RPE

Resource for Professional Enquiry:
A guide for educators

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Gwilym Siôn ap Gruffudd

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Acknowledgements

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How to reference the e-book/book

Lloyd-Williams, S. & ap Gruffudd, G. S. (2024) Resource for Professional Enquiry: A guide for Educators. Aberystwyth University.

Contents

The aim of this resource is to support and guide educational practitioners who are interested in developing their practice through professional enquiry. The resource will focus on the following content:

Introduction to Enquiry

Context and background

These resources were collated as part of NPEP (National Professional Enquiry Project), aimed at supporting practitioners to fully develop and realise the Curriculum for Wales, 2025.

A project between the Welsh Government, Regional Consortia Universities and schools across wales, it involved undertaking a range of enquiries exploring the professional implications of Curriculum for Wales, 2025.

More information on NPEP can be found here **hwb.gov.wales** and here **hwb.gov.wales/professional-learning**

According to the WG National Strategy for Educational Research and Enquiry (NSERE) vision document (2021)

> *'Professional enquiry' is usually undertaken by practitioners within their workplace as a way of identifying problems, establishing causes, finding solutions, evaluating practice and achieving improvement. If it is to be of value it should utilise action research approaches that are systematic, cyclical and that emphasise the collection of evidence.*

The vision document also notes that 'establishing education as an evidence-informed profession in Wales' will aid in:

- **supporting the introduction of the new school curriculum**
- **improving the quality of school self-evaluation**
- **assisting schools in developing a sustained approach to overcoming the impact of socio-economic disadvantage on educational achievement**
- **reflecting the findings of Estyn that using research evidence and taking part in professional enquiry is a characteristic of highly effective schools**
- **building upon the focus on research and enquiry within our ITE and induction programmes**
- **reflecting its presence as a key element of Schools as Learning Organisations (SLO) , the national approach to professional learning and the Professional Standards for Teaching and Leadership**
- **enabling the views of learners (learner voice) to be fully and systematically represented in the evidence that practitioners collect and use**

Adapted from - www.gov.wales/national-strategy-educational-research-and-enquiry-nsere-vision-document-html

What is practitioner enquiry?

- **Simply put, practitioner enquiry can be described as 'research by teachers, for teachers' which should be driven by professional curiosity and real-world challenges.**
- **Practitioner enquiry is often also referred to as action research, close-to-practice research, teacher enquiry, professional enquiry etc.**
- **Practitioner enquiry in an educational setting often refers to how teachers capture, explore and enhance their teaching practices.**
- **Professional enquiry can...**
  - improve learning outcomes for learners
  - help teachers to understand and improve their own practice
  - allow teachers to contribute to wider knowledge in their community
- **It involves asking questions, gathering evidence, and making informed changes to teaching professional practice.**

Why conduct enquiry?

The principled space that connects integrity, research, teaching, learning, personal development, and contribution to the world (Fung 2017).

Process of professional development, finding professional and personal purpose and value in furthering, and in inquiring into, how to further the important interests of students, thus affording them the opportunity to move towards their own authenticity (Barnett 2004)

Seeing in my teaching a set of problems worth pursuing as an ongoing intellectual focus (Shulman 1993)

Barnett R (2004) The Purposes of Higher Education and the Changing Faces of Academia. London Review of Education. 2,1

Fung D (2017) A connected curriculum for Higher Education. UCL Press. discovery.ucl.ac.uk/1558776/1/A-ConnectedCurriculum-for-Higher-Education.pdf

Shulman L S (1993) Teaching as Community Property: Putting an End to Pedagogical Solitude www.iub.edu/~tchsotl/part4/shulman%20community%20property.pdf

Ethics in Research/Enquiry

Historical context

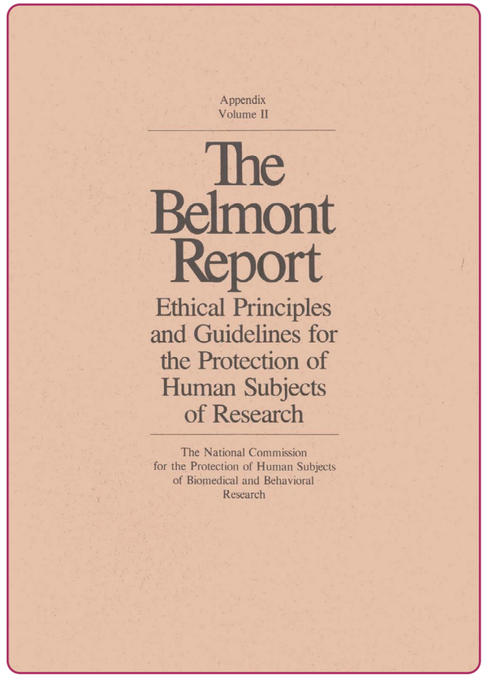
In the course of the Nuremburg Trials (1947) after World War II, Nazi physicians were tried for research atrocities. performed on prisoners.

This resulted in the Nuremberg Code (1949), the first internationally recognized code of research ethics.

- ✓ Voluntary consent
- ✓ Freedom from coercion
- ✓ Consideration of risk/benefit

> *Take a moral commitment never to violate anyone's human rights and human dignity.*
>
> *Treat the subjects of your experiments in a manner that you would want to be treated as if you were in their place.*
>
> *Do your scientific work, but please, never stop being a human being.*

Eva Mozez Kor
(B. 31.01.34, D. 4.07.19) a Romanian-born American survivor of the Holocaust subjected to human experimentation at the Auschwitz concentration camp.



Belmont Report

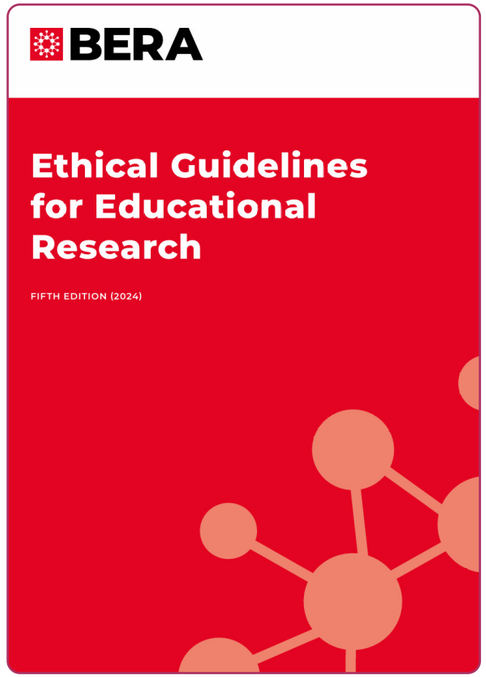
Belmont Report (DHEW 1979) is recognized as the first ethics guide for research involving human participants.

Three main principles:

- **Respect for the person**
- **Beneficiaries**
- **Justice**

Three areas of action:

- **Informed consent**
- **Assessment of risks and benefits**
- **Selection/sampling of participants**



Ethical Guidelines for Educational Research: BERA 2024

Principles of research ethics have been developed by many countries since Belmont 1979, and can differ according to the research discipline; e.g. **BERA 2024** places an emphasis on ethical respect for:

- **The person**
- **Information**
- **Democratic values**
- **Quality of pedagogical research**
- **Academic Freedom**

Key Principles in Educational Enquiry

Informed Consent

Anonymity

Confidentiality

Gatekeepers

The right to withdraw from research

Voluntary participation

Transparency

Informed consent and assent

It is vital to understand when informed consent, assent or both are needed and how the process differs

Informed consent

Informed consent is generally understood to be a process by which an individual (or their parent/legal guardian if under the legal consensual age of 18) is fully informed about the procedures, risks, benefits, and purpose of a research study and voluntarily agrees to participate. The information that you provide about your research must give a detailed explanation of the study's purpose, procedures, risks, benefits, and the rights of participants. This must consider the comprehension of the person reading the information and must be presented in a non-coercive way that clarifies their right to withdraw for no reason and at any time.

Assent

Assent is generally understood to be a process by which children and young people are informed about the study in a manner appropriate to their age, maturity, and psychological state, and they agree to participate.

Unlike informed consent, assent is not legally binding. It is an ethical consideration to respect the autonomy and developing capacity of the child or young person. The key components are simplified information - a child-friendly explanation of the study's purpose, what participation involves, potential risks and benefits, and their right to refuse or withdraw and making sure that they understand the information and that their participation is voluntary and not influenced by pressure from parents, guardians, or researchers.

It is quite common for assent to be a verbal format from younger children and in written format for older children and adolescents. If a child or young person refuses to give assent or withdraws it at any point, researchers must respect this decision.

You must consider that even if parental or guardian permission has been obtained, the child's decision to not participate must still be honoured.

Actions

It may be possible to re-evaluate the situation to understand the child's reasons for refusal and determine if any misunderstandings or concerns can be addressed ethically and without coercion.

You may consider an alternative or a more inclusive method in your research design so that children may be more comfortable agreeing to participation.

You should document the child's refusal and any relevant circumstances surrounding it, ensuring transparency and adherence to ethical standards.

Upholding ethical standards in enquiry

- Researchers must ensure that both the parent/guardian and the child or young person understand their rights and the nature of the research.
- Researchers must be prepared to address questions and concerns from both parents/guardians and children, ensuring a transparent and respectful process.
- It is good practice to obtain informed consent and assent in education research with children and young people, as it respects the rights and autonomy of all participants involved.

Ethic-centric process from research proposal to research production and dissemination

Research Design & Methodology

Sampling:inclusion/ exclusion criteria

Identification of participants, Recruiting, Informed consent, Capacity

Research Proposal

Literature Review, Study Aims, Research Objectives, Conceptual issues

Research Question

Formulation

Motives

Behind an initial thought/ investigation enquiry

Data Collection

Questionnaires, Semi Structured Interviews, Focus Groups

Data Analysis

Coding, Storage, GRPR, Transportation, Devices, Digital legacy

Dissemination & implementation

Confidentiality/Anonymity Participant protection, Ethical Committees

THINK: Subject, Participant, Researcher.

Before embarking on your enquiry you must ensure you follow appropriate ethical guidelines as noted in BERA.

You may feel it beneficial to view **Aberystwyth Research Policy and Framework** to guide your thinking and approaches to the process of conducting enquiry.

Aberystwyth Research Policy and Framework.

www.aber.ac.uk/en/rbi/support-services/ethics/#policy-and-framework

Examples of research conducted at schools or with children and young people - DECHIPer

Wales Institute of social economic and research data (WISERD) research projects

A selection of publications on research and ethics with children and young people

Age - appropriate informed consent: Gelling, L. (2020). "Ethical principles for researching vulnerable populations." Nursing Ethics, 27(1), 117-125.

Children assent and parental consent: Powell, M. A., & Smith, A. B. (2020). "Children's participation rights in research." Childhood, 27(2), 156-171.

Best interest of the child: Bessell, S. (2020). "The ethics of research with children: A critical framework." Global Studies of Childhood, 10(1), 6-18.

Respect for the child's views: Lundy, L., & McEvoy, L. (2020). "Children's rights-based research: Ethical and methodological considerations." International Journal of Children's Rights, 28(2), 1-22.

Ethics guidance for undertaking research with children

ERSC UK Research and Innovation: Research with children and young people
www.ukri.org/councils/esrc/guidance-for-applicants/research-ethics-guidance/research-with-children-and-young-people/

Ethical Guidelines for Educational Research, fifth edition (2024)
www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-fifth-edition-2024-online

Ethical Research Involving Children (ERIC)
childethics.com/wp-content/uploads/2013/10/ERIC-compendium-approved-digital-web.pdf

The National Centre for Research Methods: Ethics of Research Involving Children: Common Questions, Potential Strategies and Useful Guidance
www.ncrm.ac.uk/resources/ethics

NSPCC Research with children: ethics, safety and promoting inclusion
learning.nspcc.org.uk/research-resources/briefings/research-with-children-ethics-safety-promoting-inclusion

The Open University Children's Research Centre
wels.open.ac.uk/research/childrens-research-centre/resources

UCL Institution of Education: Guidelines and resources for undertaking research with children
www.ucl.ac.uk/ioe/research/research-ethics/resources-all-ioe-research/guidelines-and-resources-undertaking-research-children

UK Government Department of Education Guidance on research with children and young people
user-research.education.gov.uk/guidance/ethics-and-safeguarding/research-with-children-and-young-people

Enquiry Research Questions

> *Formulating a research question in education involves identifying a specific, focused, and researchable issue that addresses a gap in existing knowledge or responds to current educational challenges.*
>
> **Creswell, J. W., & Creswell, J. D**. (2020). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). SAGE.

A well-constructed research question should be clear, concise, and aligned with the study's objectives, methodology, and theoretical framework.

What do I do?

Start with a broad area of interest, then narrow it down through a review of recent literature to pinpoint specific aspects that require further exploration.

From your reading, identify and pinpoint the research problem that, you as educational practitioners, have observed in your own institutional setting and that you are keen to learn more about.

This is often called close-to-practice research because it focuses on aspects of relevance to educational practitioners often involving collaborative work between practitioners and researchers.

The question should be feasible and consider the resources and time available to you and your participants, and the potential and or significant contribution it may have to your practice and that of others (locally, regionally and or nationally).

To consider...

Patience (with yourself)

The development of a research question is an iterative process that involves continuously updating one's knowledge of the topic and refining ideas at all stages (Maxwell, 2013).

Concise

Make the research question as specific and concise as possible to ensure clarity and avoid using words or terms that don't add to the meaning of the research question.

Types of research questions

Broadly speaking research questions can be categorized into quantitative, qualitative, and mixed-methods. Quantitative questions are precise and structured, qualitative questions are flexible and exploratory, and mixed-methods questions combine both approaches.

Quantitative research questions are typically very precise and often include a desire to establish a link between certain variables that are either 'descriptive, comparative or relational' in nature.

Qualitative research questions on the other hand, mainly concern broad areas of research or more specific areas of study with questions aiming to 'discover, explain or explore'.

Mixed-methods research questions are typically quantities of both qualitative and quantitative research questions. There are times when this method is more suitable, for example, when the research needs to focus on the significance and differences in quantitative and qualitative methods providing a more complete picture and in-depth knowledge.

Quantitative and qualitative research will be discussed further in the following sections

Example of types of research questions:

Question types	Definition	Example
Exploratory	Understanding more about a topic, generating new ideas	How can schools best manage the transition from early years to school and minimise any negative effects on children, especially those from disadvantaged backgrounds?
Descriptive	Seeking to describe when, where, why or how something occurred	What has the impact been of COVID-19 on learners' mental health and well-being?
Explanatory	Seeking to explain when, where, why or how something occurred	What are the factors associated with teacher and pupil wellbeing? What interventions and approaches are effective in supporting and promoting the well-being of all in practice?

Your research question/aim often dictates the research design:

Need to...	Usually best suited research design/strategy
See if treatment is effective	Experimental design
Identify trends/attitudes/ ...in a population	Survey design
Learn about and describe a culture shared by a group	Ethnography design
Generate a theory of a process	Grounded theory design
Improve the subsistence and/or empower certain group	Action research design
Develop or improve some policies/ artefacts	Design research approach

Planning your research enquiry

Sage have put together a website to help you plan your research project and cover issues from:

- **Identifying your research question**
- **How to do a research proposal**
- **Planning to gather data (the do's and don'ts)**
- **Ethical compliance checklist**
- **How to read and understand research and where to find research**
- **How to structure a research project**
- **Writing a literature review**

Planning Your Research Project

uk.sagepub.com/en-gb/eur/doing-your-education-research-project

Useful textbooks and publications

Creswell, J. W. (2022). Qualitative Inquiry and Research Design: Choosing Among Five Approaches (5th ed.). Sage Publications.

Creswell, J. W., & Creswell, J. D. (2021). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications.

Creswell, J. W., Walker, S. F., & Roulston, K. (2020). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (6th ed.). Pearson.

Mayo, N., Asano, M., & Barbic, S.P. (2013). When is a research question not a research question? Journal of Rehabilitation Medicine, 45 (6), 513-518. doi.org/10.2340/16501977-1150

Suter, W. N. (2021). Introduction to Educational Research: A Critical Thinking Approach (3rd ed.). Sage Publications.

Examples of current and previous NPEP enquiry research questions can be found on HWB

hwb.gov.wales and hwb.gov.wales/professional-learning

Resources to support enquiry

cscjes-cronfa.co.uk/repository/resource/5624e373-e4a7-415e-aed5-ae57fbb4499e/overview

hwb.gov.wales/repository/resource/d2b59d12-7b23-4792-b60d-6ab335132255/overview

Models for Enquiry

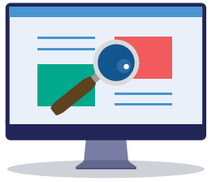
cscjes-cronfa.co.uk/repository/resource/74f49587-bd11-4089-9e3b-a55f3fd0c512/overview

Policy Insights 2021

hwb.gov.wales/repository/resource/6da54c0b-9e37-4822-b15e-cc47c3ea166a/overview

Policy Insights 2022

hwb.gov.wales/repository/resource/2b4a5a05-eeff-46bb-8134-12bb6a9562b7/overview



Literature Review

The purpose of an enquiry research literature review is to synthesize existing research, identify gaps in knowledge, and provide a comprehensive overview of the current state of a particular field or topic.

The key purpose of a literature review:

- Makes connections
- Engages with other researchers
- Directs readers to relevant resources
- Identifies previous relevant research, and builds on it
- Justify new research by showing how it fits or fills a gap in existing research
- Serves as a 'jumping off point' for your study

Contextualizing the research question within the broader scholarly conversation ensures that new research builds on and contributes to existing knowledge.

According to Machi and McEvoy, an effective literature review critically evaluates and integrates findings from diverse studies, highlighting trends and recent debates and developments, methodologies, and theoretical frameworks, and ultimately guiding the formulation of new research questions (Machi, L. A., & McEvoy, B. T. (2023). The Literature Review: Six Steps to Success (4th ed.). Corwin Press).

In the context of your work, the purpose of the Literature Review is to locate your study in relation to the literature and whilst you are 'reviewing your literature' keep asking the question:

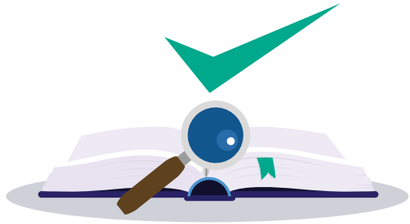
> **"What is the relationship of my research to the literature being reviewed?"**

A good literature review should:

1. **Place each work in the context** of its contribution to the understanding of the subject under review
2. **Describe the relationship** of each work to the others under consideration
3. **Identify new ways to interpret**, and shed light on any gaps in, previous research
4. **Resolve conflicts** amongst seemingly contradictory previous studies
5. **Identify areas of prior scholarship** to prevent duplication of effort
6. **Point the way forward** for further research

Features of an advanced literature review:

- Synthesis of literature reviewed effectively and analysed to justify the need for your approach to the topic
- **Narrowing** of the topic to a **refined focus** ('Funnel')
- **Breadth** and **depth**
- **Clarity** and **brevity**
- Rigour and consistency (+ evidence)
- The addition of a new contribution to the subject area
- A good match between literature review analysis and the selection of appropriate methods
- A clear understanding of the approaches taken by other authors (benefits, limitations, similarities, differences, implications)



Utilizing a framework for conducting a literature review:

You may feel more comfortable using a strategy or framework for generating literature like CRAAP (a method designed by librarian Sarah Blakeslee at the Meriam Library California State University, Chico).

Currency... The timeliness of the information

Relevance... The importance of the information for your needs

Authority... The source of the information

Accuracy... The reliability, truthfulness, and correctness of the content

Purpose... The reason the information exists

see here for more details on the method
guides.lib.uchicago.edu/c.php?g=1241077&p=9082343

Engage critically with the literature (ask yourself)

- Has the author formulated a **problem/issue?**
- Is it **clearly defined?** Is its significance (scope, severity, relevance) **clearly established?**
- Could the problem have been approached more **effectively from another perspective?**
- What is the author's **research orientation** (e.g., interpretive, critical science, combination)?
- What is the author's **theoretical framework** (e.g. psychological, sociological,)?

Strategy for conducting a literature review:

You may prefer to adopt a less structured and more traditional approach to your literature review by:

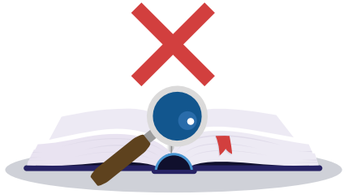
1. **Finding models of similar literature reviews**
2. **Problem formulation, working with a statement or question**
3. **Identifying other authors and approaches to the topic**
4. **Identifying authors who can help you justify the importance of your topic**
5. **Identify and engage with those who contradict your ideas**

A literature review might include a range of sources including but not limited to:

- Google Scholar
- EBSCO and other similar databased
- Library catalogue searches including textbook journals and peer-reviewed academic articles
- Government publications
- Conference papers and proceedings
- Seminal texts/ work
- Grey literature
- Media and TV
- Primary data
- Secondary data

Common mistakes and pitfalls:

- Writing an annotated bibliography
- Insufficient links between the arguments and the literature reviewed and your research questions
- Overtly generalised - too little analysis
- Weak links between your literature review and other sections or chapters
- Irrelevant or dated literature
- "Quote heavy", literature that contains long tracts of information, with few or no signs of critical reflection
- References cited in the text that are not included in the reference list
- Having a 'discussion that simply summarises the findings', rather than moving forward and talking about how they have addressed the original research question
- Demonstrating a lack of awareness of the limitations of the research



A literature review in summary:

1. **Establishes and justifies the need for the research**, its significance, originality and foci; and the methodology to be adopted;
2. **Has an organized and developed argument**, not just a descriptive summary; and will state the purpose and how it will move to a conclusion, i.e. what it will do, what it will argue, what it will show, what it will conclude, and how this links into or informs the subsequent research project;
3. **Presents, contextualizes, analyzes, interprets, critiques, and evaluates sources and issues**, not just accepting what they say; presents arguments and counter-arguments, evidence and counter-evidence about an issue;
4. **Reveals similarities and differences between authors**, about the same issue;
5. **Is a springboard into, and foundation for, all areas and stages of the research in question:** purpose, foci, research questions, methodology, data analysis, discussion and conclusions;
6. **Must be conclusive;** focused yet comprehensive in its coverage of relevant issues;
7. **Must present both sides of an issue or argument;** with neutrality
8. **Should address substantive issues, concepts, content and elements of the field in question;**
9. **Must include and draw on many sources and types of written material and kinds of data.**

Useful textbooks

Creswell, J. W. (2022). Qualitative Inquiry and Research Design: Choosing Among Five Approaches (5th ed.). Sage Publications.

Creswell, J. W., & Creswell, J. D. (2021). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications

Mills, G. E. (2023). Action Research: A Guide for the Teacher Researcher (7th ed.). Pearson.

Mills, G. E., & Gay, L. R. (2023). Educational Research: Competencies for Analysis and Applications (12th ed.). Pearson

Mertler, C. A. (2023). Action Research: Improving Schools and Empowering Educators (6th ed.). Sage Publications.

Schmuck, R. A., & Schmuck, P. R. (2023). Practical Action Research for Change (5th ed.). Routledge

Suter, W. N. (2021). Introduction to Educational Research: A Critical Thinking Approach (3rd ed.). Sage Publications.

Sampling in Research / Enquiry

Research sampling is a critical process in both qualitative and quantitative studies, significantly impacting the validity and generalizability of research findings. Simply put, it involves, how, who, and how many and will it be (or does it need to be) representative.

There are many ways in which you can define a sample for your research enquiry. Stratified sampling, random sampling, and convenience sampling are among the various techniques employed to ensure diverse and representative samples. Patton (2020) emphasizes the importance of purposive sampling in qualitative research, where participants are selected based on specific characteristics relevant to the research question.

Whether you choose to adopt a qualitative, quantitative or mixed methods approach to your research enquiry, the sampling strategy must align with the research design and objectives to ensure robust and credible results and a comprehensive understanding of the area you are researching.

Patton, M. Q. (2020). Qualitative Research & Evaluation Methods (4th ed.). Sage Publications.

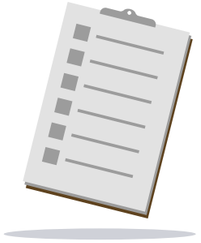
Research in education and within schools is characterized by a participatory, collaborative and reflective approach aimed at solving practical problems and improving educational practices and outcomes. The most popular research methods and sampling strategies used in this field are:

Qualitative methods that use:

- Detailed observations (classroom interactions and behaviour)
- Interviews (semi-structured or structured) with teachers, students and other stakeholders to gather in-depth perspectives and experiences
- Focus group discussions with teachers, students and other stakeholders that explore collective views and facilitate the identification of common themes and issues

Quantitative methods that use:

- Surveys and questionnaires as structured tools to collect data from a larger number of participants, allowing for statistical analysis of trends and patterns
- Pre- and post-test assessments, administered before and after an intervention to measure its impact on student learning and outcomes.



Mixed methods

Mixed methods use a combination of qualitative and quantitative methods or approaches to provide a comprehensive understanding of the research problem.

Some examples of sampling strategies for research enquiry:

Purposive sampling - selecting participants who are most relevant to the research question and can provide rich, detailed information e.g. specific teachers who have implemented a new curriculum.

Convenience sampling - choosing participants who are easily accessible, willing to participate and overcome logistical constraints

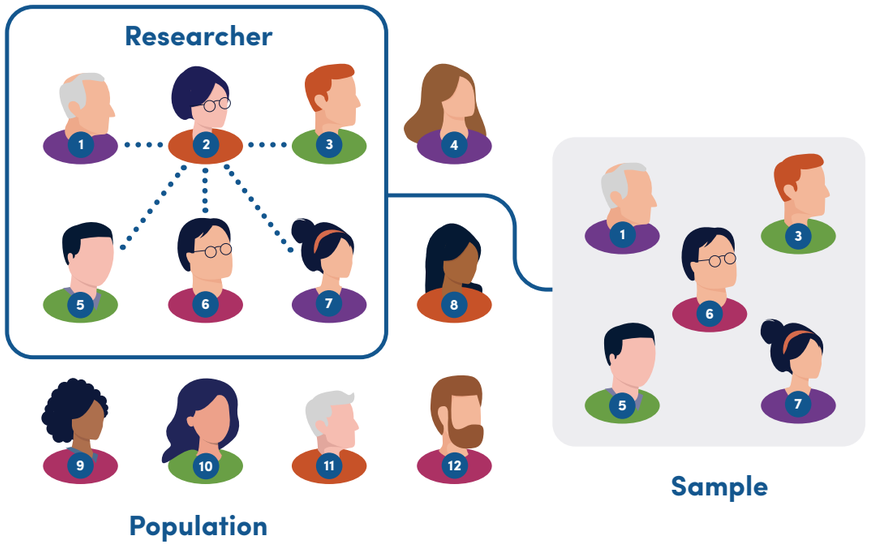
Randomised sampling - selecting participants alphabetically by their surname, or every third pupil in a list or names form a hat

Snowball sampling - when participants are able to refer other potential participants who have similar experiences

Stratified sampling - dividing the population into subgroups (strata) and sampling from each subgroup to ensure representation of different segments of the population

Convenience sampling

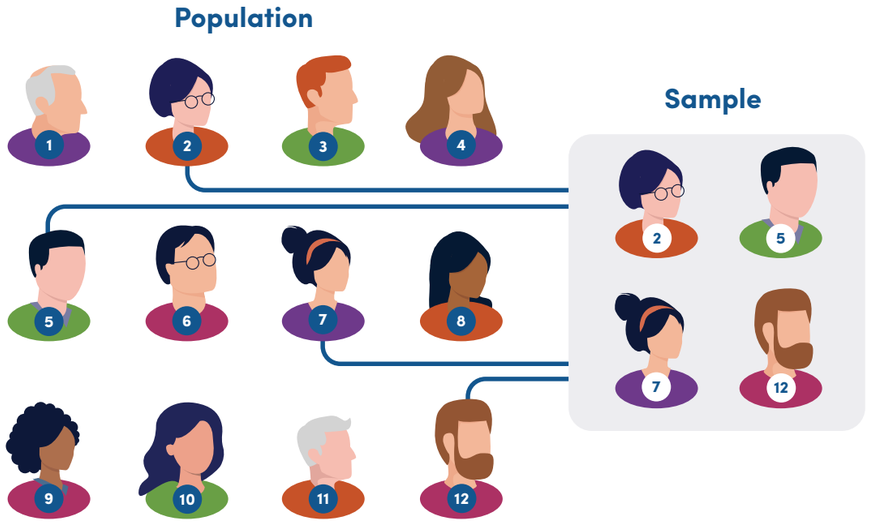
Choosing participants who are easily accessible and willing to participate and overcome logistical constraints



Randomised sampling

Select participants alphabetically by their surname, or every third pupils in a list or names form a hat.

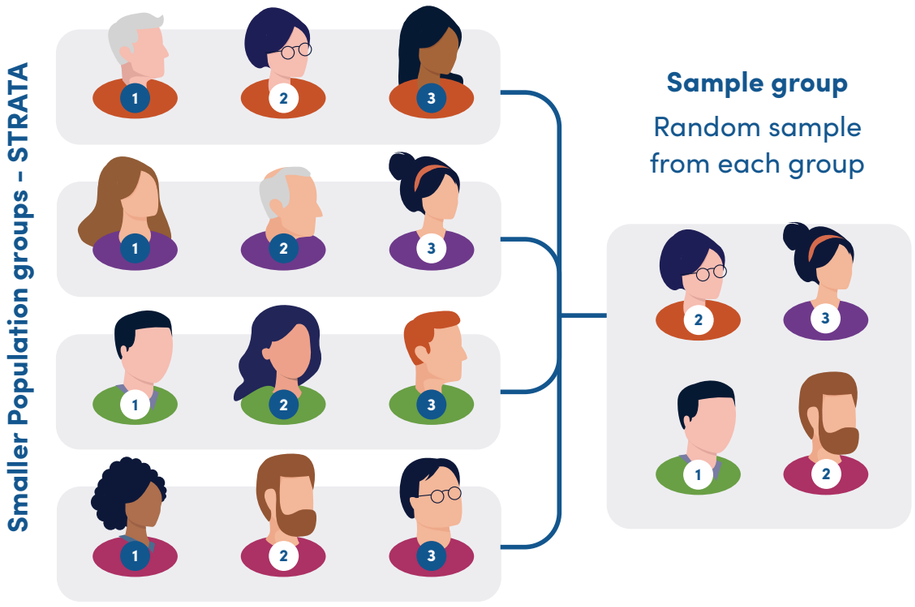
Systematic random samples usually represent the population we are interested in as each member has an equal chance of being included in the sample.



Stratified sampling

Dividing the population into subgroups (strata) and sampling from each subgroup to ensure representation of different segments of the population e.g. Divide each pupil according to their year group – Year 5, Year 7, Year 9 and Year 11. Choose 25 students at random from each grade to be in the sample.

Stratified random samples ensure that an equal number of students from each year group are included in the sample.



Useful textbooks

Coghlan, D. (2023). Doing Action Research in Your Own Organization (5th ed.). Sage Publications.

Cohen, L., Manion, L., & Morrison, K. (2020). Research Methods in Education (8th ed.). Routledge.

Creswell, J. W., & Creswell, J. D. (2021). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications.

Herr, K., & Anderson, G. L. (2023). The Action Research Dissertation: A Guide for Students and Faculty (3rd ed.). Sage Publications.

Mertler, C. A. (2023). Action Research: Improving Schools and Empowering Educators (6th ed.). Sage Publications.

Mills, G. E. (2023). Action Research: A Guide for the Teacher Researcher (7th ed.). Pearson.

Patton, M. Q. (2020). Qualitative Research & Evaluation Methods (4th ed.). Sage Publications.

Schmuck, R. A., & Schmuck, P. R. (2023). Practical Action Research for Change (5th ed.). Routledge.

Teddlie, C., & Tashakkori, A. (2020). Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences (2nd ed.). Sage Publications.

Quantitative and Qualitative Data

In previous sections, we have explored qualitative and quantitative terms associated with the different types of research questions and how your chosen sampling strategy can better inform your research design from qualitative, quantitative or mixed methods (often referred to as paradigms).

This section will focus on how these can be useful in research enquiry, some key terms you may come across in your reading, along with the importance of triangulation in research.

Recap...

Qualitative methods gather data from:

- Detailed **observations** (classroom interactions and behaviour)
- **Interviews** (semi-structured or structured) with teachers, students and other stakeholders to gather in-depth perspectives and experiences
- **Focus group** discussions with teachers, students and other stakeholders that explore collective views and facilitate the identification of common themes and issues

Quantitative methods gather data from:

- **Surveys and Questionnaires** as structured tools to collect data from a larger number of participants, allowing for statistical analysis of trends and patterns
- **Pre- and post-test** assessments, administered before and after an intervention to measure its impact on student learning and outcomes for example

Mixed methods

Mixed methods gather data from a combination of qualitative and quantitative methods or approaches to provide a comprehensive understanding of the research problem. This can include triangulation, where multiple methods are used to verify findings. (this will be discussed in further detail in the following sections).

Observations

Why choose observations to gather data:

- Detailed observations are a powerful qualitative research method that allows researchers to gather real-time data on behaviours, interactions, and processes within the natural setting of a school.
- They provide a detailed and nuanced understanding of the educational environment, capturing the context and dynamics that might be missed through other methods.
- Observations can reveal insights into classroom management, instructional strategies, pupil engagement, and social interactions, considered invaluable for studying educational practices and outcomes.

How to select observations

Define the Research Purpose: Identify specific research questions that observations can address, such as how teachers implement new instructional strategies or how students interact during group activities.

Choose the Observation Type: Participant observation is where the researcher actively engages in the setting while observing (useful for gaining insider perspectives but may contain the researcher's influence on the environment), or non-participant observation, where the researcher observes without becoming involved. This method reduces the risk of influencing the observed behaviours and allows for a more detached perspective.

Develop an Observation Plan: Select participants and choose classrooms, teachers or pupil groups relevant to the research question. Ensure a variety of contexts are included if the study aims to generalize findings. Then determine an observation schedule and decide on the frequency and duration of your observations. Regular and varied observations can provide a comprehensive picture of the phenomena being studied.

Create an Observation Protocol: Develop a structured or semi-structured observation guide to ensure consistency in data collection. This guide should outline key behaviours, interactions, or events to observe and record.

Record and Analyse Data: Use detailed field notes, or pupils' anonymised work, and checklists to capture observational data. Ensure data is systematically organized and coded to identify patterns and themes.

Focus groups

Why choose Focus Groups to gather data:

- They are particularly useful for exploring collective views and generating rich, qualitative data through interactive discussions. They are effective in identifying common themes, attitudes, and experiences among participants, making them ideal for understanding group dynamics and shared perspectives in educational settings (Krueger & Casey, 2015)

How to choose Focus Groups

Identify the Purpose: Determine the specific research questions or topics that the focus group aims to explore. For example, understanding teachers' experiences with a new curriculum.

Select Participants: Choose participants who share similar characteristics or experiences related to the research topic. This can include teachers or pupils. Aim for 6-10 participants per group to facilitate manageable and productive discussions (Morgan, 2019).

Facilitate Discussion: Use open-ended questions to guide the conversation, allowing participants to express their views freely while ensuring all voices are heard.

Krueger, R. A., & Casey, M. A. (2015). Focus Groups: A Practical Guide for Applied Research (5th ed.). Sage Publications

Morgan, D. L. (2019). Basic and Advanced Focus Groups. Sage Publications.

Interviews

Why choose interviews to gather data:

- They provide in-depth, detailed insights into individual experiences, perceptions and attitudes. They are particularly useful for exploring complex issues and obtaining personal narratives that surveys or focus groups might not be able to capture.

How to choose interviews:

Identify what type you will use: Structured, semi-structured or unstructured interviews based on the depth of information needed. Semi-structured interviews are commonly used in educational research to balance guidance with flexibility.

Select Participants: Identify key stakeholders relevant to the research question, such as specific teachers or pupils. Purposeful or convenience sampling can help select participants who can provide the most relevant information.

Prepare Questions: Develop an interview guide with open-ended questions (no more than 10) aligned to your literature review, research aims and objectives that encourage detailed responses, focusing on the participants' experiences and perspectives. Remember to pilot it first and check whether the routing of questions and how you ask the questions presents a bias in the response.

Surveys

Why choose surveys to gather data:

- Surveys are effective for collecting quantitative data from a large number of respondents, allowing for statistical analysis and generalisation of findings. They are suitable for measuring the attitudes, behaviours, and perceptions of research participants.

How to choose surveys:

Define Objectives: Clearly define what the survey aims to measure, such as pupil satisfaction with online learning or teacher perceptions of professional development.

Design the Survey: Create questionnaires with closed and or open-ended questions to facilitate analysis. Ensure the questions are clear, concise and not open to misinterpretation and that they are relevant to the research objectives.

Select Participants: Use appropriate sampling methods, such as random sampling, to ensure representativeness. Distribute the survey to a large, diverse group of respondents to obtain a broad range of data either by hand, or electronically via emails or MS Forms or Survey Monkey ensuring confidentiality and anonymity.

Triangulation

It is generally accepted that using triangulation enables the researcher to **neutralise the bias** inherent in one particular data source, or method and serves as a **validation purposes.** Some see it as seeking convergence of results from different methods although there are numerous counterarguments to this view.

This requires that the two or more methods be intentionally used to assess the **same conceptual phenomenon** and implemented **simultaneously**, and, to preserve their counteracting biases, also be implemented **independently**.

Triangulation can:

- Assist in the development of the results from one method to help develop or inform another method
- Presenting clarification, illustration, and interpretation of the results from one method with the results from the other
- Assist you in discovering paradoxes, contradictions and fresh perspectives
- Expand and increase the scope of the inquiry by using different methods for different inquiry components
- Increase the trustworthiness of the research by methodological robustness

Triangulation in research

Data triangulation – the use of variety of data sources and data sets in a study.

Investigator triangulation – the use of different researchers. Partnership and teamwork are important as the ways of bringing in different perspectives.

Theory triangulation – the use of different theoretical viewpoints for determining competing hypotheses as well as for interpreting a single set of data.

Methodological triangulation – the use of multiple methods to study a single problem or a phenomenon.

Common dichotomies in methodological literature

Qualitative	Quantitative
subjective	objective
inductive	deductive
participant observation	survey techniques
anthropology	sociology
naturalism	anti-naturalism
art	science
hermeneutics	positivism
aristotelian	galilean
teleological	causal
finalistic	mechanistic
understanding	explanation
Verstehen	Erklaren
phenomenological	logical positivism

Features

descriptive	predictive
empiricism	rationalism
atheoretical	theoretical

A note on a selection of key terms

Empirical/Empiricism

Based on the direct experience or observation of the world. Study of reality accepting only knowledge gained through experience and/or senses

Epistemology

Theory of knowledge, what should pass as acceptable knowledge (positivism, realism, interpretivism)

Interpretivism/ Subjectivism/Constructionism

Epsitemological position requiring social scientist to grasp the subjective meaning of social action

Constructivism

Ontological position- social phenomena and meanings are continually being accomplished by social actors

A note on a selection of key terms

Reflexivity

Reflectiveness about the implications for knowledge generated by researchers about the social word, methods, values, biases decisions in the situations under investigations

Ontology/ Objectivisim

Ontology has been defined by Baikie (1993) as “the science or study of being” and it deals with the nature of reality. Ontology is a system of belief that reflects an interpretation of an individual about what constitutes a fact. In simple terms, ontology is associated with a central question of whether social entities need to be perceived as objective or subjective.

Quasi-experiments

Research design close to being an experiment but does not complete internal validity (causal relationship between 2+ variables is sound)

Epistemology | Ontology | Methodology

Professor Tara Brabazon provides useful definitions of Epistemology, Ontology and Methodology on her YouTube channel and her published book The Three Wise Monkeys of Research available on Audible.

Useful textbooks

Creswell, J. W., & Creswell, J. D. (2021). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications.

Cohen, L., Manion, L., & Morrison, K. (2020). Research Methods in Education (8th ed.). Routledge.

Patton, M. Q. (2020). Qualitative Research & Evaluation Methods (4th ed.). Sage Publications.

Teddlie, C., & Tashakkori, A. (2020). Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences (2nd ed.). Sage Publications.

More information on previous enquiries can be found here *hwb.gov.wales* and here *hwb.gov.wales/professional-learning*

You may find that other schools have undertaken a similar enquiry to you, but you may decide to use different research methods to collect the data.

Quantitative and Qualitative Data Analysis

Undertaking rigorous data analysis in educational research is essential for ensuring the validity, reliability, and overall robustness of the findings.

Rigorous analysis helps in accurately capturing the complexities and nuances of educational settings, thus enabling researchers to draw meaningful and trustworthy conclusions.

By applying systematic and well-structured methods, researchers can avoid biases and errors, enhancing the credibility of their work.

> *"Rigor in data analysis involves carefully planning, implementing, and documenting the procedures used to ensure the credibility and reliability of the findings"*

Creswell, J. W., & Creswell, J. D. (2021).p.157. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications.

Organising your data

The first step is to organise your data.

Before beginning the detailed process of analysing the data, it can be useful to set out precisely how the data currently stands, and what needs to happen to it from now on.

This can include setting out – for each data collected:

1. **What method was used to collect it?** (E.g. Interviews, focus groups, questionnaires
2. **From which participant groups was it collected?** (Fellow practitioners in my setting, a groups of Year 11 learners etc.)
3. **What form does the raw data take?** (E.g. recorded interviews; completed questionnaires).
4. **How will the data need to be processed?** (E.g. transcription, inputting to spreadsheet, anonymization etc.)
5. **Data Type - is it qualitative or quantitative?**
6. **What form will it take during the analysis phase?** (E.g. Transcribed text, numerical data in a spreadsheet).
7. **Final form that the data will take in your report** (E.g. quotations, graphs, pie charts).

As you progress through your analysis and processing, keep a record of your thoughts, interpretations and theories. This is known as memo-ing, and is a useful way of capturing your reflections and ideas as you are conducting your analysis.

Analysing qualitative data

There are many ways to analyse qualitative data, and texts will often emphasise different aspects or use different terms from each other choose a model that suits your data and research questions. There are a number of phases which are broadly common to most forms of qualitative analysis.

1. **Processing the data:** converting it into a form in which it can be analysed. This normally involves transcription of recordings into text.
2. **Coding:** highlighting key themes in your transcripts which relate to your research questions, and then grouping these initial themes later along common broader themes (see point 3 below).
3. **Identifying broader themes or categories:** this process often begins with the grouping of broadly common codes together under more general categories. Categories can be developed through exercising your own interpretation of which pieces of data and codes 'belong together', and share a common theme.
4. **Drawing out conclusions and building your ideas:** the final phase often involves interpreting the broad themes, drawing conclusions and building ideas and theories, on the basis of the data. When you get to this phase of analysis your theories may well be variously complex and abstract.

(Pole and Lampard, 2002; Saldaña, 2009; Costley, Elliott and Gibbs, 2010)

Coding, themes and categories

Coding: Highlighting key themes in your transcripts which relate to your research questions, and then grouping these initial themes later along common broader themes

Identifying broader themes or categories: this process often begins with the grouping of broadly common codes together under more general categories. Categories can be developed through exercising your own interpretation of which pieces of data and codes 'belong together', and share a common theme.

Level 1 coding example

Column 1 Raw Data	Column 2 Preliminary Codes	Column 3 Final Code
1 The closer i get to retirment age, the faster I want it to happen. I'm not even 55 yet and I would give anything to retire now. But there's a mortgage to pay off and still a lot more to sock away in savings before I can even think of it. I keep playing the lottery, though, in hopes of winning those millions. No luck yet.	**"Retirement age"** **Finacial obliagtions** **Dreams of early retirement**	**1. Retirement anxiety**
2 Mrs. Jackson rises from her desk and announces, "OK, you guys, let's get lined up for lunch. Row One." Five children seated in the first row of desks rise and walk to the classroom door. Some of the seated children talk to each other. *3* Mrs. Jackson looks at them and says, "No talking, save it for the cafeteria. *4* Row Two." Five children seated in the second row of desks rise and walk to the children already standing in line.		**2. Lining up for lunch** **3. Managing Behavior** **4. Lining up for Lunch**

Levels of Coding

The first level of coding is descriptive: identifying themes, and units of meaning as the person expresses them.

Be as close as possible to the text, use the words of the person, do not try to interpret at this point, or use theoretical concepts but stick as closely to the original language as possible.

The second level of coding: reformulate in more theoretical words or overarching themes that relate to your RQs.

B. Yeah, because my father went to University, twenty five years ago, but he like dropped out after the first year. | ***1.*** He got a job straight away but he uh like | ***2.*** really wanted me to go to University. I think he thought he missed out. I think he thought that | ***3.*** I think he thought that people looked down on him in his work.

A. Why do you think he thought that?

B. ***3.*** I think he thought that it held him back and that, you know, some people thought he wasn't good enough to be a manager, even though he was, and he worked hard, like.

A. Why do you think he wanted you to go?

B. ***4.*** I think he thought he was always fighting. He was a working class boy from a tidy family, but you know like people's perceptions, | ***5.*** and he didn't want me to do that, even if I didn't go into teaching or law or whatever you know like a profession, that I'd always have that, always be able to say I've got my degree and I've reached a certain level in society. | ***6.*** Nobody can take that away from you then. | ***7.*** Nobody can say you don't deserve what you've got to where you've got to and what you've got in life like. | ***8.*** So, it was a big influence in my decision. My father's experience and what he wanted for me.

A. How do you feel in your job now?

B. I think he was right. | ***9.*** I do feel pride in that I've got my degree. | ***10.*** He's made sure I had a better life. | ***11.*** It's a different world now to when my father got a job and without it I don't think I'd have been as lucky as he was.

1. Getting a job straight away.
2. Wanted children to go to Uni.
3. People Looking down on you, or thinking you're not good enough.
4. Social class.
5. Reaching a level in society
6. Controlling your own future
7. Deserving success
8. Father's influence
9. Pride in achievements
10. Having a 'better' life
11. Luck in finding a job then and now

Quantitative analysis in small-scale research

Normally, small-scale practitioner-led research projects are concerned with making sense of a concern or issue within their context of educational practice and very rarely do such small-scale projects aim at generalizability.

Researchers and practitioners should aim to work within their level of mathematical expertise when it comes to quantitative data and try to enhance their understanding of their data using basic mathematical and arithmetic procedures.

Making sense of your data

Please refer to earlier section (**Qualitative and Quantitative Data**) on Triangulation.

Triangulation can be used to read across data types to identify areas of convergences and divergences in data sets.

By the time you have completed your analysis, you may well have firm ideas about what your data is telling you. However, do keep challenging your interpretations against the data, so that you can be certain that you are not interpreting the data based on a pre-existing set of assumptions or bias.

It is ok for your initial 'gut feeling' about what the research would throw up to be wrong.

On the other hand, you may find that clear conclusions are not arising from the data, or your conclusions are contradictory, depending on the data you view.

Many research projects yield indeterminate results, **but** there is always something to learn. This could be about the data knowledge (epistemology), the process, the methodology (or methods), the setting and context, or about yourself as a researcher-practitioner!

Useful textbooks

Creswell, J. W., & Creswell, J. D. (2021). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (5th ed.). Sage Publications.

Cohen, L., Manion, L., & Morrison, K. (2020). Research Methods in Education (8th ed.). Routledge.

Patton, M. Q. (2020). Qualitative Research & Evaluation Methods (4th ed.). Sage Publications.

Teddlie, C., & Tashakkori, A. (2020). Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches in the Social and Behavioral Sciences (2nd ed.). Sage Publications.

More information on previous enquiries can be found here *hwb.gov.wales* and here *hwb.gov.wales/professional-learning*

Results and Conclusions

Presenting results and conclusions in educational research requires a nuanced approach that reflects the nature of the data collected. Facts should be presented in an unbiased manner and should not contain further attempts at analyzing or data interpretation.

In **qualitative research**, the emphasis is on rich, detailed descriptions and thematic analysis which tend to focus on the importance of "narrative presentation" where the researcher provides a detailed account of participants' experiences and the context of the study and reporting of them by highlighting the use of themes and direct quotations (coded and anonymised) to support findings, ensuring the authenticity and depth of the participants' voices are maintained. McNiff (p.157) suggests that presenting results in action research should include reflective narratives that capture the iterative process of inquiry and learning

Quantitative research focuses on the statistical analysis and presentation of data. Bryman (p.346) points out that the results in quantitative research should be presented using appropriate tables, charts and statistical measures to convey the significance of the findings clearly and stresses the importance of clarity and precision in presenting numerical data. Similarly, Thomas underscores the necessity of using graphs and statistical summaries to interpret the data, which helps in drawing meaningful and generalizable conclusions.

Bryman, A. (2021) Social Research Methods. London: Oxford University Press
Thomas, G. (2017) How to do your research project. Sage
Mc Niff, J. (2020) Action Research: All You Need to Know. SAGE Publications

Structuring your results:

Step 1: Present an introduction and repeat the research question. This establishes a connection to the previous section of the paper and creates a smooth flow of information

Step 2: Address the primary research question first, then the secondary ones should you have them.

The results section needs to communicate the findings of your research in a systematic manner – the results section must individually connect with each of the questions.

Step 3: Condense large data to visual representations for example graphs, tables, and other figures can help illustrate the findings of your research.

An engaging research section can help readers better understand the important bits of your research.

Social Research Methods. London: Oxford University Press
Thomas, G. (2017) How to do your research project. Sage
Mc Niff, J. (2020) Action Research: All You Need to Know. SAGE Publications

Composing an effective results section

The results section of a research report is usually the most impactful section and the goal is to communicate complex information with precision and clarity

- Must be highly organized
- Think about the order of logic in the layout, catalogue your findings, use subheadings and create appendices if the reading of long data will compromise the clarity of your research (avoid reader fatigue)
- Use simple and clear language and be concise where possible
- Make use of **Academic Phrasebank** to help you structure the section ***www.phrasebank.manchester.ac.uk***
- Express the findings in an unbiased way
- Include negative or void results
- Use appealing, but clear diagrammatic or visual representations
- Clearly label your tables and figures
- Have a critical friend to read your work and give constructive feedback on clarity, spelling/grammar, paragraph transitions etc

Discussion section following the result section:

This section should demonstrate your skills as a researcher to think critically about an issue and your skills in developing creative solutions to problems highlighted by your findings/results to gain a deeper understanding of your research area.

The discussion section is where you explore the underlying meaning of your research, any improvement that may be needed and the implications for others or for futher research. Perhaps you will discuss how your research fills in the gaps of other research or how it could contribute to the literature of future research. Consider discussing the limitations of your research acknowledging any potential biases or constraints that might affect the validity and generalizability of the results.

You can engage critically and creatively in interpreting the evidence that is evident in your research.

Be concise and clear and avoid repetition.

Your research conclusions:

An effective conclusion section should synthesise the key findings/results of your research; a concise summary that encapsulates the main points without simply repeating the information presented in the results or discussion sections.

An effective conclusion should leave a lasting impression, pose thought-provoking questions and/or propose practical applications of the research findings.

You must ensure to:	Avoid:
▶ Revisit the research objectives and demonstrate how they have been met	▶ Introducing new information or arguments
▶ Make clear the study's contributions, significance and relevance	▶ Avoid making broad, unsupported claims about the significance or implications of your research
▶ Consider recommendations for future research	▶ Repeating the Introduction or Results Section
▶ End with a strong, impactful final statement that reinforces the importance of your study and leaves a lasting impression on the reader	▶ Ending abruptly without providing closure to your discussion
	▶ Using language that undermines your work i.e. being over apologetic about the limitations
	▶ Starting your conclusion with phrases like "In conclusion" or "To conclude,"

Useful resources

Bryman, A. (2016). Social Research Methods. Oxford University Press.

Cohen, L., Manion, L., & Morrison, K. (2021).
Research Methods in Education (8th ed.). Routledge.

Mc Niff, J. (2020) Action Research: All You Need to Know. SAGE Publications.

Mertens, D. M. (2019). Research and Evaluation in Education
and Psychology: Integrating Diversity with Quantitative,
Qualitative, and Mixed Methods. SAGE Publications.

Nutley, S., Powell, A. and Davies, H. (2013) Alliance of Useful
Evidence What counts as good evidence? (see page 24)

Silverman, D. (2020). Qualitative Research. SAGE Publications.

Thomas, G. (2017). How to Do Your Research Project:
A Guide for Students. SAGE Publications.

Dissemination of Enquiry Research

Why should you disseminate your research?

Dissemination research is considered crucial for several reasons.

Among these are:

- To maximise the **impact of the research by reaching wider audiences**, often wider and beyond anticipated or foreseen to include scholars, practitioners, policymakers, research commissioners and the general public. Real-world impact!
- To help ensure that the research **contributes to the existing body of knowledge-informed practice**, and influences policy, which can lead to social, economic, and scientific advancements. Your research can add to the body of knowledge and practice for other researchers and practitioners to consider in their literature reviews and pedagogical approaches.
- Foster **academic collaboration and networking**, opening avenues for future research and interdisciplinary studies and can assist in maintaining academic integrity and public trust in scientific inquiry.

> *"Big or small – there is always the potential for meaningful change"*

Effective ways of disseminating your research

1. Academic journals and conferences – these are peer-reviewed and scrutinized by experts and reach a targeted scholarly audience.
2. Your school's newsletters, website and training events, workshops and webinars (clusters and beyond).
3. Your local authority's education department briefing methods .
4. Your institution's social media and academic networks like X (formerly Twitter), ResearchGate, and LinkedIn to share research updates, publications, and findings that can engage a diverse audience, including non-academic stakeholders.
5. Collaborative projects and partnerships with community organizations, and other stakeholders can ensure that research findings are directly applied and disseminated through direct, practical avenues.

Steps to disseminating your research

You may need to think about your communication objectives – you may need to change the format of your report and focus on getting your research known and used among those who can benefit most from it.

Define your audience - who do you wish to speak to about your research, and what is your reason for doing so?

Refine your key messages - make sure your messages are appropriate for each audience you want to engage: set out your key messages in clear, accessible language and make them memorable (a bit of appropriate humour can sometimes help to hook audiences). Format is important, **a good story is simple, short, active, true and told for a purpose.**

For further useful information about these steps, see Manchester University's guidelines on **Promoting your research: Steps to dissemination and engagement** in collaboration with **ESRC Impact Toolkit**

Promoting your research: Steps to dissemination and engagement

ESRC Impact Toolkit

Focus on Practice

Useful resources

Bartlett, T. (2014). Communicating Your Research with Social Media: A Practical Guide to Using Blogs, Podcasts, Data Visualisations and Video. Routledge.

Bryman, A. (2016). Social Research Methods. Oxford University Press.

Cohen, L., Manion, L., & Morrison, K. (2021). Research Methods in Education. Routledge.

Creswell, J. W., & Creswell, J. D. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. SAGE Publications.

ESRC Impact Toolkit
www.ukri.org/councils/esrc/impact-toolkit-for-economic-and-social-sciences/

Kjellberg, S., Haider, J., & Sundin, O. (2016). Researchers' Use of Social Network Sites: A Scoping Review. Library & Information Science Research, 38(3), 224-234.

Manchester University's guidelines on Promoting your research: Steps to dissemination and engagement
www.manchester.ac.uk/about/news/promoting-your-research-steps-to-dissemination-and-engagement/

Nutley, S., Walter, I., & Davies, H. T. O. (2007). Using Evidence: How Research Can Inform Public Services. Policy Press.

Thomas, G. (2017). How to Do Your Research Project: A Guide for Students. SAGE Publications.

RPE

Resource for Professional Enquiry:
A guide for educators

Dr Siân Lloyd-Williams
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