By the end of this section you will be able to:

- Describe the content of different types of evidence base.
- Extend your learning, complete the data hierarchy pyramid by reflecting on types of data used in your own context, current/new role.
- 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 (for example, closed questions in a survey) or an information management system (for example, 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>22/73</td>
<td>4</td>
</tr>
<tr>
<td>Course B</td>
<td>97%</td>
<td>-4%</td>
<td></td>
<td>36/56</td>
<td>0</td>
</tr>
<tr>
<td>Course C</td>
<td>96%</td>
<td>18%</td>
<td></td>
<td>18/30</td>
<td>0</td>
</tr>
<tr>
<td>Course D</td>
<td>95%</td>
<td>11%</td>
<td></td>
<td>41/55</td>
<td>3</td>
</tr>
<tr>
<td>Course E</td>
<td>93%</td>
<td>8%</td>
<td></td>
<td>13/35</td>
<td>0</td>
</tr>
<tr>
<td>Course F</td>
<td>93%</td>
<td>2%</td>
<td></td>
<td>12/71</td>
<td>0</td>
</tr>
<tr>
<td>Course G</td>
<td>92%</td>
<td>6%</td>
<td></td>
<td>22/74</td>
<td>0</td>
</tr>
<tr>
<td>Course H</td>
<td>83%</td>
<td>5%</td>
<td></td>
<td>6/18</td>
<td>-1</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.

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**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 (for example, from an interview, focus group or a written document) or visuals (for example, 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 to 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 at 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>
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’ for more information. Now consider the diagram below and whether you have experienced this in your role.

What types of data dominate in your context?
Can you create your own hierarchy that you can then aim to disrupt?
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 that 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 permission 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>

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.
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.

Blair - Head of Department, University of Enlightenment

Within the University of Enlightenment, all Departments undergo a Quarterly Business Evaluation (QBE) of their performance. This is undertaken by a QBE panel, comprising members of the Senior Leadership Team of the University.

In Blair’s meeting, there is particular emphasis on a specific downturn in student retention in one area of the Department’s portfolio. This is highlighted by metrics presented by the Planning and Intelligence team.

The ethos of Enlightenment University is of being data-driven, so considerable attention is given to further statistical modelling and a pessimistic trajectory analysis is presented back to Blair by Planning and Intelligence concerning the financial implications of the declining retention rate.

The Senior Team leave Blair in no doubt that they are unhappy with this facet of the Department’s performance.

Blair tries to provide an explanatory narrative as the area concerned has had considerable churn due to a perfect storm of events occurring – staff illness, new curriculum, amended tariff entry structure – which have all influenced the retention rates in this area.

Given the context in which the University operates, the QBE panel give relatively short shrift to these explanations, indicating that the absence of discernible metrics make these reasons highly speculative.

Blair leaves the meeting as a very worried Head of Department and feels very disempowered by the perceived lack of ability of the QBE panel to understand subtler factors affecting performance.

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.
Consider the following questions and then see if you can reconstruct this case to have some improved outcomes for Blair. 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.

- What are your immediate thoughts about the case study situation? Why does Blair feel disempowered?
- Can you identify further steps Blair could have taken to prepare for this meeting more effectively?
- Could Blair have evidenced the explanatory narrative in a different manner?
- How can Blair proactively influence the QBE process at University of Enlightenment in a constructive manner?
- What can Blair learn from the experience in order to examine ways of ensuring that the next QBE for the Department is more positive?

Notes
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

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