By the end of this section you will be able to describe the content of different types of evidence base.

To extend your learning, complete the data hierarchy pyramid by reflecting on types of data used in your own context, current/new role.

To apply your learning, review the case study to help you consider a ‘real life’ example associated to the content of this section.

What type of evidence base do you need?

The evidence base you require will depend on the question you want to answer, the way you want to answer it, how you want to present that answer, and the time and resources you have. There are benefits and challenges of choosing quantitative or qualitative data for your evidence base, which you should acknowledge before you start. You should also scope out your intended audience and assess whether any source of data is restricted within a given period.

Quantitative data

Quantitative data is expressed numerically and has been generated using a structured and rigid data collection method. This means that the focus of the questions and the units for analysis have been prescribed by the researcher (e.g. closed questions in a survey) or an information management system (e.g. official student records data). The aim of quantitative data is to quantify variability in a large sample and look for patterns, trends over time, correlations and sometimes causality and generalisability to a population through statistical analysis. If you use quantitative data, it might look like this:

```
<table>
<thead>
<tr>
<th>Course</th>
<th>Overall satisfaction</th>
<th>1 year trend</th>
<th>4 year trend</th>
<th>2018 Rank &amp; relative position</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course A</td>
<td>99%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course B</td>
<td>97%</td>
<td>-4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course C</td>
<td>96%</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course D</td>
<td>95%</td>
<td>11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course E</td>
<td>93%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course F</td>
<td>93%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course G</td>
<td>92%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course H</td>
<td>83%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
If you have an evidence base that contains only quantitative data….

You should have evidence from a large number of subjects with numerical data that describes their characteristics, attitudes or behaviours, which you can analyse to address the aims of your inquiry. Using a range of techniques, you can clearly focus on relevant data. This data has been collected relatively quickly, even with limited resources. Before analysing the data you will likely have constructed an evidence-informed hypothesis and considered how this would be tested. The evidence used to construct the hypothesis did not include the data you are using to test it, minimising the risk of bias (such as confirmation bias) in your results.

You can analyse quantitative data in a variety of ways depending on the questions you are asking and the needs of your intended audience. You can present the data in visually appealing charts and graphs to highlight key messages. It is now common to present data in eye-catching and often very effective visualisations and infographics. You can also provide findings such as ‘83% of students on Course H were satisfied with their course in 2018, which was a 5% increase from the previous year’. Using this numerical data alone, you would be unable to provide any in-depth conclusions for why satisfaction had increased but remains below the institutional Key Performance Indicators (KPI) – that’s why it’s red – and declining against sector competitors. Without observing behaviour, you are also relying on students self-reporting satisfaction and, in this case, memory recall over a three-year period.

What other questions remain unanswered by this evidence? Make some initial notes here to reflect on at a later date.

Qualitative data

Qualitative data relies on the interpretation of words and visual information by the researcher. The data collection is more flexible and allows participants to add value to the data by directing the content. Qualitative data can be words (e.g. from an interview, focus group or a written document) or visuals (e.g. a photograph or artwork). Sample sizes are often small and a lack of generalisability is defensible. Rather, the intention is to create a rich interpretation of emotions and perceptions, often including reflections over a period of time. Your data might look like this:

Person A: I really hate the feedback grids we use in this module, with yellow highlighter all over them.

Person B: I agree, they’re confusing and you can’t really relate it to your own work. I never really know what the marker is looking for.
If you have an evidence base that contains only qualitative data...

It will normally take longer to collect and analyse this data, but you will gain a deeper understanding of the experiences of your participants and understand the challenges and opportunities they face. You have focused on enhancing the experience of a small group, rather than the entire student population, and you are clear to state the limitations of relating the findings all students at the institution. If you have the time and resource you should analyse the data with another researcher who could provide additional interpretations to help build conclusions, noting that it may be difficult to find a consensus. You have also generated some findings which were unexpected. If you had conducted a survey, your closed questions would not have allowed this information to surface. You were able to present findings such as:

‘The researcher noted that the majority of the focus group participants reacted much more negatively to the processes used to administer feedback, rather than the time taken to return it’.

What other questions remain unanswered by this evidence? Make some initial notes here to reflect on a later date.

Analysing quantitative and qualitative survey data

The table below shows some of the key differences between qualitative and quantitative data by exploring how they compare when used in surveys.

<table>
<thead>
<tr>
<th>Quantitative Survey Data</th>
<th>Qualitative Survey Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can tell you what your respondents are doing</td>
<td>Can tell you why your respondents are doing it</td>
</tr>
<tr>
<td>Will ask questions that have pre-determined answers designed by the researcher (closed questions)</td>
<td>Will ask questions which allow the respondent to add their own comments (open questions)</td>
</tr>
<tr>
<td>Will have a limited number of possible answers</td>
<td>Can offer additional answers by adding comments via an ‘Other’ response option</td>
</tr>
<tr>
<td>Answers (variables) become units of measurement and are analysed numerically, for example frequency counts, averages or measures of dispersion (range of lowest and highest numerical scores)</td>
<td>Answers are analysed by reading written comments from all respondents and grouping them into themes</td>
</tr>
<tr>
<td>Results for each variable can be presented in charts or tables or analysed together to show relationships between variables</td>
<td>Results can be described as key themes with quotes taken from respondents to help illustrate key points. Qualitative data can also be analysed quantitatively (content analysis - a frequency count of key words or phrases)</td>
</tr>
<tr>
<td>Findings can be biased by the way the researcher has designed the questions and possible answers</td>
<td>Findings can be biased during the interpretation of the written answers</td>
</tr>
</tbody>
</table>
Exploring the dominant data hierarchy for evidence-informed decision making in higher education

Often resources are focused on the observable and ‘easy to measure’. Quantitative data is sometimes viewed as evidence of the ‘truth’ and given greater weight than other forms of data. You may hear comments about ‘hard’ (quantitative) and ‘soft’ (qualitative) evidence within your institution. Often in higher education policy making and planning, large scale quantitative data sits at the top of the data hierarchy. This infographic provides more information so you are able to challenge - see ‘data fallacies’ or more information. Now consider the diagram below and whether you have experienced this in your role.

![Data Hierarchy Diagram]

What types of data dominate in your context? Can you create your own hierarchy that you can then aim to disrupt?
What evidence is often overlooked?

There are a wide range of possible sources of evidence available to you, and as the previous exercise shows, many of these sources are easily overlooked. The table below shows some types of evidence which are often overlooked and some questions for you to think about.

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Challenge questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovative</td>
<td>What’s written on your toilet walls and on social media? How could you make use of this feedback?</td>
</tr>
<tr>
<td>Anecdotal ‘in the moment’ reflections</td>
<td>How do you capture the end of lecture conversations?</td>
</tr>
<tr>
<td>Documentary sources</td>
<td>Can you systematically analyse meeting minutes, strategy documents and external examiner reports? Where is this data stored? How would you access this?</td>
</tr>
<tr>
<td>Evidence collected for a different purpose</td>
<td>Can you find out what had been done before and whether there is permissions to share? Do you have a repository for reports, papers and data?</td>
</tr>
<tr>
<td>Evidence of failure</td>
<td>Lack of success is often underreported, but what are the lessons learned?</td>
</tr>
<tr>
<td>Unintended outcomes and researcher reflections</td>
<td>What else happened as a result of this research/evaluation?</td>
</tr>
<tr>
<td>Process based</td>
<td>Are you only interested in the outcome, what about how you got there?</td>
</tr>
</tbody>
</table>

Evidence osmosis

A more productive way of considering types of evidence might be to imagine how we can use what have often been viewed as less traditional approaches in gathering evidence. Take a look at the following diagrams. You will see how closed thinking in ‘The Norm’ below limits how organisations can change for the better if resistant to new forms of evidence and ideas, i.e. only a few ideas get through, if any. Contrast that with ‘The Future?’ diagram in which more open-mindedness about what counts as evidence shows how valuing lots of approaches can lead to useful change.
The Norm
- Limited routes for 'messy' evidence
- Minimal absorption into traditional approaches and practices
- No permeability of the traditional within process-based forms of evidence
- Minimal changes to saturation density, i.e. nothing changes.

The Future?
- Fusion of process-based and traditional evidence approaches
- Possible absorption and valuing of lots of approaches
- Fully permeable
- Equalising of saturation density resulting in much learning and progress.
Vic, Departmental Student Rep at the University of Enlightenment

Vic is a new Departmental Student Rep at the University of Enlightenment and has a keen interest in ensuring that the opinions of students who don't often get heard are surfaced. In preparation for the new role, Vic attends the Student Rep training offered by the University which focuses on ‘Student Voice’ mechanisms.

To Vic’s dismay, this appears to be focused solely on the Reps’ role in getting students to complete the annual Student Voice Survey (SVS) which is a lengthy quantitative survey offered to all non-final year undergraduate students in February, or the National Student Survey (NSS) for final years. The SVS has a very low response rate, normally averaging 15-17% but this is still seen as a good thing to encourage students to complete as it mirrors questions asked in the later NSS.

In the training Vic tentatively raises some of these concerns with the University’s Head of Student Engagement, who listens sympathetically but tells Vic that as Enlightenment is a very traditional university, it tends to focus on robust quantifiable mechanisms that have credibility with our staff and with the majority of our students.

Further on in the training, Vic tries to raise these misgivings with other Reps to gauge their opinions. In discussion, Vic is surprised to find that all of the Departmental Reps present are full-time undergraduate students and all, except two, come from subjects grounded primarily in quantitative analysis.

Vic leaves the session as a ‘fully trained Departmental Rep’ but feels dissatisfied and inadequately equipped to challenge this Student Voice approach with either peers or with the Head of Student Engagement.

It is important to assess the appropriateness of each data source and challenge yourself to be innovative where possible – this is how evidence becomes inclusive of all voices and less likely to keep some voices hidden and silent. It is also essential that you triangulate data sources where possible so that the limitations of one can be addressed by the strengths of another. Also consider different types of triangulation which can strengthen your evidence base – think about the data, methods, theories, and researchers.

To apply your learning, review the case study below and answer the questions to help you consider a ‘real life’ example associated to the content of this section.

Case Study: Types of Evidence

It is important to assess the appropriateness of each data source and challenge yourself to be innovative where possible – this is how evidence becomes inclusive of all voices and less likely to keep some voices hidden and silent. It is also essential that you triangulate data sources where possible so that the limitations of one can be addressed by the strengths of another. Also consider different types of triangulation which can strengthen your evidence base – think about the data, methods, theories, and researchers.
Consider the following questions and then see if you can reconstruct this case to have some improved outcomes for Vic. There is an alternative, refashioned version in Appendix A which provides one approach to providing an evidence-informed enhancement of this situation. Before accessing this alternative, see if you can do any better.

**Case Study Critique: Types of Evidence**

- What are your immediate thoughts about the case study situation? Why does Vic feel dissatisfied?
- How much knowledge did Vic and the Head of Student Engagement appear to have about each other’s contexts in this interaction?
- What is the dominant discourse about Student Voice in the University?
- Should this be challenged, and if so, how?
- What assumptions have you made about the Departmental Student Reps training?
- In the interactions between Vic and the other Reps, what assumptions were prominent?

**Notes**
References and Further Reading

Bransby, T (2018) Data Fallacies to Avoid: An Illustrated Collection of Mistakes People Often Make When Analyzing Data, Data Science Central


QAA Scotland (2018/9) Optimising Existing Evidence: Webinar Series, QAA Scotland Enhancement Themes
www.enhancementthemes.ac.uk/en/current-enhancement-theme/optimising-existing-evidence/webinar-series

www.sparqs.ac.uk/ch/Accreditation%20and%20Recognition%20Guidance.pdf

www.sparqs.ac.uk/upfiles/SEFScotland.pdf

Digital glossary for this section

- **Causality**
- **Confirmation Bias**
- **Correlation**
- **Data**
- **Evidence Base**
- **Generalisability**
- **Hypothesis**
- **Quantitative**
- **Qualitative**
- **Questions**
- **Sample**

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