semester 7

Research Methods in Education

WINDOWS ON PRACTICE GUIDE

B.Ed. (Hons.) Elementary

2012

Higher Education Commission

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Higher Education Commission

Foreword

Teacher education in Pakistan is leaping into the future. This updated Scheme of Studies is the latest milestone in a journey that began in earnest in 2006 with the development of a National Curriculum, which was later augmented by the 2008 National Professional Standards for Teachers in Pakistan and the 2010 Curriculum of Education Scheme of Studies. With these foundations in place, the Higher Education Commission (HEC) and the USAID Teacher Education Project engaged faculty across the nation to develop detailed syllabi and course guides for the four-year B.Ed. (Hons) Elementary and the two-year Associate Degree in Education (ADE).

The syllabi and course guides have been reviewed by the National Curriculum Review Committee (NCRC) and the syllabi are approved as the updated Scheme of Studies for the ADE and B.Ed. (Hons) Elementary programmes.

As an educator, I am especially inspired by the creativity and engagement of this updated Scheme of Studies. It offers the potential for a seismic change in how we educate our teachers and ultimately our country's youngsters. Colleges and universities that use programmes like these provide their students with the universally valuable tools of critical thinking, hands-on learning, and collaborative study.

I am grateful to all who have contributed to this exciting process; in particular the faculty and staff from universities, colleges, and provincial institutions who gave freely of their time and expertise for the purpose of preparing teachers with the knowledge, skills, and dispositions required for nurturing students in elementary grades. Their contributions to improving the quality of basic education in Pakistan are incalculable. I would also like to thank the distinguished NCRC members, who helped further enrich the curricula by their recommendations. The generous support received from the United States Agency for International Development (USAID) enabled HEC to draw on technical assistance and subject-matter expertise of the scholars at Education Development Center, Inc., and Teachers College, Columbia University. Together, this partnership has produced a vitally important resource for Pakistan.

PROF. DR SOHAIL NAQVI
Executive Director
Higher Education Commission
Islamabad

How the Windows on Practice guide was developed

As part of nationwide reforms to improve the quality of teacher education, the Higher Education Commission (HEC), with technical assistance from the USAID Teacher Education Project, engaged faculty across the nation to develop courses for the new four-year B.Ed. (Hons) Elementary programme.

The process of designing the syllabus for each course in years 3–4 of the programme began with curriculum design workshops. Faculty who will teach the courses were identified by university deans and directors and then invited to attend the workshops. The first workshop included national and international subject matter experts who led a seminar focused on a review and update of subject (content) knowledge. The remainder of this workshop was spent reviewing the HEC Scheme of Studies, organizing course content across the semester, developing detailed unit descriptions, and preparing the course syllabi. Although the course syllabi are designed primarily for Student Teachers taking the course, they are useful resource for teacher educators, too.

Following the initial workshop, participants developed teaching notes, including ideas for teaching units of study and related resources. Faculty worked individually or in groups, focusing on their own preparations to teach, while bearing in mind that their end product must also be useful to those who will teach the course in the future. A series of workshops occurred over the year in order to allow faculty to have time for their work, engage in peer review, and receive critical feedback from national and/or international consultants. In designing both the syllabi and the teaching notes, faculty and subject matter experts were guided by the National Professional Standards for Teachers in Pakistan 2009.

All of the syllabi developed by faculty are included in this document along with a listing of topical teaching notes. Additional references and resources appear at the end of the document. These should provide a rich resource for faculty who will teach the course in the future. Sample syllabi with accompanying teaching notes are also included in order to provide new faculty with a model for developing curriculum and planning to teach. This Windows on Practice guide is not intended to provide a complete curriculum with a standard syllabus and fully developed units of study, rather it aims to suggest ideas and resources for faculty to use in their own planning. Hence, readers will find sample units and materials that reflect the perspective of faculty designers rather than prescriptions for practice.

We are respectful of intellectual property rights and have not included any suggested materials that are copyright protected and for which we have not secured explicit permission to use. Therefore, all materials included may be used in classrooms for educational purposes. Materials in this document are not intended for commercial use, however. They may not be used in other publications without securing permission for their use.

Initial drafts were reviewed by the National Curriculum Review Committee (NCRC), and suggestions were incorporated into final drafts, which were then submitted to the NCRC for approval.

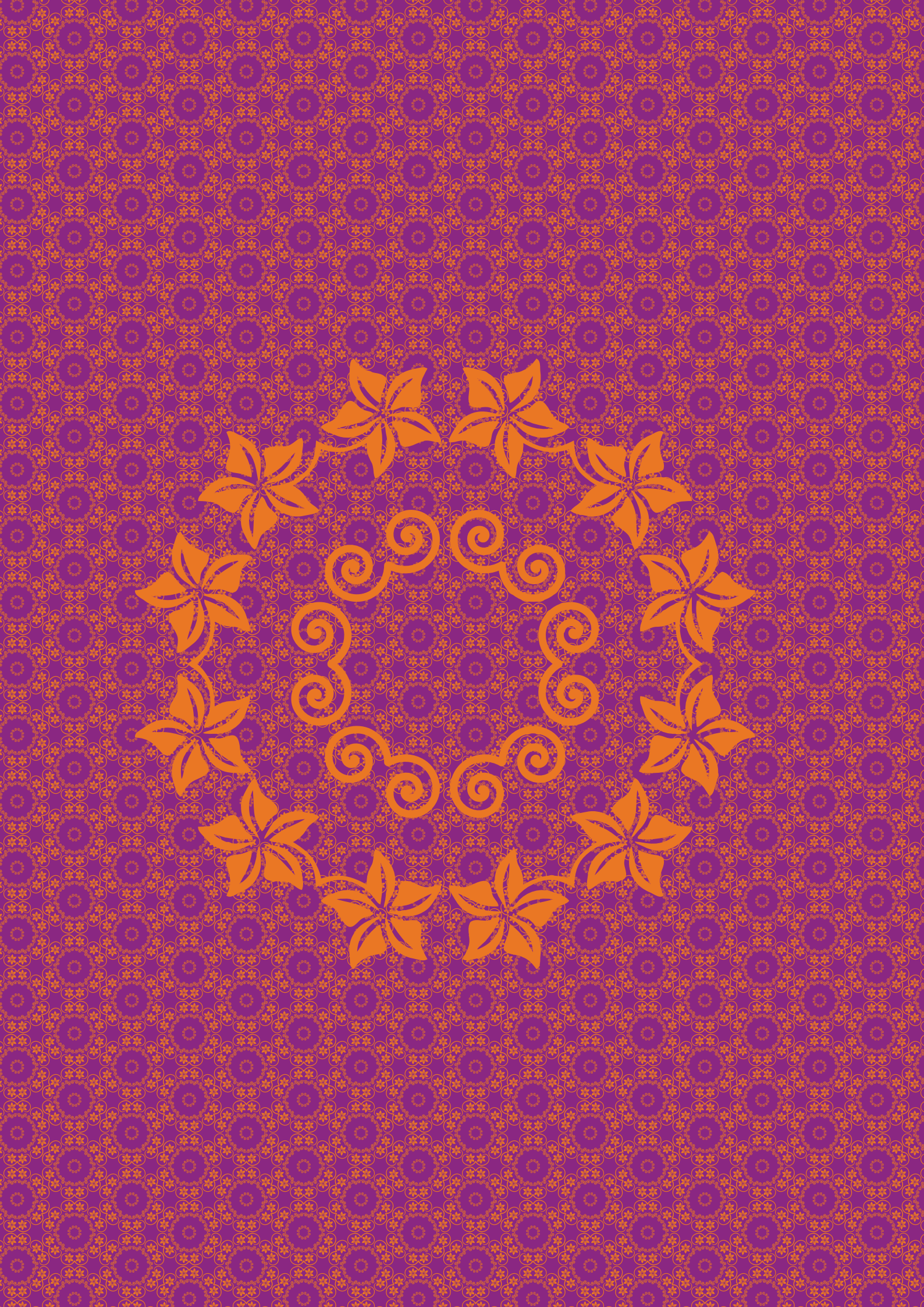
Faculty involved in course design: Allah Noor Khan, Gomal University; Dr Arshad Ali, Institution of Educational Research (IER), University of Peshawar, Peshawar; Dr Asaf Niwaz, University of Haripur, Hazara; Asima Idress, Sardar Bahadur Khan Women's University, Quetta; Dr Ayaz Muhammad Khan, University of Education, Lahore; Dr Fazalur Rahman, Allama Iqbal Open University, Islamabad; Dr Hafiz Inamullah, IER, University of Peshawar, Peshawar; Ijaz Ahmad Tatlah, University of Education, Lahore; Intizar Hussain, University of Karachi, Karachi; Dr Mahr Muhammad Saeed Akhtar, IER, University of the Punjab; Dr Mubashrah Jamil, Bahauddin Zakariya University, Multan; Dr Muhammad Ilyas Khan, Hazara University, Hazara; Dr Mussaret Anwar Sheikh, Fatima Jinnah Women University, Rawalpindi; Dr M. Ajmal Chaudhary, Allama Iqbal Open University, Islamabad; Safia Wazir, Sardar Bahadur Khan Women's University, Quetta; and Tarique Bhatti, University of Sindh, Hyderabad.

Subject/content specialists leading the seminar: Dr Bernadette Dean, St Joseph's College for Women, Karachi; and Jamal Papieva, national consultant.

National subject expert leading the course design: Jamal Papieva, national consultant.

Date of NCRC review process: 24–25 April 2013

NCRC Reviewers: Dr Abdul Hameed, University of Management and Technology, Lahore; Dr Fauzia Khurshid, National University of Modern Languages, Islamabad; and Dr Samina Malik, International Islamic University, Islamabad.



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1

Rationale for a course on research methods in education

In the Higher Education Commission 2010 document 'Curriculum of Education: B.Ed (Hons) 4-year Degree Programme (Elementary & Secondary, Associate Degree in Education, M. Ed./Ms. Education)' the course Research Methods in Education was included as a professional course. This course is designed to prepare B.Ed. (Hons) candidates to be research professionals and to enhance their professional practice. Student Teachers will engage in a critical analysis of different research work and relate it to their own context. The units provide Student Teachers with the opportunity to engage with the research literature and to establish how different research techniques help improve the classroom experience.

Essential knowledge

- Research has become an essential part of education. Institutions that provide research-based education are increasingly recognized as more authentic than those that do not do so. Educational research is a systematic process of inquiry and exploration of issues and problems in the field of education, with an aim to find possible solutions. Educational research has a wide scope, ranging from the philosophical, sociological, economic, and political foundations of education to its application on the classroom level. Educational research, therefore, covers all issues related to students, teachers, the processes of teaching and learning, and their outcomes.
- The course Research Methods in Education, with an emphasis on practitioner research or, more specifically, action research, revolves around the central idea of developing teachers as thinking/reflective practitioners. The aim is to make classroom teachers more independent in and more responsible for the development, dissemination, and evaluation of curriculum. This course aims to provide teachers with essential knowledge for classroom inquiry and improvement of practice, hence the focus on action research.
- Action research is a tool that is used to help teachers and other educators uncover strategies to improve teaching practices (Sagor, 2004); it is a viable and realistic endeavour for all educators. Action research requires teachers to design a study in an area of interest that they would like to carry out in their classrooms or schools. Many times, action research is considered a professional development opportunity because if often enables teachers assess a new instructional strategy, a new curriculum program, or an existing pedagogical method. Many research studies have found that participating in action research is the impetus for positive change, as exemplified by teacher improvement, self-reflection, and overall learning that enhances classroom practices. McNiff, Lomax, and Whitehead (1996) outline the usefulness of action research and argue that it could lead you to:
    - professional development
    - better professional practice
    - institutional improvements
    - societal contributions.
- Overall, action research aims to bring independence to the practitioner's academic and professional development.

Common misconceptions

Student Teachers are likely to enter their programme with some or all of these common misconceptions about curriculum and research projects. These are misconceptions shared by the public. Instructors should constantly search for ways to help Student Teachers confront and critique these misconceptions so that they can be intelligent creators, users, and interpreters of their school's curriculum.

Some common misconceptions include the following:

- Research is a difficult undertaking that can only be done by scholars and professors.
- Research is an institutional task, not an individual task.
- Undertaking research requires high academic knowledge and skills.
- It is quite acceptable to modify research data if it does not look exactly right.
- Research is conducted in a place designed for a particular research purpose.
- Separate time is required for research work.
- There is no practical use for research.
- Research needs a lot of resources and funding.
- Teaching and research are two different undertakings and do not overlap or augment each other.
- Findings of action research resolve all classroom problems/issues.

2

Course syllabi

RESEARCH METHODS IN EDUCATION

In this section you will find syllabi that have been written by faculty. Using the HEC Scheme of Studies for the course, they considered the balance between the demands of the subject itself, active learning pedagogies, their students, and the particular university milieu in which they work. The syllabi all reflect the same key concepts and broad goals, but they vary in sequence and emphasis.

SYLLABUS 1

By

Asima Idress, Dr Fazalur Rahman, Dr M. Ajmal Chaudhary, and Safia Wazir

Year, semester

Year 4, semester 7

Credit value

3 credits (48 contact hours)

Prerequisite

Successful completion of semesters 1–6

Course description

The course Research Methods in Education is designed to orient Student Teachers to the concept and methods of research in education. In particular, the course focuses on action research, and it aims to equip Student Teachers with the necessary skills to plan and conduct action research in an educational setting. Action research is a form of research that can be used to improve professional practices in the classroom. It can help in both personal development and institutional improvement. This course will also help Student Teachers to write research proposals and research reports and to create presentations to discuss their work.

Course outcomes

At the end of this course, Student Teachers will be able to:

- describe the concept of educational research
- identify different models and approaches of action research
- identify research problems and develop research questions
- develop a research proposal.

Semester outline

Unit 1: Introduction to research

Unit 1 describes the concept of educational research, explains the scientific method of research, and equips Student Teachers with the basic knowledge, skills, and disposition required to understand the nature of educational research.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- define educational research
- describe the scientific method of research
- apply principles of educational research.

1 UNIT 1:	Introduction to research
Week	Topic
1	Definition of research Definition of educational research
2	Research as a scientific method Significance of educational research Principles of educational research

Unit 2: Research methods in education

Unit 2 covers general ideas about different research methods. It introduces research instruments, sampling, and research procedures.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- list research methods
- identify research instruments
- explain sampling processes
- describe research procedures.

2 UNIT 2:	Research methods in education
Week	Topic

3	Different research methods in education
	• Qualitative research
	  ○ Action research
	  ○ Case study
	  ○ Ethnography
	  ○ Narrative research
	• Quantitative research
	  ○ Survey
	  ○ Experimental research
	• Mixed research
	  ○ Action research
	  ○ Programme evaluation

4	Research tools Sampling Research process

Unit 3: Action research

Action research—or participatory action research—is research initiated to solve an immediate problem. It is also a reflective process led by individuals working in teams or as part of a 'community of practice' to improve the way they address issues and solve problems. Action research involves the process of actively participating in organizational change while conducting research. This unit will provide some basic skills and knowledge about the nature, history, and types of action research.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- explain the nature of action research
- discuss the history of action research
- differentiate action research from other types of research
- list different models of and approaches to action research.

UNIT 3:	Action research
Week	Topic
5	Nature of action research History of action research Difference between action research and other types of research
6	Models of action research Approaches to action research

Unit 4: Research tools in action research

A research tool is a testing device for measuring a given phenomenon, such as a paper and pencil test, a questionnaire, an interview, or an observation. The research instrument is what one uses to collect information in a qualitative field study. It helps to keep track of what is observed and how it is reported. Tools must be both valid and precise. This unit highlights different research tools and aims to enable Student Teachers to construct and administer different research tools such as questionnaires, observations, and interviews.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- construct a research questionnaire
- explain and conduct an interview
- prepare an observation schedule
- explain the difference between a rating scale and inventory.

UNIT 4:	Research tools in action research
Week	Topic
7	Questionnaire Interview
8	Interview (continued) Observation
9	Rating scale Inventories

Unit 5: Data analysis

Analysing data is the process of inspecting, cleaning, transforming, modelling, and coding data with the goal of highlighting useful information, suggesting conclusions, and supporting decision-making. Data analysis has multiple facets and approaches depending on the type and scope of research. This unit covers knowledge about data and its types. In addition, it describes the reliability and validity of data.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- describe different types of data
- examine the reliability of data
- explain the validity of data.

5 UNIT 5:	Data analysis
Week	Topic
10	Types of data
11	Validity of data Reliability of data
12	Data analysis

Unit 6: Developing a research proposal

One of the course aims is to prepare Student Teachers to conduct action research in real classroom settings. Therefore, research proposal development is the main focus of this unit, which also covers the different parts of a research proposal. This will provide guidance to Student Teachers in writing their research proposals during their teaching practicum.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- describe the different parts of a research proposal
- write a research proposal.

6 UNIT 6:	Developing a research proposal
Week	Topic
13	Parts of a research proposal
14	Developing a research proposal

Unit 7: Writing a report

The final stage in research is writing about it upon completion. A research write-up can be in any form: a research report, an article, or a thesis. Unit 7 focuses on research report writing. It will cover all the steps and components necessary to write a research report.

Learning outcomes

After the completion of this unit, Student Teachers will be able to describe components of a research report.

7 UNIT 7:	**Writing a report**
Week	Topic
15	A research report Components of a research report Sample report
16	Summing up Conclusion

Teaching and learning approaches

Different teaching and learning approaches will be used during the course. They are based on developing students' critical thinking, creativity, communication, and leadership skills. The following approaches will be employed during the course: interactive lecturing, PowerPoint and video presentations, discussions, and cooperative learning structures.

Assessments

A variety of assessments will be used in the course, including classroom presentations, assignments, and midterm and final examinations.

Course assignments

Assignments will contribute to Student Teachers' learning and count toward their final grade.

Grading policy

The proposed grading scheme for this course includes 100 marks. Adjustments should be made to address potential issues with educational institutions and authorities.

Mode of assessment	Marks
Assignment	5
Quiz	5
Presentation	5
Midterm exam	25
Research proposal assignment	15
Final exam	45

References

Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research*. Boston: Pearson Education.

Gay, L. R. (1987). *Educational research: Competencies for analysis and application*. London: Pearson Longman Publishing.

Jorgensen, D. L. (1989). *Participant observations: A methodology for human studies.* Thousand Oaks, CA: Sage Publications.

Lofland, J., Snow A., Anderson, L., & Lofland, L. H. (2006). *Analyzing social settings: A guide to qualitative observation and analysis*. Boston: Cengage Learning.

Miles, M. B., & Huberman, A. M. (2006). *Qualitative data analysis: An expanded sourcebook*. London: Sage Publications.

Mills, G. E. (2011). *Action research: A guide for the teacher researcher*. Boston: Pearson Education.

Wengraf, T. (2011). *Qualitative research interviewing: Semi-structured, biographical, and narrative methods*. London: Sage Publications.

Yin, R. K. (2008). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

SYLLABUS 2

By

Dr Muhammad Ilyas Khan, Dr Asaf Niwaz, Allah Noor Khan, Dr Hafiz Inamullah, and Dr Arshad Ali

Year, semester

Year 4, semester 7

Credit value

3 credits (16 weeks)

Prerequisite

Successful completion of semesters 1–6

Course description

The Research Methods in Education course will help Student Teachers understand the importance of research in education, research methods, scientific inquiry, and critical thinking. The course is designed to enable Student Teachers to develop their attitude and skills of inquiry, critical thinking skills in order to identify educational problems, and scientific problem-solving approaches that focus on action research. The broader aim is to train them as independent professionals and agents of change in the society.

Course outcomes

After the completion of this course, Student Teachers will have:

- developed knowledge regarding the nature, types, and process of research in education, and specifically the nature and aims of action research
- developed and demonstrated the skills and techniques of classroom inquiry and action research
- developed an attitude of open-mindedness, inquiry, and critical-thinking skills.

Course outline

Unit 1: Introduction to research (2 weeks, 6 sessions)

The aim of this unit is to enable Student Teachers to understand the nature of research in general and of educational research in particular. This unit will introduce Student Teachers to the different types of educational research.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- explain the nature of inquiry, and the scope and aims of educational research
- list different types of educational research
- identify educational research methods and techniques.

Subtopics

- The nature of inquiry and research (1 session)
- The scope and aims of educational research (1 session)
- Types of educational research (2 sessions)
- Educational research methods and techniques (2 sessions)

Unit 2: Introduction to action research (3 weeks, 9 sessions)

This unit specifically focuses on describing the meaning and nature of action research, its advantages and limitations as a research process, and its relevance to Student Teachers as classroom practitioners.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- define *action research*
- describe the main features of action research
- list the advantages and disadvantages of action research
- discuss the relevance of action research to classroom teachers.

Subtopics

- Definitions and aims of action research (2 sessions)
- Salient features of action research (2 sessions)
- Advantages and disadvantages of action research (2 sessions)
- Action research and the classroom teacher (3 sessions)

Unit 3: The process of action research (4 weeks, 12 sessions)

This unit aims to take Student Teachers into the practice of action research by introducing them to the practical steps involved in the process. The unit also introduces data collection and analysis processes in action research and the considerations that Student Teachers must make to conduct ethically sound research.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- list and describe approaches to and techniques of action research
- explain the different types of action research
- describe the data collection and analysis processes in action research
- highlight ethical issues during the process of action research.

Subtopics

- Approaches to and techniques of action research (3 sessions)
- Types of action research (2 sessions)
- Data collection tools (2 sessions)
- Data analysis in action research (3 sessions)
- Ethical considerations in research (2 sessions)

Unit 4: Action research and reflective practice (2 weeks, 6 sessions)

Reflective practice has been identified as an important component of the action research process. This unit, therefore, aims to help Student Teachers understand reflective practice as a teacher-education concept and to see its relevance to the process of action research.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- define and explain reflective practice
- describe types of reflective practice
- explain how reflective practice and action research are relevant to each other.

Subtopics

- What is reflective practice? (2 sessions)
- Types of reflective practice and their aims (2 sessions)
- Reflective practice and action research (2 sessions)

Unit 5: Research proposal (2 weeks, 6 sessions)

This unit aims to help Student Teachers understand the nature and importance of the research proposal and help them in developing research proposals in the area of their interest.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- define a research proposal
- explain the importance of a research proposal
- describe the process of research proposal development.

Subtopics

- What is a research proposal? (1 session)
- The importance of a research proposal (1 session)
- The proposal development process (2 sessions)
- The proposal development activity (2 sessions)

Unit 6: Writing a research report (3 weeks, 9 sessions)

This unit aims to develop the Student Teachers' skills in terms of writing the report at the end of their research project. The unit will introduce Student Teachers to the structure of academic report writing and, in particular, action research report writing.

Unit outcomes

After the completion of this unit, Student Teachers will be able to:

- define *research report*
- identify the structure of a research report
- explain the formatting process of a report (e.g. APA style).

Subtopics

- What is a research report? (1 session)
- Structure of research report (4 sessions)
  - Preliminary section
  - Main body of the report
  - Reference section
- APA style of report writing (2 sessions)
- Summary and conclusion (2 sessions)

Course assignment: Proposal writing

Student Teachers will be expected to select any topic for action research during their teaching practicum. By the end of the course they have to develop a proposal for action research on their selected topic and submit it to faculty for assessment purposes.

Suggested readings

Arnot, M., McIntyre, D., Pedder, D., & Reay, D. (2004). *Consultation in the classroom: Developing dialogue about teaching and learning.* Cambridge, UK: Pearson Publishing.

Cochran-Smith, M. (1994). The power of teacher research in teacher education. In S. Hollingsworth & H. Sockett (Eds.), *Teacher research and educational reform* (pp. 22–51). Chicago: University of Chicago Press.

Denzin, K., & Lincoln, Y. S. (Eds.). (1994). *Handbook of qualitative research.* London: Sage Publications.

Feldman, A. (2007). Validity and quality in action research. *Educational Action Research*, *15*, 5–21.

Lunenberg, M., Ponte, P., & van der Ven, P. H. (2007). Why shouldn't teachers and teacher educators conduct research in their own practices? *European Educational Research Journal*, 6: 13–24.

Martin, M. (2005). Reflection in teacher education: How can it be supported? *Educational Action Research*, *13*, 525–43.

McNiff, J., Lomax, P., & Whitehead, J. (1996). *You and your action research project.* New York: Routledge.

Ponte, P., (2002). How teachers become action researchers and how teacher educators become their facilitators, *Educational Action Research*, *10*, 399–423.

Ponte, P., Ax, J., & en Beijaard, D. (2004). Don't wait till the cows come home: Action research and initial teacher education in three different countries. *Teachers and Teaching: Theory and Practice*, *20*, 591–621.

SYLLABUS 3

By

Dr Mubashrah Jamil, Dr Mahr Muhammad Saeed Akhtar, Dr Ayaz Muhammad Khan, and Ijaz Ahmad Tatlah

Year, semester

Year 4

Credit value

3 credits

Prerequisite

Successful completion of semesters 1–6

Course description

The Research Methods in Education course will introduce educational research to prospective primary teachers, and it will cover research processes and types and methods of research. However, the main focus of the course is action research, which is a form of self-reflective systematic inquiry by the practitioners on their own work. The course includes the historical background of action research, different models and approaches to action research, and data collection tools. Moreover, the course will guide and support Student Teachers as they prepare a proposal for their action research project expected in the next semester in the Research Project course.

Learning outcomes

After the completion of this course, Student Teachers will be able to:

- differentiate between quantitative and qualitative research
- define *action research*
- understand how action research compares to other forms of research
- explain the main purpose for which educators carry out action research
- explain the cyclical nature of action research
- explain the importance of data collection and prepare tools to collect data on various classroom problems
- explain the importance of analysis as a basis for action in action research
- define and provide examples of reliability, validity, and generalizability
- explain the role of reflection in action research
- write an action research proposal.

Learning and teaching approaches

The following approaches and activities will be used to teach this course:

- democratically interactive teaching techniques with a participative approach (e.g. collaborative, cooperative learning; elaborative project method; question–answer method; problem-solving method; hands-on activities; and brainstorming)
- assigning reading material and summarizing book chapters and articles.
- short quizzes, question–answer sessions, and small-scale class presentations for which the Instructor will provide feedback.

Suggested textbooks

The course outline references several books that may be useful in teaching this course:

Gall, M. D., Gall. J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). New York: Pearson.

Koshy, V. (2005). *Action research for improving practice.* London: Paul Chapman Publishers. Available from:
➢ http://www.actionlearning.com.au/Classes/ActionResearch/Books/Book-ActionResearchForImprovingPractice.pdf

Mills, G. E. (2007). *Action research: A guide for the teacher researcher* (3rd ed.). New York, Pearson Merrill Prentice Hall.

Semester outline

Unit 1: Introduction to research

This unit will enable Student Teachers to differentiate between the types of research and educational research and the context in which both occur. Moreover, Student Teachers will be able to differentiate between qualitative and quantitative research methods.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- define *action research*
- recognize the difference between action research and other forms of research
- differentiate between quantitative and qualitative research.

UNIT 1:	Introduction to research	
Week	Topics	Resources
1	Introduction to research and educational research (definitions, characteristics) Steps to conduct the research (research process)	Gall, pp. 2–36
2	Purpose of research: Basic research, applied research, and action research Methods of research: Qualitative and quantitative research	Gall, pp. 2–36

Unit 2: Introduction to action research

This unit will enable Student Teachers to understand action research and its purpose, need, and importance. Moreover, the origin and history of action research in the context of education will be discussed in detail.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- explain the main reason why educators carry out research
- explain the purpose of conducting action research
- explore the origin of action research
- differentiate between action research and other research.

UNIT 2:	Introduction to action research	
Week	Topics	Resources
3	Definitions and characteristics of action research Origin of action research History of action research in the educational context	Gall, pp. 597–614 Mills, pp. 2–8
4	Purpose of conducting action research Importance and limitations of action research Differences between other research and action research (with respect to purposes and methods)	Mills, pp. 2–8 Koshy, V., pp. 1–22.

Unit 3: Approaches and models of action research

The unit will cover various approaches and models of action research. Instructors will gather some of the relevant research identified in the teaching notes and present it to the Student Teachers. This practice will culminate in Student Teachers' developing a sound research proposal that they will work on in the next semester for their research projects.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- explain the different approaches to action research
- differentiate different models of action research
- apply approaches and models of action research in their research proposals.

3 UNIT 3:	Approaches and models of action research	
Week	Topics	Resources
5	Approaches to action research • First-person research (individual action research • Second-person research (collaborative action research) • Third-person research (school-wide action research)	Brief notes on the theory and practice of action research by Reason and McCardle (http://www.peterreason.eu/Papers/Brief_Notes_on_AR.pdf)
6	Examples of action research • Participatory action research • School-wide action research	Definitions, goals and principles of participatory action research (http://www.cnr.berkeley.edu/community_forestry/Fellowships/parinfo/PAR%20Definitions.pdf)
7	Models of action research • Spiral models by Kemmis and McTaggart • Elliot's action research model • O'Leary's cycles of action research	What is action research? by E. Koshy, V. Koshy, and H. Waterman (http://www.sagepub.com/upm-data/36584_01_Koshy_et_al_Ch_01.pdf)

Unit 4: Literature review, ethics, and methodology

This unit introduces Student Teachers to practical applicability and doing action research. Student Teachers will learn to identify a problem, describe it, and consult literature to identify strategies to resolve it. The unit will also focus on developing research questions, the sampling process, various data collection techniques, and their validity and reliability.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- identify action research problems
- develop research questions
- review literature
- explain ethics in action research
- explain the importance of data collection and prepare tools to collect data on various classroom problems
- define and provide examples of reliability, validity, and generalizability
- explain the sampling process.

4 UNIT 4: Literature review, ethics, and methodology

Week	Topics	Resources
8	Investigating action research problems Developing research questions	Mills, pp. 22–48
9	Literature review Ethical issues in action research	Mills, pp. 22–48
10	Data collection tools Procedure of tool development	Mills, pp. 50–77
11	The validity and reliability of action research tools Sampling • Kinds of research sampling • The sampling process	Mills, pp. 99–119

Unit 5: Writing action research proposals, reports, and data analysis techniques

After learning about action research models, Student Teachers will be in a position to develop their own research proposal. This unit offers guidance to Student Teachers on writing a research report as well as on data analysis techniques and processes.

Learning outcomes

After the completion of this unit, Student Teachers will be able to:

- explain the key elements of a research proposal and research report
- describe and apply APA formats
- explain how to avoid plagiarism
- identify data analysis techniques.

5 UNIT 5:	**Writing action research proposals, reports, and data analysis techniques**	
Week	Topics	Resources
12	Parts of a research proposal and research report	
13	Format of a research proposal and research report (APA styles) How to avoid plagiarism	
14	Data analysis techniques in the action research process • Ongoing data analysis • Data coding • Data management	
15	Data analysis techniques in the action research process (continued) • Ongoing data analysis • Data coding • Data management	
16	Review and conclusion Final examination	

Assessments

A variety of assessments will be used in the course, including classroom presentations, assignments, and midterm and final examinations.

Grading policy

This is a proposed grading scheme for the course. Adjustments should be made to address potential issues with educational institutions and authorities.

Mode of assessment	Marks
In-class work (e.g. quizzes, assigned reading, presentations)	20
Midterm exam	30
Research project assignment	10
Final exam	40

References

Coats, M. (2005). *Action research: A guide for associate lecturers*. Available from:
➢ http://www.open.ac.uk/cobe/docs/AR-Guide-final.pdf

Gall, M. D., Gall. J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). New York: Pearson.

Hien, T. (2009). Why is action research suitable for education? *VNU Journal of Science, Foreign Languages, 25*, 97–106.

Mills, G. E. (2007). *Action research: A guide for the teacher researcher* (3rd ed.). New York: Pearson Merrill Prentice Hall.

Sela, O. & Harel, M. (2012). The role of teacher education in introducing action research into the education system: A case study of an education college. *Current Issues in Education, 15*, 1–12. Available from:
➢ http://cie.asu.edu/ojs/index.php/cieatasu/article/view/897/332

SYLLABUS 4

By

Dr Mussaret Anwar Sheikh, Tarique Bhatti, and Intizar Hussain

Year, semester

Year 4, year 7

Credit value

3 credits

Prerequisite

Successful completion of semesters 1–6

Course description

This course aims to help Student Teachers develop a basic understanding of educational research. Its purview will be on improving teaching and learning practices in primary classrooms. This course will cover features of educational research in general, while the main focus will be on developing Student Teachers' understanding of action research and preparing them to conduct it in a school setting.

Learning outcomes

After the completion of this course, Student Teachers will be able to:

- define what research is and identify different types of research
- describe the importance of action research for improvement in classroom practices
- review literature for research purposes
- identify data collection tools
- explain data analysis procedures
- prepare a research proposal.

Interactive teaching strategies

This course will apply an interactive approach to teaching and will involve brainstorming, discussions, and other activities to cover the material. It will also include instruction on data collection using both primary and secondary sources, particularly through the use of library resources, online resources, and original government records and documents.

Course content

Unit 1: Introduction (weeks 1–2)

The unit covers basic knowledge about research.

Topics

- What is research?
- The importance of and need for research
- Types of research methods
  - Historical research
  - Descriptive research
  - Causal comparative research

Unit 2: Action research: Types and reflective practices (weeks 3–4)

The unit covers action research more deeply through the study of different types of action research.

Topics

- Action research
  - Participatory
  - Collaborative
  - Reflective practices
- Critical thinking
- Induction and deduction
- Assumptions and revisiting ideas

Unit 3: Literature review (weeks 5–6)

The unit contains knowledge about literature review techniques, resources, and procedures in a systematic manner.

Topics

- Concept and meaning of literature review
- Information sources
  - Primary sources
  - Secondary sources

- Forms of literature review sources
  - Digital sources
  - Paper sources
  - Material sources
- The importance of and need for literature reviews
  - Clarity and focus
- Broaden knowledge base of research

Unit 4: Research methodology (weeks 7–9)

The unit covers research methodology.

Topics

- Research design
- Population and sampling
- Data collection tools
- Data collection procedure

Unit 5: Data analysis and interpretation (weeks 10–11)

The unit provides knowledge about both qualitative and quantitative data analysis as well as data interpretation techniques in an action research context.

Topics

- Qualitative analysis
  - Coding
  - Arranging data according to themes and patterns
- Quantitative analysis
- Statistical tools

Unit 6: Findings, summary, and recommendations (weeks 12–13)

The unit covers writing styles and patterns regarding findings, summary, and recommendations.

Topics

- Findings and drawing conclusions
- Summary
- Recommendations

Unit 7: Referencing and writing a research proposal (weeks 14–16)

The unit covers essential knowledge about citing material from books, journals, and other sources. The unit also covers techniques and procedures for writing a research proposal.

Topics

- Research proposal
- Contents of research proposal
- Referencing
- APA reference format with type of reference
- Summing up and conclusion

Suggested literature

Creswell, J. W. (2008). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.

Flower, F. J. (2008). *Survey research methods: Applied social research methods.* Thousand Oaks, CA: Sage Publications.

Marshall, J. C. (2010). *Classroom test construction*. Boston: Addison-Wesley.

McNiff, J., Lomax, P., & Whitehead, J. (1996). *You and your action research project*. New York: Routledge.

Salkind, N. J. (2006). *Exploring research*. New Jersey: Pearson Prentice-Hall.

Wiersma, W. (2000). *Research methods in education*. Boston: Allyn and Bacon.

3

Integrated teaching notes

During the curriculum development process, faculty participants were encouraged to keep notes that would be useful to them and other future teachers of the course. These were submitted along with the course syllabi. Teaching notes include ways to introduce the course, ideas for teaching units and sessions, sample lessons plans, and suggested reading and resource materials. These have been integrated into a single section of this document to create a rich and varied collection of easily accessible ideas. The section is organized by theme. Except in cases where there is duplication of ideas, faculty are credited with their contribution.

Introduction

Teaching notes include lesson plans, teaching ideas, activities, lecture notes, presentations, handouts, and resource materials. All components of teaching notes are arranged thematically. Faculty teaching this course can select any syllabus and find lesson plans, activities, teaching ideas, and resources according to unit topics and subtopics. Each unit contains one or more of the following:

- lesson plans
- activities
- teaching ideas
- lecture notes
- presentations
- handouts
- resource materials

In some cases, more than one option (lesson plan, teaching ideas, and lecture note) is given for the same topic. Instructors can select any of them to teach the topic.

Handouts and resources are provided at the end of each unit. Lesson plans, teaching ideas, and resources are not provided for all topics and subtopics. The course Instructor is responsible for finding resource materials and preparing planning for the sessions.

Unit: Introduction

This unit is aimed at enabling Student Teachers to understand the nature of social research in general and of educational research in particular. Student Teachers will be able to identify the types of educational research and differentiate between qualitative and quantitative research methods.

Topic: Research and educational research

Lesson plan

Learning objectives

By the end of this lesson, Student Teachers will be able to:

- define research and educational research
- list the aims of educational research
- identify activities that help achieve the aims of educational research.

Introduction (5 minutes)

Write the words *research* and *educational research* on the board and instruct Student Teachers to write their own definitions of the terms.

They can do this individually or in a small group.

Defining research and educational research (15 minutes)

Give the Student Teachers handouts 'What is research?' and 'Educational research', which are included at the end of this unit, as well as sufficient time to read them. As they review the material, the Student Teachers should compare and contrast the information provided with their own definitions.

After they have had time to think about the terms independently, bring the class together to discuss.

Aims of educational research (15 minutes)

Present the aims of educational research. Use a chart or visual presentation (e.g. PowerPoint) to assist your lecture. Consider using the information below from R. M. Osman (used with permission) as the basis for your presentation. Read each point and elaborate on it by providing examples.

Educational research is conducted to:

- explore an educational problem, so as to make further research on it possible
- explain the social life of learners and teachers by providing reliable, well-documented information
- understand human behaviour (students' and teachers') and action in educational settings
- evaluate social issues and their effect on learners and teachers
- develop and/or test educational theories
- improve educational practice through applied research.

After presenting the above points, ask Student Teachers to suggest more objectives.

Explain to Student Teachers that in order to achieve the above aims, educational researchers do one or a combination of the following:

- describe
- predict
- improve
- explain

Activity (20 minutes)

Divide Student Teachers into eight groups. Assign two groups to explain each of the following activities in which educational researchers engage: describing, predicting, improving, and explaining. Each group's explanation should also include examples of how these activities can be performed and on which topics or/and areas they focus. (The following descriptions are from R. M. Osman and are used with permission.)

Description

Educational research in most cases involves the description of educational phenomena, in terms of its structure, activity, change over time, relationship to other phenomena, and so on. Such studies have greatly improved our understanding of what happens in the classroom and its surroundings. Statistics produced by descriptive studies are usually of great interest to policy makers and educators.

Prediction

This involves the ability to predict a phenomenon that will occur at a time in the future from information that is available now. For example, students' aptitude tests, taken when students are to enroll in a college or university, are intended to predict students' future achievement in their studies. In education, we need to have tools for prediction because:

- They aid in the selection of students who will be successful in particular educational settings and/or programmes.
- They are used to identify students who are likely to be unsuccessful in their education so as to prevent problems like dropout rate.

Improvement

This type of research knowledge concerns the effectiveness of interventions, such as instructional programmes. Educational researchers have always wanted to discover new and more effective means of improving student achievement, thinking ability, learning facilitation, study skills, etc.

Explanation

This is the most important of all research knowledge. It means describing an educational phenomenon, predicting its consequences, and knowing how to intervene to change these consequences. Scientists frame their explanations as theories.
A theory is an explanation of a certain set of phenomena in terms of a system of constructs and laws that relate these constructs to each other. For example, Jean Piaget proposed a theory of intellectual development after a period of research and observation. Most of the educational researches conducted in the classroom aim to explain phenomenon that is not well understood.

Teaching ideas

The following activities (or adaptations of these activities) might help Student Teachers develop their understanding of research.

- Warm-up questions. In order to build the confidence of Student Teachers and prepare them to conduct research, ask them questions and tell them to write their answers in a notebook. Questions might include the following:
  - What is the best way to investigate the problem? (Provide a specific problem when introducing the question to Student Teachers.)
  - What does research mean?
- Introduce the topic of research.
- Give a brief introduction on research.
- Give Student Teachers copies of Handout 1, 'What is research?', and ask them to review the different definitions and characteristics of research. After reading the material, have Student Teachers develop a topical mind map.
- Have Student Teachers compare and contrast their answers to the warm-up questions with their mind maps.

Activity

Give Student Teachers Handout 2, 'Educational research', and ask them to read it. Ask them to prepare a diagram based on the information provided in the handout. Encourage Student Teachers to think about what information they'd like to present and how.

Instructors could supplement the handout with information in the chapter titled 'What is Educational Research?' in 'Doing Educational Research: A Guide for First Time Researchers' (edited by Clive Opie and published by SAGE Publications 2004). The chapter is available at:

➢ http://www.corwin.com/upm-data/9464_011245Ch1.pdf

Topic: Educational research as a scientific method

Lecture notes

Prepare a lecture on the topic using the following lecture notes.

Research as a scientific method

Educational research is the formal, systematic application of the scientific method to the study of educational problems. The goal of educational research is the same as the goal of all science: to describe, explain, predict, and/or control phenomena. The steps of the scientific method used by educational researchers are the same as those used by researchers in other, more easily controlled settings. Those steps are:

1. Select and define the problem.
2. Execute research procedures.
3. Analyse the data.
4. Draw and state the conclusion.

The value and significance of educational research

Research aims to discover the relationships that exist among phenomena in the world we live in. Educational research is the systematic, planned, and orderly activity or set of activities to discover such relationships with regard to the theory and practice of education.

The scientific goal of educational research is to discover laws or generalizations about behaviour that can be used to explain, make predictions, and control events within educational situations.

Topic: Principles of educational research

Lecture notes

Prepare a lecture on the topic using the following lecture notes.

Pose significant questions

Researchers should pose significant questions that can be investigated empirically.

Link research to relevant theory

Theories vary in scope; theories that are smaller in scope – sometimes referred to as conceptual frameworks—guide most research studies, particularly in the social sciences and education. For example, the theory behind teacher professional development is that teacher learning influences instruction, which in turn influences student achievement.

Use a method that permits direct investigation of the question

A research method should be appropriate for the research question. This principle, however, does not focus on a particular research method; rather, it emphasizes that a research report should indicate:

- the link between the research question and the method used and why the method is the most appropriate
- a detailed description of the method and procedure so that other researchers can repeat the study
- possible problems or limitations with the research method.

Replicate and generalize across studies

Replication means that another researcher can make the same observation and obtain the same result. Generalization refers to how much the result can be replicated in different contexts and with different populations. When the results of a study can be replicated and generalized, the results can be trusted more than results from studies without these characteristics.

Disclose research to encourage professional scrutiny and critique

Researchers should submit their reports to journals and publications that require peer review. Presentations on research at professional conferences also provides opportunities for critique.

Principles of educational research

The principles of educational research, according to Mouly, are:

- Research must advance knowledge.
- Research must promote progress.
- Research must enable man to relate more effectively to his environment, to accomplish his purpose, and to resolve his conflicts.

Research problems

A research problem must not be of the routine type, meaning that the results of the problem must not be already known; for example, a study on the effectiveness of computer-assisted instruction. It is obvious that in this case instructions will be more effective. Research should uncover unknown facts and relationships that can make the educational process more effective.

The problem selected should interest the researcher, and the problem should be amenable to research. In other words, there should be objective evidence to collect that can help prove or disprove the problem. Some problems are not actually problems; they can be debated, discussed, or philosophically reflected upon but cannot be subjected to objective testing and analysis.

The problem should be feasible, which means that it should be possible to conduct research on it. It should be possible to define the variables involved in the research objectively and operationally.

Handout 1

What is research?

Research is the formal, systematic application of the scientific method to the study of problems. Research can be understood as a careful investigation or inquiry in the search for new facts in any branch of knowledge.

According to Bruce W. Tuckman, research is a systematic attempt to provide answers to questions. Such questions may be abstract and general, as is often the case in basic research.

According to Mouly, research is simply the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis, and interpretation of data. In the *Dictionary of Education*, the term *research* has been defined as 'careful, critical, disciplined inquiry, varying in technique and method according to the nature of conditions of the problem identified, directed toward clarification or resolution of a problem'.

In a broader sense, research means the process of collecting information about a problem. It is a systematic application of a family of methods that are employed to provide trustworthy information about a problem.

Characteristics of research

- Research is planned, systematic, and highly methodical in its approach.
- Research is based on observable or empirical evidence or data. Extrasensory experiences have no place in the realm of research.
- Observations and descriptions must be accurate.
- Research is objective and logical. It is based on a careful validation of tools and techniques employed, the data collected, and the conclusions drawn.
- Research is the field of experts, not of laymen. Researchers must equip themselves with a deep and clear understanding of the subject and also research procedures.
- Research is undertaken for the purpose of building up and trying out a new theory, generalization, or principle, or for solving a practical problem through careful and planned procedures.

Adapted from:

Aggarwal, Y. P. (2004). *The science of educational research*. New Delhi: Oscar Publications.

Gay, L. R., & Mills, G. E. (2009). *Educational research: Competencies for analysis and application*. New York: Pearson.

Mishra, R. C. (2005). *Educational research*. New Delhi: New India Publishing Agency.

Handout 2

Educational research

According to Mouly, educational research is the systematic and scholarly application of the scientific method, interpreted in its broadest sense, to the solution of educational problems.

The scope of educational research is as broad and extensive as the educational activity itself. It is concerned with the development of scientific laws and validated knowledge for the understanding and improvement of educational practice. It aims to generate a science of education. Three important components of education, and hence the subject of educational research, are as follows:

- Ideas, such as curriculum, teaching, learning methods, and organizational structure
- Materials, such as physical facilities like classrooms, equipment, aids, furniture, and textbooks
- Human beings, including young learners, adult learners, administrators, planners, parents, teachers, community members, and interpersonal relations

The Research in Education course not only covers the fundamentals but includes applied aspects and action research.

According to John W. Best, educational research is an activity that is directed toward the development of the science of the behaviour. The ultimate aim of this activity is to provide knowledge and information that permits educators to achieve educational goals using the most effective methods.

Educational research is the application of scientific and disciplined inquiry into the study of educational research. It is a set of activities that involves the systematic collection and analysis of data with a view to producing learning.

Additional resources

'Fundamental characteristics of research' gives students a broader understanding of what research is and its aims, principles, and most important features. It also helps them appreciate the different ways in which research can be defined. Available from:

- http://bsapp.com/seniorprojects/adobe_files/introductionpres/spnotes.pdf

The article "research paradigms' will give students ideas on how to select an appropriate paradigm for their research questions. Available from:

- http://www.celt.mmu.ac.uk/researchmethods/Modules/Selection_of_methodology/

'Why do research?' (n.d.). Available from:

- http://research.berkeley.edu/experience.php

'Why do research?' (n.d.). Available from:

- http://academics.boisestate.edu/undergraduate/undergraduate-research/why-should-i/

Adapted from:

Aggarwal, Y. P. (2004). *The science of educational research*. New Delhi: Oscar Publications.

Best, J. W., & Kahn, J. V. (n.d.). *Research in education* (8th ed.). Boston: Allyn & Bacon Available from:

- http://ww2.odu.edu/~jritz/attachments/reined.pdf

Gay, L. R., & Mills, G. E. (2009). *Educational research: Competencies for analysis and application*. New York: Pearson.

Mishra, R. C. (2005). *Educational research*. New Delhi: New India Publishing Agency.

Mouly, G. J. (1978) *Educational research: The art and science of investigation*. Boston, MA: Allyn & Bacon.

Topic: Research questions

The content in this section is from "A practical guide to action research for literacy educators" by Nugent, Malik, and Hollingsworth. This text, particularly the section 'Identify a problem and ask a question', offers guidelines on designing research questions.

Identify a problem and ask a question

You might now be asking yourself, 'Where do I start?' You begin with the question, 'What is my concern in my practice?' It should be a concern that affects your teaching and the learning of your students. It should be a concern that you can do something about. It should not depend on others.

Action research is an action-oriented reflective practice that begins from a concern about some aspect of your practice. This leads to focusing on a particular question for investigating.

The question may arise from a difficulty you are having, such as a need to improve student learning. You may need to seek clarity on an unclear situation, such as how to effectively use an instructional approach.

Activity

Think of any concern that arose during your teaching practicum. It can be any problem faced in any area in which you would like to improve in teaching. It should be a practice-based concern that you might be able to do something about in a reasonable amount of time.

Describe the problem. Why is it a personal concern to you? What can you do about the problem? To find out, talk to colleagues, read, ask students, etc.

Next, create an action research question by examining the problem statement for its relationship to specific teaching and learning practices. The question should be specific and result in an observable problem-solving action. You should be able to link the question to specific teaching practices. An important question to ask yourself is whether the problem/question is worth researching.

Unit: Literature review

The unit contains information about literature review techniques, resources, and procedures in a systematic manner.

The Instructor should create a session plan based on 'The literature review: A few steps on conducting it' by Dena Taylor of the Health Science Writing Centre, University of Toronto, which is presented below. (The text is also available from http://www.writing.utoronto.ca/advice/specific-types-of-writing/literature-review; free for academic purposes.)

'The literature review: A few steps on conducting it'

What is a review of the literature?

A literature review is an account of what has been published on a topic by accredited scholars and researchers. Occasionally you will be asked to write one as a separate assignment, but more often it is part of the introduction to an essay, research report, or thesis. In writing the literature review, your purpose is to convey to your reader what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are. As a piece of writing, the literature review must be defined by a guiding concept (e.g., your research objective, the problem or issue you are discussing, or your argumentative thesis). It is not just a descriptive list of the material available, or a set of summaries.

Besides enlarging your knowledge about the topic, writing a literature review lets you gain and demonstrate skills in two areas:

1) **information seeking:** the ability to scan the literature efficiently, using manual or computerized methods, to identify a set of useful articles and books
2) **critical appraisal:** the ability to apply principles of analysis to identify unbiased and valid studies.

A literature review must do these things:

1) be organized around and related directly to the thesis or research question you are developing
2) synthesize results into a summary of what is and is not known
3) identify areas of controversy in the literature
4) formulate questions that need further research

Ask yourself questions like these:

1) What is the **specific thesis, problem, or research question** that my literature review helps to define?
2) What **type** of literature review am I conducting? Am I looking at issues of theory? Methodology? Policy? Quantitative research (e.g., on the effectiveness of a new procedure)? Qualitative research (e.g., studies)?
3) What is the **scope** of my literature review? What types of publications am I using (e.g., journals, books, government documents, popular media)? What discipline am I working in (e.g., nursing psychology, sociology, medicine)?
4) How good was my **information seeking**? Has my search been wide enough to ensure I've found all the relevant material? Has it been narrow enough to exclude irrelevant material? Is the number of sources I've used appropriate for the length of my paper?
5) Have I **critically analyzed** the literature I use? Do I follow through a set of concepts and questions, comparing items to each other in the ways they deal with them? Instead of just listing and summarizing items, do I assess them, discussing strengths and weaknesses?
6) Have I cited and discussed studies **contrary** to my perspective?
7) Will the reader find my literature review **relevant, appropriate, and useful?**

Ask yourself questions like these about each book or article you include:

1) Has the author formulated a problem or issue?
2) Is it clearly defined? Is its significance (scope, severity, relevance) clearly established?
3) Could the problem have been approached more effectively from another perspective?
4) What is the author's research orientation (e.g., interpretive, critical science, combination)?
5) What is the author's theoretical framework (e.g., psychological, developmental, feminist)?
6) What is the relationship between the theoretical and research perspectives?
7) Has the author evaluated the literature relevant to the problem or issue? Does the author include literature that takes positions she or he does not agree with?
8) In a research study, how good are the basic components of the study design (e.g., population, intervention, outcome)? How accurate and valid are the measurements? Is the analysis of the data accurate and relevant to the research question? Are the conclusions validly based upon the data and analysis?

9) In material written for a popular readership, does the author use appeals to emotion, one-sided examples, or rhetorically charged language and tone? Is there an objective basis to the reasoning, or is the author merely "proving" what he or she already believes?

10) How does the author structure the argument? Can you "deconstruct" the flow of the argument to see whether or where it breaks down logically (e.g., in establishing cause-effect relationships)?

11) In what ways does this book or article contribute to our understanding of the problem under study, and in what ways is it useful for practice? What are the strengths and limitations?

12) How does this book or article relate to the specific thesis or question I am developing?

Final notes

A literature review is a piece of discursive prose, not a list describing or summarizing one piece of literature after another. It's usually a bad sign to see every paragraph beginning with the name of a researcher. Instead, organize the literature review into sections that present themes or identify trends, including relevant theory. You are not trying to list all the material published, but to synthesize and evaluate it according to the guiding concept of your thesis or research question.

If you are writing an annotated bibliography, you may need to summarize each item briefly, but should still follow through themes and concepts and do some critical assessment of material. Use an overall introduction and conclusion to state the scope of your coverage and to formulate the question, problem, or concept your chosen material illuminates. Usually you will have the option of grouping items into sections—this helps you indicate comparisons and relationships. You may be able to write a paragraph or so to introduce the focus of each section.

Additional resources

Lie, K. (n.d.). Writing the literature review. Available from:

- http://www.ais.up.ac.za/med/tnm800/tnmwritingliteraturereviewlie.htm

University of Canberra Academic Skills Centre (n.d.). Writing a literature review. Available from:

- http://www.canberra.edu.au/studyskills/writing/literature

Unit: Action research

This unit specifically focuses on describing the meaning and nature of action research, its advantages and limitations as a research process, and its relevance to Student Teachers as classroom practitioners.

Topic: Introduction to action research

Learning outcomes

By the end of this lesson, Student Teachers will be able to:

- define *action research*
- enlist key features of action research
- describe action research steps.

Defining action research (20 minutes)

Share the following definitions with Student Teachers. You can write them on chart paper, use them in a (PowerPoint) presentation, or make a handout to be distributed.

Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to further the goals of social science simultaneously. Thus, there is a dual commitment in action research to study a system and concurrently to collaborate with members of the system in changing it in what is together regarded as a desirable direction. Accomplishing the twin goals requires the active collaboration of researcher and client, and thus it stresses the importance of co-learning as a primary aspect of the research process.
–R. O'Brien (1998)

Action research is a form of research carried out by people on their own work and/or lives, sometimes with the help of an external facilitator. It aims to create a better understanding of the situation or problem being studied, and to change it for the better in the process. It is grounded in the fundamental assumption that the best way to understand a situation it to participate in it.
–Geoffrey E. Mills (2006)

Action research is a process in which participants examine their own educational practice systematically and carefully, using the techniques of research.
–E. Ferrance (2000)

Models of action research (40 minutes)

Ask Student Teachers to individually read the definitions and identify the key features that they share.

Then, have Student Teachers work in small groups to compare and contrast key features. After, bring the entire class back together and have the groups share their observations.

Divide Student Teachers into four groups and give each group one of the models of action research included in Koshy's book on action research (2005). Koshy offers three prominent models with a description and a graphic representation of each model. These are available online:

➢ http://www.actionlearning.com.au/Classes/ActionResearch/Books/Book-ActionResearchForImprovingPractice.pdf

Each group should identify the steps involved in action research and then present their model to the whole class with the help of the diagrams included in Koshy (2005). The models are:

- Kemmis and McTaggart's action research spiral, p. 4
- Elliot's action research model, p. 6
- O'Leary's cycles of research, p. 7
- Macintyre's action research cycle, p. 7.

Topics: Action research and the nature of action research

Lecture notes

Action research

Action research is a kind of applied research. It is also known as participatory action research. According to Carr and Kemmis (1986, p. 162), action research is a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situation in which the practices are carried out.

The basics of action research

Action research is a collaborative approach to research that provides people with the means to take systematic action in an effort to resolve specific problems. According to Fals-Borda and Rahman (1991), action research mainly targets two primary tasks:

- To uncover or produce information and knowledge to a group of people (through research, education, and socio-political action)
- To enlighten and empower the average person in a group, motivating each one to understand and use the information gathered in the research

Stages in action research

The basic action research procedural routine involves four stages:

1) Identifying the research question
2) Gathering the information to answer the question
3) Analysing and interpreting the information
4) Sharing the results with the participants

Action research follows a kind of spiralling progression rather than a more traditional linear one.

Nature of action research

The following information on the nature of action research provides an easily accessible resource for Student Teachers:

- It is situational or contextual. A particular problem may be seen by school functionaries in one area, but the same problem may not be observed in other area.
- It is reflective inquiry. Teacher–researchers self-evaluate the impact of their own performance.
- It is based on a scientific approach. It is scientific because the stages of inquiry are organized or ordered.
- It is a small-scale intervention.
- It is a way to find remedies to overcome obstacles in learning.
- It is a unified exercise to bridge a gap between theory and practice.
- It is cooperative and may be pursued by a group of teachers working cooperatively in a school. They may or may not be advised by an outside researcher.
- It is collaborative. A team of teachers may work along with a team of researchers on a project.
- It emphasizes the involvement of teachers as practitioners in problems important in their own classrooms.

References

Carr, W., & Kemmis, S. (1986). *Becoming critical: Education, knowledge and action research*. Geelong: Deakin University Press.

Fals-Borda, O., & Rahman, M.A. (eds.) (1991). *Action and knowledge: Breaking the monopoly with participatory action research*. New York: Intermediate Technology/Apex.

Additional resources on action research

Books

Gall, M. D., Gall. J. P., & Borg, W. R. (2007) *Educational research: An introduction* (8th ed.) (pp. 597–614). New York: Pearson.

Mills, G. E. (2006). *Action research: A guide for the teacher researcher* (3rd ed.). Columbus, OH: Pearson Merrill Prentice Hall.

Online resources

Crocker, R. (n.d.). Introduction to action research. Available from:
- http://www.slideshare.net/robertcroker/introduction-to-action-research-13089148

Ferrance, E. (2000). *Action research*. Providence, RI: Brown University. Available from:
- http://www.lab.brown.edu/pubs/themes_ed/act_research.pdf

Koshy, V. (2005). *Action research for improving practice*. London: PCP. Available from:
- http://www.actionlearning.com.au/Classes/ActionResearch/Books/Book-ActionResearchForImprovingPractice.pdf

Master, J. (1995). The history of action research. In I. Hughes (ed.), *Action research electronic reader.* Sydney: University of Sydney. Available from:
- http://www.iopp.ru/pub/21sept06_M2.doc

Yanto, H. (2011). Introduction to action research in education.
- http://www.wiziq.com/tutorial/143998-Introduction-to-action-research-in-education

Young, M. R, Rapp, E., & Murphy, J. W. (n.d.). Action research: Enhancing classroom practice and fulfilling educational responsibilities. Available from:
- http://www.aabri.com/manuscripts/09377.pdf

Note that the works by Crocker and Yanto are PowerPoint presentations available for virtual learners. These presentations offer brief information about action research in education and why it is something teachers should do.

Unit: Reflection

Reflection has been identified as an important component of the action research process. This unit aims to help Student Teachers to understand reflective practice as a teacher education concept and to see its relevance to the process of action research.

Teaching idea

Three beginning teachers' reflections are given below. Use them while making a lesson or session plan on reflection.

Teacher 1: Amir Khan's first day

Amir was assigned to teach class 1 at School A. He did his teaching practice during spring semester, and he thought that he was ready to teach his own class. He enjoyed being left alone with the class, felt confident of his ability to handle the class on his own, and believed that he was already a very good teacher. Ten minutes into his first day alone, things started going wrong. He had problems with everything from collecting students' copies to repeatedly losing control of the class as students becaame noisy and overly active. When he got home, he collapsed in a chair and began recounting his horror stories to his sister, Sadia, who listened patiently and tried to be supportive. As he talked about the day's events, Amir began to feel better about the day and started to see some humour in it. He even chuckled as he remembered the copies falling in all directions, his own comic efforts to collect those, and students' roars of laughter. He realized that he had lost control early in the day and that had set the tone for everything else that happened. The problem was that he had been taking himself too seriously. He was sure he would do a better job tomorrow and decided that he would start the day by joking with the class that things had to get better after the first day.

Teacher 2: Rashida Malik's first day

Rashida had a long, hard day trying to get her class 6 students organized for the school year. Things had started out all right but rapidly deteriorated as the students continually tested her authority. By lunchtime, Rashida knew that she needed to regain control, or she would have to have them stay after school if they refused to settle down and get to work. After lunchtime, the class not only did not improve, but it had got wilder and more out of control by the hour. By the time the final bell rang, Rashida did not have the energy to try to keep the class after school, and in any case, she knew that the bus schedules made it difficult to do. As she drove home, she became angrier and angrier. The day had been a disaster—there was no doubt about that—but it hadn't really been her fault. Her course instructors had never really taught her how to regain control of a class, and if the kids were really this bad, the principal should have warned her in advance so that she could be ready for them. She was also irritated that Mrs Farida Khatoon, the other class 6 teacher, had not bothered to see if she needed any help. It seemed to her that this was the least an experienced teacher could do for a newcomer. When she got home, Rashida decided that things at school would eventually work themselves out, and she needed just to take her mind off the day. So, she prepared tea and turned on the television, looking forward to a quiet and relaxing evening.

Teacher 3: Fazilat Hayat's first day

Fazilat had arrived at school early so that she could finish getting her classroom set up the way that she wanted it. The bulletin boards were colourful and well done, emphasizing several of the themes that she planned to focus on with her class 3 students. The desks were organized in neat, straight rows, and she had already put the textbooks on each desk. She thought that this would allow her to start teaching right away and not waste any time on set-up and classroom organization. However, when her students arrived, they seemed to have other ideas. During the first hour of class, several of the boys began 'accidentally' pushing the piles of books off their desks. This game ended only when Fazilat actually shouted at Asif Ali, one of the instigators of the game—something she never thought she would have to do to get control of her class. By recess, the neat lines of desks were disorganized, as several students had made deliberately circuitous trips to the back of the room to sharpen pencils and pushed the desks around on their way.

By the end of the day, Fazilat had a terrible headache and wondered whether she really wanted to be a teacher after all. Before leaving the school, she wrote in the journal that she had kept since her first field experience at university. Much to her own amazement and disappointment, Fazilat quickly listed seven major mistakes that she thought she had made during the day and was fairly sure there were others she had missed. Next to each mistake, she left room to write more comments later. She took the journal home with her, and after taking a couple of aspirin and fixing a cup of tea, she reread that day's entry. Next to each comment she added a way of correcting or avoiding each mistake in the future. For instance, next to 'Neat rows were a bad idea', she wrote, 'Put the desks together in groups of four (or maybe six? — I should ask one of the older teachers about this) and see if that helps'. She still felt

bad about shouting at Asif Ali and promised herself that tomorrow she would make a point of praising him for something. As she closed her journal, she decided that she still wanted to be a teacher but that it was obviously going to be a lot harder than she had expected.

Questions

- What was each teacher's concern?
- How did each teacher reflect on and respond to their classroom experiences?
- Who was the most reflective among the three teachers? Why?

Additional resources

Denny, H. (2005). Reflective practice and action research as a source of pre-service and in-service professional development and classroom innovation: Burden or benefit? Myth or reality? Available from:

➢ http://www.crie.org.nz/research-papers/H_Denny.pdf

Deol, S., & Deol, V. (n.d.) Action research and reflective practice. Available from:

➢ http://mrkim.2myclass.com/kkim/uofcmed/603012au.ppt

Finlay, L. (2008). Reflecting on 'reflective practice'. Available from:

➢ http://www.open.ac.uk/opencetl/files/opencetl/file/ecms/web-content/Finlay-(2008)-Reflecting-on-reflective-practice-PBPL-paper-52.pdf

Osterman, K. F., & Kottkamp, R. B. (1993). *Reflective practice for educators: Improving schooling through professional development* (chapter 2). Newbury Park, CA: Sage. Available from:

➢ http://www.fgse.nova.edu/edl/secure/mats/rdgelach2.pdf

Scales, P. (n.d.). The reflective teacher. In *Teaching in the lifelong learning sector.* Available from

➢ http://www.mcgraw-hill.co.uk/openup/chapters/9780335222407.pdf

Videos on reflective practice

Crawley, J. (2010). Reflective practice 1 – Fi's reflective journal. Available from:

➢ http://vimeo.com/channels/129024

Maitland, A. (n.d.). Reflective practice. Available from:

➢ http://vimeo.com/30674654

Unit: Research methodology

The research methodology unit covers the following topics from the syllabi: data collection tools, ethical consideration in research, sampling, and data analysis.

Topic: Ethical considerations

Teaching idea

One-minute paper

Write down this topic on the board: *ethical considerations in research*.

Instruct Student Teachers to write what comes to their mind when they hear the words *ethics* and *ethical considerations*.

Card activity

Prepare cards with information from the table below. Write each point on separate cards and make one card for each subject. Student Teachers have to put the card under each subject respectively and discuss each point in pairs or groups.

Instruct Student Teachers to take their notes from the previous activity and make additions or changes according to what they have learned.

Voluntarily, Student Teachers will share what they knew already and what they have learned.

Ethical consideration	Description	Researcher role
Informed consent	Informed consent is an important component of ethics in research. Permission should always be obtained from participants. Special care should be taken when children or minors are research subjects. Permission should be sought from both parents and students.	In seeking consent, the researcher should not just ask people to give their consent to participate; people also need to understand fully why they are participating in the research and what will happen to the data they contribute. Explain the purpose of research. Note that in action research the outcomes are most likely to be used for improving aspects of practice, reducing the likelihood of resistance from participants.

Ethical consideration	Description	Researcher role
Privacy	Respect for privacy is important when the researchers are trying to collect sensitive information or to observe people in private settings such as their homes.	It is a researcher's ethical responsibility to ensure that information is never used in any way other than originally intended or in any way that would infringe on a participant's right to privacy.
Anonymity and confidentiality	Rights to privacy are often protected by anonymity. Participants should not be identified in research reports. The researchers should not use subjects' real names; code names or pseudonyms should be used. It is the researcher's responsibility to ensure that the identity of subjects cannot be detected.	Rights to privacy are often protected by confidentiality. Maintaining confidentiality is the researcher's responsibility. Confidentiality means that the researcher uses the information responsibly and does not share information about the subjects in any way that could prejudice their interests. In short, ensuring confidentiality means not reporting private data that identifies participants.
Reciprocity	Treat others as you want them to treat you. This principle is the **ethic of reciprocity.** It is a mutually beneficial interaction in which all parties gain.	The researcher is indebted to participants for sharing their experiences. Reciprocity may entail giving time, i.e. providing informed feedback.

The table was adapted from Koshy, F. (2005). A*ction research for improving practice: A practical guide.* London, Paul Chapman Publishers.

Additional resources

'The Ethics of Educational Research: An Agenda for Discussion' by Hugh Busher is a PowerPoint available on several websites. Search using the full title and author.

'Ethical Issues in Qualitative Research: What Would You Do?' by Deslea Konza. Available from:

- http://publications.aare.edu.au/98pap/kon98027.htm

Topic: Data collection methods and interviews in research

At the end of the lesson, Student Teachers will be able to:

- explain what data collection means
- identify data collection methods
- discuss the purpose and nature of interviews as data collection tools in research
- discuss different types of interviews (including their strengths and limitations)
- explore various approaches to identifying and selecting participants
- demonstrate how to interview subjects and record data.

Introduction to data collection tools (15 minutes)

Give a brief lecture or presentation on data collection tools.

Brainstorm about interviews (10 minutes)

Have Student Teachers independently brainstorm about interviews and then write their own definitions of the term. They will then share the definition with the whole class.

To help prompt Student Teachers as they brainstorm, consider posing the following questions:

- What is an interview?
- Are there different types of interviews? What are they?
- Why do people interview others?

Interview concepts (20 minutes)

Divide the class into six groups. Assign members of each group with a role (for example, materials manager, reader, timekeeper, writer/recorder, presenter, or manager).

Now assign each group a topic and set of questions from below. The Student Teachers should conduct an inquiry and bring data to the session. Encourage groups to use the remainder of the session to work out what they know already and to plan their inquiry. They could conduct an inquiry individually and then present their findings as a group in class. They could also act out or demonstrate some of the concepts they are discussing.

Group 1: Identifying and selecting participants

- What is sampling and why is it necessary?
- What are the types of sampling?
- How do you identify and select participants?
- What do you do if a person in your study is resistant to participating or is overly enthusiastic?

Group 2: Structured interview

- What is a structured interview?
- What are the advantages or disadvantages of this type of interview?

Group 3: Semi-structured interview

- What is a semi-structured interview?
- What are the advantages or disadvantages of this type of interview?

Group 4: Unstructured interview

- What is an unstructured interview?
- What are the advantages or disadvantages of this type of interview?

Group 5: Focus group interview

- What is a focus group interview?
- What is the purpose of this type of interview?
- What is the benefit of this type of interview?
- What issues might a researcher face while conducting focus group interviews? How can one deal with those issues?

Group 6: Recording of interviews

- Why is recording an interview necessary?
- What are the common approaches to recording interviews?
- What are the advantages and disadvantages of each approach?

Student Teachers will discuss their points in their groups and then make a presentation, which should include a chart outlining their main points.

Presentation (40–45 minutes)

Groups will make a presentation on their assigned topics. (They could also act out some of the ideas they are discussing.)

Whole-class discussion: Conducting interviews (15–20 minutes)

Lead a whole-class discussion on conducting interviews. Prompt discussion by asking the following questions:

- What is a good interview? What is a bad interview?
- What kind of questions are to be asked?
- What is the 'researcher effect'? What is its role in interviews?
- Why is it important to know about the nature of the researcher–respondent relationship? How might this relationship influence interview data gathering?

Teacher resource

Data collection

Data collection means gathering information to address specific research questions. There are different methods to gather information and a wide variety of information sources. The most important issue related to data collection is selecting the most appropriate information or evidence to answer research questions. To plan data collection, researchers must think about the questions to be answered and the information sources available. Also, researchers must begin to think ahead about how the information should be organized, analysed, interpreted, and then reported to various audiences.

Data collection methods

There are many data collection methods such as interviews, observations, and surveys. The selection of any method for collecting data must balance reliability and validity.

Reliability

The researcher should address all the following issues before starting data collection:

- Will the research process consistently measure what it is supposed to measure?
- In the case of multiple interviews, settings, or observers, will measurements be consistent?
- Will people interpret questions the same way each time?

Validity

The researcher should make sure that the information collected is relevant to the research questions. Specifically, the researcher must consider whether the data collection methods produce information that actually addresses the research question.

Active lecture

Deliver a lecture using the following materials. You can prepare a presentation with slides (e.g. PowerPoint) for the lecture and distribute the slides as handouts. (Below are sample slides that you may adapt for your presentation.)

During the lecture, explain each slide in detail and provide examples if necessary. Give information in small chunks and then have Student Teachers take a few minutes to complete an activity, such as the following:

- Write a one-minute paper in response to the lecture.
- Discuss the lecture with a neighbour. Do you agree what has been said? Have you interpreted it in the same manner? Do you have questions?
- List as many key points as you can remember. (This can be done on paper or as a discussion.)

Sample slides for the active lecture

Slide 1

Interviews

Purposeful conversation (between two or more people) is directed by one person to get information from another (Bogdan & Biklen, 1998).

Slide 2

When to use interviews

- To get more in-depth information about perceptions, insights, attitudes, experiences, or beliefs
- To evaluate individual differences between respondents' experiences and outcomes
- To follow up after other methods have been used
    - Interviewing is a useful way to ask follow-up questions after data from other methods such as observation, questionnaires, or document review have been analysed.

Slide 3

Structured interviews

Strengths
- Large number of people
- Generalization
- A person who did not design the questions can conduct the interview
- Covers wide areas
- Cheap to administer
- Easy to analyse

Weaknesses
- Rigid, prearranged questions
- Can fail to uncover complex and emergent factors
- Not sensitive to the social contexts of the interview itself (i.e. the characteristics of the interviewer and interviewee, the topic under investigation)

Slide 4

Semi-structured interviews

Strengths
- Allows depth by probing and expanding the responses
- Flexible; alter sequence of questions
- Provides room for negotiation and discussion

Weaknesses
- Limited in scope
- More difficult to record
- More difficult to analyse
- More room for researcher bias

Slide 5

Unstructured interviews

Strengths

- Natural conversation
- Adaptable to the context
- Situated activity
- Greater scope in asking questions out of sequence
- Interviewees' flexible answers
- Greater and freer flow of info
- More equal relationship between researcher and interviewee

Weaknesses

- Potential sources of bias
- Time-consuming
- Need to establish rapport first

Slide 6

Focus group interviews

Strengths

- Tests a specific research question about consensus beliefs
- Obtains greater depth and breadth in responses than individual interviews
- Verifies research plans or findings
- Enhances the reliability of interviewee responses

Weaknesses

- Expensive
- Reactive and investigator effects if participants feel they are being watched or studied
- May be dominated by one or two participants
- Difficult to generalize results if small, unrepresentative samples of participants are used

Slide 7

Focus group interviews (cont.)

Strengths

- Provides rich data (focus groups are stimulating for respondents, who often help each other while responding)
- Obtains responses from all group members so as to ensure the fullest coverage of the topic
- Can examine how participants react to each other

Weaknesses

- May include large amount of extra or unnecessary information
- Time-consuming data analysis because of the open-ended nature of the data

Slide 8

Recording interviews

Tape recording

- Can be replayed as many times as needed for continued study and analysis
- Need subjects' consent for recording
- Subjects' uneasiness in tape recorder's presence
- Inconsistent sound quality
- Cannot capture some elements (e.g. participants' facial expressions and the context of conversation)
- Time-consuming transcription

Slide 9

Recording interviews (cont.)

Taking notes

- Dilemma: Take notes, listen to interview, or ask next question
- May influence or scare the interviewee if interviewer is writing everything down
- Difficult to write fast (use shorthand)

Taking notes after the interview

- Reduces subject's anxiety during interview
- Possibility of writing incorrect information or forgetting information
- Distorts information

Slide 10

Problems to anticipate in interviews

- Interruptions from outside (e.g. telephone calls, people knocking on the door)
- Distractions
- Embarrassing or awkward questions
- Addressing sensitive matters (e.g. personal or emotional matters)
- Jumping from one topic to another
- Giving advice or opinions (rather than actively listening)
- Summarizing too early or closing off an interview too soon
- Being too superficial

Slide 11

Suggestions for interviewing

- Listen more, talk less.
- Follow up what the participant says (ask for clarification, seek concrete details, request stories) but do not interrupt.
- Ask questions when you do not understand the response.
- Explore using probes.
- Ask real questions. Do not ask questions to which you already know the answer.
- Avoid leading questions.
- Ask open-ended questions.
- Keep participants focused and ask for concrete details.
- Avoid reinforcing participants' responses.
- Tolerate silence.

Slide 12

Planning for interviews

- Select comfortable surroundings for the interview.
- Make sure that interviews are not too long; 30–40 minutes is usually sufficient.
- Before the interview, introduce yourself, explain the purpose of the interview in a positive way, and ensure anonymity so that the interviewee feels relaxed.
- Make sure that only those interview questions that will answer research questions are included.

Slide 13

Planning for interviews (cont.)

- Develop an interview guide or questions. The specificity of written interview guidance varies depending on the type of interview. For an informal conversational interview, interview guidance need not be prepared. For a semi-structured interview, guidance might include specific topics to be covered and questions to be included. For a standardized open-ended interview, develop all questions, the order of the questions, and probes before the interview. Probes help clarify a response to a question by asking more detailed follow-up questions.
- Select the subjects to be interviewed. Researchers should decide if all possible participants need to be included or if a sample will suffice. This depends on the number of possible participants and the resources available.

Slide 14

Planning for interviews (cont.)

- Train the interviewers. If other people are interviewing participants, they will need to be trained to conduct an interview according to the researcher's interview guide.
- Pilot test the interview guide or questionnaire. This allows the researcher to identify questions that may be confusing or misinterpreted by respondents. Pilot testing typically involves conducting a few interviews and then determining if any changes are needed to the interview guide or questionnaire.

Adapted from:

Bogdan, R. C., & Biklen, S. K. (1998). *Qualitative research for education: An introduction to theory and methods* (3rd ed.). Needham Heights, MA: Allyn and Bacon.

Bogdan, R., & Biklen, S. K. (2007). *Qualitative research for education: An introduction to theory and methods* (5th ed.). Boston: Pearson.

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education*. London: RoutledgeFalmer.

Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York: Teachers College Press.

Activity

Student Teachers identify a subject to interview and imagine negotiating interview protocols with that person. They should decide when and where the interview will occur and develop questions to be asked. Student Teachers should also determine how they will record the data.

Topic: Observation in research

Observation tips

In preparation for the activities in this lesson, the following should be noted about observations, how to make them more effective, and how to collect data during an observation:

- Develop an observation plan and a data-collection template.
- Conduct observations at different times of day.
- Consider asking a colleague to conduct the observation.
- Record a video when ethically appropriate.
- Be aware that the observer's presence can affect the process.

Advantages	Disadvantages
• Provides a holistic picture • Is effective in classroom and playground situations • Can document non-verbal behaviours • Increases the researcher's sensitivity to multiple variables	• Might be difficult to isolate specific behaviours • Must use multiple observations for validity

Brainstorming: Observation (5 minutes)

Student Teachers brainstorm and consider what an observation is. As they complete their brainstorm, give them the following definition from Grady (1998): 'Observation is looking with a purpose'.

Observation of setting and objects (10 minutes)

Place objects on a table in the classroom. Invite two volunteers to observe (examine) the table. The volunteers should then leave the classroom for a minute or two. When they are outside, have other Student Teachers move the objects and record what they have changed. Have the first two Student Teachers return from outside, and ask them to determine how the placement of the objects has changed. First, they should describe the original setting and then talk about the changes that occurred.

Observing at an institution (25 minutes)

Student Teachers will be asked to go out to observe activities at an institution (their own or a local school). They will be asked to observe unobtrusively. After 5–10 minutes, they will come in and share their observations. Their observations will be categorized based upon the following:

- physical setting
- participants
- events, activities, and interactions
- conversations and gestures.

To prepare Student Teachers for this activity, the Instructor should share the following description of a setting to provide a good example:

> After walking down a steep dirt road, we were on level ground following another zigzag dirt road. This dirt road was one among many such that were gradually being improved by proper construction and hence would provide residents the facility to commute back and forth from the main road to their homes; steep sites at the foot of the mountains. From here I could view the road in the distance. On the way, we came across a woman who was wearing a traditional hat with embroidery of vibrant colours. Khadija greeted her and so did I. She replied politely and asked Khadija *"Hunza jo kaki henna?"* (Is this sister from Hunza [my place of origin]?) Khadija responded in the local language. Still walking, they exchanged further greetings, asking about the well–being of each other's families. I saw some cattle in the uncultivated fields. (The resident of the village community have to unanimously agree on the locations and times for animal grazing, in order to protect cultivated areas.) As we walked further on the unpaved road, we passed a few local men and women who were probably on their way to morning farming chores. Soon we stepped down a narrow path between the fields. Khadija was walking slowly in time with my pace. I found it a little hard maintaining my balance while walking on the narrow, twisty path. On our way I saw some women dressed traditionally in bright-colored clothes and embroidered hats (Ashraf, 2004, p. 145).

Student Teachers should read their descriptions to the whole class and discuss each sentence of their descriptions according to the four categories.

They will then compare their descriptions with the one the Instructor provided and discuss to what extent they are similar or different.

The idea for this activity is drawn from Grady, M. P. (1998). *Qualitative and action research: A practitioner handbook*. Arlington, VA. Phi Delta Kappa International.

The thick description is from *Women Teachers' Experiences in the Northern Areas of Pakistan*, unpublished doctoral dissertation, Ontario Institute for Studies in Education-University of Toronto, Canada, by Dilshad Ashraf, 2004.

Topic: Questionnaire

A questionnaire is a set of questions for gathering information from individuals. A researcher can administer questionnaires by mail or telephone, using face-to-face interviews, as handouts, or electronically (i.e. by e-mail or online).

Questionnaires can be a cost-effective way to reach a large number of people or a geographically diverse group.

How to plan a questionnaire

The most critical part of developing a questionnaire is defining its purpose and objectives. Selecting the type of participants to include is part of determining the research objectives. The researcher should also decide if all possible participants need to be included or if a sample will suffice. This will depend on the number of possible participants and the resources available.

Writing questions

Some basic principles for writing questions include the following:

- Develop questions that clearly communicate what the researcher wants to know.
- Use simple language that respondents will understand.
- Avoid using abbreviations, jargon, or colloquial phrases.

- At the beginning or end, questionnaires usually include demographic questions such as sex, race, age, education, religion, domicile, city, occupation, pay, and marital status. The purpose of these questions is to describe subgroups of respondents. Limit the demographic questions to only those that are important for analysis. For example, if the researcher does not plan to compare data by age, do not include age on the questionnaire.
- Closed-ended questions include a list of predetermined answers from which participants can choose. This type of question is easier to analyse.
- Open-ended questions allow participants to answer questions in their own words. These can be useful if the researcher does not know the possible answers to questions or for gathering insightful or unexpected information. However, open-ended questions are more difficult and time-consuming to analyse because the researcher has to categorize and summarize the answers.
- Avoid leading questions. For example, a question that asks which part of a lesson a student enjoyed most ('Which part of the lesson did you enjoy the most?') assumes that the student enjoyed some part of a lesson, which may not be necessarily the case.
- Place questions in a logical order that flows well. Start with less sensitive questions and end with more sensitive questions. Order the questions in a way that makes sense to the participant, such as by topic area.
- Questionnaires often make use of checklists and rating scales. These devices help simplify and quantify people's behaviours and attitudes. A checklist is a list of behaviours, characteristics, or other entities that the researcher is looking for. Either the researcher or survey participant ticks whether each item on the list is observed, present, true, etc. A rating scale is more useful when a behaviour needs to be evaluated on a continuum.

Checklist to evaluate questions in a questionnaire

Use the following checklist to evaluate and finalize questions in a questionnaire.

No.	Questions	Tick (If your answer is yes, tick the box.)	Comments (as needed)
1	Is this question necessary? (How will it be useful? What will it tell?)		
2	Are these questions needed to answer research question(s)?		
3	Do respondents have the necessary information to answer the question?		
4	Will the words and/or phrases in each question be universally understood by the target audience?		
5	If abbreviations are used, will everyone in the sample understand what they mean?		
6	Are your (the researcher's) assumptions the same as the target audience's?		
7	Have you (the researcher) assumed that the target audience has adequate knowledge to answer the question?		
8	Are the questions simple enough to be answered? (For example, questions should not demand too much from respondents in terms of mathematical calculations or having to look up records.)		
9	Are the questions unbiased? Do accompanying questions help to create bias?		
10	Are questions asked separately? (For example, asking students whether they participate in curricular and co-curricular activities might confuse students who are part of curricular but not of co-curricular activities. Also, the researcher would find it difficult to analyse or make inferences.)		
11	Do the questions have a double negative (e.g. it is not nothing)?		

General guidelines for questionnaire format

A questionnaire should include several key elements.

Cover letter

A questionnaire should always be sent accompanied by a cover letter. The letter should include the title of the questionnaire, the purpose of the study, and why and how the participant was selected to receive the questionnaire. Names of the researcher and project supervisor and their contact details must be included. Remember to include a deadline for returning the questionnaire.

Questionnaire introduction

State the purpose of the questionnaire, why it is being conducted, and why the recipient has been selected as a respondent.

Instructions

Give clear instructions on how to answer the questions. For example, indicate whether the answers should be circled or if respondents must fill in the blanks. If there are open-ended questions, advise respondents that they are expected to answer with more than a yes or a no. Instructions should also advise respondents on which questions they are supposed to answer. For example, if a respondent answers no to a certain question, the instructions should clearly indicate whether they proceed to the next question or skip ahead to another question or page.

Arranging questions

Questions should not be spread over more than one page. For example, if part of a question appears at the end of a page and the beginning of the next, the entire question should be moved to the next page. Never force respondents to turn a page in the middle of a question or flip pages back and forth to answer a question.

Grouping question

Keep groups of questions with similar topics together in a logical flow. Use a transition statement when moving to a new topic within the questionnaire. For example, begin a new section with statement such as, 'Next we would like to ask some questions about the teaching methodologies used at this school'.

Demographic questions

Place all demographic questions at the beginning or end of the questionnaire. Demographic questions include asking a person's sex, race, age, education, religion, domicile, occupation, pay, or marital status. Ask only the demographic information needed for analysing data.

Other comments

Allow space on the questionnaire to ask respondents to share any other comments.

Thank you!

Remember to thank the respondent for completing the questionnaire.

Checklist to evaluate a questionnaire

Use the following checklist to evaluate and finalize a questionnaire.

No.	Elements of a questionnaire	Tick (If your answer is yes, tick the box.)	Comments (as needed)
1	A cover letter accompanies the questionnaire.		
2	The title of the questionnaire will appeal to respondents.		
3	The questionnaire looks easy to complete.		
4	The print quality is clear and legible.		
5	The introduction is concise and relevant.		
6	Instructions are provided for each question or series of very similar questions.		
7	Instructions are brief and clear.		
8	All questions are essential and relevant to the objective of the survey.		
9	Wording is at an appropriate literacy level for respondents.		
10	Adequate space is provided for respondents to write answers.		
11	Necessary demographic questions are included.		
12	Respondents are thanked at the end of the questionnaire.		
13	Instructions for mailing/returning the questionnaire are included at the end.		
14	A self-addressed stamped envelope is included for respondents (if necessary).		

Pilot test the questionnaire

Before administering the questionnaire, give it to one or more people to complete. They should represent the population of the research. Testing the questionnaire before administration will help find out whether participants understand the questions, whether the questions mean the same thing to all participants, whether the questions provide the data needed, and how long it takes to complete. In other words, check and ensure the validity and reliability of the questionnaire.

Advantages of using a questionnaire

- Can be completed anonymously (People are more truthful on questionnaires regarding controversial issues if they know that their responses are anonymous.)
- Inexpensive to administer
- Easy to compare and analyse
- Can be administered to many people and gather lots of data
- Can be adapted into many formats (online, paper, verbal)
- Available sample and template questionnaires (Researchers may still need to adapt the questionnaire.)
- Can ask sensitive questions
- Saves the researcher time

Disadvantages of using a questionnaire

- Can be difficult to get a high response rate
- Tedious or boring to complete
- Answers biased by wording of questions
- Does not always get the full story
- Adapting an existing questionnaire can affect validity and reliability.
- Online questionnaires are limited to respondents with computer and Internet access.
- Low response rates undermine validity.

Adapted from:
Centers for Disease Control (2008). Data collection methods for program evaluation: Questionnaires. Available from:
➢ http://www.cdc.gov/healthyyouth/evaluation/pdf/brief14.pdf

Key, J. P. (1997). Questionnaire and interview as data-gathering tools. Available from:
➢ http://www.okstate.edu/ag/agedcm4h/academic/aged5980a/5980/newpage16.htm

Local Government Data Unit – Wales (2009). A guide to questionnaire design. Available from:
➢ http://www.dataunitwales.gov.uk/SharedFiles/Download.aspx?pageid=79&fileid=447&mid=459

Topic: Document review

Document review (also called secondary data or data mining) is a way of collecting data by reviewing existing documents. The documents may be internal to a programme or organization (such as records of what components of an asthma management programme were implemented in schools) or external (such as records of emergency room visits by students served by an asthma management programme). Documents may be hard copy or electronic and may include reports, programme logs, performance ratings, funding proposals, meeting minutes, newsletters, and marketing materials.

When to use document review

Document review is the appropriate approach for collecting data when the researcher needs to do the following:

- gather background information
- help develop other data collection tools for research
- answer *what* and *how many* types of questions.

How to plan and conduct document reviews

Assess existing documents. Find out what types of documents exist and determine which ones will answer the research questions.

Secure access to the documents identified through assessment. Certain documents may require the permission of others before they can be released for review and analysis. A researcher may need to work with legal experts to understand potential legal limitations/restrictions and to access documents needed for research.

Ensure confidentiality. Confidentiality is always an important consideration when collecting data for research. If the researcher needs to review documents that involve confidential data about individuals, a system that ensures confidentiality of individual-level data must be developed. Developing these processes and guidelines may also help in securing access to sensitive or confidential documents.

Compile documents relevant to the research. Once access to the needed documents has been secured, compile the documents. It is important that the researcher limits review to only those documents that answer the research questions.

Understand how and why the documents were produced. The researcher will need to talk to people who know background information about the documents to better understand the context for which they were developed. This is critical to gathering usable information for research.

Determine the accuracy of the documents. This may involve comparing documents that contain similar information, checking the documents against other data collected, and speaking with people who were involved in the development of the documents.

Summarize information from the documents reviewed. Create a data collection form to summarize data collected from document reviews. The form may include the type of document being reviewed, a way to reference each document, and information that answers each applicable research question. The researcher can use the form to help compile and analyse research findings.

Advantages and disadvantages of document review

Advantages

- Relatively inexpensive
- Good source of comprehensive background information
- Unobtrusive
- Provides a behind-the-scenes look at a programme that may not be directly observable
- May bring up issues not noted by other means
- Does not interrupt stockholder's routine/strategy

Disadvantages

- Inapplicable, disorganized, or out-of-date information
- Could be biased because of selective survival of information (e.g. archival records are missing or incomplete)
- Incomplete or inaccurate information
- Can be time-consuming to collect, review, and analyse many documents
- Lack of new information

Additional resources

Collecting data (n.d.). Available from:

➢ http://www.stepstoolkit.org/index.php?option=com_courses&task=ShowModule&type=T&Module=7&CatId=50&Itemid=139

Topic: Data analysis and data management

Analysis is the process of breaking down data into smaller units, and putting the information together in a more general, analytical form.

Data analysis depends on the type of collected data (e.g. quantifiable or descriptive/narrative) as well as the format of the data (e.g. video recording).

- **Quantifiable.** Action research may produce quantifiable data that can be displayed using tables, charts, or diagrams.
- **Descriptive/narrative.** Action research data involve descriptive and narrative information that emerges from interviews, observation notes, and other sources. Using interviews is a common method of data collection for action researchers. Researchers can transcribe the whole interview or listen to the tape while analysing data and use parts of the tape recordings as evidence where relevant.
- **Video recordings.** Video recording provide a good opportunity to collect real and authentic data as events occur, but presenting video data can be challenging. One way to present recordings is to give a detailed description of what has been recorded. Converting major events into photographs can be another way of capturing the essence of what happened on video.

Data analysis and data management tips

- Revisit your research questions and remind yourself what it is that you have been investigating.
- Write descriptions of participants, the setting, and the phenomena studied. Descriptions are based on collected observations, interview data, and field notes. Include a narrative picture of the setting and events that take place in it to give a picture of the context in which the study occurred.
- Read your data (e.g. field notes, transcripts, diaries, observation notes, observer comments). Make margins on your data sheet (or wherever your data is), and as you read, write notes or underline/highlight any points that you think important so that you will have a record of your initial thoughts and sense of the data.
- Look at your notes from your initial reading of your data and start to make a list of themes. Themes come from data, literature reviews, and the researcher's prior theoretical understanding of the phenomenon under study. You can identify themes from your data by looking for patterns (repeated events), key phrases that participants use to describe something, or feelings or survey responses that seem to match one another.
- Review your data again and start coding while reading. It is very practical to use colour pens (pencils) for coding; all codes under one theme get a separate colour.

Coding

Coding is the process of examining raw qualitative data (in the form of words, phrases, sentences, or paragraphs) and assigning codes or labels. For example, in a study about school teachers' working style, participants shared how they spend their time away from work. From this, codes and themes emerged from the data:

Codes	Theme
Reading books Taking a holiday Visiting friends and relatives Napping Watching television	How teachers spend time away from work

According to Charmaz (2003), the following questions should be asked about data that is being coded:

- What is going on?
- What are people doing?
- What is the person saying?
- What do these actions and statements take for granted?
- How do structure and context serve to support, maintain, impede, or change these actions and statements?

Activity

Divide Student Teachers into small groups. Give them copies of the following table, created by Lewins, Taylor, and Gibbs (2005) to provide a more detailed list of the kinds of things that can be coded.

In their groups, Student Teachers should find two or three examples for each code. The first one has been completed already.

	What can be coded	Examples
1	**Events** – short, once-in-a-lifetime events or things people have done that are often told as a story	Left home for university First day of school
2	**Behaviours** – specific acts	
3	Activities – acts of longer duration that involve other people within a particular setting	
4	**Strategies** – practice or tactics	
5	**States** – general conditions experienced by people or found in organizations	
6	**Meanings** – a wide range of phenomena at the core of much qualitative analysis; meanings and interpretations important to what directs participants' actions	
7	**Participation** – adaptation to a new setting or involvement	
8	**Relationships** (or interactions)	
9	**Conditions** (or constraints)	
10	**Consequences**	
11	**Settings** – the entire context of the events under study	
12	**Reflexive** – researcher's role in the process; probing questions (e.g. How did the intervention generate the data?)	

Adapted from:

Alberta Teachers' Association (2000). *Action research guide.* Available online:
➢ http://www.teachers.ab.ca/SiteCollectionDocuments/ATA/Publications/Professional-Development/ActionResearch.pdf

Koshy, V. (2005). *Action research for improving practice* (pp. 109–118). London: Paul Chapman Publishers.

Mills, G. E. (2010). *Action research: A guide for the teacher researcher* (pp. 124–137). Boston: Pearson Education.

Unit: Research proposal

Topic: Parts of a research proposal

Lecture notes

A research proposal can be defined as a written document prepared in order to plan, start, conduct, and successfully complete a research project (Creswell, 2012). The research proposal acts as an important tool for important steps of a study. It is always written before the initiation of the actual project and, thus, is written using future tense. Unlike a research report, it does not include the findings and the result.

Title

The title is the formal beginning of a research proposal. According to Creswell (2012), the title briefly but clearly states the main idea of the proposed study. It helps the reader have a clear idea about the content.

The title of a research proposal should:

- be less than or equal to 12 words
- not include phrases such as 'a study of' or 'an analysis of'
- be easily understandable without any need for explanation or definition.

Titles for quantitative research may include:

- variables
- a comparison of a relationship between variables
- participants
- the research site

Titles for qualitative research may include:

- the main concept
- variables
- the research site

Introduction

The introduction is the first section of a research proposal. The introduction introduces the actual topic of the study and provides background information on the topic. This section acts as a baseline for the readers to have an understanding of the concept or idea around which the whole proposal (and the actual study) will revolve. The introduction starts with the most general terms, ideas, and facts relevant to the topic and moves toward a more specific end. After reading a good introduction, the reader is capable of understanding the next steps of the research.

Statement of problem

The statement of problem discusses the information from the introduction in a more specific context. It clearly states the research problem and the researcher's aim in addressing that particular problem. The research problem is stated in a few sentences, and commonly used sentences for the statement of problem include the following: 'the purpose of the study will be…', 'this study will be conducted to…', and 'the problem to be investigated through this study is…'. This section gives the proposal direction (Creswell, 2012).

Objectives

When the problem and the purposes statement have been properly outlined in the statement of problem, the reader can develop an overall idea about the study. However, the objectives of the study provide a clearer picture of the researcher's specific goals and intentions. Studies may have several separately stated objectives. In some cases, the researchers also divide the objectives into two subdivisions: minor and major objectives (Creswell, 2012).

Research questions

A number of research questions are posed in order to completely explore a specific topic. These questions further help the researcher investigate different aspects of the topic in detail and provide direction. A number of research questions can be made from a single purpose statement.

Delimitation

After the research questions have been formulated, the problem is further narrowed, a process called delimitation. This is done with various potential limits and challenges in mind, including the skills of the researcher, the resources available, ethical considerations, time period, accessibility, and other factors that can directly or indirectly affect the proposed study. Delimiting is done to make the study feasible, realistic, easy to conduct, and easy to generalize. For example, delimitations are made by specifying the period, the population's location, and the place for sampling.

Limitation of the study

Although research is a scientific and objective process that involves a lot of consideration and accuracy, there are certain inevitable things beyond the control of the researcher. This part of the proposal deals with these types of issues. It informs the readers about the shortcomings or weaknesses that the final project will have. Moreover, it also tells the readers about the problems that the researcher may face while conducting the proposed study.

Literature review

This is the second part of a research proposal. The literature review is a résumé of the material that contains information related to the research problem to be studied. It includes a summary of the past and present knowledge that the researcher has discovered in the form of:

- books
- newspapers and magazines
- journals

- articles
- encyclopaedias
- summaries
- dictionaries and glossaries
- handbooks
- statistical indices
- reviews
- indexed publications
- databases
- electronic sources

In short, this section includes other research or similar work already done on the same topic. It helps provide justification and rationale for the study by indicating the gaps in existing knowledge. It also helps to avoid duplication of work.

Research methodology

This is the third part of a research proposal. This section deals with the methodology that will be used to conduct the study. Depending upon the research problem, the qualitative or quantitative methodology is selected, which directs the whole methodology of the study.

Design of the study

After selecting the research methodology for the proposed study, the research design is decided accordingly. There are numerous research designs available for both qualitative and quantitative methodologies.

Quantitative methodology offers the following research designs:

- experimental design
- correlational design
- survey design

Qualitative methodology offers the following research designs:

- grounded theory design
- ethnographic design
- narrative research design

There are other research designs that use both methodologies together, such as mixed-methods design and action research design.

Population

According to Creswell (2012), a group of people sharing common characteristics or properties make a particular population. It can be a small or large group of individuals, depending upon the characteristics.

After the research methodology and design to be used have been chosen, the population for the future study is selected. The findings of the research can be generalized to the whole population.

Sampling

A sample is a smaller part of the population that has been targeted for the study. The research conducted on this sample can be generalized to the whole population (Creswell, 2012). In this section, a sample will be selected from the population of the study. The size of the sample varies for qualitative and quantitative methodologies.

Types of sampling include the following:

- probability sampling
  - simple random sampling
  - stratified sampling
  - multistage cluster sampling
- on-probability sampling
  - convenience sampling
  - snowball sampling

Instruments

Research tools or instruments, including questionnaires, surveys, observations, and interviews, are designed for data collection. Their use depends on the research methodology chosen by the researcher.

Ethical issues

After explaining the methodology, design, population, sampling techniques, population, and sample size, the researcher informs the readers about any possible ethical problems associated with the proposed study. All such issues are discussed in this section to avoid any problems in future.

Timeline

The time required to conduct the proposed study is shown in the form of a timeline. The total allocated time is further divided into every step of the research accordingly.

References

All the literary material cited or used for writing the research proposal should be mentioned at the end of the proposal with complete details, for future reference and to avoid plagiarism.

Appendices

Any research tool designed, as well as graphs, charts, tables, permission letters, and the like, used during the research should be attached in the appendices.

Additional resources

McNiff, J., & Whitehead, J. (2010). *Doing and writing action research* (pp. 87–104). Washington DC: Sage Publications.

Unit: Research report

The following article, 'How to write a scholarly research report', will help Student Teachers better understand the process of writing reports.

Rudner, L. M., & Schafer, W. D. (1999). How to write a scholarly research report. *Practical Assessment, Research & Evaluation*, 6. Available from:
➢ http://www.uic.edu/depts/educ/mesalab/MESA%20Downloads/Writing%20Resources/WriteScholarlyResearch.pdf

Permission is granted to distribute this article for nonprofit, educational purposes if it is copied in its entirety and the journal is credited.

How to Write a Scholarly Research Report

Researchers communicate their results and help accumulate knowledge through conference papers, reports, on-line journals, and print journals. While there are many rewards for having research disseminated in a scholarly outlet, the preparation of a good research report is not a trivial task.

This article discusses the common sections of a research report along with frequently made mistakes. While the emphasis here is on reports prepared for scholarly, peer-reviewed publication, these points are applicable to other forms of research reports. Dissertations and theses, for example, provide more detail than scholarly publications, yet they adhere to the same basic scientific writing principles. Since all scientific research involves observation, description, and analysis, points made in this article are applicable to historical and descriptive, as well as to experimental, research.

More detail can be found in the P*ublication Manual of the American Psychological Association* (APA, 1994), proposed revisions to the manual (Wilkinson and Task Force on Statistical Inference, 1999), and many research methods textbooks (cf. Gay and Airasian, 1999). For general suggestions on publishing research, see Thompson (1995) and some of the articles and books also cited therein.

First steps in writing a research report

You should constantly think about writing your report at every stage of your research activities. The sections of the research report discussed next in this article come from the most-cited style source for educational and psychological literature — the *Publication Manual of the American Psychological Association* (APA, 1994).
The *Publication Manual* provides detailed information about the entire process of publication — from organizing, writing, keying, and submitting your manuscript, to seeing the accepted manuscript through production and publication. Of special interest in the fourth edition are the updated sections on reporting statistics, writing without bias, preparing manuscripts with a word processor for electronic production, and publishing research in accordance with the ethical principles of scientific publishing. You should have a copy.

Plan your report to focus on a single important finding or highly related group of findings. In the process of analyzing your data, you probably uncovered many

relationships and gained numerous insights into the problem. Your journal article submission, however, should contain only one key point. The point should be so fundamental that you should be able express it in one sentence or, at most, in a paragraph. If you have several key points, consider writing multiple manuscripts.

When writing your manuscript, keep in mind that the purpose is to inform the readers of what you investigated, why and how you conducted your investigation, the results, and your conclusions. As the investigator and writer, your job is simply to report, not to convince and usually not to advocate. You must provide enough detail so readers can reach their own conclusions about the quality of your research and the veracity of your conclusions.

Sections of your report

Title – It is important that the title be both brief and descriptive of your research. Search engines will use the title to help locate your article. Readers make quick decisions as to whether they are going to invest the time to read your article largely based on the title. Thus, the title should not contain jargon or vernacular. Rather, the title should be short (generally 15 words or less) and clearly indicate what the study is about. If in doubt, try to specify the cause and effect relationship in your key point. Avoid trite and wasteful phrases such as "A study of..." or "An investigation to determine..."

Abstract – The abstract serves two major purposes: it helps a person decide whether to read the paper, and it provides the reader with a framework for understanding the paper if they decide to read it. Thus, your abstract should describe the most important aspects of the study within the word limit provided by the journal. As appropriate for your research, try to include a statement of the problem, the people you studied, the dependent and independent variables, the instruments, the design, major findings, and conclusions. If pressed for space, concentrate on the problem and, especially, your findings.

Introduction – You will usually start your report with a paragraph or two presenting the investigated problem, the importance of the study, and an overview of your research strategy. You do not need to label this section. Its position within the paper makes that obvious.

The introductory paragraphs are usually followed by a review of the literature. Show how your research builds on prior knowledge by presenting and evaluating what is already known about your research problem. Assume that the readers possess a broad knowledge of the field, but not the cited articles, books, and papers. Discuss the findings of works that are pertinent to your specific issue. You usually will not need to elaborate on methods.

The goal of the introduction and literature review is to demonstrate "the logical continuity between previous and present work" (APA, 1994, p. 11). This does not mean you need to provide an exhaustive historical review. Analyze the relationships among the related studies instead of presenting a series of seemingly unrelated abstracts or annotations. The introduction should motivate the study. The reader should understand why the problem was researched and why the study represents a

contribution to existing knowledge. Unless the study is an evaluation of a program, it is generally inappropriate to attempt to promote the study based on its social importance.

Method – The method section includes separate descriptions of the sample, the materials, and the procedures. These are subtitled and may be augmented by further sections, if needed.

Describe your sample with sufficient detail so that it is clear what population(s) the sample represents. A discussion of how the sample was formed is needed for replicability and understanding your study. The APA Task Force on Statistical Inference points out "how a population is defined affects almost every conclusion about an article" (Wilkinson, et al., 1999). Convenience samples are not unusual in scientific inquiry; their use should not discourage you from seeking a publication outlet for your report.

A description of your instruments, including all surveys, tests, questionnaires, interview forms, and other tools used to provide data, should appear in the materials subsection. Evidence of reliability and validity should be presented. Since reliability is a property of scores from a specific use of a specific instrument for a specific population, you should provide reliability estimates based on your data.

The design of the study, whether it is a case study, a survey, a controlled experiment, a meta-analysis, or some other type of research, is conveyed through the procedures subsection. It is here that the activities of the researcher are described, such as what was said to the participants, how groups were formed, what control mechanisms were employed, etc. The description is sufficient if enough detail is present for the reader to replicate the essential elements of the study. It is important for the procedures to conform to ethical criteria for researchers (APA, 1992).

Results – Present a summary of what you found in the results section. Here you should describe the techniques that you used, each analysis, and the results of each analysis.

Start with a description of any complications, such as protocol violations and missing data, that may have occurred. Examine your data for anomalies, such as outliers, points of high influence, miscoded data, and illogical responses. Use your common sense to evaluate the quality of your data and make adjustments if need be. Describe the process that you used in order to assure your readers that your editing was appropriate and purified rather than skewed your results.

With today's availability of statistical packages, it is fairly easy to use very sophisticated techniques to analyze your data. Understand the techniques you are using and the statistics that you are reporting. Try to use the simplest, appropriate technique for which you can meet the underlying assumptions.

If you are going to use inferential statistics, you should determine the power a priori based on your anticipated distribution, design, and definition of practical significance. This information must stem from your related literature and not the

data that you collected. If you fail to reach statistical significance, then this analysis can be used to show that the finding does not stem from low power.

Where appropriate, compute and report effect sizes or, at a minimum, be sure you provide enough information so effect sizes can be computed. Effect sizes provide a common metric for evaluating results across studies and aid in the design of future studies. They will be needed by anyone who attempts a quantitative synthesis of your study along with the others in your area of research.

For most research reports, the results should provide the summary details about what you found rather than an exhaustive listing of every possible analysis and every data point. Use carefully planned tables and graphs. While tables and graphs should be self-explanatory, do not include a table or graph unless it is discussed in the report. Limit them to those that help the reader understand your data as they relate to the investigated problem.

Discussion – At this point, you are the expert on your data set and an authority on the problem you addressed. In this section, discuss and interpret your data for the reader, tell the reader of the implications of your findings, and make recommendations. Do not be afraid to state your opinions.

Many authors choose to begin the discussion section by highlighting key results. Return to the specific problem you investigated and tell the reader what you now think and why. Relate your findings to those of previous studies, by explaining relationships and supporting or disagreeing with what others have found. Describe your logic and draw your conclusions. Be careful, however, not to over generalize your results. Your conclusions should be warranted by your study and your data.

Be sure to recognize the limitations of your study. Try to anticipate the questions a reader will have and suggest what problems should be researched next in order to extend your findings into new areas.

References – There should be a one-to-one match between the references cited in the report and the references listed in the reference section.

Publishing your report

In the process of reviewing the literature, you will have learned which journals publish articles on your topic. If you intend to publish in a journal, these journals will be the most likely candidates. Review the target audience and publication guidelines for these journals to decide which is best suited to your research. Regardless of scholarly quality, a key question in any editor's mind will be whether your manuscript is suited to the journal's purpose and audience. When considering where to submit, note the style of the articles in the journal. For example, if the journal typically publishes articles developing theories based on extensive reviews of the literature and your article is more empirical, then perhaps you should look elsewhere.

Remember that the review process is conducted by human staff, and so is a fallible process. Peters and Ceci (1982) made this point abundantly clear. They retyped just-published articles from prominent journals, and resubmitted them. All of these articles were rejected without it being noticed that they had just been published by the same journals.

Because of high rejection rates and the usual long length of time journals need to make a selection decision, it is tempting to submit a manuscript simultaneously to more than one journal. This, however, is clearly unethical. Most journals appropriately specify that manuscripts under consideration cannot be submitted elsewhere. The editors and reviewers will be taking a considerable amount of time examining your manuscript, usually as volunteers.

You should expect your manuscript to be rejected when it is submitted for the first time. If a manuscript is rejected, you should evaluate the comments and then decide whether to revise, resubmit, or submit it elsewhere. In order to facilitate both your revision and its subsequent evaluation, a resubmission should be accompanied by a description of the issues raised in the review process and your manuscript modifications and other substantive reactions to them.

While very little has been written about ethical standards for authors in the education field, the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*, which have been adopted by more than 500 scientific and biomedical journals, address criteria for authorship, acknowledgments, redundant publication, competing manuscripts, and conflict of interest. A concise summary of the *Uniform Requirements* can be found in Syrett and Rudner (1996).

A key concept in the *Uniform Requirements* is that individuals identified as authors should have made significant contributions to the conception and design, or analysis and interpretation of data, or both; to drafting of the manuscript or revising it critically for intellectual content; and on final approval of the version of the manuscript to be considered for publication. Being an advisor or head of a research group does not, in itself, warrant authorship credit.

4

Course assesment and assignment

Student Teachers are expected to complete one graded assignment and several non-graded tasks during the Research Methods in Education course.

Assignment: Action research project proposal

Student Teachers must select a research topic to study during their teaching practicum. They will develop an action research project proposal on their selected area (question).

The Research Methods in Education course guides Student Teachers to develop their proposal by the end of course, which will be implemented during the Research Project course.

Rubrics for evaluating project proposals

Sample 1

Student name: _____ Date of review _____

Research proposal title

_____

_____

Category (%)	(4) Advanced	(3) Proficient	(2) Basic	(1) Below basic
Timeline (10%)	All required elements have been produced on time.	Most required elements have been produced on time.	Few required elements have been produced on time.	Required elements were not produced on time.
Presentation (20%)	Proposal is well written with no grammatical or spelling errors. Proposal has been reviewed at least once. All required elements are included. Timelines and charts are written clearly, with no unnecessary marks or cross-outs.	Proposal is well written with few grammatical or spelling errors. Proposal has been reviewed at least once. Most required elements are included. Timelines and charts are written clearly with few unnecessary marks or cross-outs.	Proposal is fairly well written with many grammatical or spelling errors. Proposal has never been reviewed. Most required elements are included. Timelines and charts are written clearly with many unnecessary marks and cross-outs.	Proposal is not well written and has many grammatical or spelling errors. Proposal has never been reviewed. Few required elements are included. Timelines and charts are not written clearly with many unnecessary marks and cross-outs.

Category (%)	(4) Advanced	(3) Proficient	(2) Basic	(1) Below basic
Practicality (40%)	Timeline specifies due dates for required deliverables. Materials list is reasonable and includes resources. Proposal clearly links the problem to the proposed solution.	Timeline specifies most due dates for required deliverables. Materials list is mostly reasonable and includes resources. Proposal mostly links the problem to the proposed solution.	Timeline specifies few due dates for required deliverables. Materials list is not reasonable and includes few resources. Proposal makes little connection between the proposed solution and the problem.	No timeline has been indicated. Materials list is not reasonable. Materials make no connection between the proposed solution and the problem.
Problem under-standing (30%)	Proposal demonstrates clear understanding of the problem. Proposal shows consideration for need and potential users of product.	Proposal shows a good deal of understanding of the problem. Proposal shows a good deal of consideration for need and potential users of product.	Proposal shows little understanding of the problem. Proposal shows little consideration for need and potential users of product.	Proposal demonstrates no understanding of the problem. Proposal shows no consideration for need and potential users of product.

Summary of comments for student concerning performance on project proposal by the supervisor:

_____

_____

_____

_____

_____

_____

_____

Name and signature of supervisor _____

Date: _____

Aspect	Good (acceptable)	Average (needs some improvement)	Below average (needs significant improvement)
Title	Representative of the topic, short and precise, appealing, and eye-catching	Slightly representative of the topic, long, and not very appealing	Not representative, too long, and very ordinary
Introduction	Very clear, precise, and excellent use of language Gets the reader's attention immediately	Somewhat clear, not very precise, and fair use of language Somewhat engaging=	Ambiguous, missing clear direction, significant vagueness of language and grammar
Literature review	Very relevant, up to date, analytical, and in-depth	Somewhat relevant, up to date, and superficial	Not very relevant, not up to date, and very superficial level of analysis
Methodology	Adequate sampling strategies, clear data collection, and analysis tools Proper research paradigm Consideration of ethical values	Not very clear sampling, data collection, and analysis tools Somewhat ambiguous in linking with research paradigm Insufficient consideration of ethical values	Unclear sampling, data collection, and analysis tools Ambiguous in linking with research paradigm No consideration of ethical values
References	Very relevant, up to date, analytical, and in-depth	Somewhat relevant, up to date, and superficial	Not very relevant, not up to date, and very superficial level of analysis

4

Additional resources

Sample 2

A practical guide to action research for literacy educators

Nugent, G., Malik, S. & Hollingsworth, S. (2012). *A practical guide to action research for literacy educators,* Washington DC: International Reading Association. Available from:

➢ http://www.reading.org/Libraries/international/a-practical-guide-to-action-research-for-literacy-educators.pdf

This guide was developed to enhance the professional capacity of educators in the area of action research. It is based on training modules developed by the Professional Development Infrastructure (PDI) component of the USAID/ESRA Project in Pakistan (2003–2008) in cooperation with the International Reading Association (IRA).

Leading action research in school

Hewitt, R., & Little, M. (2005). *Leading action research in schools.* Tallahassee, FL: Florida Department of State. Available from:

➢ http://www.fldoe.org/ese/pdf/action-res.pdf

Leading action research in schools provides guidelines for leading and facilitating action research in schools. It is intended to provide administrators with seven guidelines to consider when facilitating action research in their schools. In addition, specific planning forms and feedback forms are provided to facilitate action research in schools.

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Methods and strategies to use in planning

The following is a list of some of the strategies used in this course to encourage active learning.

Active lecturing. An active lecture is not too different from any good lecture, but it attempts to directly involve listeners.

There is no one best way to give an active lecture, but it involves any of the following techniques.

Give information in small chunks (about 10 minutes) and then have class members do something with that information for a few minutes. Here are some examples of activities, which you can repeat or vary:

- Write a one-minute reaction to what you have just heard.
    - Talk to the person next to you about what you heard and see how your perspectives differ. Do you agree? Do you have questions?
- List as many key points as you can remember.
- Compare notes taken during the chunk. Help each other fill in gaps or determine if crucial information is missing. (Some people do not allow not taking during the lecture, but this is up to the Instructor.)

Give out cards or slips of paper in three different colours. When class members are listening to your comments, have them hold up a colour for 'I understand', 'I don't understand', or 'I disagree'. Then either stop and allow questions or adjust what you are saying so there are more 'understand' colours showing. This is particularly effective with large groups of 50 or more people.

Ambassadors. This is a useful way to get groups or individuals to exchange information. Two or more members move from one group to another to share and compare their thoughts about the group discussion. You may wish to have half of each group move to another group. This is especially useful if you do not have ample time for a whole-class discussion.

Brainstorming. This is a technique for generating creative ideas on a topic. It may be an individual activity or organized as a group activity. Give people a limited amount of time (e.g. one minute) to say or write as many ideas as they can on a topic. No matter how unrelated an idea seems, write it down. (Alternatively, the Instructor might ask the whole class to brainstorm and write all the ideas on the board.) After the brief period of brainstorming, ideas may then be analysed, organized, and discussed. This is often used as a problem-solving technique. Ideas are then analysed in light of how useful they might be in solving the problem.

Gallery walk. This is a strategy that borrows its name from a visit to an art gallery. Students walk through an exhibit of posters, artefacts, or display of items they have completed. They can be directed to take notes. The idea is to thoughtfully look at what is displayed.

Graffiti wall. A graffiti wall may be displayed in the classroom for use all term. Students may write their thoughts, feelings, or expressions before or following each session and sign their name. Anonymous comments are not suitable. Ideas generated in class may be posted on the 'wall'. Use paper from a large roll of craft or newsprint paper or join several cardboard boxes together to make a wall that can be stored between sessions. Students can take turns getting and putting away the wall each session.

Group work: some tips for forming instructional groups. There is no one best way to form groups. The best way for you is the way that suits your purpose. Use a more complicated strategy if students need a break or need to be energized. Use a simple technique if time is short. Ways to form groups include the following:

- Ask people to count off from one to five (depending on the number of people you want in a group). Groups will form based on their number (e.g. all of the ones will gather together).
- Before class, determine how many people you want in a group or how many groups you need. Give each class member a different coloured sticker, star, or dot as they enter the class. Then when it is time to form groups, ask them to find people with the same sticker and sit together.
- Put different coloured bits of paper in a cup or jar on each table. Have people take one and find people in the room with the same colour to form a group.
- Have students get together with everybody born in the same month. Make adjustments to the groups as needed.

Mini-lecture. A mini-lecture contains all the components of a good lecture. It is sharply focused. It begins with an introduction that provides an overview of what you will talk about. It offers examples and illustrations of each point. It concludes with a summary of the main point(s).

One-minute paper. Ask class members to write for one minute on a particular topic (e.g. their reflections on a topic, an assigned subject). They are to focus on writing their ideas without worrying about grammar and spelling. A one-minute paper differs from brainstorming because there is more focus.

Pair-share. Use this technique when you want two class members to work together to share ideas or accomplish a task. Simply ask them to work with a neighbour or have them find a partner based on some other criteria. It is very useful when you want people to quickly exchange ideas without disrupting the flow of the class. (Sharing in triads and foursomes are also small group techniques.)

Poster session. This is useful when you want students to organize their thoughts on a topic and present it to others in a quick but focused way. Have individuals or small groups work to create a poster to explain or describe something. For example, if they have been doing an inquiry on a particular topic, they would want to include their focus, methods, and outcomes, along with colourful illustrations or photographs. The poster can be self-explanatory or students can use it to explain their work. As an in-class tool, a poster session is often combined with a gallery walk so that the class

may review a number of posters in a short time.

Readers' theatre. Readers' theatre is a group dramatic reading from a text. Readers take turns reading all or parts of a passage. The focus is on oral expression of the part being read rather than on acting and costumes. readers' theatre is a way to bring a text to life.

It is a good idea to go over passages to be read aloud with students so they are familiar with any difficult words.

Sometimes readers' theatre is used to get students interested in a text. They hear passages read first and then read the longer text.

KWL. This is a strategy that provides a structure for recalling what students know (K) about a topic, noting what students want to know (W), and finally listing what has already been learned and is yet to be learned (L).

The KWL strategy allows students to take inventory of what they already know and what they want to know. Students can categorize information about the topic that they expect to use as they progress through a lesson or unit.

Text-against-text. This is a way of helping students learn to analyse and compare written documents. The idea is to look at two documents and search for overlap, confirmation, or disagreement. It is a way of looking at different perspectives. Sometimes it is useful to give students readings prior to class and ask them to compare the readings based on a set of study questions, such as:

1) Look at each author separately. What do you think the author's main point is?
2) How does the author support his/her argument?
3) Look at the authors together. In what ways do the authors agree?
4) What are their points of disagreement?
5) What is your opinion on the issue?

Text-against-text may be used to compare a new reading or new information with material that has already been covered.

In classrooms where the whole class uses a single textbook, Instructors often find they are teaching against what is in the textbook. Sometimes it is hard for students to accept that a textbook can and should be questioned. Putting together a text-against-text activity using the textbook and outside materials (e.g. an article) can help them understand that there are legitimate differences of opinion on a subject. Articles need not contradict each other. They may be about the same topic but offer students different ways of seeing a subject.

Another way to use the activity is divide the class into groups, give each a set of materials, and have them debate the texts. Some university faculty like to put together text sets that include both scholarly and non-scholarly works and ask students to think about differences. For example, you might provide all students—regardless of their reading level or learning style—with easy-to-read materials as

a way to introduce themselves to a topic. Even competent adult learners seek out 'easy' books or materials to learn about a new or complex topic. Providing a picture, newspaper article, or even a children's book in a text set might give everyone the means of connecting to or understanding some aspect of the larger subject.

Roundtable technique. For this technique, divide the class into small groups (i.e. four to six people), with one person appointed as the recorder. A question that has many possible answers is posed, and class members are given time to think about the answers. After the thinking period, members of the team share their responses with one another. The recorder writes the group's answers. The person next to the recorder starts and each person in the group (in order) gives an answer until time is called.

Quizzes. Prepare and give a short quiz (15 minutes) over the different aspects covered in the unit. As students take the quiz, ask them to circle items they are unsure of. They can review and discuss their work in the following ways:

- *Triads*. Have students meet in groups of three to review the quizzes so that they can help each other with their weak areas. (10 minutes)
- *Review*. Go over the quiz with students, and have them look at their own work and make corrections. (30 minutes)
    - Notice points class members had difficulty remembering and take time to review them. You may ask students to assist with this and discuss how they were able to remember.
    - Use this time to correct any misconceptions.
    - Have students save their quiz for future study.

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