TASO

Facilitating analysis of institutional data: practical steps for providers

September 2024

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EXECUTIVE SUMMARY

Data that is collected by higher education providers can be used to identify equality gaps and help in the design and evaluation of strategies to reduce these gaps.

TASO's Institutional data use project involved working with higher education providers to use institutional data to support better evaluation of the student experience, and to explore opportunities for evaluations that will deliver Type 2 (correlational) or, preferably, Type 3 (causal) evidence.

We worked with an evaluation team from Staffordshire University and four higher education providers to evaluate their post-entry student success initiatives using institutional data:

- **Peer Assisted Learning programme**
  (University of East Anglia) – a programme of structured mentoring of first year students by students in higher years.

- **Score As I Learn**
  (University of Huddersfield) – weekly online assessments that contribute to final module marks, intended to encourage sustained engagement throughout a module.

- **Lancaster Success Programme**
  (Lancaster University) – a programme designed to empower students from widening participation backgrounds to fulfil their potential through a variety of personalised, coaching-led development activities.

- **Black Leadership Programme**
  (Nottingham Trent University) – aimed at encouraging Black students in their second year to take part in skill-enhancement sessions, interactive engagements and community-building events.

All these initiatives were associated with some positive impact on student outcomes. However, due to limitations in the available data, none of the impact evaluations produced Type 3 (causal) evidence.

We worked with staff from the universities to identify why there are data limitations, and what the barriers and facilitators are to using institutional data to evaluate student success.

Through this work, we have developed a set of recommendations and two new resources which will help higher education providers develop and use their institutional data more effectively when evaluating student success.

Recommendations

1. At a senior level, staff with responsibility for access and participation plans (APPs) to have an understanding of evaluation and have input into decisions concerning the associated infrastructure required to facilitate evaluation.

2. Establish a dedicated ethical approval process for evaluation of APP work (including the analysis of institutional data).

3. Centralise the access to institutional data.

4. Use the framework provided by the post-entry Mapping Outcomes and Activities Tool (MOAT) to identify outcome measures, record student support activities and track their use.

New resources

- Data infrastructure guide . A practical guide for senior managers, evaluators, practitioners and all staff involved in student success activities, to enable their effective evaluation using institutional data.

- A post-entry Mapping Outcomes and Activities Tool (MOAT) of student success activities. This framework enables the consistent recording of student engagement with post-entry interventions.

INTRODUCTION

Data collected by providers over the course of a student's journey from entry to graduation is rich and varied. This institutional data comprises demographics, attainment, and student (educational and social) interactions with the higher education provider and their learning environment. This data can be used to evaluate the success of student support interventions. However, these evaluations are often limited in scope because there is insufficient historical data to facilitate evaluation or student engagement with support services is not recorded.

For example, in our report on Teaching and learning in the time of COVID, analysis of institutional data at a single provider revealed that the disruption caused by the move to online teaching may have disproportionately affected students from disadvantaged backgrounds. However, we were unable to make any causal inference because there was insufficient historical data to identify a suitable comparator group.

More recently, in our Learning analytics project, we harnessed the data-collection capabilities of analytics systems and the large sample sizes available within higher education providers to determine the impact of a phone call service to low engaging students, in comparison with an email alone. We found that there was no impact on student engagement for students who were called rather than emailed. However, there wasn't any data available on whether or not students took up the support offered to them. This meant that we could not contextualise the results of the impact analysis: were the right students targeted for support or was the support taken up but not appropriate?

To help identify the barriers and enablers to using institutional data to evaluate student success initiatives, we worked with an evaluator and four higher education providers to evaluate their initiatives (as detailed below).

The degree to which causal inference could be made about the success of these interventions was limited, in part because when the interventions were introduced there was no plan to evaluate them. Consequently, data that might have helped evaluate the intervention wasn't collected, or worse, was collected but was not subsequently available.

This lack of an evaluation plan wasn't the only barrier to appropriate collection and analysis of institutional data. During workshops that we held with representatives from the four higher education providers, we identified a number of issues that hindered the evaluation of student success using institutional data; and conversely where there was good practice that might facilitate the use of the data.

IMPACT EVALUATION RESULTS

Peer Assisted Learning programme (PAL)

University of East Anglia

The PAL programme by the University of East Anglia involves regular mentoring sessions of first year students by students in higher years. These sessions can either be one-to-one peer mentoring or group mentoring, depending on the course. Group mentoring is formalised through the timetable and one-to-one mentoring is typically scheduled every three weeks.

We found that participation in PAL is associated with an improvement in the likelihood of continuation after the first year of study; is significantly associated with higher course engagement; and provides positive benefits to end of stage grades in the first year. There was no observable effect of PAL participation on final degree classification. There is evidence that some under-represented student groups in higher education who participate in PAL have different continuation and end of stage grade outcomes than their peers.

[Impact Evaluation Report]

[Implementation and Process Evaluation Report]

Score As I Learn (SAIL)

University of Huddersfield

SAIL is designed to support engineering students entering university and to encourage them to adopt sustained engagement with their studies. Each engineering module has 11 weekly assessments, which are weighted at 3% of the module mark. These low stakes, but nonetheless summative, assessments are typically multiple-choice question quizzes, delivered through the University's virtual learning environment. Students can choose to complete any number of the weekly quizzes, or none at all. The best eight out of the 11 weekly assessment marks count towards the student's final module mark. This means that 24% of the total module mark comes from SAIL low-stakes assessments.

We found that while SAIL did not have an overarching impact on students' attendance at timetabled sessions, or on students' level of engagement, there was, among students who submitted at least eight SAIL assessments, a strong, positive relationship between module grade and the number of SAIL assessments submitted.

[Impact Evaluation Report]

[Implementation and Process Evaluation Report]

Lancaster Success Programme (LSP)

Lancaster University

The LSP programme offers a range of activities for widening participation students inspired by coaching models of support and development. LSP involves dedicated one-to-one personal development coaching sessions at regular intervals throughout the academic year and for a participant's entire duration of study.

We found that while LSP had little effect on overall continuation between levels, higher LSP engagement is associated with continuation from level 5 (second year undergraduate) to level 6 (third year undergraduate) of study. LSP students attending more coaching sessions tended to be awarded higher grades at the end of their course.

[Impact Evaluation Report]

[Implementation and Process Evaluation Report]

Black Leadership Programme (BLP)

Nottingham Trent University

BLP is an intervention delivered during level 5 (second year undergraduate) for Black and Black heritage students. It provides mentoring, social events, and a programme of workshops and development activities to support students' self-concept, social capital and skills, such that they begin to engage more at university and ultimately progress to succeeding in higher education and in their lives outside of higher education.

We found that while there were limited effects of BLP on social and academic engagement, BLP students were found to have higher level 6 grades than a matched group of students who were eligible for, but did not participate in, the BLP.

[Impact Evaluation Report]

[Implementation and Process Evaluation Report]

WHAT TASO IS DOING TO HELP HIGHER EDUCATION PROVIDERS EVALUATE THEIR STUDENT SUPPORT ACTIVITIES

Data infrastructure guide

Based on our Monitoring and Evaluation Framework, we have produced a data infrastructure guide which provides information about developing and using institutional data infrastructure to facilitate evaluation. It contains advice and guidance for staff at all levels in the organisation, including evaluators, practitioners and senior managers.

Using a combination of new information and links to existing guidance from TASO and elsewhere, the data infrastructure guide provides guidance at all levels of the evaluation cycle, including:

- identifying equality gaps
- evaluating the effectiveness of student support interventions
- the different methodologies to generate causal evidence
- reporting and interpreting the results of evaluations to drive improvement.

The guide includes some examples in R programming language (additional examples using Excel, where possible, will follow later) for identifying equality gaps visually and statistically.

There is also a section on barriers and facilitators of using institutional data to evaluate student success, with mitigation strategies and examples of good practice.

Post-entry MOAT

A sister typology to our pre-entry and attainment-raising Mapping Outcomes and Activities Tools (MOATs), the post-entry MOAT is designed to help institutions codify their existing student support activities and identify relevant measurable outcomes.

By recording their activities using a typology like the post-entry MOAT, higher education providers can understand where there are gaps or over-provision in their support service in terms of activities and outcomes.

Additionally, recording whether or not students interact with these support activities means they can be evaluated and support can therefore be optimised.

Training

We will be running a series of evaluation training events. These sessions will be aimed at a non-technical audience and provide practitioners and senior managers with a thorough conceptual understanding of evaluation methodologies including randomised controlled trials and quasi experimental designs.

New research projects

We are undertaking two new research projects in relation to institutional data. Our 'Analytics for wellbeing trials' and 'Quasi-experimental evaluation of wellbeing interventions' project will further showcase how institutional data can be used to generate causal evidence in the context of student mental health and wellbeing.
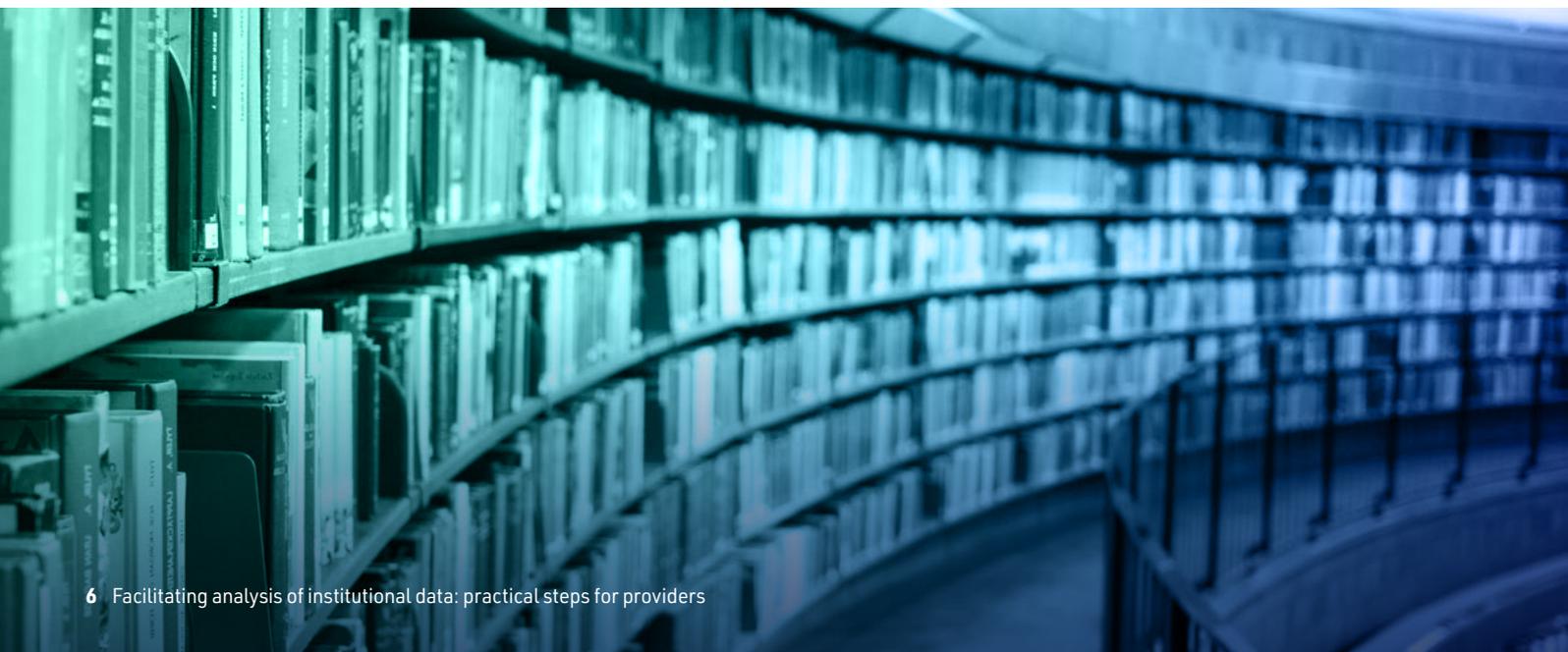
RECOMMENDATIONS

At a senior level, staff with responsibility for APP to have an understanding of evaluation and have input into decisions concerning the associated infrastructure required to facilitate evaluation.

There was widespread support from those using institutional data to evaluate student support activities that those they report to had a high level of understanding of the methodologies behind generating causal evidence.

By understanding, at a high level, the types of causal evaluation methodologies available, senior management would be able to advocate for the resources and infrastructure necessary to support impact evaluation and overcome some of the barriers to generating causal evidence.

This would help those commissioning evaluations to understand the timescales, resources and data required to enable causal evaluation. For example, is the data needed available over the lifetime of the evaluation, and will it be available and collected in the same form?

Even if you don't have an evaluation plan or the necessary skills within your team to conduct an evaluation, knowing what quasi-experimental designs are appropriate, for example, and that the necessary outcome data identified in a Theory of Change is being collected, enables a post-hoc evaluation.

Establish a dedicated ethical approval process for evaluation of APP work (including the analysis of institutional data)

The new requirements of the APP to plan, carry out and publish the results of evaluation can turn what was previously an internal service evaluation into research that requires ethical approval.

We feel that this change presents an opportunity for ethics review boards to set up a dedicated process for evaluation of APP-related activity, which, when using routinely collected data, is likely to be lower risk than when collecting new data. Therefore, such a process would likely need to distinguish between evaluation that uses data that is routinely collected (institutional data) and evaluation that requires the collection of new data.

The process should also include defining a set of outcomes that will be tested and guidance for how data will be presented in reporting to preserve anonymity.

Given the importance of contextualising the results of impact analyses with a process evaluation, any dedicated APP ethics process should also include steps to plan for qualitative data collection (for example interviews or focus groups).

Centralise the access to institutional data

The data necessary to evaluate the effectiveness of student success activities is almost certainly collected on different dedicated infrastructures. If this data is not then further collated so that it is accessible from a single point, the following risks occur:

- Accessing all the data necessary requires access to different systems, perhaps through different departments with different authorisation requirements.

- Datasets from multiple sources will need to be manually joined, which takes a lot of time and increases the risk of error.

- The risk of storing similar but conflicting data increases, as there is no single source of truth.

Use the framework provided by the post-entry Mapping Outcomes and Activities tool (MOAT) to record student support activities and track their use

It is important to understand who uses your support services, when they use them, why they use them and their experience of them.

Comprehensive evaluation of these support activities can be facilitated by using the post-entry MOAT to classify them and their expected outcomes. Doing this in the consistent manner afforded by the post-entry MOAT will simplify communication within the institution about what support is available.

Both the Higher Education Access Tracker (HEAT) and the East Midlands Widening Participation Research and Evaluation Partnership (EMWPREP) have incorporated the fields from the post-entry MOAT into their systems so that higher education providers can record post-entry activities. Jisc are intending to incorporate recording of student support activities on their learning analytics platform in the framework provided by the post-entry MOAT.
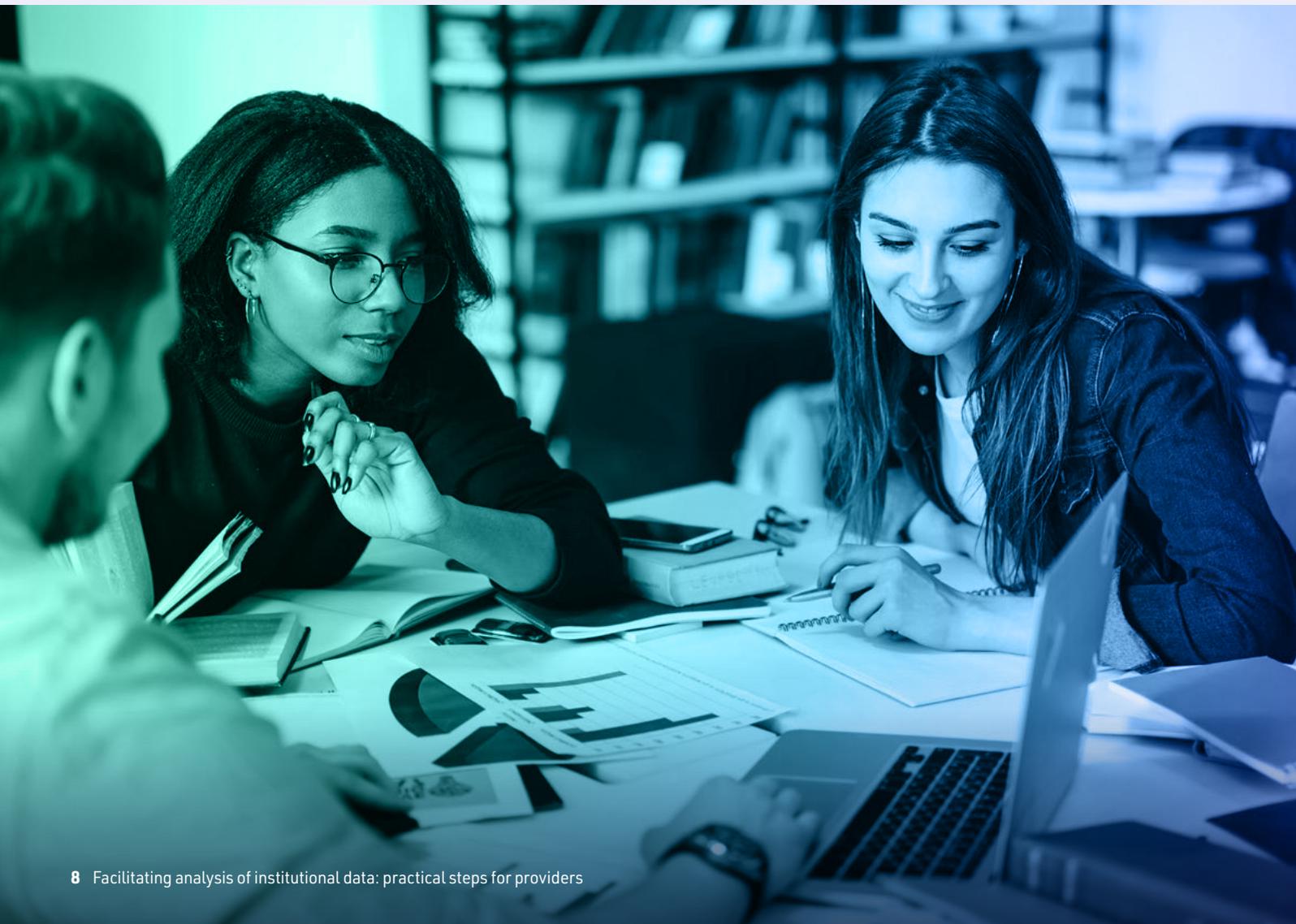
TASO is an independent charity that aims to improve lives through evidence-based practice in higher education (HE). We support HE professionals through research, toolkits and evaluation guidance on what works best to eliminate equality gaps. We inform practitioners of the best available evidence and produce new evidence on the most effective approaches. TASO is an affiliate 'What Works' centre and is part of the UK Government's What Works Movement.