

Excerpts from: "VISIBLE LEARNING FOR TEACHERS"  
JOHN HATTIE.

These excerpts relate to: Learning Intentions,  
Success Criteria + Student goal setting.

## CHAPTER 4: PREPARING THE LESSON

### Targeted learning

#### VISIBLE LEARNING – CHECKLIST FOR PLANNING

8. Teachers within the school jointly plan series of lessons, with learning intentions and success criteria related to worthwhile curricular specifications.

There are two parts in targeted learning: the first is being clear about what is to be learned from the lesson(s) (the learning intention); the second is having a way of knowing that the desired learning has been achieved (the success criteria). Targeted learning involves the teacher knowing where he or she is going with the lesson and ensuring that the students know where they are going. *These pathways must be transparent for the student.* Such teacher clarity is essential, and by this I mean clarity by the teachers as seen by the students. Teachers need to know how to keep all in the class on track for the learning goal and then evaluate their success in moving all to the goal. Transparent learning intentions can also lead to greater trust between student and teacher, such that both parties become more engaged in the challenge provided and invested in moving towards the target. It does not mean knowing if and when the students complete the activities, but knowing whether they gain the concepts and understandings relative to the intentions of the lesson(s).

### Learning intentions

The goals (that is, the learning intentions) of any lesson need to be a combination of surface, deep, or conceptual, with the exact combination depending on the decision of the teacher, which in turn is based on how the lesson fits into the curriculum. Goals may be short-term (for a lesson or part of a lesson), or longer-term (over a series of lessons), and thus may be tracked in terms of importance and effectiveness relative to the complexity of desired learning and duration of the lesson or lessons. Good learning intentions are those that make clear to the students the type or level of performance that they need to attain, so that they understand where and when to invest energies, strategies, and thinking, and where they are positioned along the trajectory towards successful learning. In this way, they know when they have achieved the intended learning. Effective teachers plan effectively by deciding on appropriately challenging goals and then structuring situations so that students can reach these goals. If teachers can encourage students to commit to achieving these challenging goals and if they provide feedback to



their invest-

intentions

out what is  
 l is having a  
 the success  
 she is going  
 going. *These*  
 sential, and  
 ers need to  
 en evaluate  
 ons can also  
 ies become  
 towards the  
 mplete the  
 lerstandings

ombination  
 ling on the  
 its into the  
 , or longer-  
 importance  
 duration of  
 lear to the  
 o that they  
 , and where  
 in this way,  
 achers plan  
 structuring  
 ge students  
 eedback to

the students on how to be successful in learning as they work to achieve the goals, then the goals are more likely to be attained.

Learning intentions describe what it is that we want students to learn and their clarity is at the heart of formative assessment. Unless teachers are clear about what they want students to learn (and what the outcome of this learning looks like), they are hardly likely to develop good assessment of that learning.

Clarke, Timperley, and Hattie (2003) noted some important features of learning intentions and planning, as follows.

- Share the learning intentions with students, so that they understand them and what success looks like. This is more than students chanting the learning intentions at the start of the lesson, but a deeper understanding of what is desired, what success will look like, and how the tasks relate to the intention.
- Not all students in the class will be working at the same rate or starting from the same place, so it is important to adapt the plan relating to the intentions to make it inclusive of all students.
- The cascade from curriculum aim, through achievement objective, to learning intention is sometimes complex because the curriculum documents do not all follow the same format and learning does not happen in neat, linear sequences.
- Learning intentions and activities can be grouped, because one activity can contribute to more than one learning intention, or one learning intention may need several activities for the students to understand it fully.
- Learning intentions are what we intend students to learn. They may also learn other things not planned for (which can be positive or negative), and teachers need to be aware of unintended consequences.
- Finish each unit or lesson by referring to the learning intention and help students to understand how much closer they are to the success criteria.

A key issue is that students often need to be explicitly taught the learning intentions and the success criteria. Sandra Hastie (2011) asked about the nature of goals that students set for themselves in the middle school years. She found that, at best, students set performance goals such as: 'I aim to complete the work faster, better, or make the work longer.' She then carried out a series of studies to teach the students to set mastery goals ('I aim to understand the concepts'), but these were not as successful as teaching the teachers how to help students to set mastery goals. The teachers were provided with strategies to show students how to set and write personal best goals, the value of SMART goals (that is, those that are specific, measurable, ambitious, results-oriented, and timely), how students can break goals down into micro-goals, what challenge meant in a goal, what success looked like relative to the goals, and how students could fill in a self-review questionnaire diary. The diary invited students, assisted by their teachers, to write down three goals for themselves based on the unit that they



were about to study. They were then provided examples of what success in relation to the goal looked like and rated themselves after each lesson.

Pre-lesson questions included the following.

- 'What are today's goals?'
- 'How much do I already know about today's goal?' ('Nothing' to 'a great deal')
- 'I think today's goal will be . . .' ('Very hard' to 'very easy')
- 'How much effort will I put into today's goal?' ('Nothing' to 'a great deal')

Post-lesson questions included the following.

- 'What was today's goal?'
- 'Did I achieve this goal?' ('Not at all' to 'fully')
- 'How much effort did I put in?' ('Not much' to 'a great deal')

The students were then provided with some reasons to tick explaining why they thought that they achieved the goal, such as:

- 'I wanted to learn about today's lesson';
- 'I wanted to achieve today's goal';
- 'I paid attention';
- 'I checked my answers';
- 'I worked out why I got it wrong';
- 'I looked at examples in my text book', etc.

Similarly, they responded to reasons for not achieving the day's goal, such as:

- 'I was distracted';
- 'I gave up';
- 'It was too hard';
- 'It was too easy';
- 'I didn't understand what I was supposed to be doing';
- 'I rushed my work because I wanted to finish quickly';
- 'The teacher was too busy with others', etc.

Across the 339 students, the effect size for the students' maths scores between the goal and control groups over an eight-week period was 0.22 – a reasonable return for a small investment. As importantly, there were much larger gains for attention and motivation, an enhanced commitment to reach goals, and specific information for teachers as to why students did or did not reach the goals. When



teachers show students how to set mastery goals and show them what success on these goals looks like, there is an increased attention and motivation to succeed, and there is greater success. These are taught skills, with important consequences.

Another worthwhile way of setting goals is through personal bests. Andrew Martin (2006) has shown the usefulness of this method, and how personal bests can improve enjoyment of learning, participation in class, and persistence on the task. He distinguished two dimensions of personal bests (PBs): specificity and challenge. Personal bests can reduce the ambiguity about what is to be achieved, and the level of challenge prescribed by a PB must be at least higher than that of a previous best level of performance. Most importantly, PBs relate to the attainment of a *personalized* standard and this is what distinguishes them from many other goals. They are competitive (relative to previous bests) and self-improving (success leads to enhanced performance).

Martin noted that PBs help to sustain motivation, and help in identifying awareness, accessibility, adjustments, and that use of various strategies to attain them. As importantly, striving for PBs may be worthwhile for successful learning, even if the goals are performance or mastery goals.

[Personal best]-oriented interventions might seek to develop students' skills in setting personalized academic goals that are specific and optimally more challenging than what they have previously achieved and also help students develop strategies to achieve these goals.

(Martin, 2006: 269)

## Success criteria

Success criteria relate to knowledge of end points – that is, how do we know when we arrive? A learning intention of 'To learn to use effective adjectives', for example, does not give the students the success criteria or how they will be judged. Imagine if I were simply to ask to get in your car and drive; at some unspecified time, I will let you know when you have successfully arrived (if you arrive at all). For too many students, this is what learning feels like. At best, they know that when they get there, they will be asked for more (to 'drive' more), and it should be no wonder that many students get turned off school learning. In the case of the 'effective adjectives', three success criteria might be: 'What you're looking for is that you have used at least five effective adjectives', or 'What you're looking for is that you have used an adjective just before a noun on at least four occasions that will help to paint a detailed picture, so that the reader can understand the feel of the jungle and the light of the jungle'. Students can be actively involved in devising success criteria with the teacher.



We must not make the mistake of making success criteria relate merely to completing the activity or a lesson having been engaging and enjoyable; instead, the major role is to get the students engaged in and enjoying the challenge of learning. It is challenge that keeps us investing in pursuing goals and committed to achieving goals.

### Five components of learning intentions and success criteria

#### VISIBLE LEARNING – CHECKLIST FOR PLANNING

9. There is evidence that these planned lessons:
  - a. invoke appropriate challenges that engage the students' commitment to invest in learning;
  - b. capitalize on and build students' confidence to attain the learning intentions;
  - c. are based on appropriately high expectations of outcomes for students;
  - d. lead to students having goals to master and wishing to reinvest in their learning; and
  - e. have learning intentions and success criteria that are explicitly known by the student.

There are five essential components of the learning equation as it relates to learning intentions and success criteria: challenge; commitment; confidence; high expectations; and conceptual understanding.

### 1. Challenge

Challenge is a relative term – relative to a student's current performance and understanding, and relative to the success criteria deriving from the learning intention. The challenge should not be so difficult that the goal is seen as unattainable, given the student's level of prior achievement, self-efficacy, or confidence; rather, teachers and students must be able to see a pathway to attaining the challenging goal – a pathway that can include strategies for understanding the goal or intention, implementation plans to attain it, and (preferably) a commitment to attaining the goal.

One of the fascinating notions is how challenge is related to what we know: in most schools tasks, we need to already know about 90 per cent of what we are aiming to master in order to enjoy and make the most of the challenge (Burns, 2002). In reading, this target is somewhat higher: we need to know more like 95–99 per cent of the words on a page before we enjoy the challenge of reading a particular text (Gickling, 1984). Anything less than 50 per cent virtually assures that students are likely to be not engaged and their success will be limited.



Teachers more often see challenge in the activity itself – that is, that the task is challenging – whereas students see challenge in the difficulty of completing the task – that is, ‘my head hurts’ (Inoue, 2007). Tasks may be inherently challenging, but unless the student invests and engages in the task, it may not be challenging for them. While challenge is one of the core ingredients of effective learning, the art is in making the challenge appropriate to the student. This is why relating a task to prior learning is so important.

There is also a reciprocal relation between the challenge of the goals and the power of feedback. If the goals are more challenging, then feedback is more powerful. If the goals are easy, then feedback has a lesser effect. If you already know something, then providing feedback is of low value.

The problem with the notion of challenge is that it is individual: what is well beyond the grasp of one student may be easy for the next. Carol Tomlinson (2005: 163–4) summed this up very well:

Ensuring challenge is calibrated to the particular needs of a learner at a particular time is one of the most essential roles of the teacher and appears non-negotiable for student growth. Our best understanding suggests that a student only learns when work is moderately challenging that student, and where there is assistance to help the student master at what initially seems out of reach.

When we experience challenge, we often encounter dissonance, disequilibrium, and doubt. Most of us need safety nets if we are going to take the risk of the challenge, and this is particularly so when it is some of our underlying conceptual understandings that may be at risk.

Many teachers find encouraging dissonance, disequilibrium, and doubt to be demoralizing for the students. It certainly is not the intention to make the students struggle, become disheartened, and begin to disengage. This positive creation of tension underlines the importance of teachers in encouraging and welcoming error, and then helping the students to see the value of this error to move forward; this is the essence of great teaching. Shifting the focus from the self to the task, to the nature of the error, and to the strategies to use the error are the skills of teaching. Succeeding at something that you thought was difficult is the surest way in which to enhance self-efficacy and self-concept as a learner.

## 2. Commitment

Creating lessons in which students are committed to learning is less critical than ensuring that the task is challenging – that is, commitment comes second. ‘Commitment’ refers to a student’s (or teacher’s) attachment or determination to reach a goal: the greater the commitment, the better the performance.

Commitment is more powerful when it relates to investing in challenging tasks. We need to be careful that, in making activities interesting, relevant,



authentic, and engaging, this does not lead to busy work rather than learning and challenge. Engagement is higher in classrooms in which students perceive instruction as challenging and in which there are peers who are also similarly challenged (Shernoff and Czikzenhmlayi, 2009). This is not to underestimate the agency of commitment in the learning equation: overall, the effects of adding commitment to challenge are among the powerful ingredients in planning and learning.

As students move through elementary school, a major source of this commitment to school learning comes from peers – through pressure, modelling, and competition (Carroll et al., 2009). The teacher's aim, therefore, is to help students to gain a reputation among their peers as good learners.

### 3. Confidence

The ability to be confident that one can attain the learning goals is critical. Such confidence can come from the student (from having had past success in learning), from the teacher (in providing the quality of teaching and feedback along the way to ensure success), from the tasks (in ensuring appropriate scaffolding along the ladder of success), and from peers (in terms of feedback, sharing, and lack of distraction). Together, the mantra is 'I think I can . . . I think I can . . . I *know* I can . . .' followed by 'I thought I could . . . I thought I could . . . I *knew* I could . ..'. Such confidence can lead to resilience – particularly in the face of failure. Resilience is the ability to react to adversity, challenge, tension, or failure in an adaptive and productive manner. The proficiency to adapt to these situations is somewhat akin to when we are inoculated with the disease-causing pathogen such that we will build resistance and thus overcome the disease.

### 4. Student expectations

The influence that was highest of all in *Visible Learning* was self-reported grades. Overall, students have reasonably accurate understandings of their levels of achievement. Across the six meta-analyses (about 80,000 students), the effect was  $d = 1.44$ , or a correlation of about 0.80 between students' estimates and their subsequent performance in school tasks.

On the one hand, this shows a remarkably high level of predictability about achievement in the classroom (and should question the necessity of so many tests when students appear to already have much of the information the tests supposedly provide), but on the other hand, these expectations of success (which are sometimes set lower than students could attain) may become a barrier for some students as they may only perform to whatever expectations they already have of their ability.

(Hattie, 2009: 44)



There are at least two groups that are not as good at predicting their performance and who do not always predict in the right direction: minority students and lower-achieving students. These students are less accurate in their self-estimates or self-understanding of achievement. They tend to underestimate their achievement and, over time, they come to believe their lower estimates and lose the confidence to take on more challenging tasks. There have been many studies trying to improve the calibration and to entice students to have higher confidence or efficacy to take on challenging tasks. Changing these students' predictions of their performance has proved to be very difficult, often because this lower confidence and learned helplessness has developed and been reinforced over a long time. As they move into adolescence, these students often consider another alternative: opting out of the place called 'school'.

Student reflection of their performance alone makes no difference. Emphasizing accurate calibration is more effective than rewarding improved performance. The message is that teachers need to provide opportunities for students to be involved in predicting their performance; clearly, making the learning intentions and success criteria transparent, having high, but appropriate, expectations, and providing feedback at the appropriate levels (see Chapter 7) is critical to building confidence in successfully taking on challenging tasks. Educating students to have high, challenging, appropriate expectations is among the most powerful influence in enhancing student achievement.

## 5. Conceptual understanding

The nature of success raises questions about the nature of the outcomes. There are at least three levels of understanding: surface, deep, and conceptual (Hattie, 2009: 26–9). The most powerful model for understanding these three levels and integrating them into learning intentions and success criteria is the SOLO (structure of observed learning outcomes) model developed by Biggs and Collis (1982).

In this model, there are four levels, termed 'uni-structural', 'multi-structural', 'relational', and 'extended abstract' – which simply mean 'an idea', 'many ideas', 'relating ideas', and 'extending ideas', respectively. The first two levels are about surface learning and the last two are about deeper processing (see Figure 4.11

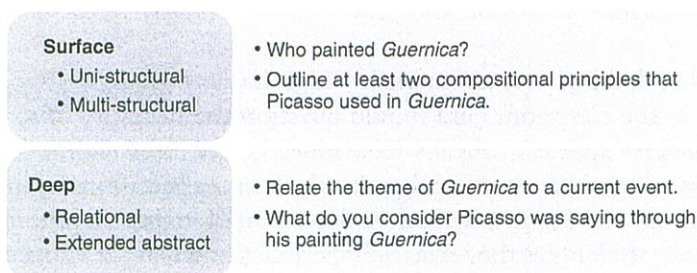


FIGURE 4.11 An example of four questions related to the SOLO taxonomy



for an example). Together, surface and deep understanding lead to the student developing conceptual understanding.

We have used the SOLO model in the development of our assessment system (see Hattie & Brown, 2004; Hattie & Purdie, 1998), and we found that most tests (both teacher-made and standardized state-wide tests) are dominated by surface items. Indeed, most teacher questions in class are surface (and often closed, as well). At minimum, the aim is to balance the surface and deep (in our asTTle assessment engine, we found that at least 30 per cent of items in a test should be surface and 30 per cent deep to create optimal tests). We also use the surface and deep distinction in scoring open-ended items, such as essays, performances, experiments (cf. Glasswell, Parr, & Aikman, 2001; Coogan, Hoben, & Parr, 2003), in classifying study skills programs (Hattie, Biggs, & Purdie, 1996), in identifying expert teachers (Smith et al., 2008), and in evaluating gifted programs (Maguire, 1988).

## CHAPTER 6: THE FLOW OF THE LESSON — LEARNING.

### VISIBLE LEARNING – CHECKLIST FOR DURING THE LESSON: LEARNING

29. Teachers and students have multiple strategies for learning.

It is easy to become swamped when reviewing the various strategies of learning. Lavery (2008) compared the relative effects of many of these strategies and found overall a 0.46 effect, which is quite high – and the effect would be expected to be even higher if the strategies were more attuned to the phase of each student's learning.

She found the highest effects from strategies that aimed at the 'forethought' phase of learning, such as goal-setting and planning, self-instruction, and self-evaluation (Table 6.2).

- *Goal-setting and target-setting* have been referenced above as powerful methods for learning.
- *Self-instruction* (that is, using self-talking and self-questioning) is an invaluable tool for the learner to focus attention and check the use of various strategies – but such self-instruction skills need to be taught.
- *Self-evaluation* strategies allow the learner to self-reflect on performance in relation to the previously set goals – which is much more important than self-monitoring (such as ticking off completed tasks), because it requires the extra step such that the learner actually evaluates what he or she has monitored.

Many of the top strategies (such as organizing and transforming, summarizing and paraphrasing) promote a more active approach to learning tasks and high levels of engagement with the content. The less active are much lower in the rankings (record-keeping, imagery, time management, and restructuring the learning environment).



**TABLE 6.2** Various meta-cognitive strategies and their effect sizes (Lavery, 2008)

STRATEGY	DEFINITION	EXAMPLE	NO. OF EFFECTS	ES
Organizing and transforming	Overt or covert rearrangement of instructional materials to improve learning	Making an outline before writing a paper	89	0.85
Self-consequences	Student arrangement or imagination of rewards or punishment for success or failure	Putting off pleasurable events until work is completed	75	0.70
Self-instruction	Self-verbalizing the steps to complete a given task	Verbalizing steps in solving a mathematics problem	124	0.62
Self-evaluation	Setting standards and using them for self-judgement	Checking work before handing it in to a teacher	156	0.62
Help-seeking	Efforts to seek help from either a peer, a teacher, or another adult	Using a study partner	62	0.60
Keeping records	Recording of information related to study tasks	Taking class notes	46	0.59
Rehearsing and memorizing	Memorization of material by overt or covert strategies	Writing a maths formula down until it is remembered	99	0.57
Goal-setting/planning	Setting of educational goals or planning sub-goals and planning for sequencing, timing, and completing activities related to those goals	Making lists to accomplish during studying	130	0.49
Reviewing records	Efforts to re-read notes, tests, or textbooks to prepare for class or further testing	Reviewing class textbook before going to lecture	131	0.49



**TABLE 6.2** Continued

STRATEGY	DEFINITION	EXAMPLE	NO. OF EFFECTS	ES
Self-monitoring	Observing and tracking one's own performance and outcomes, often recording them	Keeping records study output	154	0.45
Task strategies	Analysing tasks and identifying specific, advantageous methods for learning	Creating mnemonics to remember facts	154	0.45
Imagery	Creating or recalling vivid mental images to assist learning	Imagining the consequences of failing to study	6	0.44
Time management	Estimating and budgeting use of time	Scheduling daily studying and homework time	8	0.44
Environmental restructuring	Efforts to select or arrange the physical setting to make learning easier	Studying in a secluded place	4	0.22



Sitzmann and Ely (2011) also reviewed many learning strategies and those with the highest relations to achievement included setting goals, the ability to concentrate and persist on a task, the amount of effort expended on the learning, and the confidence to succeed on the task.

Not only can these strategies be taught, but they may also require the unlearning of less-effective strategies. Thus the effects of teaching may not be seen in the immediate as students drop some and adapt to other strategies. Students who struggle to begin to understand are in most need of being taught these strategies, and for these students it may be worthwhile also to teach some of the more generic strategies first – such as note-taking, mnemonics, highlighting main ideas, and then self-testing, monitoring, and correctly applying the learned information. As was noted when discussing how to teach success criteria, providing worked examples is effective. Kobayashi (2005), for example, found that note-taking effects were higher when students were given instructor's notes from which to work, because these provided exemplars for their own note-taking and a rubric from which to work when learning from the notes. The effects were higher when notes were provided ( $d = 0.41$ ) compared with not provided ( $d = 0.19$ ), and it was the reviewing of the notes that was more effective than the taking of the notes. The length of time reviewing did not matter, and nor did the format of the presentation (video, audio, or live). An important reason for this effectiveness is that note-taking lowers mental effort while increasing mental efficiency (Wetzels, Kester, van Merriënboer, & Broers, 2011).

One way in which learning strategies impact on achievement is via gaining confidence that the student knows what to do when he or she does not know what to do. Such confidence can help students to engage in the process of learning, to restate the problem to identify what they know and do not know, to try different strategies, to look for patterns, to build resilience to not knowing, and to use success in learning to reinforce their 'ownership' of learning.



# CHAPTER 8: THE END OF THE LESSON

## The lesson experience from the curricular perspective

### VISIBLE LEARNING – CHECKLIST FOR THE END OF THE LESSON

41. Together, teachers critique the learning intentions and success criteria, and have evidence that:

- a. students can articulate the learning intentions and success criteria in a way that shows that they understand them;
- b. students attain the success criteria;
- c. students see the success criteria as appropriately challenging; and
- d. teachers use this information when planning their next set of lessons/learning.

The critical part when evaluating the lesson(s) is a review of the learning intentions and success criteria. You need to start by asking: 'Did the students know these?'; 'Could they articulate them in a manner that demonstrated that they understood?'; and 'Did they see the learning intentions and success criteria as appropriately challenging?' As importantly, what changes were made to the learning intentions and success criteria in light of the class experience? Not all learning can be pre-scripted, and there needs to be an opportunity for teachers and students to suggest other learning intentions and success criteria – provided that they are related to the mission of the lessons. As Hastie (2011) showed (see Chapter 4), it may be worth asking students to keep a work diary that details what they think they are learning, indicators of their progress, how confident they are that they will achieve these learning intentions in the time available, and their perception of their degree of success. The students could also be asked whether they consider the learning intentions involved to be attainable and worthwhile challenges – that is, does achieving the success criteria for the learning intentions lead them to progress beyond what they already knew? This is only knowable for students at the end of the lesson.

Another method is to ask colleagues to critique your learning intentions and success criteria – preferably before you implement them, although it is also worth reviewing them at the end of the lesson(s). This can be done alongside examples of students' work to evaluate the level of attainment of the success criteria and to assist in addressing the question: 'Where to next?' Or, you could provide the examples of planning from the lesson including the learning intentions, and ask colleagues to comment on what they see as the success criteria (and maybe also the quality of the learning intention in light of the examples of student work): do they match your success criteria?

ministered  
d teachers  
re than 70  
achers by

from the

hemselves

processes

d to have

and

heir level  
eyes is a  
xercise 1  
assionate  
standing,