Analysing Quantitative Data

Quantitative data is a number, quantity, amount or range. It is often collected through evaluation scales, surveys and interviews. Quantitative data often helps to demonstrate the scale of any particular change, whilst qualitative data can be used to demonstrate the range of individual experiences. Together they help build a clearer picture of what has changed, and how many people it has changed for.

Although quantitative collection tools may appear to be more objective, it is important to remember that they can also carry biases as they still rely on the subjective experiences of the people completing the scales. The larger the amount of quantitative data you collect, the more useful it can be for creating statistics about your work.

Consolidating, cleaning, and crunching your data

Once you have received your data, consider combining everything into one database, utilising an ID system so you can track respondents' feedback through each collection method in one place. See here for guidance on storing data securely and ethically. It isn't necessary to consolidate your datasets into one, but it will save you time when it comes to analysis.

Wherever your data is stored securely, separately or in one file, you will need to 'clean' the data. Read through responses and keep an eye out for anything strange: inconsistencies, outliers, anomalies or obvious errors. You can remove responses if they look incorrect but always keep a note of what changes you have made and reference them in your analysis. Always save a copy of the data before you clean it for your records.

In the below example, a project has measured participants' self-assessment of their team-working skills by collecting evaluation scales from them at termly intervals. See Youth Music evaluation scales resource here. (Notice that this table only includes participants for whom a full data set is available. For the purposes of this example, the participant names have been included – however for a real data set it would be important to redact any identifying characteristics of your sample).

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Name	Baseline	Term 1 end	Term 2 end	Term 3 end
Femi	4	4	3	2
Alex	1	1	3	5
Orsolya	5	5	5	5
Gabriel	1	4	3	3
Mohammed	4	4	5	5
Tiffany	2	3	4	5
Madeline	4	4	2	2
George	1	1	3	3
Myles	4	3	2	3
Francesca	2	4	4	5

Using this data you can calculate a number of different things:

- The average rating of all participants at each data collection point (Mean of collection point)

- The overall change for each participant (Term 3 end minus baseline)

- The average overall change for all participants (Average of overall change)

To measure these ratings and changes, you firstly need to simplify the figures into averages.

Name	Baseline	Term 1 end	Term 2 end	Term 3 end	Overall change
Femi	4	4	3	2	-2
Alex	1	1	3	5	4
Orsolya	5	5	5	5	0
Gabriel	1	4	3	3	2
Mohammed	4	4	5	5	1
Tiffany	2	3	4	5	3
Madeline	4	4	2	2	-2
George	1	1	3	3	2
Myles	4	3	2	3	-1
Francesca	2	4	4	5	3
Mean of collection point	2.8	3.3	3.4	3.8	1
Median of collection point	3	4	3	4	2

- The mean average is calculated by adding up all the values and dividing by the number of values. The mean is more commonly used and works well in analysing questionnaires. Be aware that it can be skewed by a small number of outlying values.

- The median average is calculated by arranging the list of numbers from smallest to largest, then choosing the figure in the middle. (If there is an even

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number of numbers in a list, it is calculated as the mean of the two middle values.) The median is often a better indication of what is typical, but it works best when you have a large data set.

You'll need to decide which average is more meaningful to use for your particular data set. The table below shows both types of averages, but the rest of this analysis will use the mean average.

Once you've calculated the averages, you'll start to notice trends and patterns. For example:

- Six out of 10 participants' ratings were higher at the end of the project than at the beginning of the project. One participant's rating was the same at the beginning and the end of the project. Three participants' ratings went down from the beginning to the end of the project. This means that overall, 60% of participants believed that their team-working skills had improved through this project.

- The average overall rating was increased per term.

- Overall, participants' ratings did go up over the course of the project, with an average change of 1.

You can also visualise this data by creating a chart. The example below includes both a line chart of the average self-assessment rating at each point (in purple) and a trend line (in orange) showing the general course of progress toward the intended outcome.

I'm good at letting others fully take part in group tasks. (N=10)

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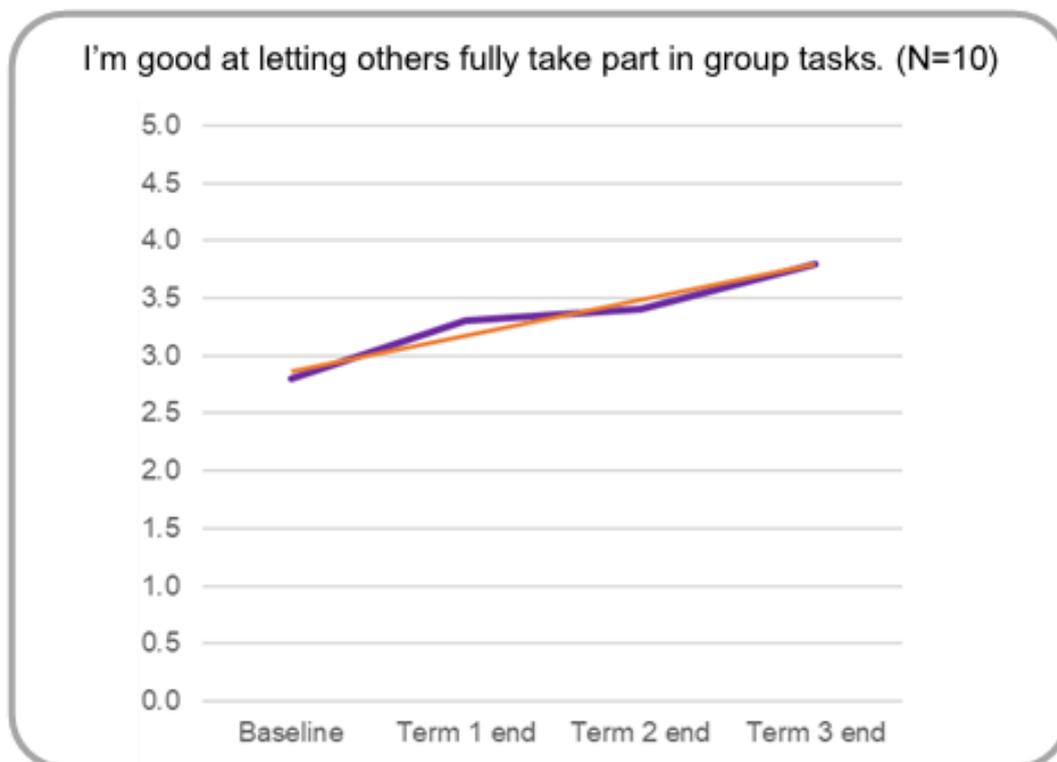
Depending on what types of data you collected and the size of your data set, there may also be other useful ways of analysing your evidence, such as calculating the mode average (the most frequently occurring value) or the range (the difference between the highest and lowest values).

You can use other data collection tools such as qualitative methods to investigate the trends further, interrogate nuances in the results and triangulate your findings. For example, you may want to explore why three participants' ratings went down from the beginning to the end of the project with an interview with the participant or reflections of a music leader. Remember, a participant's benchmark of their skill can develop over time and they may come to realise that there is more to learn. This is positive! Check out the Evaluation Related FAQs document for further guidance on common questions grantholders have around data collection and analysis.

Further resources

Inspiring Impact https://www.inspiringimpact.org/learn-to-measure/assess/quantitative-data/

Youth Music: Qualitative analysis

Youth Music: Sample sizes

Get in touch with Youth Music

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If you are successful in your grant application, Youth Music will provide further evaluation support and resources.