CHAPTER THREE

Learning process analysis for learning

What learning process analysis can do

If you had the privilege of observing learners in a learning setting, what you see would vary considerably. They might be quietly sitting around a table, maybe speaking with each other, maybe not. They might be actively engaged in vigorous discussion with each other and/or their teacher. They might be sitting at home listening or watching something relevant to their current learning. They might even be taking part in an online tutorial while sitting in the back seat of their parent's car heading to the coast. Or they might be silently contemplating what other materials they might incorporate into their sculpture. In all these instances and just about any other setting you can imagine, these are learners engaged in learning. This engagement is part of what I have called the 'business of learning'.

Learning settings have always been varied and will continue to be. This variation makes it all the more important to have a reliable means of understanding how each learner learns. We need to understand how learners truly learn if we are to provide them with the detailed and precise feedback that will help them to get better at learning.

John Hattie is an experienced and award-winning researcher and author in education who has published broadly and successfully, including his series of Visible Learning publications. In calling for learning to be more visible, in his book *Visible*

Learning for Teachers (2016), John Hattie urges educators to keep learning at the front and centre of what they do. Increased visibility of learning, in any form, offers the potential for greater insight into what learners do when they go about the business of learning.

Increasing the visibility of learning

Greater visibility can play a significant role in helping to keep learning at the centre of what educators do. John Hattie and Gregory Donohue's description, 'how to know, how to know more efficiently and how to know more effectively' in their 2016 publication nicely captures the 'business of learning'. Learning process analysis is designed to assist in making learning visible—and the more ways we can provide visibility the more opportunities we have to help learners get better at the business of learning.

How can we best achieve this increased visibility? What would that greater visibility look like? What would we see? What is being made visible that was previously invisible? What sort of insight can LPA deliver? How will this insight help learners learn and assist you in managing their learning? The place to start is the reason why teachers turn up to work every day—students.

For any group of learners, at any stage of learning, there will be significant variability in their motivation, their knowledge and also their capacity to employ a range of skills, such as problem-solving, synthesising, critically analysing and/or their capacity to describe what they have learned. It is this variability that is both the challenge and the beauty of teaching—motivating teachers, noting learners' differences, detecting similarities across the group or groups and working with learners to help them learn. As part of the challenge of teaching you are trying to cater for all learners, or at least as many as you can realistically cater for, in a busy classroom, from day to day and for weeks on end. For those less familiar with teaching, including those of you who might be thinking of being a teacher, it also contributes to the immeasurable joy of teaching, particularly when you can meet that challenge,

even part of the way, and see the results. It is my earnest hope that this book will help you meet those challenges with greater assurance and you will feel that joy more often, without adding to the complexity or busyness of your teaching day.

Variability in learning outcomes

Within any learning environment you are likely to have a set of stated learning intentions, sometimes called learning outcomes or objectives. For the purposes of this book, what they are called does not particularly matter. What does matter is that typically, no matter the age of the learner or the type of learning environment, you will not find common achievement of these learning intentions. This spread of achievement is evident in the distribution of results in any subject, at any stage of learning. This variation in learning outcomes comes from a range of sources including, but not limited to, variability in the knowledge and skill levels of the learners. No big surprise there—variability in knowledge and skill levels, amongst other things, produces variability in measured results. So where does that leave us in our desire to help learners get better at learning?

Detecting variability in knowledge is a fairly straightforward task and there are multiple ways of measuring knowledge before, during or after the completion of a task. What tends to be more difficult to determine is:

- What skills did learners use?
- How did learners use the skills they have as they navigated their way through a task?
- Did this variability impact their acquisition of knowledge and consequently their learning outcomes?
- If so, how so?

Of course, not all stated learning intentions focus on knowledge acquisition. Some learning intentions, quite rightly, target the acquisition of what we might call 'a skill', providing even greater incentive to gain some insight into how and why

learners use these skills and how we can help them to get better at doing so.

Skills and their acquisition are the subject of some debate, including whether these skills are generic, can be taught, transferred from one task to another or from one area of learning, or context, to different areas of learning. What is clear, and generally accepted, is that learners employ these skills as they go about trying to learn and they employ them in conjunction with the knowledge they have in any given content area. It really doesn't matter what we call them. As long as we can accurately identify what skills learners are using, how they are using them and why they are using them in that way and how that impacts on their learning outcomes. Then we are in a position to provide feedback to both the learners and the educators to help learners get better at learning. We can do all of these things through LPA.

Below are two examples showing how learners use these skills, one from a Year 6 student in Visual Arts (Figure 3.1) and the other from a post-graduate medicine student in a problem-based learning (PBL) tutorial (Figure 3.2).
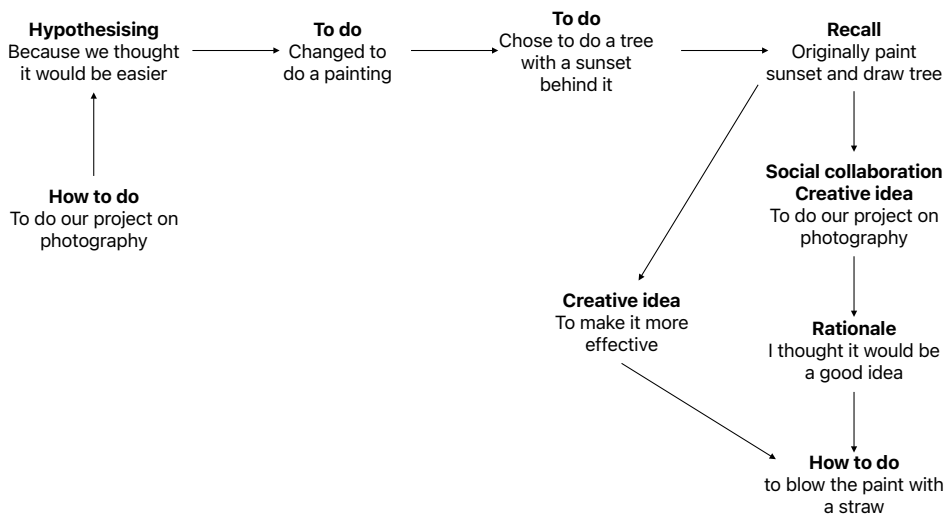

Figure 3.1: Learning process map for a grade 6 visual arts student

Description/explanation of figure 3.1: in this instance, the student is using creative skills (coming up with ideas), they are concluding and also speculating. They are also making decisions about what they are going to do and they have reasons for doing so, which are available via the learning process map.
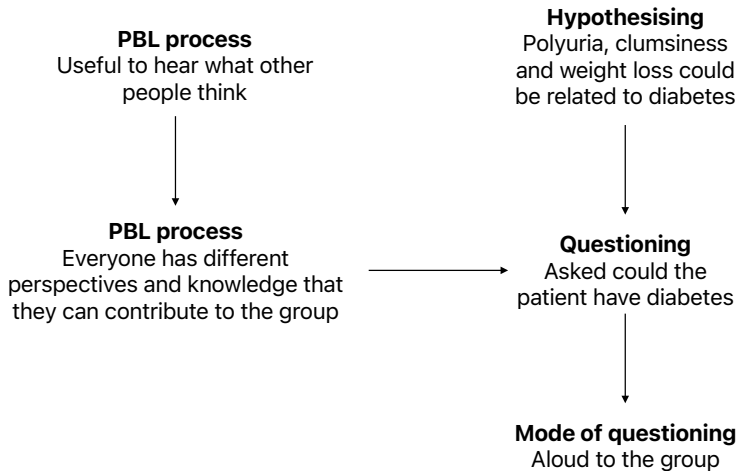
PBL process
Useful to hear what other people think

Hypothesising
Polyuria, clumsiness and weight loss could be related to diabetes

PBL process
Everyone has different perspectives and knowledge that they can contribute to the group

Questioning
Asked could the patient have diabetes

Mode of questioning
Aloud to the group

Figure 3.2: Learning process map for a post-graduate medical student in a problem-based learning tutorial

Description/explanation of figure 3.2: here we have a student using a number of well-known skills. The student is hypothesising and is also collaborating: a skill that is increasingly sought by business, with the expectation that educational institutions will develop these skills in students. I address this area of skills in chapter six. For the moment it is sufficient to see that learning process analysis can reveal students' collaboration and that they engage in hypothesising and this information can be fed back to either the student or the educator.

Learning process analysis will be described and explained in detail throughout the following sections of this book, including how to collect the relevant information (learners' decisions and their reasons for those decisions), develop learning process maps, how to interpret them and make the best use of them so that you can help learners get better at learning. The next chapter, the underlying principles upon which learning process analysis relies, lays out the foundation for applying learning process analysis.