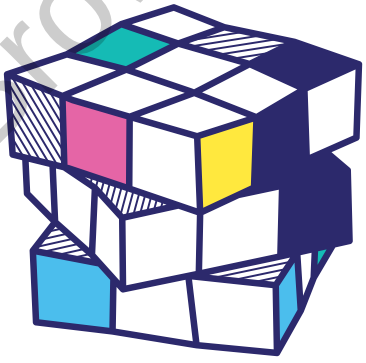
THINKING PROTOCOLS for LEARNING



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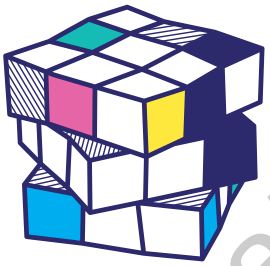
CHAPTER 1

INTRODUCTION



Why do we have schools? In these modern times, do we really need them?

In a world where access to information is readily available, where it is possible to watch YouTube clips to learn anything from basic mathematics to the complexity of changing a head gasket in a car, or listen to thought leaders via TED talks or take virtual field trips of art galleries and museums throughout the world, where learning opportunities are everywhere … are schools still needed? This question probably causes most educators to almost audibly gasp. But if the answer to the question is simply, 'Of course we need schools. This is where students learn. It is where they learn all aspects of the curriculum and where they learn to socialise', we have fallen short.

In an evolving world, the notion that schools are purely places of learning is not enough. Rather, acclaimed theorist and thought provocateur Gert Biesta (in Nielsen, 2015) puts forward the case that 'the point of education is not that children/young people learn, but that they learn something, that they learn this for a reason and that they learn it from someone' (16:10). In other words, education is about three core elements: content, purpose and relationships. Purpose, according to Biesta, is multidimensional and has three domains: qualification, socialisation and subjectification. The qualification domain encompasses knowledge, skills and dispositions. The socialisation domain involves teaching students about tradition, practices, ways of doing things and engaging socially and culturally. In such a way the process of education itself changes the person. Finally, subjectification is the formation of the person, producing people who can think and feel for themselves and take responsibility, in contrast to the creation of what Biesta refers to as obedient robots (Nielsen, 2015). A simplified version of the integration of the three domains is captured in Figure 1.1.

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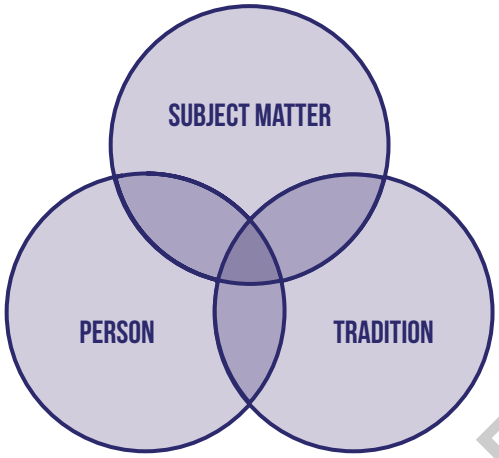

Figure 1.1: Three purpose domains of education
Source: Adapted from Nielsen, 2015

Wegerif (2017) maintains that knowledge, or subject matter as Biesta refers to it in Figure 1.1, is only the dialogue so far. He suggests that knowledge as it is taught in schools consists only of answers that have been given to questions that have already been raised. Therefore:

> ***Teaching knowledge not as finished and complete but as dialogue invites learners to view knowledge as an ongoing dialogue in which they are co-creators – asking further questions and finding further answers. In this way, anything and everything can be taught as an invitation to join a dialogue and so as an invitation to think. (Wegerif, 2017, para. 9)***

Susan Brookhart (2011) takes a similar stance, pointing out that even simple knowledge rests on historical higher order thinking, as our predecessors discussed and considered the reasonableness and plausibility of what counts as truth. She maintains that when we are engaging students in these thinking processes, we are not teaching skills for life in our twenty-first century but rather teaching students to be human!

So, the answer to the question of whether schools are still relevant is a resounding yes! And I would argue even more so today as students grapple with the complexities and challenges of an ever-changing world. But we need to really consider the full purpose of education within our schools. Education is about producing not sausage factory-like clones but thinking and feeling individuals who are able to adapt, interact, persevere, act ethically and, most importantly, think! And by this I don't mean students who 'group think', which is often witnessed in a world of social media and instant connectivity, but instead students who can think and reason for themselves, ask questions and find further answers. In other words, schools are still relevant if they are communities of learners,

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thinking and wondering together, where everyone (teachers and students alike) learns from and with one another. Communities of learners where critical and creative thinking is promoted alongside dispositions such as commitment and perseverance, relational skills and the development of ethical intelligence.

Thinking skills (such as creative and critical thinking, and problem-solving) and relational skills (such as teamwork and collaboration) are not innate skills. They must be explicitly taught. Extensive research clearly shows that simply exposing students to tasks that require thinking does not on its own have a significant impact on students' thinking abilities (Costa, 2001c). Rather, the skills must be taught through modelling, guided practice and explicit instruction (Beyer, 2001a). The investment in time is well worth the effort. Higgins et al. (2005) conducted a meta-analysis of thinking skills interventions on student cognition, achievement and attitudes. They specifically evaluated the impact of programs that required learners to articulate and evaluate specific learning approaches and instruction in specific cognitive, and related affective or conative, processes. The results showed effect sizes of:

- 0.62 on cognitive outcomes (for example, verbal and nonverbal reasoning tests). An effect size of this size translates to a percentile gain of 24 points
- 0.62 on achievement of curricular outcomes (for example, reading, mathematics and science tests)
- 1.44 on affective outcomes (attitudes and motivation).

These findings were very similar to the overall figure reported by Marzano (1998) of 0.65 for interventions across the knowledge, cognitive, metacognitive and self-system domains. Marzano also found that metacognitive interventions had a relatively greater impact. The metacognitive system is sometimes referred to as being responsible for executive control. Its primary function is monitoring, evaluating and regulating the functioning of all other types of thinking. Not surprisingly, given the findings of the meta-analysis, Higgins and his colleagues (2005) concluded that thinking skills programs and approaches are likely to improve students' learning and that their use in schools should therefore be supported.

Clearly, the notion of explicitly teaching thinking skills is not a new concept. Indeed, the importance of explicitly teaching thinking, particularly critical and creative thinking skills, dates back to Plato and Aristotle. It is Aristotle who is regularly quoted as advising us that 'the mark of an educated mind is to be able to entertain a thought without accepting it' (cited in Bennion, 1959, p. 52). Later, Jean Piaget (cited in Duckworth, 1964) asserted that 'the principle goal of education in the schools should be creating men and women who are capable of doing new things, not simply repeating what other generations have done; men and women who are creative, inventive and discoverers, who can be critical and verify, and not accept, everything they are offered' (p. 499).

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In more recent times, however, the explicit teaching of thinking skills has been at risk of being overshadowed by an overemphasis on standardised test scores and the pursuit of evidence of learning outcomes and higher effect sizes. On top of those challenges and the pressure to perform, 'the widespread, unquestioned acceptance of educational fads, coupled with the overcrowding of the primary curriculum through the unreasonable shifting of expanding social responsibilities to schools, has created an untenable situation' (Dinham, 2016, p. 61). With the pressure to raise test scores coupled with time constraints caused by the burden of covering the content of an overcrowded curriculum, time spent on explicitly teaching creative and critical thinking skills is at risk of becoming viewed as a luxury item rather than a necessity. Teachers continually lament that they don't 'have time' to cover the curriculum let alone explicitly teach thinking skills. Yet, it is these very skills that students require to navigate the complexities of a rapidly changing world and maximise the opportunities presented by technological advancements.

The explicit teaching of thinking skills should be viewed not as something extra or an afterthought but as an integral part of the curriculum. Research suggests that the most effective approaches involve teachers designing lessons where thinking skills and curriculum content are taught simultaneously:

> ***In this approach students are introduced explicitly to strategies for more skilful thinking and then prompted to use these strategies to think about the content they are learning. By putting an emphasis on higher order thinking into content instruction, deeper understanding is reported along with higher levels of student engagement. (Swartz & McGuiness, 2014, p. 17)***

Fortunately, thinking skills such as problem-solving, creativity, teamwork and communication are recognised within the Australian Curriculum, specifically within the general capability of critical and creative thinking, thus endorsing an integrated approach in line with recent research. In the Australian Curriculum, 'students develop capability in critical and creative thinking as they learn to generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems' (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2018a). Critical and creative thinking in the Australian Curriculum is seen to involve students 'thinking broadly and deeply using skills, behaviours and dispositions such as reason, logic, resourcefulness, imagination and innovation in all learning areas at school and in their lives beyond school' (ACARA, 2018a). The key is to highlight these skills and explicitly teach them within the context of the curriculum content – not as an added extra but as an integral part of the learning process (Swartz & McGuiness, 2014).

Apart from thinking skills being an expectation of the curriculum, it appears that employers are demanding thinking skills from employees entering the workforce. To understand the economic and social conditions affecting young Australians now and

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into the future, the Foundation for Young Australians (FYA) produced a series of reports confirming that 'Australia is undergoing the most significant disruption in the world of work since the industrial revolution, and how we respond has huge implications for the next generation' (FYA, 2016, p. 3). More specifically, 'The new basics' report used big data to better understand what employers are expecting in the workplace. Over a period of three years data was collected from more than 6000 websites, from which 4.2 million unique job advertisements were retrieved. They found that the proportion of jobs that demand critical thinking has increased by 158 per cent, creativity by 65 per cent, presentation skills by 25 per cent and teamwork by 19 per cent (FYA, 2016). An ongoing rate of innovation and automation in our economy is predicted to persist. The Organisation for Economic Co-operation and Development (OECD) argued that 'the increased rate of innovation across economies requires the workforce to possess both technical competence and "generic skills" – problem-solving, creativity, teamwork and communication skills' (Toner, 2011, p. 8). It is essential that we equip our students with these vital life skills so that they can successfully navigate the challenges ahead.

Thus far, we have established that explicitly teaching thinking skills is important, that it is a curriculum expectation and that employers want employees who can think critically and creatively and collaborate, but this also raises another question. When employers are asking for skills such as problem-solving, critical and creative thinking and teamwork, are these words simply 'buzz words', or are they really what employers want? Can employers recognise 'creativity', for example, especially if they are a product of a more traditional school environment where such thinking wasn't valued or fostered? A quick online search of 'creativity in the workplace' generates 88 800 000 results at the time of writing, with the first seven articles discussing the benefits of creativity but also the challenges of fostering and promoting it. Further, Matthew Crawford (2009) also argues that many of our so-called middle-class workers are not dealing with complex problems at work but instead that a great deal of their work has been reduced to standardised operations. Andy Hargreaves (2010) suggests that the way we view work also needs to be transformed.

Perhaps it is time that we no longer simply justify the teaching of thinking skills as a response to calls from employer groups and for the world of work in the twenty-first century. The teaching of thinking skills has a much higher purpose. As we encourage students to question, explore multiple answers, consider multiple perspectives, interrogate the ethics of a situation or application, we must understand that these skills are not just for the world of work but for the world! Hargreaves (2010) poses the following questions:

> ***How do we make sure that future business leaders will practice corporate integrity?***
>
> ***How can we be sure that our teachers will teach that torture is always wrong, even in the name of democracy?***

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Will attending to diversity just mean learning to get along with a range of others in the workplace, or will it also address the right of and necessity for different ethnic and religious groups to learn to live together?

How can we be sure that 21st century skills will equip young people to fight for environmental sustainability, the eradication of poverty, and greater quality of life and social equality? (p. 337)

Given the importance of teaching thinking skills, it is a moral imperative that in this era of accountability, standardised testing and obsession with input and output that we create the time for greater dialogue, for students to see knowledge as information known so far rather than final and to create opportunities for students to think and wonder, wonder and think and consider ethical responses. In an interview with Forbes, Sir Ken Robinson reminded us that 'there's really a lot more room for innovation in schools than people suspect. A lot of what goes on isn't required by law; it's more a function of habit and tradition and routine than anything else' (Schawbel, 2013). It's time to break with tradition, break habits and break free of the 'education revolution' that brought us standardised testing, standardised thinking and the narrowing of the curriculum to what could be measured and calculated in effect sizes – to what is known so far. The time has come to recognise that we must live in a culture of 'and, also' rather than 'either, or'. That the teaching of thinking skills must be integrated, not an add on or something that we do if we have time. In the mythical and idyllic school of the Dr Seuss book *Hooray for Diffendoofer Day* (1998), when the students and teachers become anxious about upcoming standardised testing and the threat of school closure if the students don't perform, a very wise teacher responds thus:

Don't fret!

You've learned the things you need.
To pass that test and many more –
I'm certain you'll succeed.

We've taught you that the earth is round,
That red and white make pink,
And something else that matters more –
We've taught you how to think.

WHY THINKING PROTOCOLS?

Thinking, as previously stated, does not occur in isolation. It is a dynamic and social process, and protocols are needed to keep it on track and focused. Although this book focuses on developing or promoting specific types of thinking, it also recognises the importance of developing students' ability to collaborate and communicate as they participate in meaning making dialogue. Throughout life, membership in groups is

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inevitable and pervasive, and it is not enough to simply think critically or creatively in isolation (Johnson & Johnson, 2017). Thinking is not a one-way street. For example, one must be able to formulate and communicate one's thoughts in a logical sequence, consider other points of view and reflect on possible errors in reasoning. In many instances it may be necessary to defend one's position in a reasoned and controlled manner. For dialogue to be meaningful, it is important that boundaries and parameters are set so that classroom conversations don't stall, deteriorate into negative dialogue or waste valuable instructional time by not producing a meaningful outcome. It is also important that all voices have an opportunity to be heard and for all group members to learn through the process of negotiating, positive contribution, decision-making, conflict resolution and product development.

Typically, a protocol is defined as a system of rules that outline how something is to be done. This book focuses on protocols that support and structure dialogue for meaning making and thinking. Providing protocols for students as they engage in dialogue creates the conditions for the dialogue to flow, much like the banks of a river allow water to flow. Although there may be rapids, the occasional breaking of the bank and moments of stagnation, this is only temporary. Protocols allow for the conditions to be righted, for the participants to consider multiple perspectives, turn-taking and ways to deal with stagnated dialogue or indeed moments when rapids appear, and the conversations become robust and tumultuous. The protocols do not work in isolation but can be combined depending on need and the context. For example, the protocols around creating norms can be combined with protocols for generating and testing ideas. The protocols for grouping students can be combined with protocols for inferring.

The protocols within this book are intended for deliberate practice and intentional application – not just to be time fillers or isolated activities. It is important that teachers consider the specific type of thinking they are wanting to foster and the context in which that skill is to be applied and then choose and match protocols accordingly. Without such deliberate practice the protocols will not be effective and transfer of the skill beyond the immediate learning episode will be limited.

STRUCTURE OF THE BOOK

Teachers have struggled to find a resource that brings together strategies for teaching thinking skills, ideas for grouping students and ways to promote a more collaborative classroom environment. This book is in response to that need, drawing upon ideas and strategies from many different areas and authors. Each chapter within the book combines research and theory as background and rationale along with strategies and practical examples. The practical examples provided are drawn from real-world experiences across a variety of contexts. They have been tried and tested over many years either from my own teaching and leadership experience or by the many teachers with whom I have worked in a career spanning decades.

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The focus of Chapter 2 is metacognition – what it is and how it can be developed. Metacognition is both a skill for learning and a skill for life. When well-developed it can be considered the gift that just keeps on giving. Chapter 2 also looks at the importance of self-efficacy in the learning process and how to deal with what Marzano (2017) refers to as unproductive habits of mind.

Chapter 3 delves deeper into the importance of dialogue for meaning making. It outlines practical strategies for managing and forming groups, identifying group roles and establishing norms along with specific strategies for group dialogue.

Chapter 4 begins with research and theory on the importance of critical thinking and the specific skills that need to be fostered and explicitly taught. Skills addressed include interpreting, evaluating, reasoning, questioning and inferring. Thinking protocols are provided for each skill along with practical examples for application.

Chapter 5 focuses on creative thinking. It includes a section on creative thinking myths before teasing out the notion of creative thinking in more detail. The chapter provides protocols for students to generate and apply new ideas in specific curriculum contexts, see existing situations in a new way, identify alternative explanations, and see or make new links to generate new and positive outcomes.

Chapter 6 addresses protocols for problem-solving and problem posing while Chapter 7 deals with the emerging but vital consideration of ethical intelligence thinking. Just because I can do something, is it the correct thing to do? Is this problem a problem that needs to be addressed? Is this the best solution to the problem ethically? What other problems are overlooked by society?

The book concludes with a final call to action. A call for a true 'education revolution' as opposed to the rhetoric that brought us standardised testing and standardised thinking. A revolution that promised so much but delivered so little. It's time to stop tinkering around the edges of a broken system, to move from pure accountability with an input–output mentality to an era of thinking! And to embrace, rather than run away from, all of the challenges that might entail. The status quo can no longer prevail. After all, Rollo May (1953, p. 225) challenged, 'the opposite of courage is not cowardice … [It] is automaton conformity.'

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