Describe measures of validity and reliability.
- Describe threats to validity and reliability.
- Estimate reliability measures using Stata.

Preparation

References

Braimoh, B., Danuta, K., Dick, H., Kerry, W. (2010). [Time-to-pregnancy and pregnancy outcomes in a South African population](#). BMC Public Health. 10:565.

Pay attention to the following sections:

Data collection – paragraph 3

Statistical analysis

Results: Questionnaire reliability

Discussion on reliability: Paragraphs 5 to 7.

Antoinette, F. D., Martin, J.R., Luke, M., Inocencio, M., and John L. [Test-retest stability of patient experience items derived from the national GP patient survey](#). Campbell

Pay attention to the following sections:

Measure of reliability for categorical variables

Measure of reliability for numerical variables

Steps

Cover these aspects in plenary and group exercises:

- Understanding reliability vs validity.
- Rationale and purpose of validity and reliability.
- Types of reliability (Test-retest, interrater, internal consistency).
- Types of validity (content, construct, face, criterion...).
- Deal with validity and reliability in quantitative research.
- Threats to validity and reliability.
- Estimate measures of reliability using Stata.

Session 7. Quantitative Research Study Designs | 90 minutes

Outcomes

By the end of the session, students can:

- Describe the different study designs.
- Explain the factors that determine which study design is appropriate for a particular research question.

Preparation

As facilitator

Create or source an introductory presentation.

References

Creswell, J.W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. (4th ed.). Thousand Oaks: SAGE Publications. ISBN 978-1-4522-2609-5.

Claybaugh, Z. "Research Guides: Organizing Academic Research Papers: Types of Research Designs".

Wright, S., O'Brien, B.C., Nimmon, L., Law, M., Mylopoulos, M. (2016). [Research Design Considerations](#). *Journal of Graduate Medical Education*. 8 (1): 97–98. doi:10.4300/JGME-D-15-00566.1. ISSN 1949-8349. PMC 4763399. PMID 26913111.

Steps

1. Introduction to research designs and methodological choices
2. Experimental designs:
 - True experimental designs
 - Pre-experimental designs
 - Quasi-experimental designs
3. Non-Experimental/observational designs:
 - Cross-Sectional design
 - Longitudinal design
 - Historical design
 - Correlational/causal design
 - Cohort study design
 - Case-control design
 - Meta-analysis design
 - Action research design

Session 8. Quantitative Data Collection Tools | 1 hour

The quality of research outputs largely depends on the quality of the data analysed. Thus, researchers should aim to collect high-quality data for their studies. One of the key factors is the appropriateness and quality of the tools used to collect them, whether the data are primary or secondary.

This session builds and strengthens participants' capacity to select, design, and develop appropriate and robust data collection tools for their research studies. They also learn how to critique a data collection tool.

Outcomes

By the end of this session, students can:

- Describe appropriate forms of data collection for differing research designs.
- Explain correctly the importance of layout in data collection tool design.
- Describe how data can be coded to facilitate data management.

- Critique data collection tools.

Preparation

As facilitator

Create or source an introductory presentation and group exercises.

References

Boynton, P., Greenhalgh T. (2004). [Selecting, designing and developing your questionnaire](#). BMJ; 328: 1312-5

Boynton, P. (2004). [Administering, analysing and reporting your questionnaire](#). BMJ; 328:1372-5

Boyton, P., Wood G.W., Greenhalgh T. (2004). [Reaching beyond the white middle classes](#). BMJ;328; 1433-6

Ann, Bowling (2009). Research Methods in Health: Investigating health and health services. Open University Press McGraw Hill International Maidenhead, Berks, UK

Steps

In an introductory presentation, plenary discussion, and group exercises, cover these aspects:

- Data collection tools used in quantitative research for different designs.
- Design a data collection tool.
- Coding to facilitate data management.
- Evaluation of a data collection tool.

Session 9. Sample Size Calculations | 2 hours

Outcomes

By the end of this session, students can:

- Explain the factors to consider when deciding on the sample size for a research project.
- Carry out sample-size calculations for a descriptive study and for an analytic study in which two groups are compared.

- Describe the implications of other considerations, such as the need to adjust for confounders, the need to rule out interaction, and the need to adjust for clustering for the overall sample size.

Preparation

As facilitator

Ensure that Stata, StatCalc and/or Epiinfo software is/are installed on participants' computers before the session starts.

Identify and engage skilled co-facilitators to support groups in the exercises.

Create or source a presentation to introduce the methods and exercise.

Reference

Bartlett, E.J., Kotrlik, W.J., Higgins, C.C.(2001). [Organizational Research: determining appropriate sample size in survey research](#). Information Technology, Learning, and Performance Journal. 19.

Assessment

Assess students' sample-size calculations. (Group: 80%)

Assess participation in the session. (Individuals: 20%)

Steps

Introduce and discuss:

- The problem for sample size calculations (15 minutes).
- Sample size for descriptive studies: means and proportions and use of software (30 minutes).
- Sample size for comparing two means and use of software (15 minutes).
- Sample size for comparing two proportions and use of software (15 minutes).

In a practical exercise (45 minutes), students work in groups of four to

- Determine sample size.
- Discuss and describe the implications of the other considerations: confounders, interaction clustering for the overall sample size.

Using real-world examples from students' own research, groups do the calculations in Stata and StatCalc within EpiInfo.

Session 10. Sampling Methods | 2 hours

Sampling is concerned with the selection of a subset of individuals from within a population to estimate characteristics of the whole population and to make inferences from them. In this session, students gain a strong understanding of different types of sampling method and their application in scientific research.

Outcomes

By the end of this session, students can:

- Explain the different sampling methods and considerations for each method.
- Identify and apply the appropriate sampling methods to different research studies.
- Choose the appropriate sampling methods for their proposed PhD research.

Preparation

As facilitator

Identify and engage a trained co-facilitator if you are working remotely.

Create or source an introductory presentation.

References

Coyne, I. T. (1997). [Sampling in qualitative research. Purposeful and theoretical sampling: merging or clear boundaries?](#) *Journal of advanced nursing*, 26(3), 623-630.

Latham, B. (2007). [Sampling: What is it.](#) *Quantitative Research Methods, ENGL*, 5377.

Altmann, J. (1974). [Observational study of behavior: sampling methods.](#) *Behaviour*, 49(3), 227-266. (Not open access)

Steps

In the introductory presentation, cover these elements:

- Reasons for sampling.
- Classification of different sampling methods.
- Requirements for probability and nonprobability sampling methods.
- Advantages & disadvantages of each sampling method.
- Implication for sample size and generalizability of results /inferences.

In groups, students work on scenarios to identify the most appropriate sampling method for their proposed research studies.

Session 11. Introduction to Stata | 2 hours

Limited knowledge and skills in statistical data analysis among doctoral students is one of the important causes of delay in completing the doctoral studies. In particular, little or no knowledge of the use of statistical software is a key component of this impediment.

This session equips students with practical knowledge to help them analyse their research data using Stata. This introductory session covers data entry, data importing, and data manipulation using Stata.

Through hands-on training and a variety of examples, students learn Stata structure and philosophy and recognise the potential of the software for analysing their own research data. They run statistical analyses and learn to interpret the Stata results correctly.

In addition, those students who have already collected some data for their doctoral study have the opportunity learn statistical analysis using their own research data.

Outcomes

By the end of this session, students can:

- Perform data entry, editing, and handling using sort, in/by/if, drop and keep.
- Save, exporting and importing data into Stata.
- Summarize, tabulate data using Stata.
- Use Stata graphics, box plots, histogram, bar graphs, pie charts, etc.

Preparation

As facilitator

Ensure that students have learning dataset loaded and Stata software installed on their computers before the session starts.

Create or source presentations and a data set and instructions for the group exercise.

References

Germán Rodríguez. (2023). [Stata Tutorial](#). Princeton University.

Daniels, L., Minot, N. (2020). [An Introduction to Statistics and Data Analysis Using Stata](#).

Sage Publications. 392 pages.

Steps

Cover these elements:

- Data entry, editing, and handling, using sort, in/by/if, drop and keep in Stata. (30 minutes)
- Save, export and import data into Stata. (15 minutes).
- Summarize, tabulate using Stata. (15 minutes)
- Using Stata graphics: box plots, histogram, bar graphs, pie charts, etc. (20 minutes)

In groups and with a dataset, students conduct a practical exercise (40 minutes), to generate appropriate summary statistics and graphics according to types of indicated variables (including continuous, nominal, and ordinal variables).

Session 12. Quantitative Data Analysis Plan | 6 hours in 3 separate sub-sessions

Here, students come to understand what is required in the development of both a data management plan and a data analysis plan for quantitative methods. They learn to specify:

- The outcome variables and important exposure variables for their study.

- How they will collect data and entered it in a study database.
- What measures they will implement for data validation.
- What is entailed in data lock.

Students need to identify – clearly and unambiguously – the study population they will analyse and then write up a data analysis plan to reflect the study objectives.

Outcomes

By the end of these sessions, students can:

- Specify clearly how they will collect and store data – a data management plan – to ensure they have quality data for their project.
- Specify clearly the study population they will analyse.
- Write a data analysis plan that reflects the study objectives, whether the study is a randomised controlled trial or an observational study.

Preparation

As facilitator

Create or source a presentation to cover the elements.

Reference

Vandenbroucke, J. P. (2007). [Strengthening the Reporting of Observational Studies in Epidemiology \(STROBE\)](#): explanation and elaboration, PloSMedicine 4 (10): e29

Steps

Between your presentation and students' work on their own plan, cover these elements:

- The need for quality data – development of a data management plan.
- Specifying the population to be analysed.
- Data analysis plans for randomised controlled trials.
- Data analysis plans for observational studies.

Divide each of the three part-sessions into:

First hour:

You or co-facilitator present guidance. At the end of presentation, students peer-review/ critique each other's draft data analysis plans.

Second hour:

Each student revises their draft data analysis plans and dummy tables based on their learning from facilitator presentations and peer-review comments.

Support students to put their research thoughts into a plan of action in such a way that they can achieve their study objectives.

Session 13. Approaching Data Analysis | 135 minutes

The choice of appropriate statistical methods for quantitative research data analysis is mainly driven by the type of data variables, research question, and study design. This session provides an introductory overview of the main types of statistical tests and their application in quantitative research studies. Equip students to determine the correct statistical test for different types of quantitative data and research questions.

Outcomes

By the end of this session, students can:

- Describe commonly used statistical tests.
- Identify the correct statistical test to be used for a specific research question and type of data.

Preparation

As facilitator

Create or source an introductory presentation.

Students

In preparation for this session, each student must ensure that they are able to:

- Describe different types of quantitative research questions and study designs.

- Understand different measurement scales of data (nominal, ordinal, interval, ratio) for quantitative analysis.
- Describe the basic statistical method of hypothesis testing and interpret p-values.

References

- Nayak, B.K. and Hazra, A. (2011). [How to choose the right statistical test?](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3116565/) Indian J Ophthalmol. 59(2): p. 85-6. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3116565/>
- Zinsmeister, A.R., and Connor, J.T., (2008). [Ten Common Statistical Errors and How to Avoid Them](#). Am J Gastroenterol. 103(2): p. 262-266. (Request access.)

Additional reading/ viewing

- [What statistical analysis should I use?](#) Institute for digital research and education, UCLA.
- [Selecting statistics](#). Online statistical advisor. Web center for social research methods.
- [Introduction to Statistics: Levels of Measurement](#). Youtube video.
- [Choosing which statistical test to use](#). Youtube video.

Steps

Combine presentation and hands-on exercises on:

The statistical method. (45 minutes)

Criteria for choosing the appropriate statistical test. (60 minutes)

Common statistical errors. (30 minutes)

Session 14. T-Tests and Chi-squared Tests | 2 hours

Strengthen PhD students' skills to apply inferential methods of t-tests and chi-squared tests to compare continuous and categorical outcomes respectively between an exposure variable with two levels. Emphasise the link between

hypothesis tests and measures of effect and the corresponding confidence intervals.

Outcomes

By the end of this session, students can:

- Carry out t-tests for two independent samples and for paired samples in Stata.
- Explain the link between hypothesis testing and confidence intervals.
- Carry out a chi-squared test and find measures of association in Stata.
- Distinguish between confounding and effect modification in an observational study.

Preparation

As facilitator

Create or source an introductory presentation.

Source a data set and write tasks for the students' exercise.

Reference

Germán Rodríguez. (2023). [Stata Tutorial](#). Princeton University.

Steps

Allocate one hour to introducing the session, to cover:

- The concepts of sample, sampling variability and the standard error of the mean.
- The concept of a 95% confidence interval and how this can be estimated
- The concept of a hypothesis test and how this can be carried out for a single sample and its link with confidence interval.
- Compare population means based on data from two independent samples
- Tests for association between categorical variables including 2X2 and larger contingency tables. Confounding and effect modification.

For the second hour, groups analyse the data set your provided to generate

appropriate analysis for different formats and data types. Each group submits their analysis to a different group for peer assessment and feedback.

Session 15. Linear Regression and Residual Analysis | 2 hours

From this session, students gain the knowledge and practical skills to assess the suitability of the linear regression model to the data at hand with a focus on residual analysis. They learn how to use linear regression plots to assess the model adequacy.

Outcomes

By the end of this session, students can:

- Fit a linear regression model correctly to data.
- Apply the correct order of steps to determine whether linear regression is a suitable model for a set of data based on residual analysis.

Preparation

References

Montgomery, D. C., Peck, E. A5, and Vining, G. G. (2012), *Introduction to Linear Regression Analysis*, 4th Edition, Wiley, New York.

Penn State. (2018). [Residuals](#). Stat462

Penn State. (2018). [Residuals vs Order Plot](#). Stat462

Steps

In the first hour, give a presentation on linear regression and residual analysis, with a focus on its suitability assessment. In the second hour, introduce a practical session, to investigate residual plots, interaction, and factors individually associated with the outcome. Finally, fit a multiple linear regression model to data and carry out assessment of model suitability.

Session 16. When to Use Logistical Regression Analysis? | 2 hours

Logistic regression analysis is used to examine the relationship between independent variable(s) (categorical or continuous) and a categorical dependent variable. This session equips students with knowledge and practical skills related to the use of logistic regression analysis, with a focus on the binary logistic regression model. Students learn when to use logistic regression analysis and how to use it in data analysis and interpretation as well as in assessing confounding and interaction, using Stata.

Outcomes

By the end of this session, students can:

- Determine when to use logistic regression analysis.
- Explain the concept of logistic regression and describe its application correctly.
- Explain how to build a logistic regression model.
- Apply logistic regression to assess confounding and interaction.

Preparation

As facilitator

Ensure that the learning dataset is loaded on students' computers.

References

Michael, P. L. (2008). [Logistic Regression](#). *Circulation*, 117:2395-2399.

Stoltzfus, J.C. (2011). [Logistic Regression: A Brief Primer](#). *Academic Emergency Medicine*, 18: 1099-1104.

Assessment

Peer review of group exercise.

Steps

In the first hour, give a presentation on the logistic regression model and its use. In the second hour, introduce the practical session. With the dataset at hand, students work in small groups to build and fit a logistic regression model. They investigate confounding, interaction, and factors associated with the outcome.

Each group submits their work to peers for assessment and feedback. You and co-facilitator/s facilitator may give collective feedback based on selected group work.

Session 17. Selection of Predictors in Regression Models | 1 hour

The aim of this session is to transfer and strengthen knowledge, skills, and strategies to improve regression models. These include transforming both the outcome (in linear regression models) and continuous exposures (in all models) and selecting the variables to include in the final model.

Students consider three different situations in which regression models are used:

- When the overall aim is prediction.
- When the aim is to evaluate a predictor of primary interest.
- When the aim is to identify important independent predictors of an outcome.

Outcomes

By the end of this session, students can:

- Check the assumptions and where necessary carry out a transformation in linear regression.
- Check for linear trend effects in predictors
- Understand how fractional polynomial models can be used to improve prediction.
- Apply strategies for selecting predictors in the three different situations in which regression models are fitted.

Preparation

As facilitator

Create or source a presentation to explain these topics.

Prepare the hands-on exercise for students to complete in groups.

Students read

- Deegan, J. (1976). [The Consequences Of Model Misspecification In Regression Analysis](#). *Multivariate Behav Res.* 11(2):237-48.
- Vatcheva, K.P., Lee, M., McCormick, J.B., Rahbar, M.H., (2016). [Multi-collinearity in Regression Analyses Conducted in Epidemiologic Studies](#). *Epidemiology (Sunnyvale)*. 6(2):227.

Additional reading

- Chowdhury, M. and Turin, T.C. (2020). [Variable selection strategies and its importance in clinical prediction modelling](#). *Fam Med Community Health*. 8(1):e000262. doi:10.1136/fmch-2019-000262
- Morozova, O., Levina, O., Uusküla, A., Heimer, R., (2015). [Comparison of subset selection methods in linear regression in the context of health-related quality of life and substance abuse in Russia](#). *BMC Med Res Methodol*. 30;15:71.
- Heinze, G., Wallisch, C., Dunkler, D. (2018). [Variable selection – A review and recommendations for the practicing statistician](#). *Biom J*. 60(3):431-449.
- Genell, A., Nemes, S., Steineck, G., Dickman, P.W. (2010). [Model selection in medical research: a simulation study comparing Bayesian model averaging and stepwise regression](#). *BMC Med Res Methodol*. 6;10:108.
- Smith, G. (2018). [Step away from stepwise](#). *J Big Data* 5, 32.
- Ratner, B. (2010). [Variable selection methods in regression: Ignorable problem, outing notable solution](#). *J Target Meas Anal Mark* 18, 65–75.

Assessment

Participation in session: 20% (Individual)

Group exercise: 80% (Group)

Steps

Give a lecture on the selection of predictors in multiple linear regression analysis. (30 minutes) In the practical session, students work in groups to fit a multiple linear regression model to research data and apply variable selection strategies.

Session 18. Spatial Analysis | 2 hours

Several health phenomena exhibit an important spatial dimension. Approaches or methods that ignore the spatial dimension are prone to skewed or inaccurate results. Fortunately, with the advent of Geographic Information Systems (GIS), geo-referenced population and health data are increasingly available, and consideration of the spatial component sheds light on most public-health issues.

In this session, introduce the PhD students to spatial analytical techniques and the importance of accounting for spatial autocorrelation when analysing spatial referenced data sets. Support students with georeferenced data and a spatial component in their research to include it during data analysis.

Outcomes

By the end of this session, students can:

- Determine the essential features of spatially referenced data, detecting spatial clustering/ autocorrelation.
- Describe types and sources of spatial data pertaining to public health.
- Presentation of spatial data using different formats using Stata or R.
- Describe methods for analysing point referenced and areal data sets.

Preparation

As facilitator

Share relevant resources, including a dataset, with students within a reasonable time period prior to the session.

Develop or source a presentation.


Prepare the practical demonstrations and a group exercise.

References

- De Smith, M. J., Goodchild, M. F., & Longley, P. (2021). *Geospatial Analysis: a Comprehensive Guide to Principles, Techniques and Software Tools*.
- Leitner, M. (ed). (2013). *Cartography and Geographic Information Science*.
- Barry, J.K. (2013). *Beyond Mapping Compilation Series*.

Steps

Combine slides with Stata software-based demonstrations to introduce and



explain the techniques. Then, in small groups students work with the dataset you provide to generate appropriate analyses for different formats and data types.

Each group submits their analysis to another different group for peer assessment and feedback.

Policy Engagement and Briefs

4 hours

Through input, discussion and practical activities, students learn what policy briefs are and how researchers and advocacy groups use them to influence policy making and implementation. They appreciate the need for knowledge translation and effective communication with non-scientific audiences in order to achieve impact on policy and practice.

Outcomes

By the end of this session, students can

- Describe the key components of a policy brief.
- Explain the purpose of a policy brief for a particular context.
- Write a policy brief.

Preparation

Make and practise a PowerPoint presentation to introduce the topic.

Share a number of policy briefs with students.

Find or design a set of practical tips on writing a policy brief.

View and prepare to screen the suggested video [case study](#) (or find an alternative), design guiding questions for group discussions, and line up screening logistics, such as the projector and speakers for an in-person session.

Select two or three other case studies (in document or video format).

Identify and invite a guest speaker to present on their experience in knowledge translation.

Use these resources to prepare. You may consider sharing some with the students.

- Hofman, K. et al (2013). [WHO Intersectoral Case Study](#): Successful Sodium Regulation in South Africa.
- Oliver, K., Innvar, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). [A systematic review of barriers to and facilitators of the use of evidence by policy-](#)

- [makers](#). BMC Health Services Research, 14(1), 2.
- Lavis JN, Permanand G, Oxman AD, Lewin S & Fretheim A. (2009). SUPPORT Tools for evidence-informed health Policymaking (STP) 13: [Preparing and using policy briefs to support evidence-informed policymaking](#). Health Research Policy and Systems 2009, 7 (Suppl 1):S13
- Oliver, K., & Cairney, P. (2019). [The dos and don'ts of influencing policy](#): a systematic review of advice to academics. Palgrave Communications, 5(1), 1-11
- WHO. [African Health Action Toolkit: Engage](#).

Assessment

Essay assignment: the use of policy briefs to influence the tobacco industry.

Group work: design an infographic for a policy brief.

Individual or group assignment: write a policy brief on your own research or an assigned study.

Steps

Time	Step	Who
15 minutes	1. Define “a policy brief”	Facilitator
45 minutes	2. Screen and discuss a case study	Facilitator, plenary
30 minutes	3. Learn about knowledge translation	Guest speaker, plenary
45 minutes	4. Develop a policy brief	Individuals or groups
45 minutes	5. Present outlines and discuss conclusions	All students, facilitator

Step 1. Define “a policy brief”

15 minutes

Present an introduction and overview, including examples, types, components, purpose, and potential impact of policy briefs.

Step 2. Screen and discuss a case study

45 minutes

Introduce, screen and discuss the suggested video [case study](#) (or an alternative).

You could ask questions such as:

What is the problem?

Who are the actors? What are their interests in the outcome?

Who is the audience for a policy brief in this example?

What is the desired result of a policy brief in this case?

What evidence from research would you include in a policy brief?

Step 3. Learn about knowledge translation

30 minutes

The invited guest speaker shares one or more examples of policy briefs. They describe their experience of distilling research findings into core evidence and arguments that are clear and thorough, yet brief enough to capture the attention of targeted decision-makers.

Students have the opportunity to ask questions about the example/s and the process, skills and impact involved in knowledge translation. The group discuss strengths and limitations: How effective is a policy brief as a mechanism for knowledge transfer?

Step 4. Develop a policy brief

45 minutes

Share tips on writing a policy brief and/or screen a video with guidance. Then, individually or in a group, students outline a policy brief, based on their own research project or an assigned example.



Step 5. Present brief outlines and discuss conclusions

45 minutes

Students present their outlines in plenary and discuss insights and challenges. For each brief, peers identify three strengths and three points of clarification. As facilitator, note the main points arising from the discussion and share them during or after the session.

Supervision

A curriculum to equip both new and experienced PhD supervisors



Introduction

The 13 sessions of this training curriculum cover the process of supervising PhD research from recruitment and selection of doctoral candidates, through integrity in supervision and relationship dynamics, to detachment and post-training mentoring of PhD graduates. The curriculum provides guidance addressed to you, the person designing and/or facilitating the training of supervisors.

Watch the video as preparation for using this curriculum.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=798#oembed-1>

Download [this curriculum](#) in full.

Overview

You have various approaches to choose from in order to train supervisors. CARTA offers this particular curriculum because it has been well received by participants ranging from senior, experienced supervisors to new supervisors.

Doctoral training is crucial to fast-track the development of Africa, and so CARTA made it a priority (Mothiba et al., 2019). Anywhere in the world, effective and efficient supervision plays an important role in the experience and outcomes of doctoral research. Appropriate supervision ensures that candidates receive the guidance that will establish them as career researchers who are, in turn, equipped to train the next generation.

Supervisors play multiple roles, such as guiding doctoral students to:

- Identify feasible research topics.
- Formulate appropriate questions.
- Develop feasible study protocols.
- Analyse and write up their research.
- Complete their projects on time.

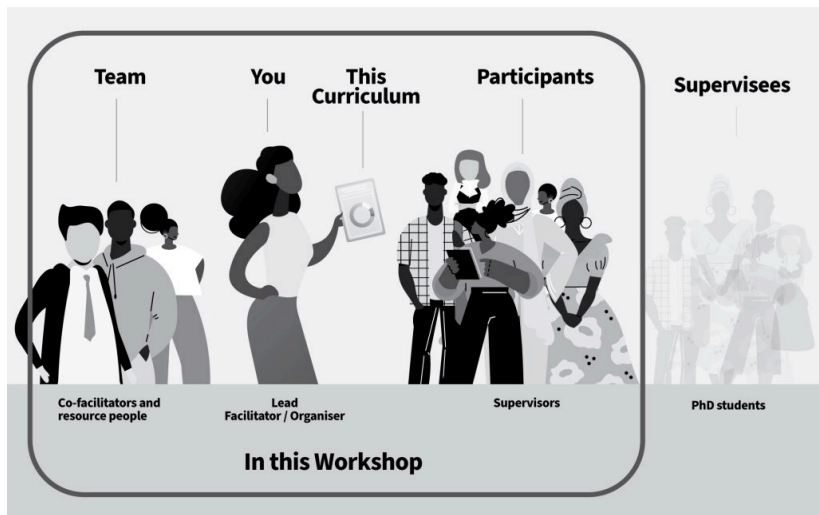
Supervisors provide oversight of the entire research process. High-quality supervision is essential for the timely completion of high-quality doctoral research projects and then for launching candidates into academia, or research institutes, public or private (Kiley, 2011).

Supervision is a team venture; effective collaboration between multiple supervisors is essential. Styles of supervision have changed over time, from the

apprentice model – which implied one-on-one supervision – to team supervision, especially as multidisciplinary studies become more common. These require the support of supervisors from diverse specialities and disciplinary working cultures. Collaboration of this kind facilitates peer-to-peer learning between supervisors. Many institutions team less experienced supervisors together with more experienced colleagues as a way to maximise institutional memory.

Training of supervisors for doctoral candidates has been inadequate in many institutions. Qualification requirements for supervisors are inconsistent. Many supervisors of PhD candidates learnt the process of supervision on the job, but this is often not enough to guarantee quality. Formal and professional development education, and dedicated peer-to-peer learning experiences are essential for academics to achieve their full potential as PhD supervisors. CARTA recommends that such experiences be repeated throughout one’s academic career to maintain the quality of supervision.

This curriculum is based on experience from the first ten years of the CARTA program, including a comprehensive one-week workshop for the PhD supervisors. (Manderson et al 2017, Igumbor et al 2021).



Outcomes

By the end of the workshop or series of sessions, PhD supervisors can:

- Apply best practices in the recruitment and selection of PhD candidates.
- Prioritise measures to ensure scientific integrity in their supervisees' work.
- Apply the most appropriate PhD supervision approach with their supervisees.
- Appreciate the role of academic institutions in the supervision process.
- Critically examine the practical logistics of PhD supervision.
- Create a nurturing relationship with their supervisees.

Approach

The CARTA approach is problem-posing and participatory, acknowledging the skills, and experience that people bring into the workshop. Each session presents situations and poses problems. Participants work with each other and with inputs from the facilitator to find solutions. Problem-posing education bases itself on creativity and stimulates true reflection along with action on reality (Freire, 2020). It is different from the transfer or transmission of knowledge or facts to the passive learner, where the trainer is seen as possessing all essential information, and trainees as 'empty vessels' needing to be filled with knowledge.

The choice of participatory method is deliberate: there is a coherence between values and the approach to sharing them. From the beginning, this curriculum recognizes all participants as thinking, creative people with the capacity for action. Each person is a contributor, bringing different perceptions based on their own experiences. This requires that you, as facilitator, make a conscious effort to use participatory methods to enable participants to grow in awareness.

Watch this video for more insight into CARTA's approach.





One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=798#oembed-2>

Facilitation

Some people assume that facilitating a workshop will be an easy process, until they try doing it. The participatory method means that you and your co-facilitators guide the workshop while appreciating that the participants are in charge. Your responsibility is to create an enabling environment that allows participants to learn from each other, come to an understanding, and pool their collective wisdom in resolving issues.

A good co-facilitator works as an ally to help you ensure that meetings, seminars, planning sessions and workshops, deliver the intended and desired outcomes. It is very difficult to facilitate a meeting yourself, when you also want to participate in it as an equal. But not all facilitators are alike. Identify co-facilitators who have the personality and aptitude to understand the goals, objectives, and expected outcomes of this curriculum. CARTA recommends you look for co-facilitators with these attributes.

Facilitator attributes

An unbiased perspective

Participants should feel comfortable that their opinions are welcomed and encouraged. As an unbiased facilitator, you create a neutral zone where alternative points of view can be shared and debated in a respectful manner. This is key to driving a constructive, productive discussion.

Sensitivity to individuals

To create and maintain an atmosphere of trust and respect, you must be aware of how people are responding to the topics under discussion, and to

the opinions and reactions of others. Most people will not articulate their discomfort, hurt feelings, or even anger; instead, they silently withdraw from the discussion and often from the group. Sensing how people are feeling and understanding how to respond to a particular situation is a critical skill of facilitation.

Sensitivity to the group

In any group, the whole is greater than the sum of the parts, and group 'chemistry' generally reflects shared feelings: eagerness, restlessness, anger, boredom, enthusiasm, suspiciousness, or even silliness. Perceiving and responding to the group's dynamic is essential to skilful facilitation.

Ability to listen

One way you learn to sense the feelings of individuals is by listening carefully, noting body language along with both the explicit meaning of words, and their tone and implicit meaning. As a good facilitator, you practise 'active listening'. You might repeat, sum up, or respond directly to what a speaker says to ensure that their meaning is correctly understood by the group.

Tact

Sometimes, a facilitator must say difficult things for the good of the group. The ability to do so carefully and diplomatically is critical. Examples include a group discussion dominated by one person or a group of silent participants. Find a gentle, tactful way to engage the group so that everyone can participate and get the most out of the session. A capable facilitator knows how to diffuse awkward moments and maintain a productive atmosphere.

Commitment to collaboration

Collaborative learning can occasionally seem frustrating and inefficient. At these moments, every facilitator feels tempted to take on the familiar role of the traditional teacher and to lead, rather than facilitate. However, genuine conviction about the empowering value of cooperative learning will help you resist a dominating role. Likewise, a good facilitator is willing to share facilitation with co-facilitators. The goal is always to conduct the best

and most effective discussion. To that end, you need to adjust your role accordingly.

A sense of timing

Any facilitator needs to develop a sixth sense for timing: when to bring a discussion to a close, when to change the topic, when to cut off someone who has talked too long, when to let the discussion run over the allotted time, and when to let the silence continue a little longer.

Resourcefulness and creativity

Each group of participants presents different dynamics. Despite a well-planned agenda, discussions may not unfold as anticipated. You must be able to think on your feet. This may mean changing direction in mid-stream, using other creative approaches to engage the group, or welcoming ideas from the group on how to shift the agenda. Good facilitators always have tricks up their sleeves to move forward with an eye on the overall objective of the meeting.

A sense of humour

As in most human endeavours, even the most serious, a sense of humour enhances the experience for everyone. A good facilitator appreciates life's ironies and is able to laugh at themselves and share the laughter of others.

Preparation

As you work through the curriculum ahead of the workshop, check that participants will be able to access the references for all sessions. Some sources may require payment, an email request to authors, institutional log in or a portal such as [Hinari](#).

Identify and engage co-facilitators and other contributors for the workshop. Advise your co-facilitators to read and re-read the curriculum until they feel comfortable and confident that they know what is expected for all the workshop sessions. Meet as a facilitation team as often as needed to ensure that all are on the same page.

For the workshop venue, identify a location that allows participants to move around easily, for example for role-play. Make sure there are enough break-away rooms for small-group activities, and adequate wall space for poster tours and other elements of the workshop methodology.

Two weeks before the workshop, send detailed information to participants on workshop logistics, the participatory workshop method, what is expected of them as participants and the reading lists.

Prepare and link to an online pre-workshop survey to draw out the participants' profiles. Ask:

- What are your expectations of this workshop?
- What are you willing to contribute to ensure a successful workshop?

You can then analyse the information and adapt the workshop program, as much as possible, to accommodate the needs that participants express.

Participant preparation

Supervisors attending the workshop need to be familiar with the relevant procedures of their own institutions. To ensure each one is ready to share and discuss this information, send this questionnaire to all participants well ahead of the workshop.

To all workshop participants: Please make sure you have the following information about your own institution.

- What are the requirements for recruitment into a PhD program at your institution?
- What is the format for PhD supervision in your field and department (thesis, publications, hybrid)?
- What are the regulations for maintaining scientific integrity and for sanctioning misconduct (such as plagiarism)?
- Does your university recognise social responsibility? If so, how is this reflected in policies and practice?
- Does your institution regulate supervision through a contract or other

document? If so, bring a copy to the workshop?

- How does your institution prepare and support supervisors for this role?
- Do PhD candidates in your university need (or get) multi-disciplinary supervision?
- What support mechanisms (if any) are available in your institution for supervisor-supervisee relationships?
- How are quality control and assurance integrated at different levels of PhD training in your institutions?
- What are the rules and tools for academic mentorship at your institution? Please bring a copy to the workshop.

References

- Fonn, S., Ayiro, L. P., Cotton, P., Habib, A., Mbithi, P. M. F., Mtenje, A., & Ezeh, A. (2018). [Repositioning Africa in global knowledge production](#). *The Lancet*, 392(10153), 1163–1166.
- Igumbor, J. O., et al: (2022). [Effective supervision of doctoral students in public and population health in Africa](#): CARTA supervisors' experiences, challenges and perceived opportunities, *Global Public Health*, 17:4, 496-511.
- Kiley, M. (2011). [Developments in research supervisor training](#): Causes and responses. *Studies in Higher Education*, 36(5), 585–599.
- Manderson, L., et al (2017). [Enhancing Doctoral Supervision Practices in Africa](#): Reflection on the CARTA Approach. Council for the Development of Social Science Research in Africa, 2018 (ISSN 0851–7762).
- Mothiba, T. M., Maputle, M. S., & Goon, D. T. (2019). [Understanding the practices and experiences of supervising nursing doctoral students](#): A qualitative survey of Two South African universities. *Global Journal of Health Science*, 11(6), 123–131.
- Olubosoye, O. E. and Olusoji, O. (2013/2014). [Determinants of PhD completion time at the University of Ibadan](#). *CESDAVE/ African Journal of Sustainable Development*, Vol. 4 No. 2.
- Tettey, W. J. (2010). [Challenges of developing and retaining the next generation of academics](#): deficits in academic staff capacity at African universities. *Partnership for Higher Education in Africa Paper*.

- Wamala, R. Ocaya, B. and Oonyu, J. C. (2012). [Extended candidature and non-completion of a PhD at Makerere University, Uganda](#). *Contemporary Issues in Education Research* 5 (3): 175-183.

Sessions

Sequence, 13 sessions, 1 week

Session 1. What Do We Want to Achieve? | 2 hours

Discuss the desired outcomes of the workshop, reflecting on why individuals choose to train for a PhD, and how academia and society benefit. Participants compare the conditions and support for supervision in their institutions, building group rapport.

Outcomes

By the end of the session, supervisors can:

- Relate the requirements for a PhD to the candidate's responsibilities, work, and potential career path.
- Describe the potential impact of a PhD on academic institutions, industry, and society.
- Characterise the role and responsibilities of the supervisor in the training and development of a PhD graduate as an independent researcher and leader.

Preparation

As the facilitator

At least one week before the workshop, ask participants: How did you prepare for a career or role as a PhD supervisor? Ask them read these resources in light of their own institution and experience.

- Ali, F., Shet, A., Yan, W., Atkins, S., and Lucas, H. and for the ARCADE consortium (2017). [Doctoral Research and Training Capacity in the Social Determinants of Health at Universities and Higher Education Institutions in India, China, Oman and Vietnam](#): A Survey of Needs. *Health Research Policy and Systems*. 15:76-87
- Loxley, A., and Kearns, M. (2018). [Finding a purpose for the doctorate?](#) A

view from the supervisors. *Studies in Higher Education*. 43:826-840.

- Igumbor, J., Bosire, E. N., Katahoire, A., Allison, J., Muula, A. S., Peixoto, A., Ot wombe, K., Bondjers, G., Fonn, S., and Ajuwon, A., [Effective supervision of doctoral students in public and population health in Africa](#): CARTA supervisors' experiences, challenges and perceived opportunities. *Global Public Health*, 1-16.
- Wichmann-Hansen, G., Wogensen, Bach. L., Eika, B., Mulvany, M. J., [Successful PhD Supervision: A Two-Way Process](#), Chapter 5, *The Researching, Teaching, and Learning Triangle*, DOI 10.1007/978-1-4614-0568-9_5.

Steps

Time	Step	Who
10 minutes	1. Welcome and outline of the workshop	Facilitator
15 minutes	2. Introduce participants	Facilitator, supervisors
35 minutes	3. Describe PhD requirements by institution	Groups
30 minutes	4. Compare institutional requirements	Each group to plenary
40 minutes	5. Discuss challenges and solutions	Full group

Step 1. Welcome and outline the workshop

10 minutes

Welcome the supervisors with an ice-breaker activity. Display on a slide the objectives of the supervision workshop and outline the roles that supervision plays in the preparation of doctoral graduates.

Step 2. Introduce participants

15 minutes

Invite each supervisor to briefly introduce themselves: full name, institution, number of PhD candidates successfully supervised, and expectations from the workshop.

Step 3. Describe PhD requirements by institution

35 minutes

Divide the supervisors into three groups. Each group should have a mix of:

- Experienced supervisors (more than three PhDs successfully supervised).
- Less experienced supervisors (one or two PhDs supervised).
- Postdoctoral students considering a career or role as supervisors.

Present the group tasks on a slide or sheet:

- What are the requirements for recruitment into a PhD program at your institution?
- What is the basis for attaining a PhD in your institution/ discipline (thesis, publications, etc.)?
- What are the roles and responsibilities of supervisors in your institution in the training and development of a PhD graduate as an independent researcher and leader?

Groups meet and discuss in different parts of the room or building, keeping a summary on a flip chart or slide/s.

Step 4. Compare institutional requirements

30 minutes

A representative of each group presents the summary to the full group, taking a turn to explain which step/s in the research process they find easier and which more difficult, and why.

Step 5. Discuss challenges and solutions

30 minutes

Facilitate a discussion of contrasts, challenges and potential solutions related to the requirements of candidates and supervisors in different institutions. Round up the discussion with a summary of key points.

Session 2. Recruiting PhD Candidates | 2 hours

Supervisors share experiences of the recruitment process in their different institutions, in order to identify best practices for the recruitment and retention of PhD candidates and their successful completion. Participants map out common pitfalls and pool their combined experience to brainstorm practical solutions.

Outcomes

By the end of this session, supervisors can:

- Compare the processes involved in recruiting and selecting PhD students in different universities.
- Appreciate how these processes – and the way they are managed – affect the progress, retention, attrition, and future success of PhD candidates, depending on how they are managed.
- Discuss the effects of candidate recruitment and selection, on the supervision process and journey.
- Identify best practices in recruitment, training, and retention of candidates, and in ensuring the successful completion of PhD training.
- Discuss common pitfalls in recruitment process and map out practical solutions.

Preparation

Design a PowerPoint presentation (maximum of five slides) to introduce the session (Step 1).

Consult these resources to enrich your presentation and share them with participants.

- Wichmann-Hansen, G., Wogensen, L; Eika, B., Mulvany, M. (2012) [Successful PhD Supervision: A Two-Way Process in The Researching, Teaching, and Learning Triangle](#), 55–64.
- Leijen, A., Lepp, L., Remmik, M. (2015) [Why did I drop out?](#) Former students' recollections about their study process and factors related to leaving the doctoral studies in Continuing Education 38: 129-144.
- Groenvynck, H., Vandavelde, K., Van Rossem, R. (2013) [The PhD track: Who succeeds, who drops out?](#) Research Evaluation 22: 199-209.

Steps

Time	Step	Who
15 minutes	1. Introduce recruitment	Facilitator to full group
30 minutes	2. Discuss institutional practices	Groups
30 minutes	3. Present recruitment strategies	Each group to plenary
45 minutes	4. Brainstorm solutions	Plenary

Step 1. Introduce recruitment

15 minutes

Using your PowerPoint presentation, outline the session. Describe:

- The need for an appropriate process of recruiting suitable candidates for doctoral training.
- The challenge of attrition, a major problem in doctoral training.
- The importance of identifying suitable candidates: those likely to enrol and complete doctoral training on schedule (three or four years of full-time study).

Step 2. Discuss experiences, challenges and best practices

45 minutes

Divide the supervisors into three groups and invite them to:

- Discuss the merits and challenges involved in the current processes for recruiting doctoral candidates in their institutions.
- Identify characteristics of ideal candidates for doctoral training.
- List best practices for recruiting doctoral candidates.
- Discuss strategies for overcoming attrition in doctoral training.

Each group records key points on flipcharts.

Step 3. Present recruitment strategies

30 minutes

Each group presents their conclusions to the plenary. To vary the process, you might use the approach in the [“Multiple Perspectives”](#) video.

Step 4. Brainstorm ideal recruitment processes

30 minutes

Supervisors propose and discuss elements that would contribute to an ideal approach to recruitment. Ask:

- What challenges and pitfalls do you encounter or observe in the recruitment process?
- What practical solutions have you discovered or observed?
- What would an ideal selection process look like?

Session 3. Research Integrity | 1 hour, 30 minutes

Supervisors focus on their need to guide their supervisee when it comes to ethics. Any accusation of misconduct such as plagiarism, fabrication, or falsification will reflect on the supervisor as well as the student and the institution. Solidarity is important between researchers, supervisors and supervisees, “” and co-authors in ensuring the integrity of research.

Outcomes

By the end of this session, supervisors can:

- Appreciate international standards and regulations for research integrity.
- Understand their own role, as an individual or as a member of a supervisory team, in applying these rules in PhD training.
- Compare practical procedures for ensuring research integrity in various institutions.
- Appreciate the concept of academic citizenship in relation to supervisory integrity.

Preparation

Ask supervisors to watch or read the resource materials and come ready to discuss the issues they raise.

- “Plagiarism scandal engulfs high-profile academic in Latvia” and other articles on [RetractionWatch](#)
- World Health Organization (2017). [Code of Ethics and Professional Conduct](#) (abridged)
- Lofström E and Pyhältö K (2017). [Ethics in the supervisory relationship: supervisors’ and doctoral students’ dilemmas in the natural and behavioural sciences](#). *Studies in Higher Education*. (42) 232-247
- Denisova-Schmidt E. (2018). [Corruption, the Lack of Academic Integrity and Other Ethical Issues in Higher Education](#): What Can Be Done within the Bologna Process? IN: Curaj A., Deca L., Pricopie R. (eds) *European Higher Education Area: The Impact of Past and Future Policies*, Springer, Cham.
- Clynes, M., Corbett, A., Overbaugh, J. (2019). *J. Why we need good mentoring*. *Nature Reviews Cancer*. 19:489-493.

Prepare three slides to introduce the concepts of scientific integrity and academic citizenship and to give examples of misconduct.

Steps

Time	Step	Who
10 minutes	1. Define scientific integrity	Facilitator
15 minutes	2. Discuss academic citizenship	Facilitator and group
40 minutes	3. Compare rules to maintain integrity	Small groups
20 minutes	4. Present existing and potential rules	Each group to plenary
5 minutes	5. Discuss supervisors' role in modelling integrity	Facilitator

Step 1. Define scientific integrity

10 minutes

Introduce the objectives of the session and present slides to define meaning of integrity and describe its importance in research and supervision. Give examples of misconduct, including fabrication, falsification and plagiarism. Welcome input from supervisors on their experiences with integrity in their supervisory role.

Step 2. Discuss academic citizenship

15 minutes

To stimulate discussion, ask:

- What is academic citizenship?
- Why is adherence to research integrity important for the academic community?
- What is supervisory integrity?
- What is the role of the supervisor/s in supporting research integrity and ethics?
- What should the repercussions for misconduct be?
- How would you react if you suspect dishonesty or misconduct in your supervisee?

Step 3. Compare rules to maintain integrity

40 minutes

Divide the supervisors into three groups to discuss:

- What are the rules for maintaining research integrity in your institution?
- What (if any) specific rules relate to doctoral supervision?
- How are cases of misconduct dealt with in the institution?
- How effective are the rules?
- How can these rules be strengthened?

Step 4. Present existing and potential rules

5 minutes

Groups provide and discuss feedback.

Step 5. Discuss supervisors' role in modelling integrity

20 minutes

To conclude the session, emphasize that supervisors should model integrity for their supervisees. Note that institutions require clear policies and guidelines to create an environment that fosters integrity. Refer to [Turnitin](#), an important tool for detecting plagiarism.

Session 4. The Supervision Process | 1 hour, 30 minutes

Supervisors describe and discuss the practical organization of supervision in different institutions and disciplines.

Outcomes

By the end of this session, supervisors can:

- Critically review the supervisory process as it is organised in their own institutions.
- Appreciate the interactive roles and responsibilities of the candidate and the supervisor in different phases of the PhD training process.
- Consider other support for supervision in their own institutions.
- Understand different perspectives on the purpose of the PhD.
- Debate the use of milestones and progress reports during supervision.
- Compare international differences and common trends in supervision processes and training for supervisors.

Preparation

Summarise the steps in the supervision process in three or four slides (Step 1).

For participants

Read these resources before the session:

- Anonymous Academic. (2015). [Bad PhD supervisors can ruin research](#). So why aren't they accountable? The Guardian.
- Ronnie Gunnarson. (2014). Supervision (of PhD students). In Science Network TV.
- Roach, A., Christensen B. K., Rieger, E. (2019). [The essential ingredients of research supervision](#): A discrete-choice experiment. J. Educ. Psychology 111:1243-1260.
- Barnett, J. V., R. A. Harris., M. J., Mulvany (2017). [A comparison of best practices for doctoral training in Europe and North America](#). FEBS Open Bio. 7: 1444-1452.

Reflect on the question “How are supervisors prepared for their task in your institution?” and prepare notes and/or a PowerPoint slide for the session.

Prepare three PowerPoint slides to introduce the concepts of scientific integrity and academic citizenship and to give examples of misconduct.

Steps

Time	Step	Who
10 minutes	1. Describe the steps in the supervision process	Facilitator
15 minutes	2. Discuss the process in different institutions	All
45 minutes	3. Compare preparation for supervisor role	Small groups
20 minutes	4. Discuss best practices to prepare supervisors	Groups to plenary

Step 1. Describe the steps in the supervision process

10 minutes

Describe the supervision process as all activities that take place during supervision of doctoral candidates. Emphasize the fact that supervisors need training in order to perform their supervisory roles effectively.

Step 2. Discuss the process in different institutions

15 minutes

Invite a general discussion. Ask:

- Who allocates the supervisor to a specific supervisee in your institution, and what are the criteria for this allocation?
- What is the graduation rate of PhDs in your department, faculty and university?
- What are the characteristics of the pedagogy of PhD training – the teaching and learning methods?
- How will you and your supervisee define the milestones in their PhD training?
- How well do the supervision practices in your institution align with the ambition to train a quality PhD?

Step 3. Compare preparation for the supervisor role

45 minutes

Divide participants into groups. Ask them to discuss these questions:

- What is the role of supervisors of doctoral students in achieving success in PhD training?
- What preparation do supervisors need to effectively perform this role?
- How can supervisors' knowledge and skills be enhanced to enable them perform their roles more effectively?

Step 4. Discuss best practices to prepare supervisors

20 minutes

Groups summarize their points on flip charts. As co-facilitators, conclude the session with a summary of new ideas, best practices, solutions to challenges, and potential action points. Emphasise that formal training for supervisors is an important requirement for successful doctoral supervision.

Session 5. University and Academic Citizenship | 1 hour, 40 minutes

- What does society expect from universities?
- And what do we expect from university systems in terms of PhD training to meet society's expectations?

Supervisors discuss the role of the university in society, particularly in relation to the supervisor's responsibilities. They consider the concept of academic citizenship and the role of the academic system, in reaching international agreements, such as the Sustainable Development Goals, and in equipping society with knowledge and competence for democratic development, both historically and beyond 2030. Academic freedom and critical thinking – important throughout the world – provide a common framework for research and higher education.

Outcomes

By the end of this session, supervisors can:

- Identify the responsibilities (aside from producing a thesis) of the supervisor, the mentor, and the university in the training of a doctoral candidate.
- Appreciate the role of the supervisor in supporting the development of the next generation of academic leaders.
- Understand the role of PhD training in the attainment of the Sustainable Development Goals.
- Compare the oversight mechanisms in place at various universities to ensure that both the PhD candidate and the supervisors fulfil their roles and responsibilities.

Preparation

Develop three to five PowerPoint slides to outline the role of universities in the development of academic citizens and in achieving the Sustainable Development Goals (Step 1).

For participants

Read these resources before the session:

- Tara Brabazon. (2013). [10 truths a PhD supervisor will never tell you](#). Times Higher Education supplement.
- Anna Peixoto. (2014). [De mest lämpade](#). [Thesis in Swedish but with an extensive summary in English of the Bourdiean analysis of the academic field].
- Lee, Ann. (2007). [How are doctoral students supervised?](#) Concepts of doctoral research supervision. Studies in Higher Education 33: 267-281.

Reflect on the career support for PhD candidates in their institutions and how this affects doctoral training.

Steps

Time	Step	Who
10 minutes	1. Describe the development of academic citizens	Facilitator
10 minutes	2. Discuss leadership and research excellence	All
45 minutes	3. Discuss universities' social responsibilities	Small groups
25 minutes	4. Relate values to research leadership	Groups to plenary

Step 1. Describe the development of academic citizens

10 minutes

Using 3 to 5 PowerPoint slides, describe the role of universities in the development of academic citizens and in achieving the Sustainable Development Goals.

Step 2. Discuss leadership and research excellence

10 minutes

Invite feedback and spark conversation by asking:

- What is the relationship between excellence in teaching and excellence in research?
- What is the relationship between leadership skills and excellence in research?

- How do the university and the supervisor contribute to the leadership skills of the PhD candidate?
- How can supervisor training, be a tool to increase success in PhD training?

Step 3. Discuss universities' social responsibilities

45 minutes

Divide participants into groups. Ask them to discuss these questions:

- How does your university teach the relationship between excellence in teaching and academic citizenship?
- How does your university teach the relationship between excellence in leadership and the values of academic citizenship?
- How does your university view and discuss the responsibility of the university system for international agreements such as the Sustainable Development Goals?
- Does your university recognize social responsibility? If so, how is this reflected in practice?

Step 4. Relate values to research leadership

25 minutes

Back in the plenary, representatives take turns to present their group's conclusions and questions. After discussion, conclude the session with a summary of new ideas, best practices, solutions to challenges and potential action points.

Session 6. Formal Terms and Conditions of Supervision | 1 hour, 30 minutes

The supervision process is enriched when the supervisor and the supervisee both understand their roles clearly and play them appropriately. CARTA uses a contract between supervisors and supervisees to clarify mutual expectations, and this session uses that contract as a learning tool. Workshop participants

and their universities may want to adopt elements for their own institutional policies and procedures.

The CARTA contract:

- Covers the expected roles and responsibilities of both supervisors and supervisees throughout the entire supervision process.
- Supplements the obligations of the candidate and supervisor(s) to their university and to any funding agency.
- Summarizes typical terms and conditions of a PhD.
- Includes best practices gleaned from across the academic community.

Outcomes

By the end of this session, supervisors can:

- Appreciate the value of a PhD supervision contract/agreement.
- Consider the CARTA supervision contract as a possible model.
- Discuss the role of a contract in the supervisory process.
- Consider the legal and other implications of the contract.
- Discuss the possibility of adopting a contract or agreement in institutions where this is not practised.

Preparation

Develop three to five PowerPoint slides to introduce the idea and component elements of a contract in doctoral supervision (Step 1).

For participants

Read these resources:

- Norwegian University of Science and Technology (2020). [PhD Handbook](#). Quality in PhD Education.
- Shin, J. C., Kim, S. J., Kim, E., Lim, H., (2018). [Doctoral students 'satisfaction in a research-focused Korean university](#): socio-environmental and motivational factors. *Asia Pacific Education Review* 19:159-168.
- CARTA [Contract](#) of supervision and academic obligations.

Steps

Time	Step	Who
15 minutes	1. Introduce the role of a contract in supervision	Facilitator, group
10 minutes	2. Review the CARTA contract as a model	Facilitator, group
45 minutes	3. Share experiences and opinions of contracts	Small groups
20 minutes	4. Discuss benefits of contracts	Each group in plenary

Step 1. Introduce the role of a contract in supervision

15 minutes

Using three to five PowerPoint slides, introduce the concept of a contract in doctoral supervision and describe its importance in ensuring that both supervisor and student understand their roles and responsibilities in the supervision process. Welcomes contributions from participants.

Step 2. Review the CARTA contract as a model

10 minutes

Lead a review of the sub-sections of the CARTA contract of supervision and academic obligations:

- Responsibilities of doctoral students.
- Roles of supervisors.
- Joint responsibilities of supervisors and supervisees.

Step 3 . Share experiences and opinions of contracts

45 minutes

Divide participants into groups to discuss these questions:

- Does your institution regulate supervision through a contract or other document?
- How does or could a contract/agreement improve conditions for supervision? For the supervisor? For the supervisee? For the institution? For the quality of research?
- Should supervisors have contractual obligations and, if so, of what

nature?

- What logistical support should the institution provide to supervisee and supervisors to aid supervision?
- What role should the supervisor play to assist the PhD candidates to access the resources they need (laboratory and scientific instruments, or library resources)?

Step 4 . Discuss benefits of contracts

20 minutes

Back in the plenary, representatives take turns to present their group's conclusions and questions. Facilitate discussion and conclude by summarising new ideas, best practices, solutions to challenges, and potential action points.

Session 7. Practical Logistics of PhD Supervision | 1 hour, 30 minutes

Doctoral training can be arduous. Many candidates enrol for doctoral training but only a few successfully complete it. Institutions appoint supervisors to guide and support doctoral candidates throughout the training, some offering a single supervisor, others joint supervision. Doctoral candidates also learn from their peers. This session describes:

- The different formats of supervision.
- The challenges and benefits of joint supervision.
- The role of peer-to-peer support in doctoral training.

Outcomes

By the end of this session, supervisors can:

- Address practical issues in organizing the PhD supervision process.
- Identify the advantages and challenges of co-supervision.
- Appreciate the role of peer interactions, peer-to-peer learning and mutual support, with reference to the working culture of the postgraduate student body.

- Present the advantages and disadvantages, opportunities, and challenges associated with group supervision.
- Share deepened thinking on preparation and training for supervisors.
- Identify the most common and significant challenges to supervisors in managing supervisees' progress, and share the best ways to address them.

Preparation

Develop three to five PowerPoint slides that summarise supervision approaches: individual, co-supervision and group supervision including by multi-disciplinary teams (Step 1).

For participants

Read these resources:

- Nakanjako D., Katamba A., Kaye D., Okello E., Kanya M., Sewankembo N., Mayanja-Kizza H., (2014). [Doctoral training in Uganda](#): evaluation of mentoring best practices at Makerere university college of health sciences. BMC Medical Education 14:9. DOI: 10.1186/1472-6920-14-9
- Van Schalkwyk S. C., Murdoch-Eaton, D., Tekian, A., van der Vleuten, C., Cilliers, F., (2016). [The supervisor's toolkit](#): A framework for doctoral supervision in health professions education: AMEE Guide No. 104. Med Teach. 38:429-42. doi: 10.3109/0142159X.2016.1142517. Epub 2016 Mar 21.
- Govender, K., & Dhunpath, R. (2011). [Student experiences of the PhD cohort model](#): Working within or outside communities of practice? Perspectives in Education, 29(1), 88-99.

Consider their university's regulations on supervisor training, provision of training and access to training for supervisors, co-supervisors, group supervision, mentors and teams of supervisors.

Reflect on their prior experience of joint supervision and peer-to-peer support.

Steps

Time	Step	Who
10 minutes	1. Introduce individual vs co-supervision	Facilitator
15 minutes	2. Discuss institutional approaches to supervision	Facilitator, group
45 minutes	3. Compare institutional systems for supervision	Small groups
20 minutes	4. Brainstorm best practices	Each group in plenary

Step 1. Introduce individual vs co-supervision

10 minutes

Using three to five PowerPoint slides, describe different approaches to the supervision of doctoral students, highlighting the advantages and limitations of single and joint supervision models.

Step 2. Discuss institutional approaches to supervision

15 minutes

To stimulate discussion, ask:

- What does your university recommend: individual or group supervision?
- How are supervisors prepared and supported by their institutions?
- How would you benefit from co-supervisors and mentors in your capacity as a supervisor?
- Do PhD candidates in your university need (or get) multi-disciplinary supervision?
- What would make you feel more confident in your role as supervisor?

Step 3 . Compare institutional systems for supervision

45 minutes

Divide participants into groups to discuss:

- Different formats for supervision.
- Different institutional systems for the oversight of PhD supervision.

- Any training that supervisors receive and any support they get for the supervision of doctoral candidates.
- The Salzburg Process.

Step 4 .Brainstorm best practices

20 minutes

Back in the plenary, representatives take turns to present their group's conclusions and questions. Facilitate discussion and conclude by summarising the group's experiences and new thinking about individual vs co-supervision, and how universities might adopt and support best practices.

Session 8. Psychology of the Supervisor–Supervisee Relationship | 1 hour, 30 minutes

The interaction between supervisor and supervisee is close and may lead to psychological and relationship challenges. In this session, participants discuss these challenges in relation to:

- The roles and personalities of both parties.
- How their relationships may evolve over the course of the PhD training.
- The question of institutional support to both parties.

Outcomes

By the end of this session, supervisors can:

- Discuss and reflect on the affective dimensions of the supervisor–supervisee relationship.
- Propose important personal qualities of a supervisor from the perspectives of, respectively, the supervisee, the supervisor, and the institution.
- Assess how the supervisee affects the supervisor.
- Describe how these relationships may evolve during the PhD training, with specific emphasis on how to seize important opportunities, and avoid common pitfalls.
- Consider what psychological support the institution should provide to the supervisee and the supervisor.

- Discuss the role of gender in the relationship between supervisor and supervisee.

Preparation

Develop three to five PowerPoint slides to introduce the psychology of the supervision relationship, including unequal power dynamics based on as gender, age, and other factors (Step 1).

For participants

Read these resources:

- Deuchar, R. (2008). [Facilitator, director or critical friend?](#) Contradiction and congruence in doctoral supervision styles. *Teaching in higher education* 13: 489-500.
- Bitzer, E. and Matimbo, F. (2017). [Cultivating African Academic capital](#) – intersectional narratives of an African graduate and his PhD study supervisor. *Innovations in Education and Teaching International*
- Bernstein, B. L., Evans, B., Fyffe, J., Halai, N., Hall, F. L., Jensen, H. S., ... & Ortega, S. (2014). [The continuing evolution of the research doctorate](#). In *Globalization and its impacts on the quality of PhD education* (pp. 5-30). Brill Sense.54:539-549. DOI: 10.1080/14703297.2017.1394825
- Fortes, M., Kehm, B. M., & Mayekiso, T. (2014). [Evaluation and quality management in Europe, Mexico, and South Africa](#). In *Globalization and its impacts on the quality of PhD education* (pp. 81-109). Brill Sense

Consider their own experiences of the affective components of supervision. Reflect on any prior experiences that may be useful for the group discussion.

Steps

Time	Step	Who
10 minutes	1. Introduce supervision as a relationship	Facilitator
15 minutes	2. Discuss personal characteristics and pitfalls	Facilitator, group
45 minutes	3. Consider factors in successful relationships	Small groups
20 minutes	4. Brainstorm ideal mechanisms and support	Each group in plenary

Step 1. Introduce supervision as a relationship

10 minutes

Remind participants that the supervisor and supervisee enter into a personal relationship over the long duration of PhD training. Potential challenges to this relationship arise because of issues of inequality related to gender, age and other power dynamics.

Step 2. Discuss personal characteristics and pitfalls

15 minutes

To stimulate discussion, ask:

- To what extent do you consider your personal relationship to the candidate when you accept a postgraduate student?
- Are specific personal characteristics of the candidate important for the success of supervision?
- What personal characteristics of the candidate (age, sex, marital status) may affect the relationship that the supervisor has with the candidate?
- Do certain personal characteristics of a candidate predict failure?
- What personal characteristics of a candidate could complicate the supervision process?
- What characteristics of the supervisor can potentially complicate the supervisor-supervisee relationship?
- What are the most important challenges to supervisors in managing the relationship with the PhD candidate? How are these challenges, best addressed?

Step 3. Consider factors in successful relationships

45 minutes

Divide participants into groups to discuss these questions:

- What components of the relationship do you consider most important for successful supervision?
- What support mechanisms are available in your institution for supervi-

supervisor-supervisee relationships?

- How can these mechanisms be improved?

Step 4. Brainstorm ideal mechanisms and support

20 minutes

Back in the plenary, representatives take turns to present their group's conclusions and questions. Facilitate discussion and conclude by summarising the group's thinking about successful supervisory relationships and mechanisms through which universities can best support them.

Session 9. Quality Assurance in Doctoral Research Training | 1 hour, 30 minutes

This session focuses on the role of the supervisor in quality control in the context of both supplementary external quality control and internal quality-assurance mechanisms at institutional level. The supervisor must strike a balance between controlling quality and giving pastoral support to the PhD candidate.

Assuring quality in research is essential for validating and maintaining the credibility of the academic system. While the supervisor/s take responsibility for most of the quality-control processes involved in the completion of the PhD, independent and objective quality assurance is primarily a responsibility of the institution. The broader scientific community provides external quality control during PhD training through peer review, open access of published material, and examination by external examiners.

Outcomes

By the end of this session, supervisors can:

- Distinguish clearly between quality control and quality assurance, in order to compare and contrast the distinctive roles of supervisors, mentors, and institutions.
- Explain the role of the supervisor in assuring high-quality research and the development of a high-quality researcher over the course of PhD.
- Debate the supervisor's role in quality control of the research: gate-keeper,

facilitator or supporter.

- Review common quality-control mechanisms designed to ensure that the candidate, supervisors, and mentors all fulfil their roles and responsibilities throughout the course of the PhD, and take corrective action wherever necessary.
- Define quality control and assurance of the PhD thesis according to format (monograph, thesis by publication, or de facto hybrid model).
- Understand how examination of the PhD should be used for quality control of individual graduates, of the supervisors and mentors' contributions and of the overall doctoral training process.
- Evaluate key performance indicators (KPIs) for quality assurance, both process- and outcome-based.

Preparation

Develop three to five PowerPoint slides to explain the importance of quality in validating and maintaining the credibility of the academic system (Step 1).

For participants

Read these resources:

- European University Association (2010). [Salzburg II Recommendations](#): European universities' achievements since 2005 in implementing the Salzburg Principles.
- Orpheus. (2016/2020). [Best Practices for PhD Training](#).

To explore the quality-assurance system for research training in their institution, read the full guidelines and regulations for postgraduate studies.

Reflect on their prior experience related to quality assurance in PhD supervision.

Steps

Time	Step	Who
25minutes	1. Introduce quality assurance by supervisors	Facilitator, full group
45 minutes	2. Review mechanisms to ensure quality	Small groups
20 minutes	3. Summarise quality assurance in the PhD	Plenary

Step 1. Introduce quality assurance by supervisors

25 minutes

Using three to five PowerPoint slides, explain the importance of quality in validating and maintaining the credibility of the academic system. Supervisors play a critical role in achieving quality of the doctoral degree. To engage the supervisors in discussion, ask:

- What stages and processes in PhD training are important for quality control and assurance?
- What quality-assurance mechanisms exist for PhD supervision in your institution?
- How are quality control and assurance integrated at different levels of PhD training in your institution?
- What quality standards and oversight systems that you consider essential for PhD supervision are missing in your institution?
- Is there an available and transparent process, policy, or set of KPIs in your institutions?
- What is the role of a supervisor in quality assurance in PhD training: are you a gatekeeper, facilitator or supporter?
- What practical measures – such as milestones, reports, completion rates – do you find effective in managing the quality-assurance process?

Step 2. Review mechanisms to ensure quality

45 minutes

Divide participants into groups to discuss these additional issues:

- How is the Salzburg Process related to quality requirements?
- How do publication traditions affect quality of research?

- What is the quality control mechanism in your institutions as regards process and results?

Step 3. Summarise quality assurance in the PhD

20 minutes

Back in the plenary, representatives take turns to present their group's conclusions and questions. After a facilitated discussion, conclude the session with a summary of new ideas, solutions to challenges, best practices, and potential action points.

Session 10. Inequity and Dilemmas in Supervision | 1 hour, 30 minutes

The relationship between a supervisor and supervisee is not a relationship of equal partners. This situation is a potential source of conflict which must be acknowledged and prevented. Many conflicts in the supervisor–supervisee relationship can be avoided if one is aware of the ways that gender, age, ethnicity, class, and culture may affect supervision. A toolbox of support options is valuable in case of a dilemma in relation to inequity and division.

Outcomes

By the end of this session, supervisors can:

- Understand supervision in relation to power dynamics in the academic field and within the university community as a whole.
- Appreciate how gender, age, ethnicity, class and culture affect supervision.
- Explain the ways in which scientific research, university structures and processes and academic opportunity are influenced by gender, age, ethnicity, class and culture.
- Appreciate how supervisor–supervisee relationships are influenced by gender, age, sexuality, ethnicity, social class and culture.
- Suggest ways to solve dilemmas between a supervisor and a supervisee that concern gender, age, ethnicity, class, and/or culture.
- Discuss how social justice and social exclusion are affected by modes of supervision.

Preparation

Develop three to five PowerPoint slides to introduce the subject of inequity and the dilemmas that often arise during the supervision process (Step 1).

Make copies of the instructions for [Trio Coaching](#).

For participants

Reflect on a dilemma they have experienced with a supervisee that concerns gender, age, ethnicity, class and/or culture. First-time supervisors should think of a dilemma they have experienced as a supervisee or one that they have heard of. Each participant should be ready to describe how the dilemma was resolved and what they learnt from it.

Read these resources:

- University of Auckland (2022). [Te Ara Tautika | The Equity Policy](#).
- Carter, S. Blumenstein, M., Cook, C., (2013). [Different for women?](#) The challenges of doctoral studies. *Teaching in Higher Education* 18:339-351.
- Shibayama, S., and Kobayashi, Y., (2017). [Impact of Ph.D. training](#): a comprehensive analysis based on a Japanese national doctoral survey. *Scientometrics* 113:387–415. DOI 10.1007/s11192-017-2479-7.
- Cohen, G. L., Garcia, J., Appel, N., Master, A., (2006). [Reducing the racial achievement gap](#): A social-psychological intervention. *Science* 313: 1307-3013. doi 10.1126/Science 1128317.
- Doumbo, O. K., Krogstad D. J. (1998). [Doctoral training of African scientists](#). *Am, J., Trop Med Hyg.* 58:127-132. DOI; 10.4269/ajtmh 58.127

Steps

Time	Step	Who
20 minutes	1. Introduce the impact of inequity on supervision	Facilitator, full group
40 minutes	2. Explain and practise Trio Coaching	Small groups
30 minutes	3. Summarise quality assurance in the PhD	Plenary

Step 1. Introduce the impact of inequity on supervision

20 minutes

Introduce the subject of inequity and the dilemmas that often arise during the supervision process. Explain that inequity in supervision is a reflection of inequities in the university system and in society as a whole. Ask:

- How are career opportunities in universities affected by gender, age, ethnicity, class, and culture?
- Why do older men, particular ethnic groups, and/or individuals from privileged class backgrounds dominate the ranks of senior academics?
- Why do men dominate particular areas of research and teaching, and women others?
- How is equity in academia affected by present trends in higher education and research?
- How should conflicts arising from the process of supervision be resolved?
- How should conflicts between supervisors be resolved?

Step 2. Explain and practise Trio Coaching

40 minutes

Divide participants into groups of three people each, to use role play in an activity called Trio Coaching to resolve a real dilemma. After you show the [Trio Coaching](#) video and go over the [instructions](#), have the groups use the method to resolve a dilemma.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://press-books.pub/cartacurricula/?p=798#oembed-3>

Step 3. Review ways to resolve dilemmas

30 minutes

Back in the plenary, ask:

- Did you find Trio Coaching useful?
- Would you use it in your institution?

Draw out supervisors' thoughts on the challenges of inequity and means of resolving dilemmas.

Session 11. The Detachment Process | 2 hours

Successful PhD training should produce a graduate who is able to conduct research independently of their doctoral supervisor. The transition from the student phase to the postdoc phase of the career may be difficult for the supervisor, the supervisee, and their relationship.

This session raises these challenges, with the aim of maximizing the independence of the doctoral candidate after graduation, while preserving a good relationship between the supervisor and supervisee as independent peers, to the mutual benefit of both parties.

Outcomes

By the end of this session, supervisors can:

- Appreciate the role of the supervisor in enabling the successful future career of the PhD, through essential soft skills acquired during the PhD training and an ongoing mentorship relationship.
- Be alert to the possibility that the hierarchical supervisor-supervisee relationship becomes competitive.
- Identify solutions to challenges, emphasizing the full course of the PhD training as a process of transition towards independence, emphasizing the transition into a peer-to-peer relationship.
- Discuss career planning with the doctoral candidate.

Preparation

Develop PowerPoint slides to explain the concept and importance of detachment (Step 1).

Remind yourself of the World Café approach to generating and sharing ideas. Prepare four flipcharts, one for each 'station' (Step 2).

For participants

Read these resources:

- The World Café. [Design Principles](#).
- Hobin, J. A., Clifford, P. S., Dunn, B. M., Rich, S., Justement, L. B. (2014). [Putting PhDs to work](#): career planning for today's scientists. CBE – Life sciences education 13: 49-53.
- Bryan, B. and Guccione, K. (2018). [Was it worth it?](#) A qualitative exploration into graduate perceptions of doctoral value. Higher Education Research and development 37 : 1124-1140.

Reflect on how they have developed or are developing their own career plans, and be ready to share these steps.

Reflect on their expectations and experience of the detachment process after completing their own doctoral training.

Steps

Time	Step	Who
20 minutes	1. Define steps towards detachment	Facilitator, full group
60 minutes	2. Propose roles to support detachment	Groups in World Café
40 minutes	3. Pool suggestions and action points	World Café feedback

Step 1. Define steps towards detachment

20 minutes

Using the PowerPoint slides you developed, explain the meaning of detachment, emphasizing that this must occur if doctoral graduates are to become independent researchers. Engage supervisors in discussion. Ask:

- What is the benefit of a PhD education for the individual? The institu-

tion? The country?

- What challenges arise for the supervisor as the supervisee transitions to become an independent researcher?
- What support does the supervisee need? How can supervisors support the postdoctoral phase of the PhD?
- What soft skills does the doctoral graduate need to learn over the course of the PhD training in order to become independent of you?
- What training and mentorship should supervisors provide during the PhD training and when should you begin to withdraw such support?
- What is the value in doing a postdoc period outside of the home university and what difficulties might be anticipated?
- To what extent should a supervisor be involved in assisting the student in their search for jobs, including postdoc positions?

Step 2. Propose roles to support detachment

60 minutes

Use the 'World Café' activity to draw out experiences and share ideas about how supervisors can help doctoral graduates make transition from being students to independent researchers.

In a large open room, mark out four 'stalls' or tables. At each stall, pin up a large sheet of paper or flipchart, with a different question on the top of each one:

- What can the PhD student do?
- What can you do as a supervisor?
- What can your university do?
- What can your department do?

Divide the participants into four groups. Each group has five minutes at each table to note their answers on the sheet. When they move to a new table, they review what is already written there and only add new points.

Step 3. Pool suggestions and action points

40 minutes

After every group has answered each question, the whole group moves around the four stations together to read and discuss each set of ideas in full. Later, collect the sheets, transcribe the points and send the document to everyone.

Session 12. Mentorship | 1 hour, 20 minutes

For early-career researchers, effective mentorship is essential for personal development, career guidance, and choices. Mentorship has a significant impact on the retention of trainees and their research productivity, including publication and grant success. Mentored graduates are said to be more connected to their work environment than their non-mentored peers. They also report higher levels of satisfaction with academic experience when compared to their non-mentored peers. Mentorship is a skill that needs to be developed and nurtured, hence this session.

Outcomes

By the end of this session, supervisors can:

- Appreciate the role of mentorship in professional development.
- Understand something of the dynamics of mentorship in the supervisor-supervisee relationship.
- Differentiate between mentorship and coaching in professional development.

Preparation

Develop PowerPoint slides to define the concept of mentorship and explain the role that mentorship plays in a PhD candidate's career development (Step 1).

For participants

Identify their university's academic mentorship rules and tools. Bring a copy to the workshop.

Note successful mentorship activities they have witnessed or experienced, to

contribute to group discussions.

Read these resources:

- Balogun, F. M., Malele-Kolisa, Y., Nieuwoudt, S. J., Jepngetich, H., Kiplagat, J., Morakinyo, O. M. & Kaindoa, E. (2021). [Experiences of doctoral students enrolled in a research fellowship program to support doctoral training in Africa](#) (2014 to 2018): The Consortium for Advanced Research Training in Africa odyssey. PloS one, 16(6), e0252863.
- Desai, M. M., Göç, N., Chirwa, T., Manderson, L., Charalambous, S., Curry, L. A., & Linnander, E. (2021). [Strengthening the Mentorship and Leadership Capacity of HIV/AIDS and Tuberculosis Researchers in South Africa](#). The American Journal of Tropical Medicine and Hygiene.
- Mathews, P. (2003). [Academic mentoring enhancing the use of scarce resources](#). Educational Management Administration & Leadership, 31(3), 313-334.
- Spangle, Jennifer M. et al. (2021). [Practical advice for mentoring and supporting faculty colleagues in STEM fields](#): Views from mentor and mentee perspectives. Journal of Biological Chemistry, Volume 0, Issue 0, 101062. DOI:
- Quinlan, K. M. (1999). [Enhancing mentoring and networking of junior academic women](#): what, why, and how? Journal of higher education policy and management, 21(1), 31-42.
- Sambunjak, D., Straus, S. E., & Marušić, A. (2006). [Mentoring in academic medicine](#): a systematic review. Jama, 296(9), 1103-1115.
- Schrodt, P., Cawyer, C. S., & Sanders, R. (2003). [An examination of academic mentoring behaviors and new faculty members' satisfaction with socialization and tenure and promotion processes](#). Communication Education, 52(1), 17-29.
- Somefun, O. D., & Adebayo, K. O. (2021). [The role of mentoring in research ecosystems in Sub-Saharan Africa](#): Some experiences through the CARTA opportunity. Global Public Health, 16(1), 36-47.
- Sorkness, C. A., Pfund, C., Ofili, E. O. et al. [A new approach to mentoring for research careers](#): the National Research Mentoring Network. BMC Proc 11, 22 (2017).
- Engel, M. (2017) [Making the mentoring relationship work](#). Fred Hutch Can-

cer Center.

Watch this video:

- Kenneth Ortiz |TEDxBethanyGlobalUniversity (2019). [How to be a Great Mentor.](#)

Prepare three slides to introduce the concepts of mentorship and to give examples of the role of mentorship in career development.

Steps

Time	Step	Who
20 minutes	1. Define mentorship in career development	Facilitator, full group
40 minutes	2. Disaggregate elements of mentorship	Small groups
20 minutes	3. Share best practices for successful mentorship	Plenary

Step 1. Define mentorship in career development

20 minutes

Using the PowerPoint slides you prepared, define mentorship and describes the important role it plays in the career development of the academic.

Engage supervisors in discussion. Ask:

- What is academic mentorship?
- Why do we need academic mentorship?
- How do we develop an academic-mentorship relationship?
- How can the available frameworks and tools be used to enable effective mentorship?
- How can mentorship be used to facilitate the decolonisation and democratisation of knowledge development, as well as improving the progression of women and/or disadvantaged ethnic groups into academic leadership roles?

Step 2. Disaggregate elements of mentorship

40 minutes

Divide participants into groups to discuss these questions:

- What are the differences between academic mentorship, supervision, and professional development?
- What constitutes effective academic mentorship?
- How best could these factors and processes be implemented in institutions?
- What are the roles and responsibilities of a mentor and a mentee?
- What is the focus of mentorship of early-career researchers?

Step 3. Share best practices for successful mentorship

20 minutes

Back in plenary, representatives take turns to present their group's conclusions and questions for further debate. Conclude the session with a summary of definitions, best practices, and potential action points.

Session 13. What Have We Achieved? | 1 hour, 30 minutes

This session encourages individual reflection on the workshop.

- What have we achieved in the supervisor workshop?
- What have we achieved towards the development of an African perspective on supervision in research training?

Raise remaining issues in open discussion with peers and facilitators. Discuss the challenges of research training in Africa, based on the experience of the participants. Little has been published on the specific challenges of research training in Africa or best practices to overcome them, so the network of peers established in the workshop may consider developing paper/s based on the workshop and on the experiences of the group.

Outcomes

By the end of this session, supervisors can:

- Reflect on whether or how the workshop challenged their attitudes and perceptions as regards their responsibilities in relation to supervision.
- (Collectively) synthesize the opportunities for improved supervision practices that have been mapped out during the workshop.
- Decide what changes, if any, in research-education supervision are necessary in their home institutions.
- Judge the potential role of supervisor training in the quality assurance of PhD education in their own institution.
- Consider ways in which contemporary initiatives in relation to research supervision and education outside of Africa may or may not be adapted to be useful in African contexts.

Preparation

For participants

Reflect in advance on all the discussions over the course of the workshop, so that they can share their views on what was useful, what was not, and what could be improved.

Steps

Time	Step	Who
60 minutes	1. Discuss workshop take-aways	Facilitator, full group
10 minutes	2. Summarise lessons learned	Facilitator
20 minutes	3. Complete evaluations	Individuals

Step 1. Draw overall conclusions

60 minutes

Facilitate a frank discussion of the experience of this workshop and overall learnings. Ask:

- What issues in the workshop have been particularly valuable for you?
- Which issues covered in the workshop did you think were inappropriate or not very useful?
- Which workshop components could be improved and how?

- What additional issues should be covered in this workshop?
- How might such workshops potentially contribute to improved research training in your institution? In Africa?
- Are there unique aspects of research training in the African context to learn from?
- How can mentorship be used to facilitate the decolonisation and democratisation of knowledge development, as well as improving the progression of women and/ or disadvantaged ethnic groups into academic leadership roles?

Step 2. Summarise lessons learned

10 minutes

Thank participants for their contributions. Conclude by summarising what has been learned and potential future steps.

Step 3. Evaluate the workshop

20 minutes

Ask participants to complete evaluation forms. Finally, invite the host facilitator to present certificates of attendance to participants.

Training of Trainers

To implement this curriculum effectively, facilitators must be well prepared. This ToT workshop builds or refreshes the skills and background knowledge of your team.

Download the [ToT workshop](#)

Institutional Support

Capacity strengthening for academic, professional, and administrative staff



Introduction

University managers and administrative staff play a crucial role in doctoral training and research. This curriculum provides guidance addressed to you, the person designing and/ or facilitating the training. CARTA recommends that you gather finance officers, deans of graduate schools, academic deans, librarians, procurement officers, registrars, and any others involved in institutional processes, to deliberate on and appreciate their complementary roles in creating a conducive environment for research excellence.

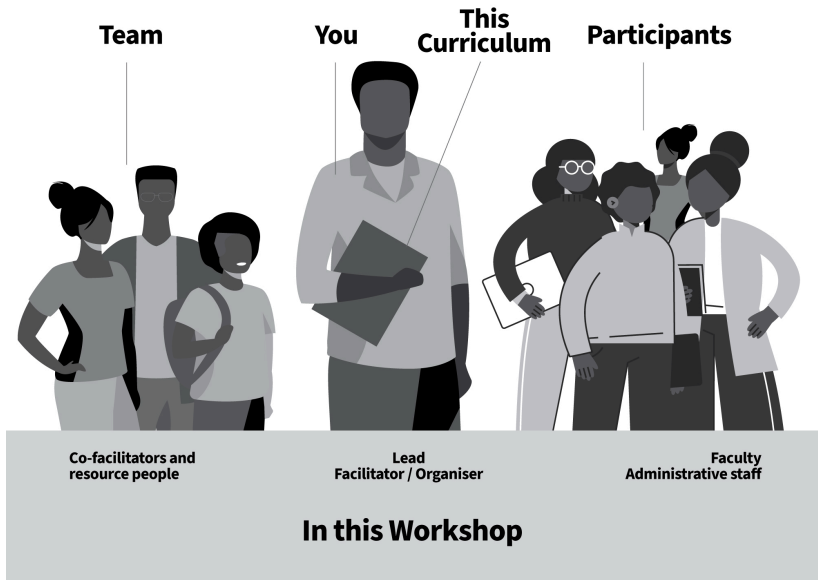
Download [this curriculum](#) in full.

Overview

CARTA designed these sessions to inspire participants to improve institutional systems and drive transformation to attain world-class research in African universities in particular, but the training is effective in research institutions anywhere in the world, as a one-week workshop or over time, for faculty and administrative staff.

Within a single institution or a group of several, the sessions create a forum for those who seldom collaborate collectively. Here, they discuss:

- How different functionaries can be more responsive to and supportive of research, research training and doctoral and postdoctoral fellows.
- Ways in which they can strengthen the training of doctoral and postdoctoral fellows and at the same time strengthen the capacity of the institutions.
- The rationale for a strong research agenda, including the positive linkages between good research and development.
- The important role of a supportive network of research administrators.
- Clear distinctions between different roles and functions.
- The need for funding and technology transfer, particularly in Africa.
- Knowledge management, defined as the process of creating and sharing information.
- The ethical use of social media as a platform capable of enhancing credible knowledge generation.
- Other relevant topics such as repository policies (especially in open access journals) and copyright issues.



Outcomes

By the end of this Institutional Support workshop, participants can:

- Illustrate roles of different functionaries necessary for the improvement of research outputs.
- Communicate why research training is fundamental to the wellbeing of society.
- Compare shared experiences, challenges, and best practices in research and research support.
- Foster networks between people of similar interests, from whom to seek and share advice in future.
- Identify their own strengths and develop areas for growth in supporting research, PhDs, and postdocs.
- Demonstrate understanding of the challenges limiting research productivity in Africa and elsewhere.
- Commit to contributing towards improved research outputs.

In this workshop participants will	Understand different research roles in our institutions	Explore reasons for working in current institutions	Appreciate leadership capability in universities	Discuss why African universities must do world class research	Deepen understanding of institutional challenges	Explore challenges experienced by other institutions	Understand research governance	Explore how functionaries can advance an institutional research agenda	Develop personal commitment statements
Describe different research roles									
Communicate why research is fundamental to wellbeing of African societies									
Identify best research practices in Africa									
Develop research networks									
Identify areas for supporting research									
Understand research challenges									
Commit to improving research outputs									

Institutional Support workshop: matrix of learning outcomes and content.

Approach

The CARTA approach is problem-posing and participatory, acknowledging the skills and experience that people bring into the workshop. Each session presents situations and poses problems. Participants work with each other and with inputs from the facilitator to find solutions. Problem-posing education bases itself on creativity and stimulates true reflection along with action on reality (Freire, 2020). It is different from the transfer or transmission of knowledge or facts to the passive learner, where the trainer is seen as possessing all essential information and trainees as ‘empty vessels’ needing to be filled with knowledge.

The choice of participatory method is deliberate: there is a coherence between values and the approach to sharing them. From the beginning, this curriculum recognizes all participants as thinking, creative people with the capacity for action. Each person is a contributor, bringing different perceptions based on

their own experiences. This requires that you, as facilitator, make a conscious effort to use participatory methods to enable participants to grow in awareness.

Watch this video for more insight into CARTA's approach.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=2005#oembed-1>

Facilitation

Some people assume that facilitating a workshop will be an easy process, until they try doing it. The participatory method means that you and your co-facilitators guide the workshop while appreciating that the participants are in charge. Your responsibility is to create an enabling environment that allows participants to learn from each other, come to an understanding, and pool their collective wisdom in resolving issues.

A good co-facilitator works as an ally to help you ensure that meetings, seminars, planning sessions and workshops deliver the intended and desired outcomes. It is very difficult to facilitate a meeting yourself when you also want to participate in it as an equal. But not all facilitators are alike. Identify co-facilitators who have the personality and aptitude to understand the goals, objectives and expected outcomes of this curriculum. CARTA recommends you look for co-facilitators with these attributes.

Facilitator attributes

An unbiased perspective

Participants should feel comfortable that their opinions are welcomed and encouraged. As an unbiased facilitator, you create a neutral zone where

alternative points of view can be shared and debated in a respectful manner. This is key to driving a constructive, productive discussion.

Sensitivity to individuals

To create and maintain an atmosphere of trust and respect, you must be aware of how people are responding to the topics under discussion and to the opinions and reactions of others. Most people will not articulate their discomfort, hurt feelings, or even anger; instead, they silently withdraw from the discussion and often from the group. Sensing how people are feeling and understanding how to respond to a particular situation is a critical skill of facilitation.

Sensitivity to the group

In any group, the whole is greater than the sum of the parts, and group 'chemistry' generally reflects shared feelings: eagerness, restlessness, anger, boredom, enthusiasm, suspiciousness, or even silliness. Perceiving and responding to the group's dynamic is essential to skilful facilitation.

Ability to listen

One way you learn to sense the feelings of individuals is by listening carefully, noting body language along with both the explicit meaning of words and their tone and implicit meaning. As a good facilitator, you practise 'active listening'. You might repeat, sum up, or respond directly to what a speaker says to ensure that their meaning is correctly understood by the group.

Tact

Sometimes, a facilitator must say difficult things for the good of the group. The ability to do so carefully and diplomatically is critical. Examples include a group discussion dominated by one person or a group of silent participants. Find a gentle, tactful way to engage the group so that everyone can participate and get the most out of the session. A capable facilitator knows how to diffuse awkward moments and maintain a productive atmosphere.

Commitment to collaboration

Collaborative learning can occasionally seem frustrating and inefficient. At

these moments, every facilitator feels tempted to take on the familiar role of the traditional teacher and to lead, rather than facilitate. However, genuine conviction about the empowering value of cooperative learning will help you resist a dominating role. Likewise, a good facilitator is willing to share facilitation with co-facilitators. The goal is always to conduct the best and most effective discussion. To that end, you need to adjust your role accordingly.

A sense of timing

Any facilitator needs to develop a sixth sense for timing: when to bring a discussion to a close, when to change the topic, when to cut off someone who has talked too long, when to let the discussion run over the allotted time, and when to let the silence continue a little longer.

Resourcefulness and creativity

Each group of participants presents different dynamics. Despite a well-planned agenda, discussions may not unfold as anticipated. You must be able to think on your feet. This may mean changing direction in mid-stream, using other creative approaches to engage the group, or welcoming ideas from the group on how to shift the agenda. Good facilitators always have tricks up their sleeves to move forward with an eye on the overall objective of the meeting.

A sense of humour

As in most human endeavours, even the most serious, a sense of humour enhances the experience for everyone. A good facilitator appreciates life's ironies and is able to laugh at themselves and share the laughter of others.

Preparation

A successful Institutional Support workshop depends on a mix of participants from all the different offices that deal with or support postgraduate research and training. This includes finance officers, deans of graduate schools, academic deans, librarians, communication/public relations officers, grant managers, procurement officers, registrars, research officers, those responsible for qual-

ity assurance, postgraduate supervisors, postgraduate program managers, and ICT personnel. In general, all offices within the university or research institute that contribute towards research and postgraduate training are potential participants.

Two weeks before the workshop, send detailed information to participants on workshop logistics, the reason they were selected, the participatory workshop method, and what is expected of them as participants.

You might also consider sharing an online pre-workshop survey link to get the participants' profiles and to give them an opportunity to state their expectations and describe what they are willing to contribute to ensure the successful running of the workshop. With your co-facilitators, you can then analyse the information and adapt the workshop program, as much as possible, to suit participants' expressed needs.

In plenty of time, identify and engage the co-facilitators and the different contributors. Hold planning meetings until the team members are on the same page. To prepare, advise facilitators to read and re-read this training manual until they feel comfortable and confident that they know what is expected for all the sessions.

Identify a location that will allow participants to move around easily, for example for role-plays. Make sure there are enough break-away rooms for small-group activities and adequate wall space for poster tours and other elements of the workshop methodology.

Sessions

Sequence, 10 sessions, 1 week

Session 1. Welcome and Roles | 90 minutes

Welcome the group and establish a relaxed and collaborative atmosphere – the kind of enabling learning environment that all learners in their university will

benefit from. Participants share their expectations and learn about each other through an informal activity.

Outcomes

By the end of the session, participants can:

- Identify other participants by their names, where they work, and where they were born.
- Identify other participants by their work responsibilities, professions, and interests.

Preparation

- Make enough copies of the People Halala! table, one for each participant, or create your own, similar one.
- Organize a gift for the winner.
- Provide sticky notes.
- Tape or stick flipchart sheets on the wall.
- Ensure all participants have pens.

Steps

Time	Step	Who
30 minutes	1. Welcome everyone	Facilitator, participants
20 minutes	2. Play “People Halala!”	Participants
25 minutes	3. Express hopes, fears, and commitments	Participants
10 minutes	4. Introduce the workshop	Facilitator
5 minutes	5. Present session highlights	Facilitator

Step 1. Welcome everyone

30 minutes

Welcome everyone warmly to the session. Introduce yourself as the facilitator and explain your role. Invite participants to introduce themselves in turn. Each one names their role or function in the institution. Establish a light-hearted informal atmosphere.

Step 2. Play “People Halala!”

20 minutes

Invite participants to

Move around the room.

Look for people you do not know.

Fill out the details in the [table](#).

The first to fill their table shouts “Halala!” and wins the prize.

CRITERION	NAME OF PERSON	WHERE THEY WORK	TOWN THEY WERE BORN IN
Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.
Is a librarian. [or specify another function]	Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.
Has run a road race, climbed a mountain or completed another challenging physical activity.	Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.
Has published an article in any form (academic, newspaper, magazine, etc)	Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.
Teaches.	Performs the same or similar function as you do.	Performs the same or similar function as you do.	Performs the same or similar function as you do.
Has been featured in a newspaper article.			

Step 3. Express hopes, fears, and commitments

25 minutes

Hand out sticky notes invite participants to note their hopes and fears (briefly) about the workshop. Post three flipcharts on the wall and participants stick their hopes on one and fears on another. Organize the sticky notes into clusters.

Then invite participants to suggest ground rules for the workshop. A volunteer records these on another flipchart.

Finally, ask participants to note on another sticky note their commitment to taking responsibility for the success of the workshop.

Step 4. Introduce the workshop

10 minutes

Introduce the Institutional Support workshop – structure, objectives, and content – and invite any questions.

Step 5. Present session highlights

5 minutes

Note your take-aways from the session. Point out how the exercise has contributed to a more relaxed atmosphere and invite participants to contribute to creating an enabling learning environment for everyone. You could invite online or sticky-note session evaluations.

Session 2. Research Roles in Institutions | 60 minutes

This session deepens participants' understanding of research roles in a university setting and the relationships between them.

Outcomes

By the end of the session, participants can:

- Identify the critical roles played in a university setting.
- Demonstrate an appreciation of the different roles played in a university setting.

Preparation

- Arrange the room. You might provide a desk and chairs for Step 2: Play roles.
- Print the briefs for the three characters in the role-play and put each brief in an envelope.

Brief for the administrator

You are a student applying to the university to enrol for a PhD. You have had a problem using the university website and do not know what forms to fill in or where to find them. This is the second time you have been to the university and yesterday you stood in a long queue but never got help. You have a deadline to meet – to get a scholarship, you must have your admission form submitted in two days' time. You know you have to get it signed by the university but you don't know who signs it. You have eventually found someone seated behind their desk, seemingly working. You knock on the door to ask for assistance ...

Brief for the academic

You are an administrator who enrolls postgraduate students at the university. The intake for students happens over a five-day period. There are pamphlets everywhere which explain to students what to do. The information is also on the website. You have been sitting at your desk for hours. Students seem unable to understand the simplest instructions and do not bring the required documents, such as their ID or passport. If they are eligible for postgraduate research degrees, why do they seem to struggle with things that seem obvious to you? You are not permitted to register any student who has not got proof from the finance department that they have paid their pre-registration administrative fee. You are busy getting a report ready for an urgent admissions committee meeting when a student knocks on your door ...

Brief for the finance person

You are a senior professor at the university. You have worked there for years and are well respected by your peers as an excellent researcher. Your research is complex and you need to make sure that you have good quality PhD students and postdoctoral fellows assigned to your lab. You know that the administration section of the university is often getting in the way of your ability to quickly

and efficiently register the students that you want. You are busy but you have popped down to the registration area because you want to get feedback on whether your students have been registered by the postgraduate administrator. You need the names of these students for your grant proposal. You can see there is someone with the administrator, but you interrupt to get the information you need ...

Steps

Time	Step	Who
5 minutes	1. Introduce the session	Facilitator
35 minutes	2. Develop step-down plans	Small groups
20 minutes	3. Discuss the workshop	Plenary
15 minutes	4. Document individual commitments	Individuals
15 minutes	5. Evaluate the workshop	Individuals, survey
25 minutes	6. Network	All
5 minutes	7. Present highlights and conclude	Facilitator

Step 1. Introduce the session

5 minutes

Explain what the session will cover and why.

Step 2. Develop step-down plans

35 minutes

Divide the participants into small groups to develop plans using the [step-down planning template](#):

Step-down planning template

Long-term goal (include timeframes)

Example:

Within [XX time], strengthen the capacities and enthusiasm of different

functionaries in the university in advancing responsiveness to graduate training and research.

Mid-term goals (include timeframes)

Example:

Within [XX time], train all research support staff involved in postgraduate training.

Short-term goals (include timeframes)

Examples:

- Within [XX time], plan the first research-support training workshop.
- Within [XX time] deliver an initial research-support training session.

Step 3. Discuss the workshop

20 minutes

Give each participant a sheet of paper. They write their email address on one side.

Invite questions, comments, and suggestions on the whole workshop.

Step 4. Discuss research roles

25 minutes

Remind everyone that this was role-play: no-one acting was actually being themselves. Often, caricature (overemphasizing certain characteristics) can help us unmask things that should be talked about.

Ask the audience, "Do you think this scenario could actually happen?" Ask them if they have ever done anything similar to the actors. And if so, why? Facilitate a discussion about why these kinds of things happen.

Finally, ask participants what they have learned about the nature of relationships between different staff at universities. Are these relationships good? Bad? Inevitable?

Remind participants of the session's expected learning outcomes. Ask them

whether these were achieved or not during the session. Draw out lessons learnt and summarise them.

Session 3. Reasons for Working in our Current Institutions | 75 minutes

This session explores participants' reasons for working at the institutions. Collectively, you rate the most common reasons according to their functional areas and analyse similarities and differences of such reasons across disciplines/functions.

Outcomes

By the end of the session, participants can:

- Identify the key reasons why they work in their current institutions.
- Rate the key reasons why the participants are working in their current institutions.
- Establish whether there are similarities and differences in the ratings according to different functions.

Preparation

- Write each function that people play at universities on a sheet of paper – one function per sheet.
- Place each function/sheet on its own table.
- Provide three sticky notes per participant.
- Have a flip chart per group.

Functions might include librarian; ICT; finance/procurement/grant management; public relations and communications; student administration (faculty or department level); professor; and lecturer.

Steps

Time	Step	Who
10 minutes	1. Introduce the session and groups	Facilitator
5 minutes	2. Identify individual reasons	Individual participants
10 minutes	3. Rate and prioritise reasons	Small groups
20 minutes	4. Present reasons	Groups to plenary
30 minutes	5. Analyse reasons	Plenary, facilitator

Step 1. Introduce the session and groups

10 minutes

Introduce the session and its objectives. Ask people to divide into groups according to their functions at the university. No group should have fewer than five people; if necessary, merge groups

Step 2. Identify individual reasons

5 minutes

Each participant writes down their own reasons for working in their institutions. On their own sheets of paper or sticky notes, they write down why they are at a university or research center – one reason per sheet.

Step 3. Rate and prioritise reasons

10 minutes

Around their table, each group works together to prioritise the reasons. They share and sort the sheets or sticky notes. If they have used different words/phrases meaning the same thing, they agree on one word/phrase. They count how many they have of each type of reason. Each table comes to a consensus on the top three reasons and puts them in order of importance.

Step 4. Present reasons

20 minutes

Back in the plenary, groups share their top three reasons. As each

spokesperson lists the three reasons, write them up on a flip chart or computer screen. If one table has the same reason as another, just note “2” by the first mention.

Step 5. Analyse reasons

30 minutes

Ask participants to analyze the reasons. A co-facilitator could support you with a roving microphone so that everyone can hear. You could ask questions such as:

- Is there overlap between reasons from different groups/ functions?
- Are there reasons that everyone agrees on? Or are the reasons all different?

Several participants may say something like, “Education is valuable and important.” If that comes up as the most important or common reason (even if it is not first for all groups), write that up as a value everyone shares.

At the end, summarise what participants agree about and what they differ over. The point is to find what motivates people to work at a university rather than anywhere else and create awareness of the range of reasons and the similarities and differences. Ask participants what lessons they have learned from the session.

Session 4. Leadership Capability in Universities | 60 minutes

Invite an open discussion on concepts related to leadership, management, and administration. Participants reflect on their own individual management style, while coming to recognise and appreciate other leadership styles. Leadership styles and roles include:

- Creating vision, making decisions, planning, and solving problems.
- Communication and advocacy.
- Managing conflict, managing performance, mentoring and coaching, and negotiating.

- Technical capabilities such as intelligence gathering, technical credibility, and evaluation.
- Aspects of emotional intelligence such as reflection, self-awareness, self-regulation, time management, empathy, social skills, networking and motivation.

Outcomes

By the end of the session, participants can:

- Illustrate leadership and related concepts and terminologies.
- Outline how they identify with different leadership styles.
- Identify different leadership skills.

Preparation

Invite an expert to lead an interactive presentation and discussion on ‘Leadership’.

Alternatively, prepare or source a PowerPoint presentation on leadership and/or screen a video interview with an expert, and lead discussion yourself as the facilitator.

Steps

Time	Step	Who
5 minutes	1. Introduce the session	Facilitator
50 minutes	2. Present on and discuss ‘leadership’	Expert or facilitator with participants
5 minutes	3. Present highlights	Facilitator

Step 1. Introduce the session

5 minutes

Explain what the session will cover and why. If you have a guest expert, welcome and introduce them.

Step 2. Present on and discuss 'leadership'

50 minutes

The invited expert leads the session – or you do, as facilitator. Give examples and discussion questions on various concepts and styles of leadership.

Allow a few minutes for participants to assess their own leadership skills and those of others in the group. Then lead an open discussion about practical ways to further develop these skills.

Step 3. Discuss the steps

5 minutes

Conclude with comments you have noted during the activity. These may include appreciation of how different leadership styles can all contribute to building a successful research agenda in Africa. Point out that leadership is not limited to position or function; all participants can play an important leadership role at the workplace.

Session 5. World-class Research | 90 minutes

This session is designed for discussion of the critical role that African universities could play in producing scientists who lead world-class research on the continent. However, you can use or adapt the questions and activity for any context.

Outcomes

By the end of the session, participants can:

- Provide the rationale for a strong research agenda.
- Relate good teaching to sound research.
- Relate good research to development agendas.
- Describe what is required for the success of research in African (or other) institutions.
- Clarify the roles that different functionaries need to play to improve research output in African universities.

Preparation

Identify and invite three panellists, one each with expertise in:

- Knowledge management.
- Post-graduate academia.
- Finance and procurement.

Ask each one to prepare a three-minute presentation, responding from their own perspective and expertise to a provocative question such as:

“What would it take for African universities to be world-class research entities?”

Make sure that the space permits a [fishbowl setup](#), with easy access to two circles. Use seven chairs to create the inner circles and provide microphones if necessary.

- Three chairs are the inner circle for the panellists.
- Four chairs facing them make up the next circle for four participants to be nominated during the session.
- The other participants work in small groups; arrange chairs accordingly.

Steps

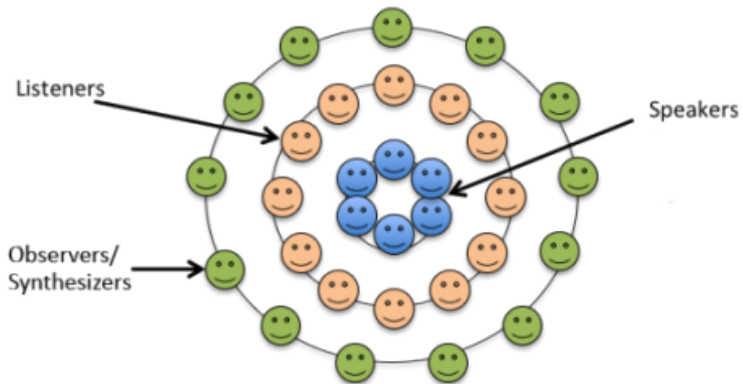
Time	Step	Who
14 minutes	1. Introduce the session, activity, and panelists	Facilitator
12 minutes	2. Present on the issue	Panelists
10 minutes	3. Deliberate on the presentations	Small groups
5 minutes	4. Nominate a critical ‘questioner’	Each small group
30 minutes	5. Put questions to the panel	Critical ‘questioners’
14 minutes	6. Present concluding points	Each panelist
5 minutes	7. Summarise and conclude	Facilitator

Step 1. Introduce the session, activity, and panellists

12 minutes

Invite the panellists to sit in the centre circle, strategically facing the four

seats. Explain how the process will work. Give a brief biography of each panellist.



Step 2. Present on the issue

12 minutes

Open the floor with a provocative question such as:

“What would it take for African universities to be world-class research entities?”

Each panellist has four minutes to present on the topic.

Step 3. Deliberate on the presentations

10 minutes

In their small groups, participants deliberate on the presentations.

Step 4. Nominate a critical ‘questioner’

5 minutes

Each small group nominates one of their members to be the first to raise critical follow-up questions for the panel.

Step 5. Put questions to the panel

30 minutes

Moderate the discussion. Ask each 'questioner' to give a brief self-introduction before presenting their question, which should also be brief. The panelists respond. Allow follow-up questions.

At any point, a participant from outside the circles may come to the second inner circle, tap a 'questioner' on the shoulder, and take that person's seat. The new volunteer can ask a question on the next round. Allow each 'questioner' at least one question before they are replaced.

Let the discussion continue in this way as long as time allows, until most critical issues have been raised.

Step 6. Present concluding points

12 minutes

Allow each guest panellist four minutes to present their concluding points.

Step 7. Summarise and conclude

5 minutes

Conclude by drawing out highlights from the session. These may include:

- The rationale for strong research agendas in African universities.
- The link between teaching and research, and research and development agendas.
- Characteristics of world-class research institutions.
- The roles of different functionaries in facilitating research outputs.

Session 6. Institutional Challenges | 105 minutes

This session deepens participants' understanding of institutional challenges in realising the research agenda.

Outcomes

By the end of the session, participants can:

- Describe the institutional challenges that affect realization of the research agenda in their universities/research institutions.
- Identify potential solutions.

Preparation

Label tables for small groups with the name of the institution or department.

Engage co-facilitators to moderate small-group discussions.

Provide flip chart paper, pens, and other materials for poster-making.

Prepare a flipchart and sticky notes or an online form for participants' evaluation of the session.

Assessment

Participants assess whether the session objectives were achieved, by posting sticky notes on a flipchart or responding to a web-based link.

Steps

Time	Step	Who
5 minutes	1. Introduce the session	Facilitator
15 minutes	2. Identify barriers to the research agenda	Small groups
10 minutes	3. Brainstorm solutions	Small groups
15 minutes	4. Create a poster	Small groups
20 minutes	5. Present posters	All

Step 1. Introduce the session

5 minutes

Explain the process of the session and divide participants into groups, so that they work with colleagues from different departments of the same institution.

Step 2. Identify barriers to the research agenda

15 minutes

In a facilitated discussion, participants identify the challenges they face, gaining insight into the barriers as seen from various functionary perspectives.

Step 3. Brainstorm solutions

10 minutes

Small-group discussion moves on to consider things that participants can do differently in their institution.

Step 4. Create a poster

15 minutes

Each group thinks of a metaphor for the barriers they have identified. They create a poster to represent the challenges in their institution.

Step 5. Present posters

20 minutes

Groups present their posters. Participants gain further insight into each other's challenges.

Summarise session highlights before you invite participants' evaluation (online or on a flipchart) and conclude the session.

Session 7. Challenges in Other Institutions | 45 minutes

This session exposes participants to the institutional challenges experienced by other universities. If your participants are all from the same institution, the activity reveals perspectives from other small groups.

Outcomes

By the end of the session, the participants can:

- Identify the institutional challenges experienced by other universities/ research institutions in the realisation of their research agenda.
- Analyse the similarities and differences between their own institutional challenges and those of other universities/research institutions.
- Formulate solutions to institutional challenges in the realization of the research agenda.

Preparation

Ensure that each poster from Session 6 is mounted on a wall or a stand with masking tape, and spaced far apart so participants can walk freely from one to the next and easily read each one.

Provide sticky notes. If possible, allocate a different colour to each department, unit and university or research institution. For example, Department of Health Sciences, the library pink, and so on. Each participant needs as many sticky notes as there are posters – so if there are 11 posters, they need 11 sticky notes.

For tips, watch these videos of activities that end with similar but not identical poster tours:

[Marketplace of Ideas](#)

[Multiple Perspectives](#)

Prepare a flipchart and sticky notes or an online form for participants' evaluation of the session.

Assessment

Participants assess whether the session objectives were achieved, by posting sticky notes on a flipchart or responding to a web-based link.

Steps

Time	Step	Who
5 minutes	1. Set up poster stations	All
30 minutes	2. Conduct a poster tour	Facilitator, all
10 minutes	3. Discuss insights and highlights	All, facilitator

Step 1. Set up poster stations

5 minutes

Explain that one person from each group must stand next to their poster so that they can explain it to the viewers and answer questions.

Step 2. Conduct a poster tour

30 minutes

Everyone else walks around to view the posters. They can ask the assigned person to explain anything they do not understand.

Each person then puts one sticky note per poster on the part of each poster that seems to be most similar to their own experience.

Step 3. Discuss insights

5 minutes

Facilitate a discussion of new insights from the activity. Conclude with your own summary of the highlights. These might include:

- The outcomes of the poster tours.
- The number of sticky notes on specific parts of each poster.
- The patterns that emerged through placing of the sticky notes.
- The commonalities and differences in experiences across universities, research institutions, and/or departments and functions.

If the poster tour revealed no predominant experiences, discuss what that implies.

Session 8. Research Governance | 120 minutes

With a lecture presentation followed by discussion, expose participants to principles of university and research governance. They analyse the governance model of their own institutions and devise models themselves.

Outcomes

By the end of the session, participants can:

- Describe governance and use related terminology and concepts.
- Describe the relationship between institutional governance and research governance.
- Review the key components of research governance.
- Describe different models of research governance and the related roles and functions.

Preparation

Prepare a 20-minute lecture/presentation on aspects of university and research governance with examples and notes to guide you. Source a video of 10 minutes or less on governance concepts and models. The whole session is 120 minutes, so pre-timing is a necessity. Make notes to guide you.

Prepare a flipchart and sticky notes or an online form for participants' evaluation of the session.

Assessment

Participants assess whether the session objectives were achieved, by posting sticky notes on a flipchart or responding to a web-based link.

Steps

Time	Step	Who
5 minutes	1. Introduce the session	Facilitator
30 minutes	2. Present on research governance	Facilitator
25 minutes	3. Analyse the research governance in their institution	Small groups
25 minutes	4. Devise a model for their institution	Small groups
30 minutes	5. Present posters depicting models	Groups to all
5 minutes	6. Present highlights	Facilitator

Step 1. Introduce the session

5 minutes

Explain the process and objectives.

Step 2. Present on research governance

30 minutes

Give the presentation you prepared and screen the video you sourced.

Step 3. Analyse the research governance in their institution

25 minutes

In institutional groups, participants share experiences and examples of research governance models (including funds and grants management aspects). They discuss weaknesses and strengths and the roles of various faculty and administrators in the research governance model of their institution.

Step 4. Devise a model for their institution

25 minutes

Each group devises a research governance model for their own institution. They summarise the model as a poster.

Step 5. Present posters depicting models

30 minutes

Groups stick their posters on the walls and, one by one, describe their unique research models.

Step 6. Present highlights

5 minutes

Allow each guest panellist four minutes to present their concluding points.

Step 7. Summarise and conclude

5 minutes

Remind the participants of the purpose of the session and present your own observations of the highlights.

Session 9. Advancing the Institutional Research

Agenda | 120 minutes

Engage participants in determining how their functionaries can contribute towards advancing their institutional research agenda and the roles they can play.

Outcomes

By the end of the session, participants can determine what contribution they can make towards advancing the research agenda in their institutions.

Preparation

Engage co-facilitators to guide small groups by function. Meet as a facilitation team to prepare thoroughly.

Access materials online for each of the three functions:

1. Knowledge management.
2. Academic staff.
3. Finance, procurement, and grants management.

Print enough copies of the vignettes for the number of participants in each group and of the guiding questions for participants in Groups 1 and 3. Print one copy of the template for Group 1 for each of the four sub-groups.

Group 1: Knowledge management

Questions

Vignette

Template

Group 2: Academic staff

Vignettes

Group 3: Finance, procurement, and grants management

Questions

Vignette

Arrange tables in the room and label them by function:

- Knowledge management.
- Academic staff.
- Finance, procurement, and grants management.

Prepare a flipchart and sticky notes or an online form for participants' evaluation of the session.

Assessment

Participants assess whether the session objectives were achieved, by posting sticky notes on a flipchart or responding to a web-based link.

Steps

Time	Step	Who
25 minutes	1. Introduce the session, groups, and vignettes	Main facilitator
60 minutes	2. Discuss vignettes and questions	Sub-groups
30 minutes	3. Share ideas	Groups by function
5 minutes	4. Present highlights	Facilitator

Step 1. Introduce the session, groups, and vignettes

5 minutes

Explain the process and objectives. Divide participants into three groups by function. Each group has a co-facilitator who breaks their group into sub-groups and distributes copies of vignettes and guiding questions.

- Group 1: Knowledge management can be broken into two or more sub-groups if the variance is too great, each group working with the same

vignette.

Group 2 Academic staff should be broken into four sub-groups, each working with a different vignette.

- Group 3: Finance, procurement, and grants management can be broken into sub-groups, each working with the same vignette.

Step 2. Discuss vignettes and questions

60 minutes

Group 1: Knowledge management

- Invite each sub-group to elect a chair to facilitate discussion of the vignette and questions. They note the answers to the vignette questions on flipcharts.
- Answer questions 6, 7, and 8 within the last 60 minutes of the session by the sub-groups: Library, ICT, Corporate Affairs, and Institutional Support Units.
- Ask each sub-group to use the template prepare separate lists of their functions and desirable inputs from the university in order for them to 'up their game'.
- Reconvene the group in the last 20 minutes for sub-groups to share their answers. Note areas of convergence.

Group 2: Academic staff

- Invite each of the four sub-groups to elect a chair to facilitate discussion of the four different vignettes. They note the answers to the questions on flipcharts.
- Sub-groups pass the vignettes between each other, to discuss as many as possible.
- In the last 20 minutes, bring the sub-groups together to share the solutions they came up with. For any solution that seems realistic to implement, the group discusses what would be required to implement it and why that solution has not been implemented to date.

Group 3: Finance, procurement, and grants management

- For the first half of the session, the group discusses the questions, noting answers on a flipchart.
- For the second half of the session, divide into sub-groups to discuss the vignette.

Step 3. Share ideas

30 minutes

Reconvene the full group. In the plenary, small groups share their solutions to the different questions, noting areas of convergence.

Step 4. Document individual commitments

15 minutes

Each participant reflects on their personal gains from the workshop and commits to improve at least one function when they go back to work. They write down their commitment.

Step 5. Evaluate the workshop

15 minutes

Each participant fills in the [survey](#) to evaluate the content, process, methods, and logistics of the workshop.

Step 6. Network

25 minutes

Participants exchange ideas in informal and celebratory conversation and farewells.

Step 7. Present highlights and conclude

5 minutes

Conclude with highlights of the session and good wishes.

Session 10. Step-down Planning | 120 minutes

In this session, participants develop a plan for cascading the lessons from this Institutional Support workshop – known as step-down planning – to their institution or department. They commit to improving their roles and functions in supporting research in their institutions.

Outcomes

By the end of the session, participants can:

- Develop a plan for stepping down lessons from the workshop to the local level (institution, department, faculty, and unit).
- List the ways they commit to improving their roles and functions in supporting research in their institutions.

Preparation

Print copies or share a link to the [step-down planning template](#).

Print copies or share a link to the workshop [evaluation survey](#).

Evaluation

Participants evaluate the workshop, in plenary discussion and in individual surveys.

Steps

Time	Step	Who
5 minutes	1. Introduce the session	Facilitator
35 minutes	2. Develop step-down plans	Small groups
20 minutes	3. Discuss the workshop	Plenary
15 minutes	4. Document individual commitments	Individuals
15 minutes	5. Evaluate the workshop	Individuals, survey
25 minutes	6. Network	All
5 minutes	7. Present highlights and conclude	Facilitator

Step 1. Introduce the session

5 minutes

Explain what the session will cover and why.

Step 2. Develop step-down plans

35 minutes

Divide the participants into small groups to develop plans using the [step-down planning template](#):

Step-down planning template

Long-term goal (include timeframes)

Example:

Within [XX time], strengthen the capacities and enthusiasm of different functionaries in the university in advancing responsiveness to graduate training and research.

Mid-term goals (include timeframes)

Example:

Within [XX time], train all Institutional Support staff involved in postgraduate training.

Short-term goals (include timeframes)

Examples:

- Within [XX time], plan the first Institutional Support training workshop.
- Within [XX time] deliver an initial Institutional Support training session.

Step 3. Discuss the workshop

20 minutes

Give each participant a sheet of paper. They write their email address on one side.

Invite questions, comments, and suggestions on the whole workshop.

Step 4. Document individual commitments

15 minutes

Each participant reflects on their personal gains from the workshop and commits to improve at least one function when they go back to work. They write down their commitment.

Step 5. Evaluate the workshop

15 minutes

Each participant fills in the [survey](#) to evaluate the content, process, methods, and logistics of the workshop.

Step 6. Network

26 minutes

Participants exchange ideas in informal and celebratory conversation and farewells.

Step 7. Present highlights and conclude

5 minutes

Conclude with highlights of the session and good wishes.

Training of Trainers

To implement this curriculum effectively, facilitators must be well prepared. This ToT workshop builds or refreshes the skills and background knowledge of your team.

Download the [ToT workshop](#)

Graduate Grant-Writing

A structured, mentored and scaffolded process



Introduction

Following the PhD, early-career scholars may have difficulty in transitioning into the role of an independent researcher. In practical terms, this workshop equips post-doctoral researchers to develop a successful and substantial grant proposal. But the overarching aim is to transfer ownership and leadership of research and scholarship to the graduates and allow them to demonstrate independence. This curriculum guides you, as facilitator, not to teach in a directive manner but rather to engage participants in scaffolded writing assignments and peer-to-peer learning.

Watch the videos as preparation for using this curriculum.





One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1997#oembed-1>



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1997#oembed-2>

Download this [curriculum](#) in full.

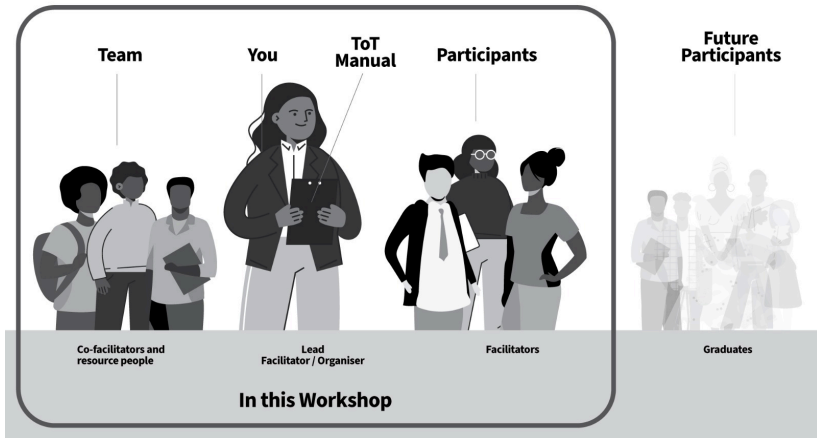
Overview

CARTA designed these sessions to inspire participants to improve institutional systems and drive transformation to attain world-class research in African universities in particular, but the training is effective in research institutions anywhere in the world, as a one-week workshop or over time, for faculty and administrative staff.

Within a single institution or a group of several, the sessions create a forum for those who seldom collaborate collectively. Here, they discuss:

- How different functionaries can be more responsive to and supportive of research, research training and doctoral and postdoctoral participants.
- Ways in which they can strengthen the training of doctoral and postdoctoral participants and at the same time strengthen the capacity of the institutions.
- The rationale for a strong research agenda, including the positive linkages between good research and development.
- The important role of a supportive network of research administrators.
- Clear distinctions between different roles and functions.

- The need for funding and technology transfer, particularly in Africa.
- Knowledge management, defined as the process of creating and sharing information.
- The ethical use of social media as a platform capable of enhancing credible knowledge generation.
- Other relevant topics such as repository policies (especially in open access journals) and copyright issues.



Outcomes

By the end of a Graduate Grant-writing workshop, participants can:

- Write a successful proposal that addresses a research question that is in the participant's area of expertise and that they want to answer.
- Understand how to structure and write the proposal, including literature review, methodology, methods including analysis plans and impact plans.
- Understand the process of developing a research proposal including identifying funding sources; Tailoring a proposal to funding sources; drawing on expertise; and developing a budget, management plan, and dissemination strategy.
- Seek and receive critique of research ideas and plans and integrate feedback into a proposal.
- Successfully work to a submission deadline.

Delivery

Various modes of delivery are possible: in-person residential, virtual, blended, over a single week or over a longer period. However, CARTA recommends a core week of activity completed in an intensive residential model, because:

- Writing requires separation from other distractions and commitments.
- The on-site model allows for a more natural model of mentorship and consultation, which is often brief, graduate-initiated bursts of conversation. In the in-person mode, participants can connect with facilitators and each other without delay.
- For co-facilitators, on-site mode enables vicarious modelling and shared experience, as each facilitator gets to watch others struggle, find solutions, and gain confidence.
- On-site presents the greatest flexibility in modes of communication (presentation, body language of reaction, graphic and written presentations).
- On-site permits rapid shifts from full group to one-on-one or small break-out groups. The same modes may be achieved online, but require far more scripting and coordination.
- In person, there is greater sense of cohort camaraderie among participants and with facilitators who are also academic peers.
- In person, there is greater opportunity for contact to lead to collaboration between participants and between participants and facilitators both during and beyond the workshop.


Approach

The CARTA approach is problem-posing and participatory, acknowledging the skills, and experience that people bring into the workshop. Each session presents situations and poses problems. Participants work with each other and with inputs from the facilitator to find solutions. Problem-posing education bases itself on creativity and stimulates true reflection along with action on reality (Freire, 2020). It is different from the transfer or transmission of knowledge or facts to the passive learner, where the trainer is seen as possessing all

essential information, and trainees as 'empty vessels' needing to be filled with knowledge.

The choice of participatory method is deliberate: there is a coherence between values and the approach to sharing them. From the beginning, this curriculum recognizes all participants as thinking, creative people with the capacity for action. Each person is a contributor, bringing different perceptions based on their own experiences. This requires that you, as facilitator, make a conscious effort to use participatory methods to enable participants to grow in awareness.

Watch this video for more insight into CARTA's approach.



One or more interactive elements has been excluded from this version of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1997#oembed-3>

Facilitation

Some people assume that facilitating a workshop will be an easy process, until they try doing it. The participatory method means that you and your co-facilitators guide the workshop while appreciating that the participants are in charge. Your responsibility is to create an enabling environment that allows participants to learn from each other, come to an understanding, and pool their collective wisdom in resolving issues.

A good co-facilitator works as an ally to help you ensure that meetings, seminars, planning sessions and workshops, deliver the intended and desired outcomes. It is very difficult to facilitate a meeting yourself, when you also want to participate in it as an equal. But not all facilitators are alike. Identify co-facilitators who have the personality and aptitude to understand the goals, objec-

tives, and expected outcomes of this curriculum. CARTA recommends you look for co-facilitators with these attributes.

Facilitator attributes

An unbiased perspective

Participants should feel comfortable that their opinions are welcomed and encouraged. As an unbiased facilitator, you create a neutral zone where alternative points of view can be shared and debated in a respectful manner. This is key to driving a constructive, productive discussion.

Sensitivity to individuals

To create and maintain an atmosphere of trust and respect, you must be aware of how people are responding to the topics under discussion, and to the opinions and reactions of others. Most people will not articulate their discomfort, hurt feelings, or even anger; instead, they silently withdraw from the discussion and often from the group. Sensing how people are feeling and understanding how to respond to a particular situation is a critical skill of facilitation.

Sensitivity to the group

In any group, the whole is greater than the sum of the parts, and group 'chemistry' generally reflects shared feelings: eagerness, restlessness, anger, boredom, enthusiasm, suspiciousness, or even silliness. Perceiving and responding to the group's dynamic is essential to skilful facilitation.

Ability to listen

One way you learn to sense the feelings of individuals is by listening carefully, noting body language along with both the explicit meaning of words, and their tone and implicit meaning. As a good facilitator, you practise 'active listening'. You might repeat, sum up, or respond directly to what a speaker says to ensure that their meaning is correctly understood by the group.

Tact

Sometimes, a facilitator must say difficult things for the good of the group.

The ability to do so carefully and diplomatically is critical. Examples include a group discussion dominated by one person or a group of silent participants. Find a gentle, tactful way to engage the group so that everyone can participate and get the most out of the session. A capable facilitator knows how to diffuse awkward moments and maintain a productive atmosphere.

Commitment to collaboration

Collaborative learning can occasionally seem frustrating and inefficient. At these moments, every facilitator feels tempted to take on the familiar role of the traditional teacher and to lead, rather than facilitate. However, genuine conviction about the empowering value of cooperative learning will help you resist a dominating role. Likewise, a good facilitator is willing to share facilitation with co-facilitators. The goal is always to conduct the best and most effective discussion. To that end, you need to adjust your role accordingly.

A sense of timing

Any facilitator needs to develop a sixth sense for timing: when to bring a discussion to a close, when to change the topic, when to cut off someone who has talked too long, when to let the discussion run over the allotted time, and when to let the silence continue a little longer.

Resourcefulness and creativity

Each group of participants presents different dynamics. Despite a well-planned agenda, discussions may not unfold as anticipated. You must be able to think on your feet. This may mean changing direction in mid-stream, using other creative approaches to engage the group, or welcoming ideas from the group on how to shift the agenda. Good facilitators always have tricks up their sleeves to move forward with an eye on the overall objective of the meeting.

A sense of humour

As in most human endeavours, even the most serious, a sense of humour enhances the experience for everyone. A good facilitator appreciates life's ironies and is able to laugh at themselves and share the laughter of others.

Preparation

Lead coordinator/s

Lead co-ordinator(s) of a Graduate Workshop must be accomplished academic leaders and demonstrate leadership abilities to:

- Ensure the recruitment of graduate participants is effective and equitable.
- Recruit and retain qualified and motivated facilitators.
- Recruit a large list of international external peer-reviewers from across a broad range of methodologies and subject areas reflecting the diversity of research areas of the participants.
- Work with administrative staff to ensure effective coordination.
- Evaluate the impact of the workshop on individual participants, on a graduate's early-scientist career, and on the larger research community in Africa and globally.

Co-facilitators

Recruit facilitators with:

- Experience with the peer-review process.
- Experience with student-centred teaching models including methods of active learning and delivery models designed to develop independence and critical thinking. Examples include case-based learning, dialogic teaching or other models.
- Flexibility to work with graduates across a range of specific research areas.
- Methodological training and ability to critically appraise research proposals.
- Availability and willingness to participate fully in the workshop, beyond their responsibility for specific sessions. Facilitators should prepare to engage in the workshop over multiple days allowing them to follow the progress of multiple participants over the course of the workshop.
- Commitment to the tasks of evaluating the impact of the workshop on individual participants at the end of the workshop, on a graduate's early-scientist career, and on the larger research community in Africa and globally.

As a team, the facilitators must include a range of disciplines, areas of research, and methodological expertise (including qualitative, quantitative research and

mixed methods; descriptive research and implementation sciences; and laboratory and basic sciences).

Participants

Before you issue a call for participants to apply, decide if the workshop is to be:

- Open to any early-career researcher, or to a specific department, or somewhere in between.
- A mix of senior and junior PhD graduates, or close cohort.

For an open call, highlight the objectives of the workshop, mode of delivery (entirely face to face or blended), commitment required, eligibility criteria, instructions for making the applications, and timelines. You might decide to shortlist:

- Competitively (those showing more commitment, more support to dedicate time, better drafts).
- By topic (for instance, at least two working on each area, or groups who apply to write a collaborative grant).
- First-come-first-served, where everyone gets the same chance and those responding faster secure a spot if their application is complete.
- Share feedback on their applications with both successful and unsuccessful applicants.

For an invitation-only call:

- Define the inclusion criteria.
- Contact those who meet the criteria, highlighting the time, mode of delivery, and instructions for application if needed.

Two weeks before the workshop, send detailed information to participants on workshop logistics, the reason they were selected, the participatory workshop method, and what is expected of them as participants.

You might also consider sharing an online pre-workshop survey link to get the participants' profiles and to give them an opportunity to state their expectations and describe what they are willing to contribute to ensure the

successful running of the workshop. With your co-facilitators, you can then analyse the information and adapt the workshop programme, as much as possible, to suit participants' expressed needs.

In plenty of time, identify and engage the co-facilitators and the different contributors. Hold planning meetings until the team members are on the same page. To prepare, advise facilitators to read and re-read this training manual until they feel comfortable and confident that they know what is expected for all the sessions.

Identify a location that will allow participants to move around easily, for example for role-plays. Make sure there are enough break-away rooms for small-group activities and adequate wall space for poster tours and other elements of the workshop methodology.

Pre-workshop activities

At least three weeks before the in-person workshop (or sessions), hold a series of conversations with the group of participants and ask them to complete some tasks and submit the results. This ensures that instructions are clear, that the graduates are able to identify opportunities for research funds and early career placements, and that the time for writing and revision will be well spent.

Outcomes

By the end of the pre-workshop activities, participants have:

- Identified one or more appropriate calls for funding or opportunities for research-focused post-doctoral fellowships or comparable early-career placements.
- Identified potential supervisors and locations for early research appointments.
- Familiarised themselves with eligibility requirements with respect to applicant, subject area, context of proposed work, and methods.
- Created a summary of the eligibility criteria and instructions to peer reviewers.
- Identified relevant methodology resources to refer to as they develop a

research plan.

- Begun the literature review.

Preparation

Establish a learning management platform for document delivery, uploading of tasks, online annotation and feedback, live webinar collaboration, and break-out rooms.

Assessment

Review participants' materials and provide feedback and support where necessary to complete the tasks.

Workshop elements

Individual writing.

Table-top work in small groups

Flip-chart pin-up presentation with peer-to-peer comments and questions.

Brief pop-up presentations by facilitators.

Workshop program

Time	Step	Who
DAY 1		
0800 – 0830	Registration	
0830 – 0900	Welcome	Facilitator
0900 – 1000	Review of the plan for the week	Facilitator
1030 – 1230	Literature Review and Research Gap <ul style="list-style-type: none"> • Defining research questions and research aims • Background literature review • Frameworks and theoretical perspectives • The research that came before yours • Defining the gap in knowledge 	Pop-up Participants (at flip-charts)
1330 – 1400	How to find mentors; values of mentorship	Facilitators
1400 – 1600	Pop-up session <ul style="list-style-type: none"> • Background literature review • Developing the argument for the research; what this research adds • Alignment of research approach with objective 	Facilitators (pop-up) Facilitators and participants (small group; flip-charts)
1630 – 1900	Group discussions Individual writing Progress target report	
1900 onwards	Writing and further research (background, prior research, research methods resources)	

Time	Step	Who
DAY 2		
0900 – 0930	Recap and discussion in groups on proposal writing	All
0930 – 1030	Methodology Overviews <ul style="list-style-type: none"> • Critical selection of research approach • Methodology 	Pop-up session - Facilitator Participants (at flip-charts)
1100 – 1230	<ul style="list-style-type: none"> • Methodology continued • Purpose-driven sampling and measurement 	Pop-up Flipcharts
1330 – 1530	Goals of the analysis plan	All
1600 – 1645	Ethical considerations in research approach	Facilitators (FG)
1645 – 1900	Group discussions Individual writing Progress target report	

Time	Step	Who
DAY 3		
0900 – 0930	Recap and discussion in groups on proposal writing	All
0930 – 1030	Research, dissemination and time plan	Pop-up Flipcharts
1100 – 1230	Research, dissemination and time plan cont.	
1330 – 1900	Group discussions Individual writing Progress target report	
1900 onwards	Writing to submit draft in the morning.	

Time	Step	Who
DAY 4		
0830	Submit draft proposals (research sections only) for external peer review by 8.30 AM	Participants
0930 – 1030	Community engagement and knowledge translation	Pop-up Flip charts
1100 – 1230	Budget	Facilitator
1330 – 1430	Engaging with funders	
14:30 – 15:30	Understanding the peer review process	
1600 – 1700	Ethical approvals and partnerships	FG

Time	Step	Who
DAY 5		
0900 – 0930	Quiet reading of reviews received	
0930 – 1000	Receiving critical feedback and rejection	All
1000 – 1030	Quiet reflection on received external reviews of proposals, goals for revision	Facilitators and participants
1030	Pop up on common themes and strategies to improve	
1030 – 1100	Tea Break	
1100 – 1230	Cont. Review of proposals and external review: How to improve further Full group discussion. Strategies to use critical feedback to improve further	Facilitators and participants
1230 – 1330	Lunch	
1330 – 1430	Individual writing and inclusion of suggestions from reviews that improve the proposals	Facilitators available for on-demand consultation
1500 onwards	Town halls and reflection (parallel sessions). • Participant review, reflection and feedback • Facilitators: review, reflection and feedback Participants depart	

Training of Trainers

To implement this curriculum effectively, facilitators must be well prepared. This ToT workshop builds or refreshes the skills and background knowledge of your team.

Download the [ToT workshop](#)

VIDEOS

Written documentation can describe the content and curriculum of training. But teaching, particularly using participatory methods, is an interactive process. With this in mind, these videos show the approach and selected activities in action. (Note that these videos are not in themselves teaching tools. Rather, they are to support teachers' preparation and to guide their teaching.)



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CARTA: An overview of the approach to teaching and learning



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Academic Posters

Groups integrate and present evidence from mixed methods research



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of the text. You can view them online here: <https://pressbooks.pub/cartacurricula/?p=1435#oembed-3>

Field Visit

The how and why of public-health research



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Grant Proposals

Simulating a response to a call for research funding



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Journal Clubs

Roles and structures to make them effective



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Marketplace of Ideas

Share and review content



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Multi-disciplinarity

Learning across fields of study



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Multiple Perspectives

Collective, indepth thinking on a key topic



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Scientific Blitz

Evidence-based debates on contemporary health issues



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Spider Web

A learning game to map social and gender dynamics in health



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Supervision Training

A participatory model



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Trio Coaching

Peers solve problems



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Work in Progress

Giving and receiving peer critique



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Graduate Grant Writing Workshop

Guiding early-career researchers to craft proposals



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“Big Ears and a Small Mouth”

Facilitation skills for the grant-writing workshop