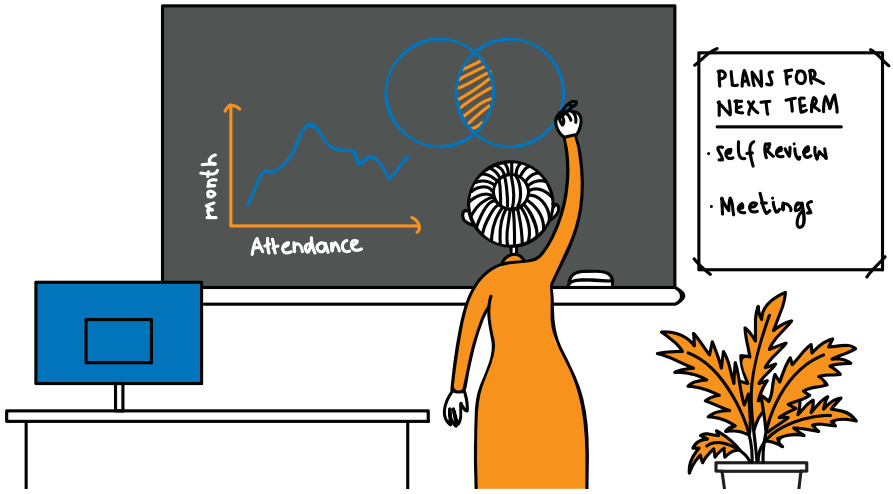
QUEST ALLIANCE

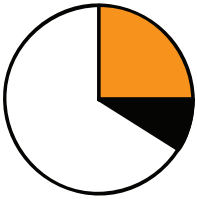


USING DATA IN EDUCATION

Data analytics can be employed in learning environments, to help continuously improve the quality of educating, improve organizational efficiency and improve satisfaction levels of all stakeholders.

Quest Alliance is a non-profit trust working to bridge the education and skills divide by enabling self-learning for young people 10-35 years old.

Quest is fuelled by research, strengthened by partnerships and driven by innovation and technology.



How are data and education related?

Data, if used effectively in educational contexts, can lead to the following results:

- Improved learning outcomes.
- Being able to give individual attention and personalised education to the students.
- Reduced teacher attrition rates.
- Reduced dropout rates among students.
- Being able to identify at-risk students who may become disengaged and discover the root cause.
- Better tracking of effectiveness of different key initiatives.
- Letting parents consider aspects of their child's life that they may have not previously considered.

How would I begin to use data analysis in my particular context?

The short answer to this is that measurement defines focus. Thus, for an average corporate, the main focus is on maximizing profits, while for a school, the focus could be on how to retain teacher talent. So, find your focus and measure accordingly.

What are the steps involved in incorporating data analysis in my educational setting?

The broad steps in introducing data analysis into a school or other learning environment generally follow the pattern. Read on below to see the steps and explanation using an example.

Define objective	To find out how engaged students of a particular class are at school.
Define key metrics and dependencies	Attendance rates, performance data, self-reported satisfaction ratings, and so on.

Create questionnaires and rubrics	Questions on rating the quality of courses, how happy the students are to attend the classes, what about the courses do they like, and so on. *Remember that surveys like this should be anonymous for honest responses and that even semantic analyses are possible.
Capture data	Actually conduct the surveys and capture the responses.
Analyse and track	Study the data for patterns and if necessary repeat the surveys over a period of time to track changing responses.
Derive insight	A particular course that most students rate highly because of the use of digital lessons and outbound activities.
Act on data-driven insight	Introduce digital lessons and outbound activities in some other courses as well.

What are some things to watch out for in this process?

Once we move on from the broad stages above to the specifics of defining objectives and capturing data, there are some issues that may crop up and we need to be aware of:

- **Ensure that you have found the right level of abstraction for a metric.** The data collected should be from the right stage or level to allow the desired analysis.

- **Adequately define and differentiate the parameters.** What the metrics collect should be unambiguous and not duplicate information being collected.

- **Once metrics and questions are defined, understand the relationship between metrics.** It is vital to understand how one metric can influence another.

- **Ensure clarity in parameter attribution.** Metric measures should be clear and it should not measure unrelated aspects.

- **Ensure adequacy of spread.** This means that the data collected should ideally fall in a wider range rather than a narrower to more accurately account for outliers.

- **Decide whether the analysis should be subjective or objective.** Not just objective analysis, but qualitative and semantic analysis are also components of data analytics. Based on one's goal, the right mode should be chosen.

What are some limits or challenges of using data?

There are some things data cannot do or some issues that must be kept in mind while working with data:

- **Who sees the data** is important to avoid unconscious biases. For instance, the names of students who've responded negatively to a teacher's efficiency should remain anonymous.

- There are **limitations of context**. Socio-cultural, economic and other contextual aspects may skew the data a certain way and should be watched out for.

- Getting the **stakeholder's buy-in** may be difficult to do.

- The nature of data should be remembered. **Certain metrics can be static** (gender, caste), while **certain metrics can be dynamic** (perception of a teacher).

- While using **different data instruments and results,** it is important to check for their legitimacy. Tools that are not peer reviewed may not be the best option to go with.

- The **usefulness of insights** may not always be significant. It is important to continue probing and reframing how data has been collected and analysed for better results at this time.

Is there an example of data analytics being used meaningfully in the educational context?

Let us look at an example of studying bullying among school children.

Situation:
There is a broad consensus that bullying in schools and cyber bullying is a problem in today's world. But how do we know how bad the problem really is?

Target:
Find out the extent of bullying among children in India.

Action:
Surveys conducted across schools that included anonymous self-reported responses, observational data on student behaviour, and other forms of data.

Results:
It was discovered that nearly 1 in every 3 children in India is bullied. Further, about 54% children online in India have experienced cyber bullying, where the number is at only 40% in the United States. These shocking results also showed how bullying is correlated to isolation, psychological disconnect from the school and poor performance.

Such insights can help educators implement strict measures against bullying in their schools.

What are the value propositions in using data analytics in the education space?

Data analytics, when used with precision and creativity, can help all stakeholders involved:

Schools:

- By reducing dropout rates and improving graduation rates.
- By helping retain talent and decreasing teacher attrition rates.
- By keeping students engaged and parents happy.

Teachers:

- By helping develop their practices.
- By allowing a medium to share their concerns and issues.
- By helping them to engage with their learners more closely.

Students:

- By finding a platform to share their grievances.
- By allowing more ways than one of judging their performance and engagement.
- By helping them to stay engaged in the classroom.

Parents:

- By realizing new aspects to their children they may not have known.
- By getting factual insights into their children's performance at school and being more engaged.

“What you collect reflects your focus.”

- Ashwin Kolappan, Kaddy Analytics

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