

# A TERTIARY Practitioner's GUIDE


*to Collecting Evidence  
of Learner Benefit*



REPORT PREPARED  
by Anne Alkema  
FOR AKO AOTEAROA



**AOTEAROA**  
NATIONAL CENTRE FOR  
TERTIARY TEACHING  
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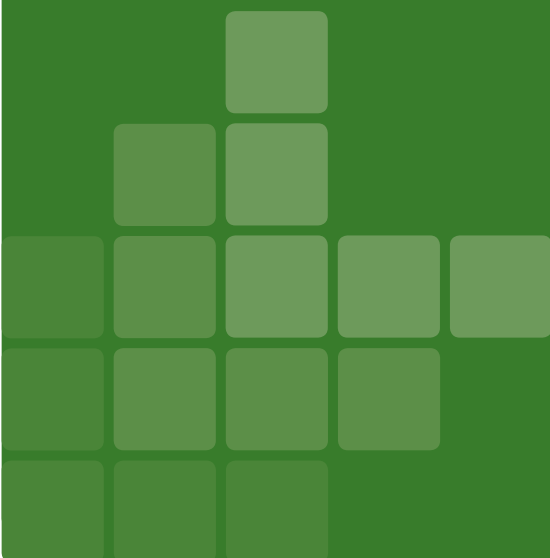
Published by:  
Ako Aotearoa – The National Centre  
for Tertiary Teaching Excellence  
[www.akooteaoroa.ac.nz](http://www.akooteaoroa.ac.nz)

ISBN 978-0-473-18402-5 (print)  
ISBN 978-0-473-18403-2 (online)

JANUARY 2011



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# Preface

Ako Aotearoa's vision is the best possible educational outcomes for all learners. Achieving this vision has many dimensions, but a critical part is to develop more effective teaching and learning. This is an increasing challenge when, on the one hand, we are operating in times of inevitable resource constraints and on the other we are continually being urged to engage with new social and learning technologies to extend our practice.

Immediately this raises a question: "how do we know what is effective practice?" How do we test our assumptions about what is working for our learners and what is not? On the surface this is an obvious and fundamental question, but across the sector we have been surprised at the relatively small number of practitioners who systematically gather and use evidence of how learners do or do not benefit from different approaches to teaching.

We have therefore commissioned this guide as an introduction to the process of collecting evidence of learner benefit. This publication is not about researching tertiary teaching and learning: it is about supporting professional, reflective practice. Of course, the line between these two is somewhat blurred, and practitioners often need to think like researchers to ensure their practices are based on meaningful information. The body of this publication is firmly focussed on data gathering (and deriving information from that data) as part of the educative process. In the Appendix to this publication some strengths and weaknesses of possible data sources are then explored in a way that is more 'research-focussed' than the rest of the material.

At the heart this is our view that being a professional – a core part of the everyday work of being an education practitioner in the tertiary sector – means having a commitment to using evidence to understand the learners we teach, train, or supervise, and using that evidence to ensure they achieve the best possible outcomes. Successful tertiary teaching can no longer be just about high student satisfaction scores and the experienced teacher gaining positive reinforcement from a class that seems to be accepting of their presence and their delivery. It is about maximising opportunities for learning and ensuring those opportunities are taken advantage of by as many learners as possible.

Having evidence allows us to inform and adapt teaching practices. But in addition, the evidence collection process itself can have benefits for both practitioners and learners. Reviewing one's practice in the terms set out here more often than not involves discussion with students about their learning preferences and how they are responding to one's teaching. These discussions break down some of the inevitable power relationships between teacher and learner

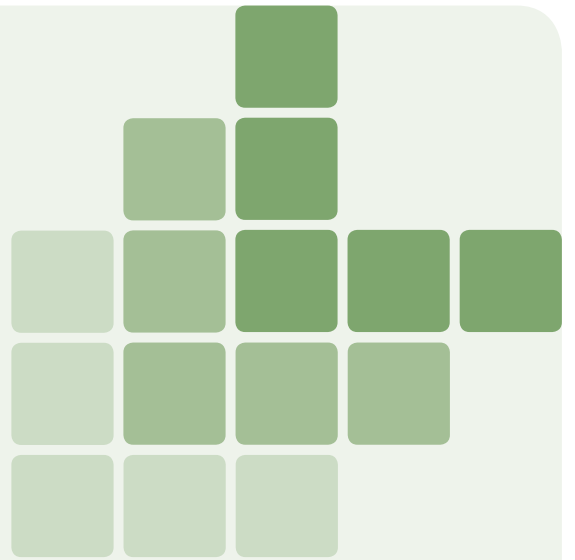
and, handled professionally, foster engagement and build relationships of confidence and trust: mutual learning that embodies the concept of ako.

I would like to thank Anne Alkema for her preparation of this guide, and the reviewers who commented on earlier drafts. This document is by no means the last word in collecting evidence of learner benefit, and we aim to produce further publications exploring specific aspects of the topic in more depth. We do hope, however, that this guide provides a valuable starting point for a growing discussion on the importance of evidence-based teaching, and that it supports practitioners to start integrating such evidence collection into their day-to-day practice.

Dr Peter Coolbear  
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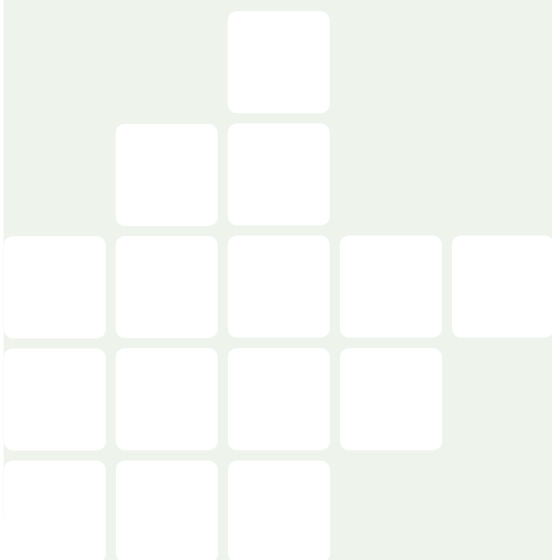


“ This publication is not about researching tertiary teaching and learning: it is about supporting professional, reflective practice ”



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# Introduction

Why does it matter whether or not teachers use evidence to inform their practice? Simply because research shows that teaching has a substantial impact on students' retention and engagement in tertiary organisations (Zepke, Leach & Butler, 2010). Therefore, one of the most fundamental questions practitioners can ask themselves is:

**How do I know that what I am doing is working and making a difference to my students' learning?**

To provide evidence that will help to answer this question, you need to collect a range of data from different sources and/or in different ways.

This is a high-level 'how to' guide intended to help you start to gather and use data to help determine how well what you are doing is supporting and improving your students' learning. It is designed to provide some initial advice on how you can gather and use data to reflect on and examine the practices that happen every day in tertiary settings.

The guide shows examples of the types of data you may have available or can collect, and provides suggestions about types of data to collect, how to collect them, and how to think about the evidence you've collected. It discusses how you can use the conclusions drawn from the data to find out more about the impact of what you are doing, and then use this information to refine and improve your practice.

The guide does not provide information on how to analyse data. Nor does it discuss in detail specific research methodologies, data analysis, or principles of research design.

The purpose of this guide is to introduce readers to the idea of collecting data that can be used to inform teaching practices. It is not a 'how to' research guide – there are already many excellent examples of these available, and we expect that many readers will be experienced researchers themselves.

We believe it is important to recognise the context in which tertiary teachers, trainers, lecturers and supervisors work, and the many demands on their time. In this environment, some may feel there is not enough time in which to collect data and use them to inform practice. This is why the report focuses on discussing the 'data collection' side of using evidence to inform practice. What we want to stress is that collecting evidence to support good practice does not require that practitioners conduct an extensive, detailed research project. It is of course important to gather evidence in a robust and systematic way, but the processes for doing so can be integrated into your practice. Rather, using evidence to think critically about how you approach teaching actually has the potential to reduce your own workload, as well as ensuring good outcomes for your students.

Data collection should be part of a professional's everyday practice. Example One below illustrates how a tutor brings data together systematically to provide greater confidence that a newly implemented approach is impacting positively on outcomes for the students on their course. Throughout this report there are similar brief examples or 'vignettes' that illustrate other aspects of using data to inform tertiary teaching practice.

1 'Tertiary practitioners' include all those people involved with teaching, learning and support processes in public and private tertiary organisations. The term includes practitioners involved with higher education, vocational education, workplace learning, and community-based learning.

2 For the purposes of this guide, the term 'data' refers to any systematically collected information.



## *Example One: Using evidence to inform practice*

Alex has been teaching his workplace horticulture students in a combination of face-to-face and distance learning settings for three years. During this time his students have not been completing the formative assessment aspects of the course. Alex decides he needs to trial a new way of getting students to do this. To meet course requirements Alex sets formative assessment tasks that require his students to complete five e-postings about the practical work they are doing that is related to their study.

In order to find out whether this exercise has made a difference to his students' knowledge and skills, Alex includes questions about the e-postings in his post-course evaluation survey. He includes a question about whether and how they felt the postings helped the learning they had done and the practical horticulture work they were doing. As this was the only new intervention Alex had introduced to the course, he compared this cohort's final results with the results of cohorts from the previous three years.

Alex uses the information from the survey to refine the exercise for his next group of students, and the information from the comparative data to give him some confidence that the intervention could be making a difference to the outcomes for his learners.

# Deciding how best to encourage learning

For many practitioners, teaching or learning support is a personal practice that takes place behind closed doors – real and virtual. It is therefore highly self-referenced. Practitioners often judge their performance on the emotional response they have to their learners and their perceptions of their learners' response to them. These are often reinforced by the reactions of the engaged learners, and practitioners can tend to ignore (or even blame) the disengaged learners and those struggling with the learning content.

Many practitioners have little formal training in education (Ako Aotearoa, 2010). For many, their practice has been learned solely by doing – or how others have taught them. They use a combination of approaches that are built from their store of experience, their hunches about what might work or from examples of how they were taught. Many supplement this through professional development events, and with professional reading or professional conversations with mentors and colleagues.

Research into tertiary education shows that, despite much being written about the importance of good teaching and learning, practice based on evidence of 'what works' is less common than might be expected. For example, Moon (1999) believes it is reasonable to generalise that practitioners often overlook the impact that thinking about and reflecting on their own teaching practice can have on informing and improving their practice, while Cullen et al. (2002) claim that practitioners tend to work from what they 'know' works at the chalk face or from generalised learning theories.

There are multiple demands on practitioners in the modern tertiary education system. Getting caught up in the busy-ness of everyday work can lead us to feel that there is little time to reflect actively on what is happening as a result of teaching. However, central to considering what makes for good teaching and learning is 'informed' thinking. This is thinking that is informed by the collection and use of data that are collected in systematic and purposive ways.



# Why do practitioners need evidence?

Practitioners need and use evidence for a range of reasons associated with improving teaching and learning outcomes for learners. These include – but are not limited to:

- testing the practices that they are using for effectiveness and relevance
- demonstrating change that happens as a result of teaching
- informing and improving professional knowledge and practice
- helping to prioritise what is taught and how it is taught
- providing proof of competence and performance for career development
- sharing good practice with others, and
- informing formal quality assurance processes

## To test the practices that are being used

Probably the most important reason for collecting evidence about learner benefit is to identify what teaching practices are and are not working well, and how they could be improved. Having information available – and going through the process of collecting it – allows you to find out what is working, for whom, and what could be improved. You can then use this evidence to think about what you are currently doing and to inform future planning.

## To demonstrate change and inform and improve professional knowledge and practice

Having a range of data can enable you to prove that what you are doing is making a difference to outcomes for learners. The example here shows how Tim can demonstrate that group work is impacting on his students' collaborative approach to problem-solving skills. At the same time it informs his knowledge and practice.

## To prioritise and select teaching practices

Given that it is not possible to fit everything into a teaching programme, nor is it possible to use teaching practices that suit each individual student, you will usually have to select and use a relatively small number of teaching practices. Data help to inform this decision making/prioritisation/justification process – it can help you think about why you might use one method over another.



### Example Two: Testing current practice

Tim wants to know more about the impact of the approaches he uses in running his fortnightly tutorials for his second year Economics students. One of the aims of these tutorials is to get the 25 students actively engaged and working collaboratively in problem-solving activities. When he runs these sessions as a whole group exercise Tim notices that there are only a few active participants who are willing to speak and contribute ideas and solutions. He also notices that these students have English as a first language.

Tim has read some of the literature on group work and decides to break the tutorial into smaller groups in the hope that those who don't participate in the wider group discussion will do so in the small groups. He develops a checklist and goes around the groups to note the students who are talking, the amount of time they talk and the roles they are taking in the group. From these data he realises that the students who have English as a first language are still taking the dominant roles in the groups at the expense of other students. He decides then to allocate specific roles

to each group member, e.g., facilitator, note taker, presenter. He then repeats his observation exercise. Those who have English as a second language now have to participate actively in the problem-solving activities. Tim draws the conclusion that, in the short term his approach to group work is successful.

To give himself greater confidence that it is the inclusive group work approach that has made the difference, at the end of the semester Tim asks his students to complete a small evaluation survey. Included in the survey are questions on the group work format. The students are asked to rate their experience of the group work approach on a 1–6 scale; asked to rate the perceived benefits of it to their content knowledge about problem-solving on a 1–6 scale; and asked to follow this with a specific example of how the format has helped to do this.

This data collection allows Tim to test his new approach and as a result it informs and improves his professional knowledge and practice.

## To provide proof of competence and performance

Over the course of your career, you will often need to provide evidence that demonstrates continuing and developing competence in teaching. Many tertiary organisations have promotion or increment eligibility processes based at least in part on meeting identified standards of performance. Data about learner benefit – and demonstrating that you have been making an effort to use evidence to inform your approach to teaching – can provide the basis for evidential statements demonstrating that standards have been met. Similarly, data can provide a strong basis for professional advancement within your organisation.

## To share good, evidence-based practice with others

Talking about practice is one way to open up the ‘personal’ world of the classroom. Data that show your practices are making a difference to your students’ learning provide a strong foundation for talking personally with colleagues, in team or faculty meetings, or with academic supervisors and managers about how to ensure your learners get the best possible teaching and training.

More widely, having data lets you share your practice more easily across your organisation, sector or industry, regional networks, online, and potentially in journals or at conferences.



### Example Three: Sharing Practice

The students in Beth’s level-2 communications class are having problems with developing their ideas and structuring their writing. Beth decides to use a writing frame with lead-in statements/headings to help her students. She asks for oral feedback from her students about the frame and uses formative assessment to give them feedback about their writing. She also compares this writing to the students’ previous work. In a team meeting, Beth shares the writing frame, her students’ feedback on it and the comparative data that she has collected. Collectively the team use this evidence to inform the use of writing frames.

practice, as the revised model asks that tertiary organisations consider outcomes and processes. At the practitioner level, this means being able to answer such questions as:

- How well do learners achieve?
- What is the value of the outcomes for key stakeholders, including learners?
- How well do programmes and activities match the needs of learners and other stakeholders?
- How effective is the teaching?
- How well are learners guided and supported? (NZQA 2009, pp. 8–9).

Gathering course-level evidence will contribute to your organisation’s ability to answer these questions. The practice-based principles described by the NZQA include those that are directly applicable to practitioners gathering and using their own data to inform practice. For example:

- *Focus on things that impact most on student outcomes. Find new ways to ask questions about them, to test their contribution to the outcomes*
- *Be analytical. This will help build capability in using data and other evidence to inform the work* (ibid, p. 11)

## To inform formal quality assurance processes

In addition to requiring data for your own use, the tertiary system increasingly requires formal evidence about organisational effectiveness. The New Zealand Qualifications Authority (NZQA), for example, has recently adopted a revised new evaluative approach to quality assurance. This new approach provides the opportunity to think more strategically about the use of evidence to inform



## So where to start?

In your specific teaching and learning context, you use and have the opportunity to test teaching practices every day. Using evidence to review and inform these practices starts with collecting data in a purposive way, as in the examples above. This information can start you thinking about what works, what doesn't work, what practices are more effective and what are less effective. The data can also challenge you if you discover things that are not working, or how some learners actually respond to teaching practices.

In order to find out what works (or doesn't) you will need to consider a range of sources from inside and outside your own 'classroom'. An important part of this is thinking about what is already available and what needs to be gathered...

- ... **from whom** – students are important information sources, but useful data can also be obtained from practitioners, student support advisers (academic and pastoral), employers, etc.
- ... **from where** – will you use only your own data, or are there pre-existing faculty, organisational (central administrative) or other data, such as AUSSE results, that can be of use?
- ... **when and how often** – is it important that data are collected at a particular point or points, or within a particular timeframe?
- ... **what and how** – what kinds of data are available or should be used, and how does the way in which data are collected affect your ability to use or understand them?

While this may look exhaustive and exhausting, there are some points that need to be kept in mind. First, evidence collection needs to be purposive. This means you need to be clear what specific topic or aspect of your practice you want to look at – this should guide your whole approach to collecting evidence. Second, you need to be realistic and ask yourself such questions as how much data really needs to be collected, and what is appropriate, relevant, practical, and feasible to collect in the time that is available for the job.

A good way to start is with collating what is already available about learners. For example, what is the make-up (demographics) of your learners, and what are their retention/ succession/ progression rates or performance on different assessments? On the basis of this information, you can then start considering which aspect(s) of teaching practice or learner outcomes you would like to focus on.



### *Ethical considerations*

As most of the data discussed in this report will likely be collected within the context of everyday teaching practice, there will usually be no need to go through your organisation's formal ethics process to collect it – although it would be a good idea to check your organisation's ethics and privacy policies. However, as in all data collection processes, you will need to take into consideration the ethical values of honesty, fairness, integrity, and respect, and the power relationship between you and your students. It is good practice to explain to students why the information is being gathered and how it will be used. Students also need to be told that participating in any additional data-gathering exercise is voluntary, even when you haven't gone through a formal ethics procedure.

At times there will be contexts when consideration needs to be given to formal ethical procedures – for example, when data gathered in questionnaires are going to be used for purposes other than informing your own practice. This will then require explicit actions, for example:

- (i) students being clearly told who will see the data and how it will be used, or
- (ii) formal informed consent being requested for observations and questionnaires.



# What questions should I ask?

Collecting evidence begins with thinking about the sort of questions you want to answer, and just as there are a range of data sources and a range of ways to collect data, there are a number of questions related to learner benefit that you can ask. Table 1 contains examples of the sorts of questions you might explore, and some ideas of where and how the data can be found to answer them. This is, of course, illustrative only, and far from exhaustive – it does not show all the questions that could be asked, nor does it provide all the ways in which the data can be sourced



Table 1: Example Questions and Relevant Data Sources

<i>Possible Questions</i>	<i>Possible data sources and collection tools</i>
<b>Who are my students?</b> <b>What do I know about my students? What don't I know about them?</b>	Central database: enrolment data Questionnaire
<b>What do my students expect from this course?</b> <b>What do I expect my students to take from this course?</b>	Questionnaire Graduate profiles Statements of learning outcomes Course outlines
<b>How do I know what my students already know and still need to learn on this course?</b>	Diagnostic assessment (written and oral) Academic records
<b>What progress are my students making?</b> <b>How do I assess the progress of my students?</b> <b>What do my students think of this?</b> <b>How much do my students know about their learning progress?</b>	Formative assessment of course work Pre- and post- tests Observation of learners Data on student engagement in e-learning environments (e.g. electronic tutorials) Questionnaire Interviews Discussion Academic records Student-led reviews
<b>How motivated/persistent/engaged are my students?</b>	Observation Attendance, retention and engagement data Student survey Critical incident analysis

Table continued over

<i>Possible Questions</i>	<i>Possible data sources and collection tools</i>
<b>How do I know that the specific practices I am using are working, e.g., how do I know that my students are actively engaged and motivated and learning?</b>	<ul style="list-style-type: none"> <li>Questionnaire</li> <li>Observation (self, peer, supervisor)</li> <li>Critical Incident analysis</li> <li>Peer/supervisor review</li> <li>Open class discussion</li> <li>Student-led review</li> </ul>
<b>What do my students think about my teaching practices?</b>	<ul style="list-style-type: none"> <li>Questionnaire</li> <li>Student-led review</li> <li>In-class conversation</li> <li>Student experience survey</li> </ul>
<b>How well do I provide feedback to my students about their learning?</b> <b>How well do I allow students to provide me with feedback on my teaching?</b>	<ul style="list-style-type: none"> <li>Critical incident analysis</li> <li>In-class conversation</li> <li>Self/peer review</li> <li>Student experience survey</li> </ul>
<b>How do I know my students have fulfilled the requirements of the course?</b>	<ul style="list-style-type: none"> <li>Summative assessment through written or oral testing, or portfolios of evidence</li> <li>Moderation evidence</li> </ul>
<b>How satisfied are my students with the experience they have had in my course?</b>	<ul style="list-style-type: none"> <li>Student experience survey</li> <li>Interviews with individuals, focus groups, or key informants</li> </ul>
<b>How well are these students doing in other courses?</b> <b>How does the retention, progress and completion of students in my course compare to retention, progress and completion of my students in other courses and over time?</b>	<ul style="list-style-type: none"> <li>Central database statistics, including retention and completion data over time</li> </ul>
<b>How are my students using their new/improved skills?</b>	<ul style="list-style-type: none"> <li>Retrospective evaluation by graduates</li> <li>Career progression</li> <li>Success in higher level programmes</li> <li>Employer questionnaires</li> </ul>
<b>What progress are my students making after they finish my course?</b>	<ul style="list-style-type: none"> <li>Follow data on employment outcomes, career progression and /or success in higher level programmes</li> </ul>

## What different data sources can I use?

Much of the best information you can gather about the impact of your practices on learners will come from your own sources, i.e. the learners themselves. However, consideration should be given to the full range of potential sources of data available to you. Examples of some likely data sources are provided in Table One above, and in Appendix A.

Once these other data sources have been identified, it's useful to think about whether or not there are any gaps in the information these sources can provide, and what additional material might need to be collected.

Data can be gathered from different sources in varying ways, and to give confidence to your conclusions data should ideally be collected from at least two sources and/or in two different ways. You also need to make sure you collect and use data that measures what it is supposed to be measuring, and would produce the same result again or be consistent over time. Appendix A outlines some places that data can be found, processes/tools that can be used to gather it, and some strengths and limitations of data and collection methods.



### Collating, analysing & interpreting the data

There are many ways to bring data together for analysis, from using very simple processes to highly sophisticated software tools, and a detailed description of how to go about this is far beyond the scope of this publication. If you as a practitioner are not used to gathering and using a particular type of data, a good place to start is by talking to someone in your organisation who is. There are also many different resources that can provide detailed advice and assistance on how to go about collecting and analysing data. Some useful examples include:

Cardno, C. (2003). *Action research: A developmental approach*. Wellington: NZCER Press.

Davidson, C. & Tolich P. (eds) (2003). *Many paths to understanding: Social science research in New Zealand*. Auckland: Pearson Education.

Mutch, C. (2005). *Doing educational research*. Wellington: NZCER Press.

Piggot-Irvine, E. (ed.) (2009). *Action research in practice*. Wellington: NZCER Press.

The key point here is not only to gather information effectively, but to store it in a meaningful way so that it is fit for purpose, and examine it in ways that enables patterns to be recognised and understood.

In order to draw conclusions from the information it is also important to understand its limitations. In particular, sometimes it can be difficult to show conclusively that a specific teaching intervention caused a particular result. This can often be difficult to demonstrate conclusively. However, if the right types of data have been collected in appropriate ways, you can have more confidence in the conclusions that you draw.

It's comfortable when the conclusions that are able to be drawn indicate that your teaching approaches are working, or that your initial hunches are correct. However, there will be times when the unexpected occurs, and when an outcome is at odds with the thinking that you have about your teaching and learning programme. Occasions like these, however, are what makes the effort of collecting evidence worthwhile – it makes you question and possibly rethink what you are doing.



# Gathering data that is fit for purpose

Deciding what data to collect, and how, is the first step in putting together an evidence base that can be used to show that what you are doing makes a difference to students' learning. At this stage of the process you need to keep in mind that data collection needs to be systematic and purposeful – while balancing this with the practicalities of what can realistically be achieved in the time that is available for collection, analysis, and timely use.

There are two broad categories of data: quantitative and qualitative. Each type has its own strengths and weaknesses, and you need to consider which is the most appropriate type to collect for what you want to know. The two examples below show the collection of both types of data and the purposes for this.



## *Example Four: Quantitative data collection*

Ruby's media studies department has been on a professional development course related to improving outcomes for Māori learners. The tutors use their new learning to trial some interactive teaching practices. At the end of the course the tutors want to find out whether this could be making a difference for their Māori students. As a team they review the organisation's retention and completion rates for Māori students and compare these with their faculty's own retention and completion rates for the current cohort. They also compare their current cohort to their previous cohorts to find out whether there are any differences.

The tutors note that their students are doing better than the norm, and use this as a justification for continuing what they are doing. However, the tutors are rightly cautious about attributing the results entirely to the new intervention as there could be many factors influencing the improved performance of the cohort. The information they gather serves as a starting point for further questions, data gathering and conversations that will continue over time with different cohorts.



## *Example Five: Qualitative data collection*

Mia notes that her nursing students have not been making use of the feedback she has been providing them on class-based tasks. She decides to try out a new way of giving feedback by using Twitter, as she is aware that her students use this form of social media. She is new to Twitter and nervous about using it. In a formal feedback discussion session with her students she asks, amongst other things, how they felt about this approach, how getting feedback in this way differs from other methods she has used and in what ways using Twitter increases/decreases the likelihood of the students using the feedback. She also asks how her use of Twitter could be improved. Mia also checks assignments for evidence that her feedback is being used. When she discovers that her new approach is making little difference she realises she needs to rethink how she might provide feedback in the future.

# Combining data sources

Using one set of data collected in one way often does not provide enough evidence about the impact of teaching. In order to give you greater confidence about your findings, enhance the credibility of a finding, or ensure a more accurate assessment of a finding, data should be collected in two or more different ways and/or from two or more different sources. Collecting data in these ways and then putting them together in order to test or validate findings is known as triangulation.

When different methods and/or sources get the same or very similar results, you can have more confidence in the results – although you still need to be cautious about attributing causation. When different methods and/or sources come up with quite different results, further data collection and analysis are needed in order to clarify what is happening.

Deciding what sources to put together does not have to be complex. The key to it is fitness for purpose and keeping the data collection process realistic and manageable.

One of the challenges for busy practitioners is “how much information is enough”? One way to get around this is to select and use data that are collected by the organisation and methods that complement each other.



## *Example Six: Combining different data sources*

At the start of her business studies course, Rose finds out from her organisation’s early engagement survey that students think she is not well organised and has not been providing enough feedback to them about their progress. She takes this information on board and makes some small changes to the ways in which she organises her teaching programme and provides more feedback to students.

Then, instead of waiting until the end of the course to find out whether her students think her organisational skills and feedback processes have improved, Rose captures ongoing feedback by consciously talking with her students. Rose intends to make use of this year’s data again by comparing them with the data that are gathered from cohorts in subsequent years.

## Critiquing the data

Data collection and analysis also require consideration and critique, as any conclusions that are to be drawn are only as good as the strength of the data that are collected and their suitability and fitness for purpose. One way to do this is to ask questions about the quality of the data and to take into consideration the strengths and limitations of the collection methods you've used. For example, how honestly will your students have answered your questions if they're interviewed face-to-face by the practitioner, compared with filling in an anonymous questionnaire? Appendix A outlines some strengths and weaknesses of common data collection approaches.

## Final thoughts

Getting started and persisting with data collection can be challenging, and there is a need to be realistic and practical during the data gathering process. Finding the time to design, collect, collate, analyse and interpret data from multiple sources can be daunting. However, there are ways to make the process easier. Use or adapt what your organisation already has, work with other practitioners, and use team or faculty meeting times to discuss results and the implications of these for future teaching. Select methods that are fit for your purpose, complementary and provide data that can be used for more than one purpose.

Collecting data and using evidence to inform practice are part of what professionals do. It enables us to make informed judgments about what we do, it provides greater certainty that what we are doing is working for our students, and it lets us test our assumptions about what we think is working and whether it works equally well for all. It is a way of professionally developing ourselves. In summary it helps us to answer the question "how do I know that what I am doing is working and improving my students' learning?"

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# Appendix A: Strengths and limitations of data sources and processes

This appendix provides a brief overview of some types of data sources that can be used to gather evidence or provide information to inform teaching practice, and some strengths and limitations of these sources.

<i>Where and how to get the data</i>	<i>Strengths</i>	<i>Limitations</i>
<b>Central data base: enrolment data</b>	The central data base provides socio-demographic and other background information on learners. This information is likely to include students' academic background. A key strength of this data is the consistency of information, which means that an overview of students can be gained. It also allows practitioners to look for patterns of students, e.g., gender, age, ethnicity, prior academic record, in different courses, across faculties and across the organisation.	The data base relies on how complete the information is for every student and whether it is precise enough for the needs of individual practitioners.  While, in theory, it should be accessible for individual practitioners (within correctly applied principles of privacy legislation), there may be issues of accessibility through IT, reporting functionality or institutional policy constraints.
<b>Central data base: engagement, retention, completion data, all over time</b>	The data provide an overview of learners' achievement that allows practitioners to look for patterns of students in different courses, across faculties and across the organisation.	As well as the issues noted for enrolment data, it is particularly important that users understand the definitions used in data collection.
<b>Attendance data</b>	Provides information on the level of engagement of students (either physically or by contact with monitored electronic resources).	Attendance does not necessarily equate to learning.  Attendance is sometimes not available/collected for distance or blended learning and is often not monitored when it is not compulsory.
<b>Diagnostic assessment or pre-course testing of context specific knowledge and skills, e.g., literacy, language and numeracy</b>	This form of assessment, written or oral, allows for individual prior learning to be assessed, and can be used to compare post-course results.  It also allows for the strengths and weaknesses of individual students	Any assessment has to be valid (fit for purpose), reliable, sufficient and authentic.

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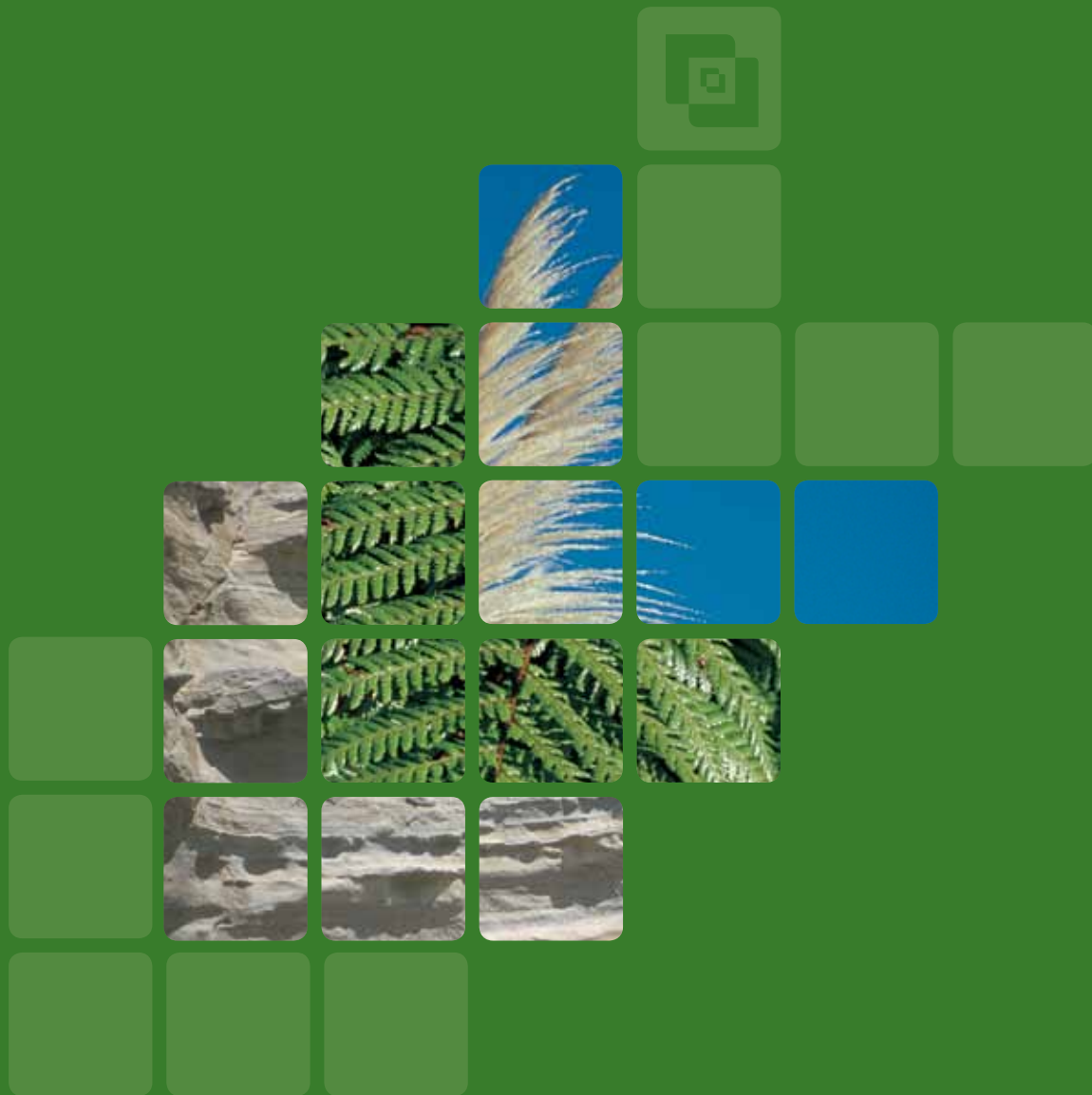
<i>Where and how to get the data</i>	<i>Strengths</i>	<i>Limitations</i>
<p><b>Questionnaires (including surveys)</b></p> <p><b>Satisfaction/ Experience surveys</b></p>	<p>This allows for the capture of a variety of types of data at any time before, during or after a course.</p> <p>Structured/closed questions allow for large numbers of responses to be considered relatively quickly.</p> <p>The organisation or the faculty may have questionnaires that can be used. Practitioners should use these when they are available, as they allow for easier comparisons with other groups of learners.</p>	<p>The data gathered in questionnaires are only as good as the questions that are asked and the way in which the data are analysed.</p> <p>Consideration needs to be given to aspects such as the right questions, the right mix, the right order. Whether the questions are leading, the types of scales to use?</p> <p>Often, the preferred option is to use established questionnaires that have already been validated. These, however, need to be checked to ensure they are appropriate to the context in which they are being used.</p> <p>Responses to semi-structured and unstructured questionnaires take a longer time to analyse as the data are more qualitative.</p> <p>A simple satisfaction questionnaire in isolation (sometimes referred to as a 'happy sheet') often does not provide robust evidence of the quality of teaching or learning.</p>
<p><b>Interviewing individuals, focus groups, key informants</b></p>	<p>Allows for in-depth discussion of experiences and outcomes.</p>	<p>Interviews can be time consuming to set up and run.</p> <p>Decisions need to be made about who is going to be interviewed? Who facilitates? Who records? How this is done?</p> <p>The relationship between the interviewer and the interviewee can affect responses.</p> <p>Interviews rely on the responsiveness of learners and in focus groups the level of comfort that people have with each other, the interviewer and/or the facilitator. Ethical considerations need to be taken into account.</p> <p>Interviews can be subject to the bias of the interviewer – for example she/he may prompt for certain responses. They can also be subject to the bias of the interviewees.</p>
<p><b>Observation of learners and practitioners – including in e-learning environments</b></p>	<p>Students may be used to and comfortable with observations by their own tutor.</p> <p>Observations can also be made by a peer/mentor or senior person in the organisation and this has the advantage of being more objective than that being carried out by the practitioner. They can provide data on both the teaching and the learning.</p> <p>The data are gathered in a natural learning environment during a natural learning activity.</p>	<p>Before the observation begins there is a need to know, and possibly, pre-determine what to look for. This helps the practitioner/observer recognise what is happening and what is causing this to happen.</p> <p>While the use of an observation checklist defines what to look for, it means that some aspects of what is happening may be missed.</p> <p>Active participation in real or e-environments may not be suited to students and may not be indicative of learning or engagement.</p>

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<i>Where and how to get the data</i>	<i>Strengths</i>	<i>Limitations</i>
<b>Formative assessment<sup>3</sup></b>	<p>This form of assessment allows for ongoing feedback to learners about their progress. It can be done in many forms and allows practitioners to adapt teaching to meet student needs.</p>	<p>Appropriate formative assessment and feedback to students is reliant on the knowledge and skill of the practitioner who must be able to recognise what is happening and respond to it. This response needs to include feedback on what is happening and what to do next, as well as the learning objective, “where are we heading?”</p>
<b>Critical Incident technique</b>	<p>This form of qualitative data collection allows information on specific aspect(s) of a situation to be gathered. The data can be gathered from learners through observation or questionnaires.</p> <p>It allows for rich data to be gathered about situations that have been successful or unsuccessful.</p>	<p>This form of data collection relies on recognition of the “moment” for observation purposes.</p> <p>Analysis of data collected from students can be time consuming.</p>
<b>Summative assessment</b>	<p>Properly structured summative assessment allows for learning outcomes to be measured against defined criteria.</p> <p>Assessment data are collected in a range of ways, e.g., through written and/or oral testing, or portfolios of evidence, or naturally occurring evidence, and observations.</p> <p>It also allows learning to be recorded for progress and qualifications.</p>	<p>Does not capture all the learning.</p> <p>Again, its value depends on the quality of the assessment in the first place. Probably of little or no value when there is no moderation process associated with the assessment.</p> <p>Can be driven by qualification requirements rather than students’ learning requirements.</p>
<b>Retrospective evaluation by graduates</b> <b>Career progression</b> <b>Success in higher level programmes</b>	<p>These data allow for follow-up on student progress.</p> <p>Feedback provided by students, if used, provides information that can be used to inform the impact of teaching on learning and to inform future teaching.</p>	<p>It is not possible to show causation – that is the link between an individual course result for a student and their subsequent progress. However, putting these data together with other data can show evidence of trends that point to the influence of the teaching.</p> <p>Data is difficult to collect unless systems are in place.</p>
<b>Employer questionnaires</b>	<p>Using data from this source allows the organisation to find out whether it is providing employers and industries with graduates who have the prerequisite knowledge, skills and attitudes.</p>	<p>As with data on career progression and success at higher levels, it can be difficult to show causation.</p>

3 Further information on assessment can be found at [http://www.educationcounts.govt.nz/publications/tertiary\\_education/27773/5499](http://www.educationcounts.govt.nz/publications/tertiary_education/27773/5499) and [www.akooteaoroa.ac.nz](http://www.akooteaoroa.ac.nz)





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ISBN 978-0-473-18402-5