Chapter 3 Tutoring tools and techniques

After examining the tutoring relationship, mindset and grit in the previous chapter, I now focus in more detail on how tutors can structure individual tutoring sessions. During tutoring sessions tutors can use a range of approaches to help students structure their thinking and overcome specific challenges. First, I examine the structural building blocks of tutoring sessions. These building blocks are the various *elements* that make up a tutoring session. After that I focus on more specific *tools* that tutors can apply to help students with particular issues. Overall this chapter will describe how tutors can structure their tutoring sessions and address specific student issues with course content knowledge and skills.

Elements of a tutoring session

During a tutoring session tutors provide a structure for students to explore their own learning. When using this approach, tutors focus first on helping the student manage their own learning, and then on subject content as and when required. Adult teaching expert Dean Nugent first introduced me to the metaphor of teaching as the plumbing and electrics in a house. As a facilitator teaching others to teach adults, Dean would 'expose' the plumbing and electrics to us while he taught. It was artfully done, and the importance of providing a framework for students to work within has stuck with me ever since.

The importance of providing a content-free structure that facilitates student learning is illustrated by a group of researchers who advocate

making thinking visible. I provide a link to their book in Chapter 5, where I introduce links to the academic literature (Ritchhart, Church & Morrison, 2011). Their basic premise is that thinking is doing, and that the notion of a thinker sitting in silence with their chin resting on their fist is only one of many possible ways to think. The making thinking visible group have produced a range of thinking routines that can be used in many situations to help kick start a person's or group's thinking. These thinking routines are content-free and so can be used in many situations.

One example of a thinking routine made visible is called *Think Puzzle Explore* (Ritchart et al., 2011). In this routine students answer three questions:

- What do you think you know about this topic?
- What questions or puzzles do you have?
- How can you explore this topic?

This routine helps students to access prior knowledge, stimulate their curiosity and begin independent inquiry. You can see that a thinking routine like this provides a structure for thinking through problems. Similarly, the elements of tutoring provide a framework for students to explore their ideas, manage their learning and develop thinking routines, which they can then apply to any content they like. Focusing first on structure means tutors prioritise helping their students become independent. Once students get a handle on how to approach learning, often through internalising 'thinking routines', they can apply these skills to all types of course content.

The elements of tutoring promote metacognitive strategies. Metacognition refers to thinking about thinking, and I explore this term in more detail in Chapter 5. For our purposes here, metacognition is particularly important as access to information becomes more and more ubiquitous. Students can go online with smartphones, tablets and computers almost anywhere and access a wealth of content. Helping students learn to investigate their ideas and think through problems means they can make the most of the internet as a resource rather than focusing on rote learning subject content. Of course, providing subject content support is important, and I explore ways of dealing with content issues in the tutoring toolbox section.

Getting to know the elements of a tutoring session

In this section I start with an example of how a tutoring session might progress based on the position of various elements, so that you can get a sense of how the elements of tutoring can fit together. Then I introduce each of the elements of a tutoring session in more detail and describe what they consist of. After that I provide a facilitation guide as an exercise to train tutors to apply these tutoring elements.

A sample tutoring session

Let's imagine a tutor is having their third maths tutoring session with a student. At the very start of the session the tutor *builds a mini agenda with the student*. In order to build a mini agenda, the tutor might *review work from last week* and ask what the student has worked on during the week at school. In this scenario, the student is working on straight-line graphs and they have a test in a few weeks. The tutor and student decide to spend some time working through some practice questions to see how well the student knows the material. The tutor jots down this mini agenda on a piece of paper (see Appendix 4: Session tracker).

While preparing this agenda the tutor and student *establish an implicit goal* for the session, which is to determine how well the student is able to work with straight-line graphs and practise answering test-type questions. At this stage the tutor *re-establishes the student's expectations* by discussing what grade they would like to get in the upcoming test. The tutor might *disclose some relevant information about themselves* by discussing their own experience learning about straight-line graphs. After the student has had a go *working on course content* by answering some questions, the tutor will have a good idea what the student needs to work on during the week and how well they are progressing towards their goals for the upcoming test.

At this stage of the session the tutor might ask the student to *reflect on prior learning* and consider how much they have learned in the past month. At the end of the session the tutor and student take a few minutes to *determine what to work on next week*.

1. Build a mini agenda with the student

A mini agenda helps keep the tutoring session on track. More importantly, building a mini agenda with the student includes them in establishing control over the session. There are many ways to build a mini agenda with a student. For example, the tutor can simply ask what the student would like to focus on. It is up to the tutor to filter the student's ideas through some practical measure to determine what is possible in a session and what might be most useful. However, they need to make sure that an agenda is built collaboratively and the student can see the value in what it contains.

A tutor may also establish a mini agenda during their first discussions with the student. They can then share this with the student and make sure the student is comfortable with it. In addition, tutors can put items on the agenda for *the next tutoring session*. When there is too much material to cover in one session, or the tutor is not sure how to address a particular issue, some things can be bumped forward to the next session. Demonstrating continuity by moving things forward shows the student that everything they do in tutoring serves a purpose, and it allows the tutor to plan future sessions efficiently.

2. Review work from last week

Reviewing work from last week is a form of reflection. Reviews also help students solidify their learning. There is very strong research supporting *spaced revision* (e.g. Carpenter, 2014), and by reviewing last week's work tutors help students to begin the spaced revision process. A review also gives tutors the opportunity to gauge where the student is at with their learning and what areas may require more work.

3. Establish an implicit or explicit goal for the session

Establishing a goal for the session provides some overarching structure. This may be explicit, such as 'construct a well written introduction to an essay', or it might be implicitly captured within the mini agenda. Either way, a tutor should have some sense of what kind of outcome they expect from the time they have with a student in any particular tutoring session.

4. Establish or re-establish expectations and engagement with them

Earlier I introduced the notion of a sense of agreement. Every tutoring session has opportunities to maintain a sense of agreement. This element of a tutoring session involves maintaining a sense of agreement by checking expectations and the student's engagement with them. Expectations might be related to the work the student will do or the things a tutor will do. Tutors need to make sure they themselves do what they say they will do, as this feeds into student expectations. (Also, the things tutors say they will do usually contribute directly to student learning, such as looking up an answer to a particularly tricky question.)

5. Disclose relevant information about yourself

Anecdotes and drawing on your own direct experience can be a useful teaching tool. However, they can also be confusing. Some tutors and teachers end up focusing too much on themselves, so these anecdotes must be relevant and preferably short. Also, resist the temptation to tell stories to make yourself appear cool or interesting. These types of stories are often ineffective with critical high school students.

6. Work with course content

Working with course content is the last element in the elements of tutoring. During facilitation we often leave this element out so that tutors realise how important all the other elements of a tutoring session are. You can do a lot as a tutor without even touching on content. Of course, content is important, and in the next section I look at specific ways for tutors to work with course content.

7. Reflect on prior learning

Kolb's learning cycle is a well-known model of learning based on experiences, reflecting on those experiences, constructing generalisations about what happens in particular situations, and then entering the cycle again with new experiences. Each time you have an experience, by reflecting on it you can reformulate your generalisations. Through reflecting, people learn more about themselves and are able to apply this knowledge to new or similar experiences.

Often when learning and tutoring we focus on new material. However, time often needs to be spent reflecting on what has been learned previously. Building in time for reflection is important. This can be accomplished using some of the tutoring tools I provide in the next section. A very simple method is to ask the student what they have learned over the past week, month or even year. Reflection is also a great way to take a break during a long session. Some tutors build in reflection every 20 to 30 minutes.

8. Decide what to work on next week

Deciding what to work on next week means students (and tutors) have to:

1. think about what assessments and projects are coming up
2. determine how comfortable they are with the material covered in the current session

3. think about what they will be doing between the current and next session.

These three actions are metacognitive: the student is managing their thinking and learning. Working with a student in the final 5 minutes of a session to determine what to work on next week therefore helps students to develop crucial self-management skills.

Facilitation ideas: Elements of a tutoring session

When training tutors how to use the elements of tutoring, I have found the following exercise to be effective.

Prepare cards with each of the elements of a tutoring session listed on them. Also include up to three or four blank cards. I usually don't provide any explanation of what each element refers to, and this means tutors are forced to discuss them among themselves. After the session you can go into more detail about each element if you like.

Assemble small groups; I have found up to five tutors per group works well. Then, give each group a full set of element cards, some blank cards, a whiteboard pen (to write on blank cards) and some Blu-tack. The task for each group is to put the elements together in the way they would use them in a tutoring session. They can add to the blanks if they think something they would use is missing.

Here is where I leave out the 'work with course content' element. Many groups will add it in; some will not. Also, groups often add new things that have never been thought of before. Groups then stick the elements to a wall or a surface. I am often vague about whether this is a student's first tutoring session or one in the middle of a series.

I try to be very broad in my language so that I do not influence groups to order the elements in a particular way. I even started making the element cards various shapes in an effort to remove any implication that the model should be linear.

After all the groups have put their elements up on the wall or surface, you can ask them to explain why they put them where they did. This is an excellent opportunity to explore tutors' thinking about learning. This exercise can be transformational for tutors, because they realise that their role is as much session management as it is content support—in fact perhaps more so at times. It also gives tutors a comprehensive set of actions to carry out in a tutoring session. Often I find tutors are

not quite sure what a tutoring session should entail, and this is the first opportunity they have to see the richness of their role.

The tutoring toolbox: How to work with course content

A large part of tutoring involves helping students master new knowledge. At school, tests and assignments often emphasise content knowledge. As a result, course content is what students are often most concerned about, and what parents often feel their students need to develop. I argue that course content is *not* the most important aspect of tutoring, but it is still a very important part. In practice it is most useful to think of a tight link between course content and metacognitive skills that help students master course content.

In this section I draw on research into student learning and learning in non-school domains to present a toolbox of tutoring techniques that can be applied by tutors to address course content issues. As with the elements of tutoring, the toolbox represents a range of actions that can be applied by the tutor in whatever arrangement suits.

The tutor toolbox contains nine tools. Below I present a brief introduction of each tool. After that I provide some examples of common student issues and consider how the tutoring tools might be applied in these situations.

A toolbox of for tutoring

Demonstrate a process or exercise

There is strong research (see Pashler et al., 2007) to support having students examine worked examples and then answer questions. For example, you could give a student a mathematics question to answer and then show them one that has been done that illustrates the steps involved. After that you can repeat the process, going between the student answering questions and reading through a worked example.

Essentially, the tutor shows the student how to do something, not just by explaining but also by providing a demonstration that includes information about decisions made at each step. Mathematics, physics and chemistry lend themselves well to providing prepared demonstrations in the form of worked examples, but tutors can demonstrate all sorts of things, including how to plan a paragraph or how to structure

a long answer. There is an element of modelling here, and a strong tutoring relationship will reinforce a connection between the process or exercise the tutor is modelling and the student's attention.

I would also like to highlight the benefit of *live* demonstration. Live demonstration is much more authentic than explanation. Explanation involves describing an 'ideal' situation. But when tutors demonstrate, they run into problems they have to deal with on the fly, and thus make their thinking visible. The tutor must be confident in their tutoring skills so that they can demonstrate a process or exercise without fear that they might not immediately know the final outcome. Demonstrating a process or exercise in this way results in an authentic experience for the student. If the tutor can value mistakes during a demonstration as feedback, then they will also model a growth mindset.

Lastly, students will often agree with tutors when they ask them if they know how to do something, but often students are not actually that confident with the task. Demonstrating for students helps clear things up when they are either not comfortable asking for help or not sure what help they require. This is also why I say it is important for the facilitator to model the goal-setting conversation in Chapter 2. A goal-setting conversation is usually new to trainee tutors, and so they have no idea how it should go or what questions they might have. Demonstrating provides a model for them and helps them raise questions before they try the conversation themselves.

Give the student a task to do

Novice teachers and tutors often worry too much about what they, as the teacher, will do. They worry about how to explain a complicated idea. They worry that they will not remember the material well enough. They worry about how they will cover everything in the syllabus.

Experienced teachers and tutors know that what they do matters much less than what the students do. Giving a student a task means the tutor can gain a direct understanding of what the student is capable of while also developing the student's skills. If a tutor finds they are talking too much, I always recommend that they give the student something to do. Often the student will benefit much more from working through things themselves than listening to the tutor talking.

Identify a specific problem

When students are struggling with course content it is important to narrow down the issue to something the tutor can deal with. As a tutor it can be hard to understand what a student is struggling with when considering a task in its entirety, especially because the tutor can already do the task. They do not necessarily remember what it is like *not* to be able to do the task. Therefore, zooming in on a specific area helps identify a problem the student can work on. An example might be structuring a paragraph, graphing a linear equation or spelling correctly. Identifying a specific problem provides a starting point for the tutor to focus on. From this point, more challenges will arise over time and these can be addressed in turn.

Determine an initial course of action

Tutors can develop short, medium and long-term plans for student development. If a student presents an issue, often it will not be solved in one tutoring session, in one week, or even in one month. Issues can take a long time to address because learning is holistic, and success at school intersects with a student's entire life.

A useful way I have found when preparing a course of action is to conceive of success at school as a skill. When learning a skill you need to continually practise that skill and apply it. Over time something that was difficult becomes easier, until it becomes part of what you do to accomplish a more difficult or larger-scale task.

For example, when I practise playing the guitar I often struggle to form new chords correctly. A course of action would be to regularly practise the chord shape to a metronome, and then gradually speed up. Over time I will get better and better at the chord shape until it is internalised as part of my guitar playing. Every now and then when I reflect on what I have learned, I realise I can play chords cleanly that previously I could not. I also realise that there are now more advanced things that I cannot do well, and it is these things that I shift my practice focus to.

Similarly, a tutor helps a student to reflect on what they are doing well and what needs work. Some aspects of school work benefit from continual development. For example, writing is a skill that requires ongoing regular practice. An English tutor might therefore ask a

student to write a sentence or a paragraph in every session in order to help them develop the skill of writing. Some tutors run mini quizzes at the beginning of each session on things like spelling, vocabulary or basic maths.

Contextualise a specific task within a bigger picture

Learning is a process of constructing an understanding of how things work in the world. This includes tasks at school. I remember struggling to write a paragraph: it simply made no sense to me. I needed to understand how each paragraph was actually different and fitted within the overall structure of an essay.

Initially at school we learned the 'Statement–Elaboration–eXample' model of paragraph writing. When you consider this model you discover it doesn't work for the introduction, it doesn't work for the conclusion, and it is only a loose model when applied to body paragraphs. At the time I did not have this contextualisation, and so I found this paragraph model totally disconnected from the wider role of an essay. As a result I couldn't figure out how to use the model.

This is an example of simplifying a task so much that it separates from the larger task and becomes nonsensical to the learner. Unfortunately, when students show signs of struggling, usually the first response is to hammer them with decontextualised micro-tasks. Continually providing context values a student's ability to understand what they are doing and why. Contextualisation also helps students conquer course content because it provides a framework for them to hang new, or unstable, ideas upon.

In addition, contextualisation highlights the skill aspect of learning. I am happy to practise the same chord shape over and over again on the guitar because I am aware that shifting into that chord cleanly and at speed will mean I can play the song I want to play. Without the song, the practice is a mindless and boring task; with the song, the practice is a definite, exciting progression.

Describe a basic process

Describing a basic process refers to outlining *how* to do something. This might mean planning a paragraph, establishing the points on a graph or spelling a word. Many aspects of course content can be broken down into a process, and it may help a student to understand knowledge as

an *action* rather than as an abstract notion. Describing a basic process is very close to what people traditionally think of when they imagine tutoring or teaching. It is certainly a useful and important part of a tutoring toolbox when applied strategically.

Ask a deep explanatory question

There is a wealth of research (see Pashler et al., 2007) supporting the use of *deep explanatory questions* that encourage students to develop a deep explanatory understanding of key concepts. Deep explanatory questions are by their very nature difficult and tutors should use them judiciously. These are questions that require the student to address causal mechanisms, planning, reasoned arguments and logic. The form of a deep explanatory question will change depending on the subject you are tutoring.

For example, while tutoring history you might ask a question such as, 'What are the causes and consequences of the New Zealand Wars?'. The causes and consequences of historical events are also important for many other subjects, such as economics, media studies and social studies. You could also ask about the motivations of people in certain historical contexts, such as, 'What was the motivation behind Mendel's experiments with peas and inherited characteristics?'. You can probably see how a deep explanatory question goes beyond description and asks students to make connections. Deep explanatory questions will help students reach Excellence level in NCEA. Indeed, at university level students will regularly encounter deep explanatory questions for essay and assignment topics.

In science and maths, deep explanatory questions might ask for scientific evidence for particular theories, or logical justifications for the steps of a mathematical proof. Recent research into physics education carried out at Stanford University and the University of British Columbia (Holmes, Wieman, & Bonn, 2015) involved asking students to continually make and act upon quantitative comparisons between real-world data and physical models. These students were 12 times more likely to make spontaneous comparisons between real-world data and physical models than those in a control group who participated in traditional experimental activities, where they were *not* directed to make comparisons. The test group students were also four times more

likely to explain a limitation of a physical model using data. By asking students questions that directed them to compare their real-world data to the expectations of a physical model, the authors were able to help the students develop critical thinking skills crucial to success in science.

The research described above suggests that conducting experiments was not enough for students to explore the relationship between real-world data and a physical model. The students needed to be asked deep explanatory questions to help them develop into critical thinkers. This paper highlights the important role a tutor can play by asking questions.

Assess prior knowledge

Assessing prior knowledge will help tutors diagnose specific issues the student has with course content. Assessing prior knowledge is also a great way to introduce a new topic and to delve more deeply into how well a student has covered previous material. Sometimes students feel comfortable with certain concepts, but once they are asked to express these or work with them you find their understanding is not as comprehensive as it needs to be. Lastly, assessing prior knowledge is a great reflection tool, helping students to establish how far their learning has come and cementing previous learning.

Examples of assessing prior knowledge include a brief quiz, a writing exercise or an analysis task (e.g. identify a theme in a poem). Some tutors I have worked with do a mini quiz at the start of every session. It might include some maths questions, or some factual recall, or a few spelling exercises. Often these quizzes are not difficult, but they can be a great way to cement the basics and make the student comfortable with being continually asked questions.

Give specific descriptive feedback

Feedback helps students learn by identifying a specific area where they can improve their performance. Effective feedback communicates what a student has achieved, and what they need to work on next. Thorough building on previous achievement feedback reinforces a growth mindset by highlighting ongoing development. Tutors should focus on a specific task, emphasise effort, and avoid comparison with others.

In addition, feedback should be connected to criteria. These criteria might come from standards for NCEA, or they might be developed by

the tutor and student together (e.g. at a general level during a goals and roles conversation). Going through NCEA standards to identify criteria for good performance is a useful exercise for student development. Alternatively tutors can give feedback on task performance using their own knowledge of the requirements. Ruth Sutton (1995) distinguishes between deep feedback in relation to clear criteria, and impression feedback, in relation to a more general sense of how things are going. I recommend working with both types of feedback.

Applying the toolbox to common student issues

Here is an example of an issue that a student presented, which is relatively common. Christina is doing NCEA Level 1 English. Her goal is to get an Excellence endorsement, but she received a Not Achieved on a recent test essay. She is confused and disappointed because she loves the novel she is writing about and felt that she'd written a great essay in the exam. She had prepared for it extensively in the days leading up to the test. When she gives you the essay you can see straight away that the reason she did not achieve is that the essay is almost totally unstructured. She has an introduction and conclusion, but no body paragraphs. It's just one and a half pages of solid writing. What do you do?

Now I will consider how the tutoring toolbox could be applied to this student's issue. In this case *identifying a specific problem* suggests that Christina has not been able to package her ideas into separate paragraphs. There may be many reasons for this, and if we focus on understanding paragraph structure as an *initial course of action* then hopefully we can address these reasons without needing to dwell on them. We can *assess prior knowledge* through a discussion of essays and paragraphs and then through *giving the student a task to do*. In this case I would ask Christina to write a paragraph, based on her present understanding of a paragraph, in the context of our discussions so far. Then, I may choose this moment to *ask a deep explanatory question* along the lines of, 'If we imagine that newspaper articles are a form of essay, what influences the way the reporter makes their points?'.

After considering this question I would *describe a basic process* of paragraph writing while drawing on our discussions of newspaper articles. This will help to *contextualise a task within a bigger picture*. Then I would ask Christina about an issue she is interested in and a point

she thinks is important about that issue. After that I would attempt to *demonstrate a process* of writing a paragraph on that point. Finally, I would give Christina a paragraph writing exercise to do over the intervening period before our next tutoring session (or, if we had time, we could start this exercise during the session). After Christina had completed the paragraph I would *give specific descriptive feedback* relating to the criteria for a well-structured paragraph. From there Christina could identify a specific aspect of paragraph writing to work on to continue to improve.

I hope you can see that this process of using the tutoring tools gives the tutor many different ways to approach an issue related to course content. The tutor's utilisation of each of the tools will inform what happens next, including what tool the tutor chooses to use and how they use it. Tutors will often internalise these tutoring tools, but they are useful to return to so that the tutor has a variety of activities they can turn to when working with different types of students.

Facilitation ideas: The tutoring toolbox

The tutoring toolbox can be taught in a very similar way to the elements of a tutoring session. As with the elements of a tutoring session, prepare a set of cards. On each card list one of the tools from the tutoring toolbox. Also, as before, include up to four blank cards.

Assemble small groups: we have found up to five tutors per group works. Then, give each group a full set of tutoring toolbox cards, some blank cards, a whiteboard pen (to write on blank laminated cards) and some Blu-tack. In addition, give each group a description of a common tutoring issue. I have provided a set of eight student scenarios in Appendix 5 (one of which I have addressed above). The task for each group is to use the tutoring tools to describe how they would help the student address their common tutoring issue. They can add to the blanks if they think something they would do is missing.

This exercise works well with up to 30 participants, with six groups of five, each taking on a different student scenario. You can add more tutoring issues of your own, design a full set of your own and use more or fewer tutoring issues, depending on your group size and the sorts of students the tutors are likely to encounter. After all the groups have decided how to tackle their student problem, ask them to Blu-tack the

tools they used to the wall, and then get them to describe to the group what they have done.

This exercise is an excellent way to help tutors gain confidence that they will be able to address a wide range of student issues using some relatively simple tools. During the elements exercise, tutors identified a place for the element *work with course content*. As a result they can see how they can fit the tutoring toolbox into the overall tutoring session.

A comprehensive model of tutoring

This chapter outlines the two central aspects of a tutoring session: the structural elements that make up the tutoring session and the tutoring tools that tutors apply to address student issues with content. Combined with the tutoring relationship, a comprehensive model of tutoring emerges.

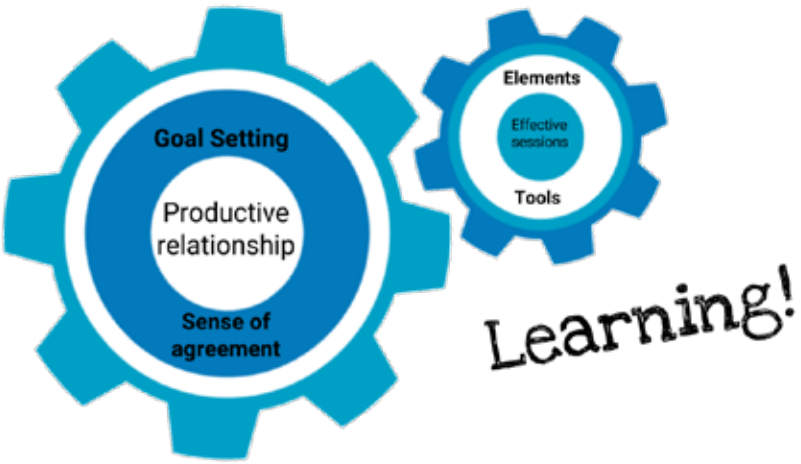

Figure 2: A model of tutoring

I have found that tutors are very comfortable with the concept of building a tutoring relationship as a basis for delivering effective tutoring sessions. In addition, the elements of tutoring and tutoring tools ensure that tutors know what they are actually supposed to *do* in a tutoring session. Often new tutors are nervous that they will not have enough work to go over, or are simply confused about what actually happens

in a tutoring session. The model depicted above, and described in Chapters 2 and 3, can be used to demonstrate an overview of what happens in tutoring.

Chapter 3 Summary: Key points about tutoring tools and techniques

- It's useful to think of tutoring sessions as being made up of 'content-free' elements that help students explore their own learning, and tutoring tools which address specific course content issues.
- The elements of a tutoring session provide structure for student learning, and include things like reflecting on prior learning, preparing a mini agenda for the session and (re)establishing expectations (see p. 35).
- The tutoring toolbox includes a range of tools that tutors can use with students to address specific issues with course content. Tools include techniques like *demonstrate a process or exercise, identify a specific problem* and *describe a basic process* (see p. 36).
- Eight student scenarios are provided in Appendix 5 which facilitators can use to train tutors to apply the tutoring tools to a real complex student issue.