

6 classroom observation

Observation is one of the most straightforward ways to gather information and get a picture of what's happening in your school or classroom. It is often a good way to begin to explore a situation you want to know more about. It can also be useful to add information to other sources of data you may be collecting for your action enquiry. However, it is important to be aware that as an observer you can often affect the situation you are trying to observe.

When is Observation Used?

- Commonly used during the exploratory phase of an investigation, typically in an unstructured form, to find out what is going on. The information gathered can help to generate ideas about what or why something is happening. These ideas, or hypotheses, can then be tested in your action enquiry.
- Can also be used in a multi-method case study to collect data that may complement or set in perspective data obtained by other means, such as interviews.
- Observation may be the main method in a particular study when the intention is to describe what happens in a particular situation.

Observational Methods

1. Informal information gathering - less structured, allowing observer freedom in what information is gathered and how it is recorded. It includes note-taking, diary-keeping, and generally gathering information from participants. Such observation requires the observer to organise the data gathered. The results, of course, are likely to be highly subjective.
2. Formal information gathering - imposes structure and direction on what is to be observed through the use of prepared schedules or checklists. The observer is systematic, i.e. attending to only pre-specified aspects. High reliability and validity between different observers is easier to achieve, but at a cost of complexity and completeness of the information available. If the schedule or checklist is developed by a group of interested people, the data are likely to be more objective.

Role of the Observer

Generally the role of the observer can be 'pure' (unnoticed, part of the wallpaper) or participatory (e.g. participate in what is going on in the situation observed). The latter will use qualitative, unstructured approaches of observation; the former might use a mixture of both quantitative and qualitative approaches. Whilst the 'pure' observer uses an instrument (e.g. proforma) for the observation, the participant-observer is the instrument. For example, the class teacher may be interested in finding out how children solve a multiplication problem. As a 'pure' observer she will use an observation checklist, ticking boxes as she observes the pupil on a pre-determined problem-solving activity. Then, as the 'instrument' herself, she may ask the pupil what he did, why he did it, and may even set him another, but similar, task, to see if he uses the same strategy. By doing so, the teacher will influence the outcome, but in the context of teaching and learning this may be a valid method of observation.

1 focus groups

Compared to individual interviews, focus groups usually 'elicit a greater, more in-depth understanding of perceptions, beliefs, attitudes, and experiences from multiple points of view' (Vaughn et al, p.16). While in individual interviews the respondent may give the kind of answers he or she thinks the interviewer wants to hear, in a group the participants feel more in control and debate their views with others. The researcher is also more likely to find out about the feelings that underlie statements made by the participants.

Focus groups typically consist of 6 to 12 people who share some common characteristic (in a school context, for instance, they could all be parents, or pupils, or supporting agencies). A group smaller than six is unlikely to provide a wide range of ideas, but when larger than twelve, it could fragment and those sitting close to each other would start talking to each other. Focus groups work best when there are two researchers (called moderators). One asks the questions and ensures that all the participants get a chance to state their views, without feeling put down or intimidated by others. Equally, this person makes sure that no one dominates the discussion. Clearly, this researcher needs to have good interpersonal skills. The second moderator observes what happens in the group, and takes notes on what is said as well as the context of the answers: Are they given in a relaxed, confident way, or tentatively? Do others in the group agree, verbally or non-verbally, or are they dismissive? Do group members respond in detail, or do they answer half-heartedly before moving on to something more interesting to the group. If so, why is that? This involves good observational as well as good note taking skills. Audio/video recordings make this task a lot easier, but notes still need to be taken unless the researchers are able to identify individual voices. Focus groups tend to take longer than half an hour, so it may be helpful to swop places halfway through.

Organising focus groups requires careful planning. Respondents need to be identified so that they are representative of the larger community (e.g. parents from varying backgrounds) and an appropriate venue found. To create a welcoming atmosphere, it is helpful to have refreshments. The group needs a formal welcome, with an explanation of the purpose of the meeting and how it is all organised. Beforehand, the researchers need to have agreed on the main questions (usually no more than 10) to be used to guide the discussion from one topic to the next. To put the group at ease and get the discussion going, the first question needs to be a general one, such as 'What do you think our school is good at? Can I ask you first, Mrs X?' Once the group has started, the moderator's main task is to promote debate, by asking further open questions, by challenging participants (especially on differences) and by teasing out a lot of meanings. They need to keep the session focused, and may need to steer the conversation back on course. It is important that they do not get involved, but should summarise the various opinions non-judgementally to get agreement from the group that this is what has been said, before moving on to the next question.

Apart from getting a lot of information on not only what people say but what they do, a focus group also empowers participants because it makes them valued as experts, and gives them a chance to collaborate on issues that are brought up. As such, it can be helpful in an educational setting beyond just data collecting.

Further reading

Greenbaum, T.L. (1998)

The Handbook for Focus Group Research. London: Sage

Morgan, D.L. (1998)

Planning Focus Groups. London: Sage

Vaughn, S., Shay Schumm, J. and Sinagub, J. (1996)

Focus Group Interviews in Education and Psychology. London: Sage.

Psychological Services can give further support.

Collecting Data Through Informal Observation

The basic task of the participant-observer is to observe the people in a specific setting and to collect information from them. Whilst you may have formal interviews with those observed, you could also have ‘on the wing’ discussions. In the subsequent write-up, it is common practice to start with descriptive observations (describing the people, setting, and what is taking place). This may include:

- Space (layout of room, playground, etc)
- Participants (names and relevant details of the people who are observed)
- Activities
- Objects (physical elements such as furniture)
- Actions
- Events
- Time (sequence of events)
- Goals (what actors were trying to accomplish)
- Feelings (emotions in particular contexts)

These data usually lead to further reviewing of the observation process, reflection, and possibly refining strategies.

Collecting Data Through Structured Observation

Although structured observation is limited and limiting, its great advantage is its simplicity. Once you have decided your focus, you can repeat your observation at any time. As there is a schedule or checklist being used (usually with clearly defined behaviours to look for), it is easy for anyone to carry out a repeat observation. One simple strategy would be to do a “head count” at various times during the day, for instance to log “on task/off task” behaviour. Another one would be to tick what the pupils are doing when they are off task (using a proforma with pre-defined categories of ‘off’ task behaviours).

Example of a Structured Observation Schedule:

Whole Class On-task/Off-task Recording Form

Class Activity..... Teacher

Date of Observation Time of Observation to

Observer..... Length of Observation Interval

Interval	Academic On-Task	Procedural On-Task	Sanctioned Off-Task	Unsanctioned Off-Task	Dead Time
1					
2					
3					
4					
5					
6					
7					
8					
9					
10 (etc)					
Totals					

Observational Biases

- Selective attention—all perceptual processes involving the taking in of information by observation and its subsequent internal processing are subject to bias. Our own interests, experiences, and expectations are likely to influence what we pay attention to. Do make a conscious effort to distribute your attention widely and evenly.
- Selective interpretation—expectations colour what you see and in turn affect the interpretation/judgement of your observation. Start with an open mind and keep it open.
- Selective memory—the longer you wait with the writing up of your narrative notes of your observation, the more pre-existing ideas and expectations will influence it. Write up field notes into a narrative account promptly.
- Interpersonal factors—personal standards of behaviour, expectations and tolerance levels can also affect your observations. Be aware of this and set aside all biases during the observation, when making notes and evaluating data. In other words, try to “paint” what you see—not what you would like to, or indeed hope to, see.

Hints and Tips

- Even with the most unstructured observation it is crucial to have a system which permits you to capture information unambiguously and as faithfully as possible.
- Make a note of your observation on the spot. This may be condensed, using abbreviations; it will act as an aide memoir.
- Your record of observations needs to be gone through shortly afterwards to add detail and substance and to ensure that the record is understandable and says what it intended to say.
- Five types of material should be included in your record of observations. You should have a system to mark and separate out these different types of material (e.g. round brackets, square brackets, different colours, etc.):
 1. Running descriptions
 2. Recalls of forgotten material that comes to you later
 3. Interpretative ideas—notes offering an analysis of the situation
 4. Personal impressions and feelings—your subjective reactions
 5. Reminders to look for additional information
- If possible, persuade a colleague, a Classroom Assistant, or your friendly Educational Psychologist, to carry out an observation also. The different perspectives, and subsequent discussions, may lead to further insights and refine your hypotheses or findings.

Resources:

Frederickson, N. & Monsen, J. (1999). *The Learning Environment*. Psychology in Education Portfolio. NFER-Nelson.

Further Reading:

Blythman, Macleod, & Ciesla. (1989). *Classroom Observation from Inside*. Spotlight 16. SCORE.

Robson, C. (1993). *Real World Research*. Oxford:Blackwell.

Simpson, M. & Tison, J. (1997). *Using Observations in Small Scale Research: A Beginner's Guide*. SCORE.

8 semi-structured interview

The semi-structured interview is the most common form of interviewing. In it, the interviewer has worked out a set of questions beforehand, but intends the interview to be conversational. To do so, the interviewer can change the order of the questions or the way they are worded. He or she can give explanations or leave out questions that may appear redundant. So, the main job is to get the interviewee to talk freely and openly while making sure you get the in-depth information on what you are researching.

To do so effectively, you must remember to:

- 1) **listen**, not talk yourself. It is easy to get involved and share your own experiences and views, but this may influence your interviewee to change what they are going to say. (They may use what you say to guess what you would like to hear, rather than what you need to hear).
- 2) **Make questions short, straightforward and clear**, otherwise the interviewee may only remember part of the question. E.g., avoid questions such as 'How do you feel about our current reading scheme compared to the one you had as a pupil?' (It is better to ask: 'What do you think of our reading scheme?' Then follow it up by: 'How does that compare to the one you had as a pupil?'). Avoid jargon. Avoid choice questions, such as 'Is it better to have a parents' evening or to send reports' as the interviewee may not like either. Avoid leading questions such as 'Why do you like phonics?' (perhaps they hate it).
- 3) **Remain neutral**. Do not say 'good' or 'oh dear' depending on whether you like the response or not. Instead use 'mmhmm', 'OK, so what you're saying is...' or 'Thank you, can I now ask you....?', etc.
- 4) **Enjoy the interview** (or look as if you do). Sit up, look interested, smile and keep good eye contact.
- 5) **Use probes and prompts** to get as much information as possible. Probes can be silence (while nodding encouragingly), 'mmhmm', 'Anything more?' or repeating what has been said. Prompts are short supplementary questions such as 'And what happened next?', 'Was that true when you were at school?', 'Does that just happen during the reading lesson?', 'What do you think personally?' etc.
- 6) **Take a full record of the interview**. The simplest would be to record the interview (but be prepared for the technology letting you down). Although note taking can be cumbersome, and slow down the interview, it allows the interviewee to (re)consider what has been said while you write and expand the answer. A good technique is also to check up after you have written the notes: 'What I have written down is... Have I noted that down OK, or do you want to change something?'

It is also important to structure the interview properly:

Step 1:

Introduce yourself, explain the purpose of the interview, ask for permission to record or take notes, and explain confidentiality, length of interview, etc.

Step 2:

'Warm up'. Ask some easy, non-threatening questions at the start to break the ice and make people feel comfortable.

Step 3:

Carry out the interview in a logical progression. Start with the easier, more general questions (if possible) and gradually move to more in-depth or 'risky' ones. (This way you will have gathered some information should the interviewee refuse to continue). Do not hesitate to return to earlier responses if a topic is missed or answered half-heartedly, once you feel the interviewee is warming to you.

Step 4:

'Cool off'. Some straight forward questions at the end to relax the interviewee.

Step 5:

Show appreciation and say goodbye. Remain alert to the 'half-way out the door' confession, once the recorder is switched off. Often, this is when the most meaningful information is given, and you may want to use it. It would only be fair to inform the interviewee of this, if you do.

Interviewing is a skill, but appearance is also important. Be pleasant and dress appropriately. Remember that the interviewer is in control of this 'conversation', by setting the questions, and that the interviewee will try to please. Saying as little as possible and encouraging the interviewee to say as much as possible is the key to getting in-depth information.

N.B. To counterbalance interviewee bias (i.e. the interviewee trying to say the 'correct' answer), researchers often use focus groups, where the dynamics of a group influence responses.

It is the quality that counts.

Further reading:

Powney, J. and Watts, M. (1987),
Interviewing in Educational Research. London, Routledge & Kegan Paul

Rubin, H.J. and Rubin, I.S. (1995),
Qualitative Interviewing: The Art of Hearing Data. Sage

2 inventories and checklists

Checklists and inventories are such common phenomena in ordinary life that standard text books on research rarely feel the need to discuss them specifically. At their most elemental, checklists are exactly what they say they are: a list of objects or activities you can tick off when you have completed them – e.g. shopping list, MOT list, classroom register. Inventories may be more comprehensive (a complete list, or more subcategories), but the terms are often used interchangeably, along with schedule and profile. Sometimes rating scales and questionnaires are also seen as checklists.

Early years development (e.g. the Portage Checklist; Teaching Talking), some baseline assessment in P1, descriptors of levels in 5-14 assessment, and self-assessment profiles, to mention but a few, typically take the form of checklists. Checklists are popular because they are a quick and simple way of getting information that is easy to assemble, and analysis can be automated. They can be repeated at later dates to allow for comparison, or measurement of progress. Checklists are also versatile, in that identical or at least comparable forms can be completed by teachers, parents and children. A well-known example of this is the Child Behaviour Checklist (Achenbach, 1991).

Example 1:

In an intervention study setting out to improve communication skills in an S3 class, all the pupils were taught the various components of good interpersonal communication. Following this, they practised these skills in small groups, using real classroom tasks, while being observed by a fellow pupil. These peer observers had a short checklist as a prompt to remind them what to look for, such as eye contact, attending, encouraging questions etc. This allowed them to take brief, pertinent notes for later feedback.

Checklists are good for quickly identifying issues, and it is usually fairly easy to make up your own, provided you have a clear focus and the checklist is appropriate for the type of analysis you wish to carry out. An example is the one developed by Ashcombe School where staff were interested in good learning behaviour. This is a fragment of their checklist which looks at study skills and attitudes:

Example 2:	++	+	-	--
Preparation for lessons	Almost always well prepared with equipment and resources needed for lessons	Usually well prepared with equipment/ resources needed for lessons	Sometimes forgets equipment/ resources	Frequently forgets equipment/ resources; inadequately prepared
Identifying targets	Keen to be fully involved in identifying areas of strength/ weakness and to set appropriate targets; individual and thoughtful involvement	Willing to identify areas of strength/ weakness and to set appropriate targets	Sometimes unwilling to identify some areas of strength/ weakness and to set appropriate targets	Shows little interest in learning from experience, in identifying areas of strength/ weakness and in setting targets

Source: Pringle and Cobb, 1999, p.82

Douillard (2003) similarly created her own Dimensions of Writing, breaking down the main areas (Craft, Organisational Element, Conventions and Writing Behaviours) into different subcategories and levels. In much the same way Jones (2002) developed her framework for assessing speaking and listening, by outlining five levels in listening, speaking and classroom interaction respectively.

But there is also a wide range of commercially available checklists and inventories, a few of which are listed below. The Psychological Service will be able to advise on suitability and will have many resources available for you to tap into.

Measure	Topic	Age Range
What I do to Learn What Stops my Learning	Tactics for more efficient learning	8-11
Life in School	Bullying.	5-18
Myself as a Learner	Self-rating scale for academic self-esteem.	11-16
Locus of Control Scale for Children My Class Inventory	Locus of control Classroom environment	9-18 8-11

As with all research tools, there are weaknesses attached to the use of checklists and inventories. Simplicity usually equates to gathering data that do not have great depth to them, and may not tell you how to solve a problem, or why things are the way they are. Also, it is easy to believe that Checklists are objective, but remember it is your (or the pupil's) own personal judgement or opinion you are exploring. Checklists are therefore only really useful as one of a number of ways of exploring a problem or situation (triangulation).

References:

Achenbach, T.M. (1991). Manual for the Teachers' Report Form & 1991 Profile of the Child Behaviour Checklist. Vermont: University of Vermont.

Douillard, K. (2003). 'Writing matters: exploring relationships between writing instruction and assessment'. In A. Clarke and G. Erickson (Eds.), *Teacher Inquiry: Living the Research in Everyday Practice*. London: Routledge Falmer

Jones, L. 'Using videos to investigate speaking and listening'. In O. McNamara (2002). *Becoming an Evidence-Based Practitioner: A Framework for Teacher-Researchers*. London: Routledge Falmer

Pringle, M. and Cobb, T. (1999). *Making Pupil Data Powerful: A Guide for Classroom Teachers*. Stafford: Network Educational Press.

Further Resources:

Frederickson, N. & Cameron, R.J. (Eds). (1999). *Psychology in Education Portfolio*. NFER-NELSON.

Sclare, I. (Ed). (1997). *Child Psychology Portfolio*. NFER-NELSON.

3 Likert scales

In educational research Likert Scales are often used because they are quick to complete, of interest to respondents (pupils and teachers alike) and relatively easy to develop. A Likert Scale (named after its deviser Likert, 1932) typically provides a range of responses to a statement or question, either numerically (1, 2, 3, 4, 5, of which 1 may be 'not at all' and 5 'a very great deal') or of the 'strongly agree' to 'strongly disagree' variety. They tend to be used to measure attitudes or opinions, such as current classroom practice and school-based innovations, but also on perceived pupil behaviour or pupils' views of themselves as learners. Because people usually enjoy filling in a scale of this kind for its innate interest, the answers they give tend to be more considered, adding to the validity of such a research tool.

How to develop a Likert Scale

1. As always, the first step is to reflect on what your question or issue is. What exactly do you want to find out? Reading round the issue may help, as may 'brainstorming' with colleagues, and finding out about scales already available. Some examples will be listed below.
2. When developing your statements or questions, be aware of 'obvious' and extreme ones, such as "I like to do well in school" (don't we all?) or "School should close at 2.30 daily" (yes!). The likelihood is that everyone will give the same response and you are not any the wiser, unless you aspire for a future in politics. To encourage respondents to consider each item carefully, it is also best to devise an equal number of positive and negative statements. Some Likert Scales employ items that are phrased differently, but aim to tap into the same attitude (see e.g. items 2 and 7 in example 2). This is done to check if the respondent is reliable and consistent.
3. Decide on your response system. If you opt for the '1-2-3-4-5' scale, make absolutely sure that respondents are clear whether 1 or 5 corresponds to 'strongly agree'. It sometimes helps to have an example at the top of your scale, as well as a clear indication. Many scales use 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree'. For younger children 'always', 'sometimes', 'don't know' and 'never' may be easier, or a smiley face, straight face and sad face.
4. If you are developing a scale totally from scratch, and you want to make sure it is valid and reliable, you should trial it on a large and representative sample. Remember to have your items in random order. After scoring (for instance, with positive statements 5 points for 'strongly agree', 3 for 'neutral', 2 for 'disagree', 1 for 'strongly disagree' and with negative statements, 1 for 'strongly agree', 2 for 'agree' etc.). Using an 'item analysis' will help you decide which items show discriminative power (see Robson, p. 258), but this is complex. It may be easier, therefore, to use published scales. A good source for these is Psychology in Education Portfolio (Fredrickson and Cameron, 1999).

Example 1

Please circle any of the seven positions.

(+3 or -3 = always, +2 or -2 = frequently, +1 or -1 = sometimes)

POSITIVE DIMENSION

GENERAL ATTITUDE

Attends school	+3	+2	+1	0	-1	-2	-3	Misses school
Attends my lessons	+3	+2	+1	0	-1	-2	-3	Misses my lessons
Happy re school	+3	+2	+1	0	-1	-2	-3	Worries re school
No complaints physically	+3	+2	+1	0	-1	-2	-3	Complains of aches & pains
Appears confident	+3	+2	+1	0	-1	-2	-3	Seems lacking in confidence
Conforms to school rules	+3	+2	+1	0	-1	-2	-3	Breaks school rules
Responds well to correction	+3	+2	+1	0	-1	-2	-3	Responds badly to correction
Parents support school	+3	+2	+1	0	-1	-2	-3	Parents do not support school
Student cares re parent view of performance	+3	+2	+1	0	-1	-2	-3	Student does not care re parent view of performance

NEGATIVE DIMENSIONS

Example 2

a = definitely agree

e = strongly disagree

1	I'm good at doing tests	a	b	c	d	e
2	I like having problems to solve	a	b	c	d	e
6	I need lots of help with my work	a	b	c	d	e
7	I like having difficult work to do	a	b	c	d	e
11	Learning is easy	a	b	c	d	e

From: Myself as Learner Scale (MALS)

Example 3

1 = No Never

5 = Yes, Always

D = Difficulty

C = Competence

A = Attitude

C	1	Can you work out what a story means?
A	2	Do you feel good when you do reading work?
D	3	Is reading to the class hard for you?
C	4	Can you work out hard words by yourself when you read?
A	5	Do you like word games in class?

From: Reading Self-Concept Scale

Cautionary Factors

1. The scales do not show equal intervals. In other words a score of 4 is not twice as strong as 2, nor can one assume that the difference of opinion between 'strongly disagree' and 'disagree' is as intense as the difference between 'strongly agree' and 'agree'.
2. Most people like to avoid extreme statements and may therefore wish to avoid the two extreme poles. However, this also makes it more interesting when respondents do tick or circle such statement. Equally, people like to avoid negative statements so that there tends to be a bias towards the positive. The rule of thumb here is that if positive statements total more than 70%, the outcome is indeed positive.
3. As with all forms, respondents may be deliberately falsifying their replies. That is why a Likert Scale is useful as one tool in triangulation. As suggested earlier, some items can be used to tap into the same attitude or opinion, to check up on consistency. For instance, in example 2 questions 2 and 7 appear to be very similar.

Evaluation and Feedback

Because of its potential numerical nature, Likert Scales lend themselves to representation in bar graphs. For those familiar with, and interested in, statistical analysis to investigate differences between sample groups, you can use non-parametric methods such as:

- For 2 unrelated samples – Mann Whitney test
- For paired samples – Wilcoxon signed rank test
- For 3 or more samples – Kruskal Wallis test.

Your Educational Psychologist should be able to advise you on any qualitative analysis.

References:

Fredrickson, N. and Cameron, R. J. (1999). – Psychology in Education Portfolio (NFER-Nelson).

Further reading:

Cohen, L. Marion, L. & Morrison, K. (2000) – Research Methods in Education (5th Edition). Routledge Falmer.

Robson, C. (1998). – Real World Research. Blackwell.

4 how to conduct a literature review

In action enquiry, a review may simply involve finding out about relevant classroom materials and/or teaching approaches – and talking to colleagues and education officers who have expertise in your particular area of interest may sometimes be all you need to do. Having said that, being able to do a literature review is an important skill for the practitioner who wishes to develop their practice based on evidence. Reviewing literature means being able to systematically gather together, critically appraise, and summarise research findings relating to a particular topic. Each individual piece of research literature included in the review is studied in order to assess whether its conclusions are supported by the evidence presented, and are therefore trustworthy. Finally, the review findings are related to current practice - an important but often difficult task.

Why perform a literature search?

As part of your written report, the literature review is there to ground the reader in the area and explain why your research fills a gap. A literature search needs to be systematic and focused – you are not looking to read everything in a broad area, only things which are relevant to your work. A literature search must also be evaluative - you need to assess critically each reference found to determine if it is worth pursuing.

Any investigation will involve reading and reviewing what other people have written about your area of interest. This is done for a number of reasons, primarily to give support and justification for your work, and to ensure that you are not repeating what others have done. It can also help you look around the problem for helpful ideas, and compare your work to prior research.

For the researcher, the literature review process is critical in determining the research question since examining other's work in the area will show what has and has not been researched, what questions have and have not been answered. The research methods to be used may also be influenced, for example, when the literature review indicates a standard approach taken by experts in the field. Regardless of the motivation for carrying out a literature review the process should be the same, the key being that a systematic approach is taken at every step of the way.

What is involved?

Conducting a literature search is a ten-step process. It is very important to accurately record everything that you do and that you find at the time. This will demonstrate how you are progressing, and will save much time hunting for the information later on.

The ten steps are:

1. Plan your search strategy
2. Carry out the search on relevant bibliographic indexing databases
3. Refine your search strategy until it produces relevant results
4. Evaluate the results your search produced
5. Save the useful results
6. Record what you have done
7. Repeat the process using different databases
8. Evaluate all the literature references you have saved
9. Find the literature you require
10. Read!

Where do I Search for Literature?

Literature relevant to your research may be available from a number of sources, whether in hard copy or electronic format.

Search for references using:

- Journals or electronic databases (such as the British Education Index) available via the library
- Journals you or your school already receive
- Web-based, research specific, search engines, such as:
 - <http://www.scirus.com/>
 - <http://www.scotland.gov.uk/Topics/Research>
 - <http://www.scre.ac.uk/spotlight/index.html>
 - <http://www.sosig.ac.uk/education>
 - <http://www.leeds.ac.uk/educol/>
- West Lothian Library Services

Different databases concentrate on different areas so search for ones relevant to your subject area. However, it should be emphasised that searching the electronic databases alone is usually not enough. They contain only selected journals, therefore it may be necessary to "hand search" other relevant journals because most databases do not contain unpublished literature (e.g. reports, theses, dissertations and most importantly research which has not been submitted or which has been rejected for publication). An effort has to be made by the reviewer to trace such sources to ensure a comprehensive review. Scanning the reference lists of articles found through database searches is a good way to identify further studies for consideration, as does the reference list at the end of key books.

Further reading:

Harlen, W. and Schlapp, U. (1998). Literature Reviews. Spotlight 71. SCRE.

Stark, R. (1998). Practitioner Research: The Purposes of Reviewing the Literature within an Enquiry. Spotlight 67. SCRE.

7 Self-completed questionnaire

The great advantage of questionnaires is their potential to get information from a large number of people in a very short time. Questionnaires could be distributed to all pupils and/or all parents in the school, but using them in just one class could also prove useful. If the questionnaire is well constructed, the analysis could also be time efficient.

There are disadvantages as well that need to be considered. The information you receive is likely to lack depth or subtlety, and you cannot check if the answers are truthful (unless you do some selective follow-up interviews). If you send questionnaires out (to parents, for instance) there is no guarantee you will get them all back, and those who do return them may not be representative of the group as a whole.

For you to get any meaningful information, it is essential you get the design of the questionnaire right. This includes clear and unambiguous instructions, careful wording of the questions, and a topic that your target group will be interested in.

Studies suggest that it is important to consider the following suggestions:

- 1) **Use specific questions rather than general ones.** General questions are more subject to interpretation. When phrasing your question, consider the kinds of answers you are looking for, and how long and detailed you wish the answer to be. For example:
What do you enjoy most during play time? (possible answer: 'Playing with M', which is not what you meant). Instead use something like:
Which of the following help you most enjoy your play time? (show list)
- 2) **Use closed questions rather than open questions.** Unless you want rich descriptions, it is usually better to avoid questions starting with 'how', 'what' and 'why'. Although rich descriptions give a lot of information, they are very time-consuming and difficult to analyse. If possible, use questions with *'Do you...?'* or *'Have you...?'*
- 3) **Offer a 'non-opinion' option when appropriate.** Do this especially when getting information from adults, so that you do not force an answer when, in reality, the person who is completing the form has never really thought about it. It is possible to offer this 'opt out' in your general instructions. (e.g. *'Yes/No/Don't know'*)
- 4) **If using choice questions, it is better to avoid 'agree/disagree' options.** Research shows that most people avoid the 'disagree' option if they do not feel strongly about something. It is better to use a scaled question (also see Likert Scales), or specific choices such as:

For parents' meetings, would you prefer:

- a) an appointment system organised by the school
- b) an appointment system where you phone to arrange
- c) an open system where you decide when to turn up.

5) **Consider your wording carefully.**

- Keep the words as simple, jargon-free and unambiguous as possible, and keep the questions short.
- Take into account the reading ability of your target audience (as well as writing ability, for that matter). With young children, for instance, it is preferable to use pictures (such as smiley face, sad face, etc). With pupils, generally, it is useful to read the questions through with them.
- Try to avoid leading questions such as: ‘What did you enjoy about the new maths programme?’ (The pupil may have hated it). Either use: ‘Did you find the new maths programme....(list options)?’ or ‘Did you enjoy the new maths programme? If so, what did you enjoy most?’
- Try to avoid bias. You may be eager for positive feedback and your questions may reflect that. Look at it from the point of view of the pupils/parents/colleagues – what might they want to say?

6) Consider the order of your questions. Use general questions before specific ones. People are influenced by the previous question, so try and establish a ‘natural’ progression.

7) Distribute questionnaires promptly. People generally, and young children in particular, may not have a clear opinion about something that happened months ago. Time the distribution for when the issues you are investigating are still fresh in the mind.

Some further tips and suggestions

Incentives (such as a pupil writing a personal letter accompanying the questionnaire) and **rewards** (giving the pupil a sticker or small sweet on return of the questionnaire) may improve **returns**.

When using questionnaires to measure attitude changes, or with self-assessment questionnaires (e.g. for measuring self-esteem, motivation, etc), remember that **developmentally**, young children’s moods change all the time, from moment to moment during the day. Such measures are therefore unreliable. From age 6 or so, sociometric information tends to be more stable.

Ideally, design a questionnaire **with a colleague**, or at least run it past a few ‘critical friends’, including your educational psychologist. It is also advisable to **pilot** the questionnaire with a small group. The responses you get will give you some idea about which questions may require slight alterations.

Depending on what you are investigating, you may deliberately decide to end your questionnaire with two or three open-ended questions. These can sometimes throw up unexpected results that can then be further investigated.

A questionnaire can be a very effective and efficient tool when used in combination with other tools, such as statistical information and a small number of interviews.

Further reading:

Munn. P. & Drever, E. (1990)

Using questionnaires in small-scale research: a teacher’s guide. Edinburgh: SCRE.

5 sampling and matching

Sampling

Sometimes you might want to try out a new idea or programme on more than just a small group of children but you do not have the time to collect data from a number of classes let alone a number of schools! This is where 'sampling' and 'matching' come into their own. A 'sample' is what the word suggests – a selection of people that is representative for the whole group you are interested in. Sampling your participants is an important part of research and should be given consideration at the planning stage. To help you make your decision, three main questions need to be addressed:

1. **Sample Size:** How many people should be in the study? Firstly, consideration needs to be given to your plans for analysing data. To employ statistical analysis (such as comparing two groups to see if they are significantly different from each other) it is suggested that a minimum of thirty participants are needed. Secondly, you need to consider how you are going to gain access to your sample, as well as the time and financial costs it will incur. For example, you may wish to sample 500 children, but if each assessment takes up to four hours and you need to have results in two months' time, you may find that you run out of time to complete the task. Deciding on a smaller sample size at the planning stage would be more realistic. The size of your sample will also be affected by your designated population. For example, thirty pre-schoolers are enough if your population is your school, but very low if your population is all the pre-schoolers in West Lothian. The key thing to remember is: the more varied your population the larger the sample size needed.
2. **Representativeness of Sample:** What is the population that you are interested in? Do you want to be able to generalise your findings? The population you are interested in can be considered to be on a continuum from the individual (e.g. one P7 child) to the whole population (e.g. all P7 children in the world). You need to decide the parameters of your study and sample accordingly (e.g. are you interested in all P7 children in your school/local authority/country?).

The population of your study has important implications for the claims you can make about the findings. For example, if you sample your school and find that 'formative assessment' increases attainment, you cannot make generalised claims about formative assessment per se. Nor can you argue that formative assessment should be rolled out across the whole country on the basis of your findings. In this case, your findings are only specific to your school because that is the only sample you included.

3. **Sampling Strategy:** How are you going to choose your sample? There are two main ways of sampling: 1) random (probability) where each individual in your population has the same likelihood of being included (e.g. you can select every 5th name on a class list, or randomly select a number of pupils from each year group); and 2) purposive (non-probability) where some members of the population will definitely be excluded (e.g. you are assessing reading skills in your P7 class but do not include anyone with a reading age under 7 years). Both methods have a number of strengths and weaknesses and the decision will need to be based on your action research project.

Matching

When you start to design your research project you may wish to consider matching your participants (called the research group) with another group (called the control group). This can allow you to examine the 'real' effects on the pupils of your intervention strategy. Pupils can be matched on a number of factors but the most common are age, sex, and/or ability (such as reading age). Matching allows you to compare performance without 'noise' from other factors that may influence your findings such as social background or classroom effects.

For example, a P5 class teacher introduces a new writing scheme to her class and wants to see if the boys' writing will improve. However, as you know writing is practised in schools every day. So, if there is an improvement, the teacher may be unsure as to whether or not this was caused by the introduction of the new writing scheme. Other factors, such as 'practising writing' may have contributed to this improvement. In this case, the teacher could match her research group (boys in her class) with a control group (another group of boys not in her class) that were matched on a number of factors. It would be sensible to match according to age (in months), initial writing skills and the amount of time spent practising writing. By comparing the two groups she will be able to examine what impact her new scheme is really making.

Further reading:

Cohen, L.; Manion, L. & Morrison, K. (2000). *Research Methods in Education*. (5th Edition). London: Routledge Falmer

Robson, C. (1993). *Real World Research*. Oxford: Blackwell.

Thompson, S.K. (2002). *Sampling*. NY: Wiley

10 standardised assessment

There is a wide range of assessments that can be used in the school setting. Standardised assessments offer the benefit of gaining objective information about a pupil's performance. They achieve this by demanding that they are administered and scored in a uniform way. Most of them are commercially available and therefore easily accessible – at times with a scoring service included!

Most standardised assessments are norm-referenced. This means that the test materials have been piloted on a large representative sample of the whole (school aged) population. The test pack usually comes with a manual that outlines the backing data on sampling, reliability and validity statistics. The rule of thumb is that the more pupils were included in the pilot, and the greater the 'spread' (age, socio-economic status, geography), the wider its applicability. A sound 'standardisation' allows subgroups (or even individuals) to be compared with the whole population. As such, it allows comparison of a class, school or local authority with the whole country, to consider if pupils are achieving as expected.

Advantages of standardised tests:

1. objective
2. piloted and refined
3. standardised across a named population (region, whole country, particular age group, various age groups), so that they represent a wide grouping
4. manual declares reliability and validity for particular purpose
5. useful for statistical analysis
6. gives instructions for administration
7. straightforward and easy to mark
8. guides to interpretation usually available

Standardised tests can be used with individuals, and are probably most useful and reliable when measuring performance differences in two ways: 1) between students (e.g. to rank performance in spelling in a class), and 2) within the same student(s) at different points in time (e.g. to see whether a reading intervention worked). If a pupil is only tested once, it is advisable to use the so-called confidence band. A pupil's 'true score' will reliably fall between the two extremes of this band.

Although more recent tests will ensure there are bilingual children in their representative sample, standardised tests can be criticised for not taking into account context or individual differences, such as whether a pupil is feeling under the weather, forgot his glasses, or English is his third (and most recent) language. If the same test is used for a repeat measure, a pupil may do better because he now knows what the test is about, not simply because he has learned more. This, of course, depends on the kind of test.

There is a wide range of standardised tests. In schools they are usually either achievement tests (reading, number, spelling and vocabulary tests) or aptitude tests (CAT, WISC, etc). There are tests for whole class groups, and for individuals – or both. But there are also screening tests (e.g. PREST), diagnostic tests (DST, Quest), readiness tests, skills tests (e.g. Phonological Assessment Battery or 'PHAB'), reasoning tests (e.g. Raven's Progressive Matrices) – to mention a few. Check the catalogues of NFER-Nelson and Hodder and Stoughton Educational to find the tests that suit your purpose. The most important consideration is to be certain whether the objectives and content of the published tests match the purpose, objectives and content of your evaluation. A published test such as the Edinburgh Reading Test may not address the areas of reading that you intend to cover, or may contain language that is too difficult for a bilingual reader. Equally, a low score on an achievement test such as the Mathematics Attainment Test can not be seen as indicative of aptitude. Similarly, a diagnostic test such as the PhAB cannot be used to test for reading progress. If you decide to devise your own test (and why not), you may find the relevant chapter in *Research Methods in Education* helpful. Fitness for purpose is the key.

research guidelines

Note that some standardised tests are on restricted release or availability, i.e., they can only be used by trained assessors such as Speech Therapists or Educational Psychologists. If you wish to make use of such tests, discuss this with your Educational Psychologist.

Reference:

Cohen, L., Manion, I. & Morrison, K. (2000). Research Methods in Education. (5th Edition). 321-336.

9 sociometrics

Sociometrics is the study of interpersonal relationships within social groups. It can be used to identify and track behaviour within groups, with a view to improving relationships. It may be a useful methodology to explore levels of 'inclusion' experienced by pupils who have special education needs.

One way of doing this would be to get all pupils in a group/class to complete a sociometric questionnaire such as 'Like To Play With' (Fredrickson & Graham, 1999). This is suitable for pupils aged seven and above, and takes about 20 minutes of class time. Results would show specific profiles for each pupil. These would indicate whether a pupil is 'popular' or 'rejected' by peers in comparison to the 'average' profile by providing a sensitive and convenient measure of social acceptance.

Such information is likely to be useful in identifying and assessing how 'included' each pupil feels. This would be particularly useful in the case of pupils with special education needs, where the possibility of social rejection and victimisation of mainstream classmates is a concern.

If difficulties are identified through this process, follow-up methods should be used, as sociometric questionnaires do not throw any light on the reasons for social rejection to occur. Such questionnaires are best regarded as having screening, monitoring and evaluation functions.

Suitable follow-up methods may be: teacher, peer and self-ratings of behaviour; an assessment of the rejected pupils social problem solving skills; a measure of the social ethos of the classroom or an assessment of teacher and peer attitudes and attributions. You could also refer back to the original children's sheets to answer pertinent questions such as:

'Who is the one child who accepts James?' (a rejected child)

'Have any popular children given James an OK rating?'

Answers to questions such as these can assist you in designing programmes to help children who are experiencing social difficulties.

Once your programme has been up and running for some time you can use the sociometric techniques again to evaluate the programme's effectiveness in improving the social acceptance of rejected children. Sociometric questionnaires can be designed to suit your action research project or accessed via established resources (Fredrickson & Graham, 1999).

Teachers are sometimes concerned that asking pupils to provide information about those members of the class with whom they least prefer to associate will itself have a negative effect on the acceptance of some pupils. Research to date indicates that this is not the case (Hayvren & Hymel, 1984). However, such studies emphasise the importance of confidentiality and strongly recommend that researchers and practitioners using sociometric questionnaires pay close attention to this.

References

Dane, F., C., (1990). Research Methods. Pacific Grove Brooks/ Cole

Fredrickson, N., & Graham, B., (1999). Social Skills and Emotional Intelligence in N. Fredrickson and R.J. Cameron (Eds.). Psychology in Education Portfolio. Windsor: NFER-Nelson

Hayvren, M., & Hymel, S. (1984). Ethical issues in sociometric testing: The impact of sociometric measures on interactive behavior. Developmental Psychology, 20, 844-849

11 statistics

Descriptive Statistics

Descriptive statistics are relatively straightforward to use and are employed already in most schools, often to establish if any changes have taken place. For example, how many pupils can do mental arithmetic using numbers up to 20? How many more pupils can do this at the end of the school term? How do their scores compare to the group that did written sums only? What percentage of P3 pupils have passed level B writing?

What follows is a more advanced description of how statistics can be used in action enquiry. It is anticipated that to create an action enquiry requiring this level of sophistication you will require additional support, perhaps from the Psychological Service or someone in your school with expertise in research design.

Statistical Analysis

To gauge whether any difference in pupil scores are a result of the intervention, and not due to chance fluctuations in performance, or other factors (such as individual pupil factors, time elapsed, the way the scheme was administered) more sophisticated analysis is required.

In depth statistical analysis relies on your action enquiry project having certain characteristics in its research design. Elsewhere in this booklet you will find information on control and comparison groups, matching pupils and sampling. These factors need to be considered if you want to analyse your results statistically. If your research design is robust enough, you may be able to administer statistical tests.

Statistical Probability

Statistical analysis of data involves rejecting or retaining a 'null hypothesis'. Don't worry! Every research design has a null hypothesis; basically this hypothesis states that the intervention has had no effect. For example, when comparing the effects of a new reading package claiming to improve pupil performance the null hypothesis would state that the pupils in class A (who received the new reading package) and class B (who didn't) have the same reading test scores (e.g. the new package makes no difference). The alternative hypothesis (sometimes called the research hypothesis) is that the two classes will have different reading test scores with class A having the higher. If your intervention has been successful you want to categorically reject the null hypothesis.

In order to be really sure about your decision to reject or retain the null hypothesis you must complete an inferential statistical test. These tests submit your results to a test of significance in order to gauge whether the difference you have observed is to be counted as a genuine effect (support the research hypothesis) or dismissed as likely to represent a chance fluctuation (support the null hypothesis).

Significance tests can inform your decision because they calculate the probability obtaining your result if the null hypothesis is true (e.g. no effect). The probability of events occurring is measured on a scale of 0 (intervention has had an effect; null hypothesis is false) to 1 (intervention has had no effect; null hypothesis is true). Social scientists reject the null hypothesis when the probability of an event occurring is less than 0.05. This is often called the '5% significance level' and is written as $p < 0.05$. If a statistical test calculates a probability of less than 0.05 you have a statistically significant result (you can reject the null hypothesis) i.e. the result has not occurred by chance and can be attributed to your intervention.

There are many inferential statistical tests that have to be chosen to reflect various factors in your research design (such as sample size, what type of data you have).

Support for doing statistical tests

There is an excellent computer programme that can be accessed through Psychological Services called SPSS ('Statistical Package for Social Sciences'). This can perform all arithmetical functions and statistical analysis required. However, the package does not analyse which test it should run; this has to be determined by the researcher/teacher. This need not be of great concern because many publications give excellent guidance. It is important not to get bogged down in statistics however, if you would like to use statistics you need to plan your action enquiry carefully so that you collect the kind of data which can be analysed statistically. Often the researcher collects data then discovers it cannot be used for statistical purposes.

Further Reading:

For SPSS: Bryman, A, & Cramer, D. (1990). Quantitative Data Analysis for Social Scientists. London: Routledge

Brace, N. Kemp, R. & Snelgar, R. (2003). SPSS for Psychologists: A guide to data analysis using SPSS for Windows. (2nd Edition). Hampshire. Palgrave Macmillan

Cohen, L., Manion, L. & Morrison, K. (2000). Research Methods in Education (5th Ed). London: Routledge Falmer

Pilcher, D. M. (1990). Data Analysis for the Helping Professions: A practical guide. London: Sage

Robson, C. (1983). Experiment, Design and Statistics. London: Penguin