

**Metacognition, self-regulation, oracy:
A mixed methods case study of a complex,
whole-school Learning to Learn intervention**

PhD thesis

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PREFACE

This dissertation is the result of my own work and includes nothing which is the outcome of work done in collaboration except as declared in the Preface and specified in the text.

It is not substantially the same as any that I have submitted, or, is being concurrently submitted for a degree or diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text. I further state that no substantial part of my dissertation has already been submitted, or, is being concurrently submitted for any such degree, diploma or other qualification at the University of Cambridge or any other University or similar institution except as declared in the Preface and specified in the text.

It does not exceed the prescribed word limit for the Education Degree Committee.

Signed:  Date: March 14th, 2018

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Metacognition, self-regulation, oracy: A mixed methods case study of a complex, whole-school Learning to Learn intervention

James William Mannion

ABSTRACT

This doctoral thesis presents the findings of a mixed methods case study of *Learning Skills*, a new approach to Learning to Learn that was developed and implemented at a secondary school in the south of England between 2010 and 2014, and evaluated using data collected between 2009 and 2017. Learning to Learn is a field of educational theory and practice that aims to help young people get better at learning by focusing on the processes of learning (the *how* as well as the *what*), and by enabling them to take ownership over aspects of their own learning through activities such as goal setting, self-monitoring and structured reflection. The field has developed significantly throughout the last 40 years, with a number of approaches having been implemented on a large scale in the UK. Research into metacognition and self-regulation suggests that Learning to Learn programmes should help boost academic attainment. To date however, large-scale evaluations have found mixed results, with no clear impact on academic attainment. Using an intervention design used widely in medicine and other fields, *Learning Skills* reconceptualises Learning to Learn as a ‘complex intervention’ comprised of multiple areas of evidence-informed practice. The rationale for complex interventions is that the marginal gains emerging from any individual avenue of practice stack up and interact to yield a larger effect size overall. The *Learning Skills* programme, which started as a year seven taught course and developed into a whole-school approach to teaching and learning, focuses centrally on three key concepts: metacognition, self-regulation and oracy. This evaluation of *Learning Skills* incorporates eight strands of data collection and analysis over an eight-year period, using the previous year group at the same school as a control group. These include baseline measures; attitude to learning scores; psychometric questionnaires; a language of learning evaluation; reflective learning journals; student interviews; teacher interviews; and student attainment across all subjects in years nine and 11. The primary outcome analysis – student attainment across all subject areas at three and five years – found that *Learning Skills* cohort one achieved significantly higher grades than the control cohort, with accelerated gains among young people from economically disadvantaged backgrounds. Secondary data analysis incorporating a range of qualitative and quantitative methods indicates a causal relationship between *Learning Skills* and academic attainment. As well as evaluating the impact of a new and promising approach to Learning to Learn, this study generates new knowledge about the implementation and evaluation of complex interventions in education.

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LIST OF ABBREVIATIONS

5A*CEM	Five A* to C GCSE grades, including English and Maths
APS	Average Points Score
ASDAN	Award Scheme Development and Accreditation Network
ATL	Attitude to Learning
BERA	British Education Research Association
BLP	Building Learning Power
BME	Black and Minority Ethnic
CA	Content Analysis
CAS	Complex Adaptive System
CAT	Cognitive Abilities Test
CBC	Competency-based curricula
CoPE	Certificate of Personal Effectiveness (an ASDAN course)
CWSI	Complex, Whole-School Intervention
DCSF	Department for Children, Schools and Families
DfE	Department for Education
EEF	Education Endowment Foundation
FSM	Free School Meals
GCSE	General Certificate of Secondary Education
KS	Key Stage
OCR	Oxford Cambridge and RSA Examinations
Ofsted	Office for Standards in Education, Children's Services and Skills
PLTS	Personal Learning and Thinking Skills
PP	Pupil Premium
QCA	Qualifications and Curriculum Authority
QCDA	Qualifications and Curriculum Development Agency
RCT	Randomised Controlled Trial
SAT	Standardised Attainment Testing
SEAL	Social and Emotional Aspects of Learning
SEND	Special Educational Needs and Disabilities
SLT	Senior Leadership Team
STEM	Science, Technology, Engineering, Maths
TA	Thematic Analysis
TARS	Thinking and Reasoning Skills (an OCR course)
TPS	Total Points Score

CHAPTER ONE: INTRODUCTION

This doctoral thesis is an account of an interventional case study of *Learning Skills*, a new approach to Learning to Learn that was developed and implemented at a secondary school in the south of England between 2010 and 2014. This mixed methods study took place in a school (referred to here as ‘Sea View’) where the author¹ worked for eight years, initially as a science teacher and later as a teacher and leader of *Learning Skills*. The *Learning Skills* programme started out as a taught course, delivered to all students in year seven for five lessons a week. Over the next three years, the timetabled lessons expanded firstly into year eight, and then again into year nine; in total, the first *Learning Skills* cohort took part in more than 400 lessons over three years. A number of whole-school practices were also put in place to promote the transfer of knowledge, skills, habits and attitudes developed through the taught course into subject areas throughout the school. The primary aim of this study was to follow the first *Learning Skills* cohort from year seven to year 11, evaluating the impact of the programme on student attainment across the curriculum over time. To contextualise the *Learning Skills* programme within a wider timeframe, this study also includes GCSE data relating to the second and third *Learning Skills* cohorts, as well as baseline data for the pre-*Learning Skills* cohort, which was used as a control group. The data included in the study therefore spans an eight-year period in total, from 2009 to 2017. The interim (three-year) and final (GCSE) findings of this study have been published previously (Mannion & Mercer, 2016; Mannion, Mercer & McAllister, 2018).

Learning to Learn is a field of educational theory and practice that aims to help people get better at learning. Typically, this involves placing an explicit focus on the processes of learning (the *how* as well as the *what*) and by enabling students to take ownership over aspects of their own learning through activities such as goal setting, self-monitoring and structured reflection. The research literature on Learning to Learn has grown substantially over the last 40 years, building in particular on foundational work into metacognition and self-regulation in the 1970s (e.g. Flavell, 1976, 1979; Brown, 1978). While the language used to describe these ideas and practices has gained traction in recent years, metacognition and self-regulation can be seen as having emerged throughout the last century in the work of authors such as James, Piaget and Vygotsky: “James’s perspective on metacognition and self-

¹ Henceforth, I will use the first person.

regulation is aligned with the Self, Piaget's with the other and object, and Vygotsky's with the medium or agency of language" (Fox & Riconscente, 2008, p. 373).

The research literature on Learning to Learn reveals an apparent paradox. On the one hand, metacognition and self-regulation are recognised as being highly effective strategies for teachers and students to employ, providing "high impact for very low cost, based on extensive evidence" (Education Endowment Foundation (EEF), 2017a). On the other hand however, evaluations of large-scale Learning to Learn initiatives in the UK (e.g. *Learning to Learn in Schools; Learning How To Learn; Opening Minds; Building Learning Power*), as well as internationally (e.g. the *Ley Organica de Educacion* in Spain) have been mixed: while researchers often draw attention to isolated examples of effective practice, the net finding has been that these large-scale Learning to Learn initiatives have not had any clear impact, either positively or negatively, on students' academic learning (e.g. see Higgins et al., 2007a; Wall et al., 2010; James et al., 2006; Claxton et al., 2011; Aynsley, Brown & Sebba, 2012; Moreno & Martín, 2007). It therefore appears that there is a disconnect between the research, which is partly based on meta-analyses of small studies, and attempts to reproduce these effects at scale. I will consider these conflicting findings in detail in chapter two.

The *Learning Skills* approach builds upon previous work in the field, but also extends it by reconceptualising Learning to Learn as a complex intervention. Complex interventions, defined simply as "interventions that contain several interacting components" (Medical Research Council, 2006), feature widely in the medical literature and other fields such as psychotherapy and social work. The rationale for complex interventions can be found in the commonly understood notion that a phenomenon can sometimes be 'greater than the sum of its parts'. It is also found in the theory of 'marginal gains', an economic term that has gained popularity in recent years, in part through the success of the British cycling team (e.g. see Hall, James & Marsden, 2012). Put simply, the rationale for a complex intervention is that the marginal gains arising from each individual component stack up and interact to produce a larger effect size overall. In the case of medicine, complex interventions can also reduce the side effects that result from an over-reliance on any single treatment (e.g. see Joshi, 2005). Although the phrase 'complex intervention' does appear in the education research literature, with very few exceptions its meaning is different to the definition offered above. This thesis therefore makes two original contributions to knowledge. First, it is a description and evaluation of *Learning Skills*, a new approach to Learning to Learn; and second, it

reconceptualises Learning to Learn as a complex intervention, an idea that is significantly underrepresented in the education literature, relative to other fields.

In particular, the *Learning Skills* programme centred around three key concepts: metacognition, self-regulation and oracy. I will explore these concepts later in chapter one, and in chapter two I will consider complex interventions in detail, focusing in particular on the components of the *Learning Skills* complex intervention. As a starting point, it will be useful to share the short-hand, operational definitions that shaped the thinking of the *Learning Skills* team as the programme developed:

Metacognition:	Reflecting on the processes of learning
Self-regulation:	Taking increasing ownership over the learning process
Oracy:	Developing effective speaking and listening skills

In chapter one, I will outline the origin and context of the *Learning Skills* programme, and discuss my role as an insider-researcher in this study. Following this, I will define three key concepts (*learning*, *learning to learn* and *transfer*) and explain how the *Learning Skills* programme is premised on the interaction of these concepts in practice to form a ‘golden thread’ that runs from theory through to student outcomes in subject learning across the curriculum (e.g. see DCSF, 2009). I will also outline five research questions that drive this study.

In chapter two, I will consider key developments in the Learning to Learn field throughout the last 40 years, focusing in particular on four large-scale evaluations of UK-based initiatives in the last 15 years. Following this, I will review some of the literature that was influential in the design and development of the *Learning Skills* programme at Sea View. I will also describe how the key concepts outlined above were operationalised at Sea View, and how the *Learning Skills* programme evolved and expanded over four years, from a year seven taught course to a joined-up, whole-school approach to teaching and learning.

In chapter three, I will discuss the research methodology that underpins this study. Following a consideration of interpretive paradigms within the social sciences, I will explain how this study combines the use of three study designs: case study, quasi-experiment and mixed methods research. I will also consider the ethical implications of the study, and discuss the

measures that were taken to ensure that it was conducted in accordance with ethical guidelines. In total, this study incorporated eight strands of data collection: baseline measures; attitude to learning scores; psychometric questionnaires; the Habits of Mind evaluation; Reflective Learning Journals (RLJs); student interviews; teacher interviews; and student attainment across all subjects in years nine and 11. For each strand of the study, the rationale, research methods, findings and limitations will be considered together in chapter four.

In chapter five, I will present a summary and synthesis of findings, relating the eight strands of data collection and analysis back to the five research questions. I will also outline further limitations relating to this study and consider alternative interpretations of the findings, before drawing conclusions and making recommendations for the future development of the field.

CONTEXT OF THE STUDY

Sea View is a state-funded, comprehensive secondary school located in the south of England. In 2010, the year the *Learning Skills* programme began, the proportion of students eligible for free school meals (FSM) was “well above average” (Ofsted, 2010²). Sea View can therefore be seen as being located in an area of relatively high economic disadvantage. In February 2009, Sea View was given a ‘notice to improve’ by Ofsted, following several years of declining results. In September 2009, a new Headteacher was appointed to the school; within a year, the proportion of students achieving five A*-C grades including English and Maths (5A*CEM) at GCSE had increased from 26% to 36%. However, in June 2010, two months before the improved exam results were published, Ofsted placed the school in ‘special measures’.

In 2010, when a school was placed in special measures, the local authority would create an action plan detailing the steps that would need to be taken in order to leave the category at the next inspection. Typically, such action plans focus on ‘quick fixes’ to improve results, such as intervention programmes for year 11 students at the C/D borderline in key subjects. At Sea View, as well as focusing on the quick fixes needed to steer the school out of special measures, the Headteacher also sought to bring about long-term cultural change at the school. Primarily, this was done through an explicit focus on learning at every level of the

² Reference withheld to preserve anonymity.

organisation. For example, the school was divided into four ‘schools of learning’, each led by a ‘director of learning’; tutor groups were renamed ‘learning families’; homework was renamed ‘home learning’; ‘teaching and learning’ was renamed ‘learning and teaching’, and so on. This can be seen within the context of a wider shift that has been described as “the ‘learnification’ of education... a fairly recent development in which the language of education has been taken over by a language of learning” (Biesta, 2014, p. 29). Perhaps the most significant change to be made in this regard was that in 2010, the school initiated a *Learning Skills* programme – a taught programme of study for all students in year seven, in mixed ability classes, for five lessons a week. Having run a similar programmes in the past, the Headteacher appointed a colleague from his previous school to lead on implementing the *Learning Skills* programme at Sea View. In May 2010, the Headteacher sent an email to all staff, inviting anyone interested in designing and teaching this new curriculum to apply in writing. This resulted in a competitive selection process whereby six teachers applied for four vacancies (there were five teachers in the team initially, including the *Learning Skills* lead). Having recently completed an MA in person-centred education, I welcomed the opportunity to do something different to the prevailing, curriculum-centred approach; I applied and was appointed to be part of the team.

When I began the PhD programme in September 2011, the *Learning Skills* programme had been running for one year. Initially, it was my intention to carry out a pilot study of the first *Learning Skills* cohort; this would then be used to inform the main study, which would focus on subsequent cohorts. However, since that time the pilot study has developed into a far more substantial piece of work than was initially planned. In 2016, the interim three-year analysis, comparing the attainment of the first *Learning Skills* cohort with the pre-*Learning Skills* control cohort at the end of year nine, was published in *The Curriculum Journal* (Mannion & Mercer, 2016). This article was subsequently listed by the journal as one of the articles with the “highest impact... from the past two years” (Curriculum Journal, 2017). Because the initial pilot study has developed into a more substantial piece of work than was initially anticipated, this thesis presents what is essentially an extended pilot study of the first cohort of *Learning Skills* students, following them from year seven through to the completion of their GCSEs in 2015. As a point of comparison, the attainment of *Learning Skills* cohort one was compared with that of the pre-*Learning Skills* cohort. The prior attainment of the two cohorts was very similar as they entered the school, and so the pre-*Learning Skills* cohort serves as a matched control group for the purposes of this study. In order to examine the impact of

Learning Skills over time, secondary measures include analyses of the attainment (as well as the views) of students from *Learning Skills* cohorts two and three.

Because Sea View is located in an area of high economic disadvantage, as well as looking at the overall impact of *Learning Skills* on student attainment, as a secondary measure this study includes an analysis of the relative attainment of economically disadvantaged students and their peers, within and across the treatment and control cohorts. For the purposes of this study, economic disadvantage is defined in terms of whether a student has been deemed eligible for the Pupil Premium (PP), a measure introduced in 2011 by the Liberal Democrat/Conservative coalition government in an attempt to allocate funding to students whose needs are greatest. Students are eligible for the PP if they have been in receipt of FSM at any time in the previous six years; if they are looked after, or if they have left care through adoption or other routes; or if they have been identified as being the children of servicemen and women in the school census at any point in the previous five years (Education Funding Agency, 2014). While the PP is considered by some to be a crude measure of disadvantage (e.g. see Oates, 2012), it is a measure that is widely used in the research literature, by the EEF and by Ofsted. The use of the PP as a marker for disadvantage in this study is therefore in keeping with a broad tradition of policy and practice concerned with reducing the extent to which educational outcomes can be predicted by a young person's post code, family circumstances or parental income.

RESEARCHER POSITIONALITY

When the *Learning Skills* programme began in September 2010, as well as teaching science I had also been a middle leader responsible for Personal, Social, Health, Citizenship and Economic (PSHCE) education. Between 2008 and 2010, I oversaw the transformation of PSHCE provision at the school; where previously PSHCE had been taught by 35 non-specialist tutors, by 2010 there was a dedicated team of eight teachers delivering the subject across all year groups. Also between 2008 and 2010, I completed a research-based MA in person-centred education at the University of Sussex, which focused in part on the use of Philosophy for Children (P4C) as an approach to teaching PSHCE. P4C is a teaching method rooted in the notion of the classroom as a 'community of enquiry' whereby students engage in extended discussions on questions of their own devising, usually seated in a circle. I will discuss P4C in more detail in chapter two, as it was a weekly feature of the *Learning Skills* programme at Sea View. Through completing the MA, I developed a broader interest in

dialogic teaching methods, and a keen sense of the importance of spoken language (oracy) as a driver for learning as well as for personal development. Although my interest in oracy originated in the context of PSHCE, by 2010 my concern for developing effective speaking and listening skills had also become central to my work as a science teacher.

As stated above, the reason I became involved in designing and teaching the *Learning Skills* programme is that I applied to become part of the team. It is therefore important to recognise that I embarked on this study from a position of involved advocacy, rather than one of neutrality or distant scepticism. Issues of bias are inherent in the work of insider-researchers. The potential for my involvement in the *Learning Skills* programme to manifest as bias in the collection or analysis of data was therefore an important factor to consider when designing and executing the study. Indeed, issues of identity and bias are a perennial concern for all researchers:

it is impossible to remove the effect of the researcher's presence, and the nature of the effect will be influenced by the identity of the researcher... This inevitability of the observer affecting the research is problematic; but rather than being a reason to rule out observation as 'biased' it means that the issue of identity becomes a very central one in the process of planning research. It means that identity becomes something that one should carefully think about as a researcher and monitor in such a way as to produce the sort of data that one desires.

(Dunne, Pryor & Yates, 2005, p.60-61)

Through my MA research, I came to recognise the utility of insider-research as a framework for professional development – even when the findings reveal that one's practice might not be as effective as might be desired. In particular, my research into the use of P4C as an approach to teaching PSHCE did not lead to the results I had hoped for or expected. However, the process of writing a 20,000-word dissertation on what was, at face value, an unsuccessful intervention prompted me to reflect deeply on my own practice, and to develop my understanding of the role of spoken language in the learning process. Subsequently, this led to profound transformations in my teaching practice, which in turn led to tangible benefits in terms of student outcomes in my teaching of science, PSHCE and *Learning Skills*. In addition, part of the rationale for this study was not just to evaluate the impact of the *Learning Skills* programme summatively, but also to use the findings formatively to inform improvement planning. For these reasons, I embarked upon this study with the intention to maintain as

neutral a stance as possible, and to design the study in such a way as to mitigate the potential for ‘confirmation bias’³. With this in mind, the study design included a number of features to ensure that the data collected could not have been influenced by my own views, or by my position within the school. I will discuss these features of the study design in detail in chapters three and four, and their limitations in chapters four and five. The greater challenge to overcome is the potential for bias in the manner in which data is analysed and interpreted, when that analysis is done from a position of a) direct involvement in, and b) advocacy for the approach:

...one is always and inevitably biasing the research, so lack of bias cannot be the determinant of the research quality. Instead, what becomes important is an aspect of reflexivity, that identity issues are seen as problematic and discussed in the research report.

(Dunne et al., 2005, p.61)

My role as an insider-researcher in this study operates on a number of levels: as a teacher and middle leader who worked at the school before and throughout the study period; as someone who was involved in designing, planning and teaching the *Learning Skills* course, and who led the *Learning Skills* department from 2012 to 2014; as a ‘teaching and learning lead practitioner’ within the school, who played an increasingly influential role in shaping whole-school teaching and learning practices as the study period progressed; and as a researcher evaluating the impact of the programme. Setting aside the matter of data collection, where it is relatively simple to minimise the potential for bias, methodological and analytical issues relating to my position as an insider-researcher will be most relevant in chapters four and five, where I will summarise and synthesise the findings from each strand of the study. Here, I will endeavour to analyse and discuss the study findings in a reflexive manner that takes an appropriate account of my role as an insider-researcher.

CONCEPTUAL FRAMEWORK

Metacognition, self-regulation and oracy

As stated above, Learning to Learn is a field of educational theory and practice that has expanded considerably throughout the last 40 years or so, following foundational work into

³ Defined by the Oxford English Dictionary as “the tendency to interpret new evidence as confirmation of one’s existing beliefs or theories”.

metacognition in the 1970s by Flavell, Brown and others. Flavell, who is credited as having coined the word, defined it as follows:

Metacognition refers to one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact.

(Flavell, 1976, p. 232)

Metacognition, often reduced to the notion of 'thinking about thinking', has been defined more technically as "awareness of thinking processes, and 'executive control' of such processes" (Watkins, 2001, p. 1). More recently, metacognition has become closely associated with the related concept of self-regulation. In 2011, the Sutton Trust and the EEF published the first version of the Teaching and Learning Toolkit, with a view to helping schools decide which strategies are most effective at improving educational outcomes for students from disadvantaged backgrounds (Higgins, Kokotsaki & Coe, 2011). Based on a wide-ranging review of the education research literature, the Teaching and Learning Toolkit provides schools with a ranking as to the effectiveness of different strategies. The Teaching and Learning Toolkit has been well received by the teaching profession, with the majority of schools in the UK now using it to inform strategic planning (EEF, 2017a). In the Teaching and Learning Toolkit, 'Metacognition and Self-regulation' appear together at the very top of the ranking (alongside 'Feedback'), where they are described as follows:

Meta-cognition and self-regulation approaches (sometimes known as 'learning to learn' approaches) aim to help learners think about their own learning more explicitly. This is usually by teaching pupils specific strategies to set goals, and monitor and evaluate their own academic development. Self-regulation means managing one's own motivation towards learning. The intention is often to give pupils a repertoire of strategies to choose from during learning activities... Meta-cognition and self-regulation approaches have consistently high levels of impact, with pupils making an average of eight months' additional progress. The evidence indicates that teaching these strategies can be particularly effective for low achieving and older pupils.

(EEF, 2017a)

Learning Skills is a complex intervention comprised of multiple components of evidence-informed practice. Fundamentally, however, the approach centres around three key, interrelated concepts: metacognition, self-regulation and oracy. The word oracy was coined in 1965 by the British researcher and educator Andrew Wilkinson, who defined oracy simply as

“the ability to use the oral skills of speaking and listening” (Wilkinson, 1965, p. 13). The choice of word was clearly a deliberate attempt to place speaking and listening on an equal footing with written literacy and numeracy. However, despite initiatives such as the *National Oracy Project* (1987-93) and the University of Cambridge *Thinking Together* programme (thinkingtogether.educ.cam.ac.uk), oracy does not currently have the same status in schools as written literacy and numeracy (e.g. see Alexander, 2012). This is an unfortunate state of affairs; as I will discuss below, a compelling body of research literature suggests that the quality and quantity of spoken language experienced by a child is incredibly important for their cognitive, social and emotional development, and is a powerful predictor of future life outcomes.

I will review the relevant research literature around oracy in chapter two, when I present the rationale for each component of the complex *Learning Skills* intervention. In the next section, I will define three key concepts – *learning*, *learning to learn* and *transfer* – which, alongside metacognition, self-regulation and oracy, provide a rationale for the design and implementation of the *Learning Skills* programme at Sea View. Following this, I will consider how these concepts interact in practice to form a ‘golden thread’ running from theory, through policy and practice, to improved student outcomes.

Learning

If nothing has changed in long-term memory, nothing has been learned.

(Kirschner, Sweller & Clark, 2006)

Learning is what happens when you think hard.

(Coe, 2013)

In the last five years or so, there has been an increased interest in cognitive science in the UK education debate – especially with regard to the roles of memory, domain-specific knowledge and ‘cognitive load’ in learning. For example, in 2012 Michael Gove, then Secretary of State for Education, said: “One of the biggest influences on my thinking about education reform has been the American cognitive scientist Daniel T. Willingham... [*who*] demonstrates brilliantly in his book, memorisation is a necessary pre-condition of understanding...” (Gove, 2012). Although Willingham later expressed concern at the way in which Gove had translated his

work into education policy (Willingham, 2012), it is nevertheless clear that cognitive psychology has become influential in shaping policy and practice.

The two quotes above are representative of two central insights of cognitive science when it comes to learning. In the first quote – taken from an influential paper by Kirschner et al. (2006) – learning is seen as something that is synonymous with memory: if you cannot remember something, you cannot be said to have learned it. In the second quote, we find learning defined in terms of effort: learning is something that you have to earn. While such reductive definitions of learning rarely stand up to close scrutiny (Mannion, 2016), for the purpose of this study it will be useful to have a simple definition of learning that takes account of the operational goals of the *Learning Skills* programme, and of this evaluation of it. For this reason, while recognising its limitations, I will use the following, functional definition of learning:

Learning is the acquisition and retention of knowledge and/or skills that can be detected using existing indicators.

Learning to Learn

Defining Learning to Learn is not a straightforward matter. For example, it has been described as a “multidimensional entity whose meaning varies according to the meaning given to the word learning” (Candy, 1990, p. 34-35). It has been suggested that the problem stems in part from the fact that Learning to Learn “is not strictly a scientific concept, but rather involves politics” (Stringher, 2014, p. 9). Perhaps because of the complexity of the phrase, some researchers of Learning to Learn have intentionally avoided fixed definitions, encouraging teachers and students to create their own meanings (e.g. see Higgins et al., 2007a). Nevertheless, a number of definitions of Learning to Learn have been proposed. To take one influential example, in 2006 the European Education Council included Learning to Learn as one of eight ‘Key Competences’, where it is defined as:

the ability to pursue and persist in learning, to organise one’s own learning... This competence includes awareness of one’s own learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully.

(Education Council, 2006, p. 10)

As with ‘learning’, for the purposes of this study it will be useful to have a working definition of Learning to Learn that takes account of the Sea View context. This includes a brief description of the structural and functional features of the *Learning Skills* programme, as follows:

Learning to Learn is a field of educational research and practice that aims to help students get better at learning. Drawing on this broad tradition, the Learning Skills programme at Sea View has two key structural features: a taught course delivered to all students throughout KS3, and a set of whole-school practices and strategies designed to facilitate the transfer of learning skills into subject areas throughout the school, in ways that can be detected using existing indicators.

Practitioners of Learning to Learn have been described as having a ‘learning orientation’, rather than a ‘performance orientation’ (e.g. see Watkins, 2001, 2010). In this thesis, I will use the capitalised phrase Learning to Learn when referring to the broad tradition of learning-oriented research and practice. When referring to the Learning to Learn programme at Sea View, I will use the title of the programme *Learning Skills*.

Transfer

The issue of transfer has often been seen as a weakness of Learning to Learn initiatives. In part, this is due to the fact that knowledge and skills tend to remain rooted in the contexts in which they were developed, and do not transfer easily (e.g. see Willingham, 2007; Goldstone & Day, 2012). While there is evidence that knowledge and skills can transfer across contexts, to varying degrees – the very idea of school would be questionable if transfer did not exist at all – transfer certainly does not always happen automatically, and thus requires careful planning, implementation and evaluation (e.g. see Brown and Kane, 1988; Engle, 2006; Engle et al., 2012). I will review some of the key literature on transfer in more detail in chapter two.

When the *Learning Skills* programme began in September 2010, there was little scope for the *Learning Skills* teaching team to influence whole-school teaching and learning practices. As the study period progressed however, an increasingly pressing concern for the *Learning Skills* team was not just to develop students’ abilities to think and learn effectively within *Learning Skills* lessons, but also to explicitly promote the transfer of these skills across to other subjects. Over three years, timetabled *Learning Skills* lessons expanded firstly into year eight

and then again into year nine. As the value of *Learning Skills* became more widely recognised within the school, and as the department became more established, it became possible to influence whole-school teaching and learning practices in such a way as to promote the transfer of knowledge, understanding, skills, habits and attitudes developed through the taught course into subject areas throughout the school. For example, by 2012, three of the *Learning Skills* teachers had become ‘teaching and learning lead practitioners’ responsible for designing and delivering a weekly in-house programme of Continuing Professional Development (CPD) for all teachers and learning support assistants.

Put simply, transfer in this study can be seen as a combination of two processes – *transfer out* of *Learning Skills* lessons, and *transfer in* to other subject areas. The process of *transfer out* of *Learning Skills* lessons was managed through the regular use of transfer-oriented activities, such as ‘plenaries for transfer’ and the students’ fortnightly entries in their RLJs. The process of *transfer in* to other subject areas was managed in a number of ways, including the development of a shared whole-school language of learning that was displayed in classrooms and students’ planners, and referred to regularly in lessons throughout the school; changes to lesson observation and learning walk proformas, to reinforce the expectation that teachers would refer to the *how* of learning in all lessons; shared pedagogical approaches, developed through weekly CPD sessions attended by all teaching and support staff; and a programme of weekly tutor time activities for all year groups, designed to develop and embed a shared language of learning and understanding.

I will outline the whole-school features of the *Learning Skills* programme in more detail in chapter two. For the purposes of this study, transfer is defined in the following, operational terms:

Transfer is a combination of practices which, together, enable the knowledge, skills, habits and attitudes developed in Learning Skills lessons to spread to other subject areas, in ways that lead to detectable gains in subject learning using existing indicators.

The golden thread

That’s all very well, but what’s the golden thread? Show me how it all connects; show me the thread that runs through from analysis of data to

action that makes a difference to the life chances of children and young people.

(A primary teacher, quoted in DCSF, 2009)

The metaphor of the ‘golden thread’ has become widely used by school leaders in recent years, and is generally taken to mean a series of interacting concepts and practices that lead from data analysis to impact (e.g. DCSF, 2009), or from research evidence through to improved student outcomes (e.g. Tomsett, 2015). When applied to this study, the golden thread can be seen as running through the three key terms outlined above as follows: if the *Learning Skills* programme is successful in helping students become more effective at learning; *and* if the knowledge, skills, habits and attitudes developed through the *Learning Skills* programme are able to transfer to other subject areas; *and* if this enables students to learn more effectively in their subjects across the curriculum; *then* the students’ improved ability to learn more effectively should be detectable using existing methods of assessment.

The repeated use of the phrase ‘using existing indicators’ in the definitions above is intentional. As stated above, in the last 15 years or so, evaluations of a number of large-scale Learning to Learn initiatives have had mixed results, with no clear impact on students’ academic attainment. Indeed, some scholars have gone so far as to suggest that Learning to Learn is not really concerned with improving performance at all:

The point of [*Building Learning Power, an approach to Learning to Learn*] is not to raise conventional results; it is to expand the range of valued outcomes to include the development of the confidence and capacity to learn all kinds of things, out of school as well as in. Expanding young people’s capacity to learn, and their appetite for learning, is seen as a valuable end of education in its own right; not just as a way of improving scores on existing indicators.

(Claxton et al. 2011, p.245)

While it may be true that Learning to Learn (and indeed education more widely) should be about more than just exam results, a decision was taken at the outset that this evaluation of the *Learning Skills* programme would focus not on the ‘how’ of learning, but on the academic attainment of students across all subjects. There are two main reasons for this. First, if an intervention that seeks to expand young people’s capacity for learning does *not* lead to improved exam results, then one might reasonably question the extent to which the

intervention has been effective in meeting its goals. While improving academic attainment is clearly a desirable educational end in its own right, in this case it is also valuable in a technical sense, as an indicator of how well the *Learning Skills* intervention is achieving what it set out to achieve – to help students get better at learning. Second, it is important to measure the outcomes of the study using ‘existing indicators’ because the alternative would be to create new indicators, and this creates a number of problems. In recent years, there have been several attempts to develop new instruments that measure Learning to Learn in some way, with limited success (e.g. Hautamäki et al., 2002; Deakin-Crick, Broadfoot and Claxton, 2004; Elshout-Mohr et al., 2004). However, even if a perfect measure could be achieved, in the absence of a clear understanding as to the impact of a Learning to Learn intervention on existing indicators of learning – preferably, standardised, national examinations – its practical utility to school leaders and policy makers would remain unclear. For example, it would be relatively straightforward to create a questionnaire that measures traits such as ‘confidence’ or ‘appetite for learning’, and then train students in such a way that they would be more likely to score highly on the questionnaire after a period of time. However, such a finding could be interpreted in a number of ways. For example, one could simply argue that the students were responding in such a way as to ‘please their teacher’. Furthermore, if students say they feel more confident with regard to their learning, or that their appetite for learning has increased, but their academic attainment has not improved – indeed, if academic impact has not even been *evaluated* in a systematic way – then one might reasonably question the extent to which the intervention had really impacted on the students’ ‘capacity for learning’.

As we will see in chapter two, the literature on Learning to Learn reveals a mixed picture: while small-scale studies into the efficacy of practices relating to metacognition, self-regulation and oracy are compelling, evaluations of large-scale Learning to Learn initiatives have had mixed results, with no clear impact on students’ academic learning. Should it turn out that it is not possible to improve subject learning through any Learning to Learn intervention, it is of course important to remain open to the possibility that Learning to Learn is an educational cul-de-sac that should join the ranks of Learning Styles and Brain Gym® in the museum of well-intentioned but ultimately ineffective educational fads. Indeed, some commentators have already drawn this conclusion, as can be seen in the assertion of Tom Bennett, the director of the researchED conference: “Learning to Learn. It isn’t even a thing. We’ve been hoaxed... Again! The hipsters are selling snake oil on this one, whether they know it or not” (Bennett, 2013, p. 161).

At this juncture, practitioners and scholars of Learning to Learn are faced with a choice. Like Bennett, one could take the view that Learning to Learn has been tried and tested, fallen short of fulfilling its promise and should be disregarded as a framework for school improvement. An alternative view is that it might still be possible to build on previous efforts and to develop the field further. Adopting the latter stance, the *Learning Skills* team at Sea View set out to reconceptualise Learning to Learn as a ‘complex intervention’ comprised of multiple areas of evidence-informed practice – primarily, metacognition, self-regulation and oracy – and to translate these ideas into a joined-up, whole-school approach to teaching and learning in such a way that the positive findings in the research literature might be replicated and even improved upon when implemented at scale.

A logic model for the *Learning Skills* programme at Sea View can be seen in Table 1.1. A logic model is a simple framework or diagram that outlines that communicates “an organisation’s programmes, operations, activities and goals” (University of Minnesota, 2019). In chapter two, I will explore in detail how this conceptual framework and logic model manifested at Sea View. This can also be seen in the lesson breakdown of the *Learning Skills* programme as it evolved over three years (Appendix 1).

Table 1.1. A logic model for the *Learning Skills* programme at Sea View.

Stakeholders	<ul style="list-style-type: none"> • Control group: Y7 cohort, 2009-10 • Experimental group: Y7 cohort, 2010-11 (and the 3 subsequent cohorts) • The <i>Learning Skills</i> teaching team • Headteacher, senior team, governors, parents • Teachers and support staff throughout the school
Inputs	<ul style="list-style-type: none"> • The <i>Learning Skills</i> teaching team • Timetable – initially, 5 lessons a week. This will expand into years 8 and 9 as the first cohort progress through the school • Department budget, department meetings • Access to computers, the library, resources
Outputs	<ul style="list-style-type: none"> • Physical outcomes from <i>Learning Skills</i> lessons (e.g. student work, folders) • Soft project outcomes (e.g. oral presentations, community engagement, school trips, school allotment, fetes, charity fundraising)
Results	<ul style="list-style-type: none"> • Short-term <ul style="list-style-type: none"> ○ Observations of <i>Learning Skills</i> lessons; department reviews ○ Attitude to learning scores, psychometric measures ○ Raised awareness of <i>Learning Skills</i> throughout the school ○ Changes in students’ knowledge, attitudes, skills, behaviours ○ Attainment across all subjects after 3 years (end of Y9) • Long-term <ul style="list-style-type: none"> ○ Attainment across all subjects after 5 years (end of Y11)
Activities	<ul style="list-style-type: none"> • Lessons, meetings, observations, projects, trips, fetes, guest speakers etc • Combination of a range of evidence-informed teaching and learning practices rooted in metacognition, self-regulation, oracy • Ongoing data collection and analysis at Sea View
Impacts	<ul style="list-style-type: none"> • If successful – implementation of <i>Learning Skills</i> in other schools • Ongoing data collection and analysis in other schools

RESEARCH QUESTIONS

As I argued above, it is important that Learning to Learn interventions are evaluated in such a way as to take account of whether they lead to improved gains in subject learning, using existing indicators. For this reason, the primary outcome measure in this study is student attainment in subject learning across the curriculum. This is expressed in the following research question (RQ):

RQ1: What was the relationship between Learning Skills provision and student attainment in subject learning in all subjects?

At the end of the first year, the *Learning Skills* team was successful in campaigning for timetabled lessons to extend into year eight; however, this created an increased teaching load within the *Learning Skills* department. That year, there were also a number of redundancies at Sea View due to budgetary constraints. As a consequence of these two factors, in the second year the course ran (2011-12), the year seven programme was not taught solely by specialist teachers. Instead, two of the four year seven classes that year were taught by teachers who self-identified as “sceptical conscripts”, as similar teachers have been described elsewhere in the Learning to Learn literature (Downey et al., 2013b, p. 378). This presented a serious challenge to the quality of *Learning Skills* provision, and therefore to the success of the programme in its second year. In the third year of the programme, timetabled lessons expanded again into year nine. By this time, the department had been restored and the year seven programme was taught once again by specialist teachers. Since the *Learning Skills* programme was designed to help students get better at learning – and since having a dedicated team of teachers was thought to be critical to the success of the programme – this unintended variation in the quality of provision enables a second line of inquiry, which retrospectively tests the hypothesis that *Learning Skills* leads to gains in subject learning:

RQ2: To what extent does the quality of Learning Skills provision in year seven predict student attainment at GCSE?

Nationally, there is a clear pattern of educational underachievement among young people living in areas of high economic deprivation, relative to their peers. Therefore, one of the primary areas of concern outlined in school improvement planning – as indeed has been the case nationally, especially since the introduction of the PP in 2011 – is: what can schools do, if anything, to close the disadvantage gap? This forms the basis for the third research question:

RQ3: What was the relationship between Learning Skills provision and the attainment of students eligible for the Pupil Premium?

Each of the three research questions above seek to quantitatively assess the correlation between *Learning Skills* provision and student outcomes in terms of subject learning at KS3 and KS4. However, to assume that correlation infers causation is to fall prey to the logical fallacy *post hoc ergo propter hoc* (“after this, therefore because of this”). For this reason, it was important to attempt to corroborate the findings from the primary outcome measures

through the use of qualitative research methods. When analysing subject learning across the curriculum in this study, the extent to which causation can be attributed to *Learning Skills* provision really rests on the issue of transfer. Therefore, a fourth research question addressed in this study is:

RQ4: To what extent did the knowledge, skills, habits and attitudes developed through the Learning Skills programme transfer into other subject areas?

Finally, part of the rationale for the *Learning Skills* programme was to help students learn to regulate their emotions and their behaviour, as well as their learning. For this reason, the study set out to answer a fifth and final research question:

RQ5: What was the non-cognitive impact of the Learning Skills programme?

The qualitative and quantitative research methods that will be used to investigate these five research questions can be seen in Table 4.1, in chapter four. In chapter three, I will outline the methodological issues and design features that underpin this study, and in chapter four I will present the research methods and findings for each strand of data collection. To clarify these terms: by *methodology*, I mean the philosophical frameworks and associated assumptions that underpin the study; by *study design*, I refer to the plan of action that links these philosophical assumptions to specific methods; and by *methods*, I mean the specific techniques of data collection, data generation and data analysis that will be used to explore these research questions (e.g. see Creswell & Plano Clark, 2007; Crotty, 1998). In the next chapter, I will review the literature relating to Learning to Learn generally, and to the *Learning Skills* programme in particular.

CHAPTER TWO: LITERATURE REVIEW

REVIEW METHODOLOGY

Figure 2.1 shows the total number of publications relating to Learning to Learn in each five-year period in the last 60 years, as featured on the Education Resources Information Center (ERIC) database (eric.ed.gov).⁴ As can be seen here, the literature on Learning to Learn has expanded significantly throughout the last 60 years. Following a period of accelerated growth in the late 1960s and early 1970s, the amount of literature produced levelled off at around 30,000 to 40,000 publications per five-year period (6,000 to 8,000 a year) until the mid-2000s. Following this, there was another period of significant expansion in the published literature. Between 2010 and 2015, there were more than 77,000 publications on Learning to Learn added to the ERIC database.

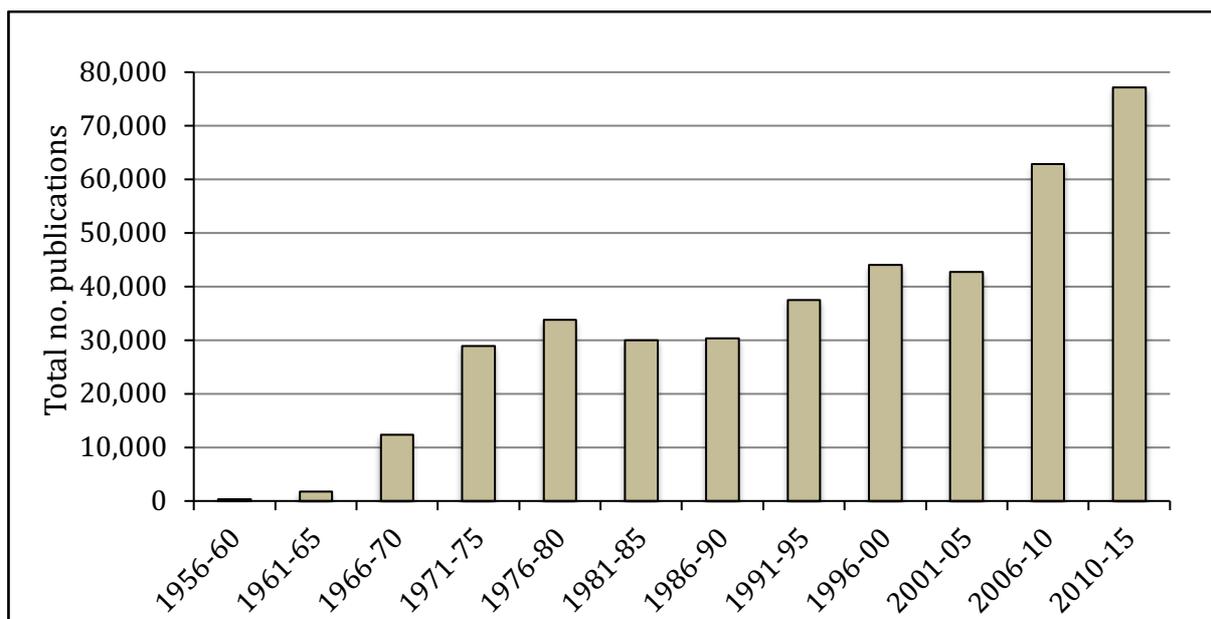


Figure 2.1. Published literature on Learning to Learn.

Clearly, a comprehensive review of this literature would be unfeasible. The literature review presented here incorporated four cycles of search, selection and review. In the first cycle, education research databases were searched using a number of key words and phrases that

⁴ No. hits yielded using the search term <pubyear:XXXX AND ("learning about learning" OR "learning orientation" OR "learning-centred" OR "learning-centered" OR "campaign for learning" OR "learning to learn" OR "learn to learn" OR "learning how to learn" OR "learn how to learn" OR meta-learning OR metacognition OR self-regulation OR competency-based)>

reflect the thinking of the *Learning Skills* team at the outset of the study period: *'learning to learn'*; *'learning how to learn'*; *'campaign for learning'*; *'opening minds'*, *'learning power'*; *'learning orientation'*, *learning-centred*; *metacognition*; *meta-learning*; *self-regulation*; *oracy*; *exploratory talk*; *transfer*; *thinking skills*; *learning skills*. To gain an international perspective, these terms were used in combination with the name of each continent, as well as a sample of countries from each continent. The databases searched include ERIC (eric.ed.gov), Evidence Informed Policy and Practice in Education in Europe (EIPPEE, eippee.eu); the University of Cambridge Education Faculty Library (educ.cam.ac.uk/library); the Centre for the Use of Research and Evidence in Education (CUREE, curee.co.uk); the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre; eppi.ioe.ac.uk); the EEF Teaching & Learning Toolkit (educationendowmentfoundation.org.uk/resources/teaching-learning-toolkit); International Education Research Database (IERD, research.ibo.org); Google Scholar™ (scholar.google.co.uk); as well generic search engines, which included publications in established media outlets as well as social media and blog sites.

Through carrying out this initial search, a diverse body of literature was located, including published academic research papers, books and book chapters, letters to journals, unpublished essays and theses, monographs, blogs, newspaper articles, websites and films. In turn, this literature uncovered many further relevant publications through citations and references. Following the initial review of literature encountered in the first cycle of research, a number of key ideas were identified as having particular relevance with regard to informing the planning and execution of *Learning Skills* provision at Sea View. Consequently, a second search cycle was undertaken, incorporating the following terms: *complex intervention*; *transfer*; *autonomy*; *personal effectiveness*; *growth mindset*; *critical thinking skills*.

In order to review literature that was critical of the ideas and practices that characterise Learning to Learn, a third search cycle was undertaken. This was initiated primarily by identifying influential journal articles encountered through social media, and then following up key references. This led to a third cycle of searches using the same academic and generic search engines, using the following search terms: *discovery learning*; *project-based learning*; *generic skills*; *21st century skills*; *direct instruction*; *explicit instruction*; *domain-specific knowledge*; *cognitive load theory*; *Project Follow Through*.

Finally, a fourth cycle of search and selection was carried out to compare the frequency and use of ‘complex interventions’ in the educational and medical literature. To make this a fair comparison, just one major database was used for each search: the ERIC database (www.eric.ed.gov) for educational research literature, and the US National Centre for Biotechnology Information PubMed database (ncbi.nlm.nih.gov/pubmed), for the medical research literature. What follows is a critical account of the key literature that came to light using the methods outlined above.

LEARNING TO LEARN: MAPPING THE FIELD

Let the beginning and the end of our didactics be: seek and find the methods where the teacher teaches less, but they who sit in the desks learn more. Let schools have less rush, less antipathy and less vain effort, but more well-being, convenience and permanent gain.

(Jan Amos Comenius, 1632)

Since we cannot know what knowledge will be needed in the future, it is senseless to try to teach it in advance. Instead, our job must be to try to turn out young people who love learning so much, and who learn so well, that they will be able to learn whatever needs to be learnt.

(John Holt, 1964)

For young Britons in the 21st century, teaching needs to serve three functions: the transmission of knowledge for a world built on information; the broadening of horizons in a country still scarred by disadvantage; and learning how to learn in preparation for a lifetime of change.

(David Miliband, 2003)

The idea that young people should be enabled and encouraged to take more ownership over their learning – i.e., to learn how to learn – has a long history, as illustrated in the three quotes above. However since Miliband’s (2003) assertion about the importance of ‘learning how to learn in preparation for a lifetime of change’ – spoken at the height of a New Labour government that placed skills at the heart of its education policy – UK government policy has shifted considerably. Firstly under the Conservative/Liberal Democrat coalition (2010-15) and now under the current Conservative administration, the emphasis on skills has been systematically dismantled through the abolition of large numbers of skills-based qualifications, as well as through a rewriting of the national curriculum with an emphasis on

‘core knowledge’. Some of this shift has been fueled by a rejection of the idea expressed by John Holt above, that the world is changing so fast that it is “senseless” to teach knowledge. Hayes (2010) suggests that this idea is indicative of the

anti-intellectual mood of the age... the idea that change is faster than ever, and as a consequence knowledge is soon outdated. Examples from the cutting edge of science are used to illustrate how existing knowledge is subject to change, and therefore a new education is necessary. This ‘argument’ ignores the vast corpus of human knowledge that is unchanging, on which the few examples of epistemological fragility rest.

(Hayes, 2010, p. 10)

A related argument that has been widely criticised is the idea that there is no point in teaching knowledge, because children now carry powerful computers in their pockets and they can just ‘look it up’ (e.g. Christodoulou, 2014). I will consider this argument later in this chapter, in the section entitled *Learning to Learn: A critique and a defence*. While such arguments against an extreme “anti-knowledge” position are reasonable and important to understand, other criticisms of skills-based education are more problematic. For example, a study of more than half a million students on the National Pupil database found that students who completed the ASDAN Level 2 Certificate of Personal Effectiveness (CoPE) qualification achieved significantly higher grades in GCSE English and Maths (Harrison, James & Last, 2012). In particular, completing the CoPE course was associated with significant gains among young people with Special Educational Needs and Disabilities (SEND), those from Black and Minority Ethnic (BME) communities and those eligible for FSM. CoPE, a qualification that was rooted in learning-centred practices such as oracy, collaboration and self-regulation, has often been singled out as a so-called ‘Mickey Mouse’ qualification (e.g. see Harris, 2011). It is therefore interesting to note that in this large-scale study, students who completed the CoPE course were significantly more likely to access higher grades in more traditional academic subjects.

When the *Learning Skills* programme began in 2010, Learning to Learn curricula were common in schools throughout the UK. At the time of writing however, this picture has changed dramatically; as far as I am aware, having worked in the field for eight years, taught Learning to Learn courses are now extremely rare in UK secondary schools. In this chapter, I will consider some recent developments in the “knowledge vs. skills” debate, and the related changes in policy and practice. In particular, I will consider some of the arguments against

“generic skills” from cognitive science, as well as the role of domain-specific knowledge in the development of critical thinking and reasoning skills. These ideas present a serious challenge to practitioners of Learning to Learn, and should not be ignored by anyone seeking to promote skills-based education. In order to contextualise the current debate, and to understand more about the rise and fall of Learning to Learn, it will be useful to briefly survey the recent history of the field.

A brief history of Learning to Learn

As we saw in Figure 2.1, the literature on Learning to Learn originated in the late 1960s and expanded rapidly throughout the 1970s. One of the earliest references in the literature is *Learning More About Learning* (1959) a booklet of five reports from the Third Curriculum Research Institute of the National Education Association (Chicago, May 3-7, 1958). In an introductory chapter, Alice Miel, a keynote speaker at the conference, asserted that:

Curriculum workers must be alert to... the points where many people or certain individuals seem to stop short of the maturity they might achieve. They must be guided... by changes in process – developments which call for new dimensions of understanding and skill and human sympathy. In short, it appears that *learning more about learning* is a primary, continuing responsibility of the teacher and of all other educators with more or less direct influence on the learning opportunities being offered in any one school or college. Indeed, learning about learning *is* a key to curriculum development.

(Miel, 1959, p. 3; original emphases)

Here, we can see some of the familiar themes of later thinking around Learning to Learn – notably, the idea that some young people can be helped to greater maturity than they otherwise might achieve, and that helping them do so requires a multidimensional effort involving curriculum design, understanding, skill and sympathy. However, it is also clear that ‘learning about learning’ is seen here as the domain of the teachers, rather than students.

Another early paper describes a controlled psychological study of the transfer of problem solving strategies among psychology undergraduates (Mattson, 1963). As a primary outcome measure, this study reported that “(a) learning to learn effect was identified. Those [*subjects*] that received training on a series of training tasks similar to the criterion task solved the criterion task in fewer trials than [*subjects*] for whom training tasks were not similar to the

criterion task” (Mattson, 1963: III-2). Here then, we find an early recognition of a relationship between Learning to Learn and the transfer of knowledge and skills, another theme that would feature much more prominently as the Learning to Learn literature developed.

The development of thinking around Learning to Learn can also be seen in *Learning about Learning, a conference report* (Bruner, 1966), a monograph detailing the results of a working conference entitled Research on Children’s Learning (Cambridge, Massachusetts, June 14-28, 1963). This report was pioneering in mapping out the future direction of the field, with chapters such as *Attitudinal and Affective Factors in Children’s Approaches to Problem-Solving* by Pauline Sears; *Character Education and Curriculum* by Jerome Bruner and *The Formation and Discovery of “Higher-Order” Units in Intellectual Tasks* by Eleanor Gibson. Again, here we can see an emerging focus on educational ideas that would become prevalent in the years to come, such as social and emotional aspects of learning, character education and higher order thinking and reasoning skills.

Metacognition and self-regulation

As discussed in chapter one, the literature on Learning to Learn stepped up considerably following foundational work into the concept of metacognition (e.g. Flavell, 1976, 1979; Brown, 1978). Flavell, who coined the term, defined metacognition as referring to

one’s knowledge concerning one’s own cognitive processes and products or anything related to them, e.g., the learning-relevant properties of information or data... Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective.

(Flavell, 1976, p. 232)

From the outset then, metacognition was viewed as a higher order cognitive function comprised of multiple processes including monitoring, regulation and orchestration. A similar multidimensional definition was offered by Miller (1985), who suggested that metacognitive processes in problem-solving include analysing the problem, information gathering, planning and monitoring progress toward a solution. It is also worth noting that both these definitions have a clear end-point as a point of reference: an objective or goal, or the solution to a problem. Within a few years, the project to develop greater metacognitive awareness among

young people was viewed as having potentially far-reaching consequences, both educationally and for the wider society:

Perhaps it is stretching the meanings of metacognition and cognitive monitoring too far to include the critical appraisal of message source, quality of appeal, and probable consequences needed to cope with these inputs sensibly, but I do not think so. It is at least conceivable that the ideas currently brewing in this area could someday be parlayed into a method of teaching children (and adults) to make wise and thoughtful life decisions, as well as to comprehend and learn better in formal educational settings.

(Flavell, 1979, p. 910)

In the 40 years since its inception, the educational significance of metacognition has become widely recognised among education researchers and the teaching profession. During this period, metacognition has become closely linked to two related ideas: meta-learning, and self-regulation/self-regulated learning. Drawing the distinction between metacognition and meta-learning, Watkins (2001) described metacognition as “awareness of thinking processes, and executive control of such processes”, while “meta-learning (making sense of one’s experience of learning)... covers a much wider range of issues than metacognition, including goals, feelings, social relations and context of learning” (Watkins, 2001, p. 1). Underscoring the difference between the two, Watkins asserted: “metacognition is a defining characteristic of our species: meta-learning is its dynamic epitome” (p. 7).

Self-regulation “is not a mental ability or an academic performance skill; rather, it is the self-directive process by which learners transform their mental abilities into academic skills” (Zimmerman, 2002, p. 65). Zimmerman highlights three key research findings relating to self-regulation. First: “self-regulation of learning involves more than detailed knowledge of a skill; it involves the self-awareness, self-motivation, and behavioural skill to implement that knowledge appropriately” (p. 66). Here then, as with metacognition, self-regulation is defined as a composite construct, comprised of multiple components and processes. Second, self-regulation is not viewed as a trait that some students have and others do not; rather, “it involves the selective use of specific processes that must be personally adapted to each learning task” (p. 66). Again, here we find a clear parallel with Flavell’s definition of metacognition in that the processes are uniquely adapted to the task at hand: to achieve a goal, objective, or to arrive at a solution to a particular problem. Third, Zimmerman points out that there is a relationship between self-regulation and “perceived efficacy and intrinsic interest”

(p. 66). Here, we see the importance of self-efficacy: students have to believe that they can learn whatever is before them, or find a solution to the problem that faces them. They also need to be motivated to do so. Furthermore, there is a recognition that self-regulated learning motivation arises from experience and expertise: “With diverse skills such as chess, sports and music, the quantity of an individual’s studying and practicing is a strong predictor of his or her level of expertise” (p. 66). Zimmerman identifies three times when self-regulated processes can benefit the individual student: before the task is tackled (analysis, goal setting, planning); during the task (using particular strategies, monitoring progress, identifying obstacles and adapting strategies accordingly); and after the task (reflecting, evaluating and considering ‘causal attribution’ with regard to outcomes achieved or not achieved).

The development of self-regulation is associated with benefits across a range of domains. For example, in a meta-analysis of self-regulated learning interventions in primary school students, Dignath, Buettner and Langfeldt (2008) reported a positive effect of self-regulated learning strategies on students' achievement, cognitive and metacognitive strategy application and motivation. In this analysis, the authors found that the most effective interventions: a) were based on social cognitive theory, or a combination of social cognitive and metacognitive theories (as opposed to those based on motivational theories); b) integrated multiple aspects of learning, including metacognitive and motivational aspects (as opposed to those with a mainly cognitive focus); c) provided students with knowledge about metacognitive strategies *and* illustrated the benefits of applying these strategies (as opposed to simply providing instruction on metacognitive strategies); and d) provided students with feedback about their strategic learning.

In order to successfully develop self-regulatory processes in students, teachers need to be able to model and promote self-regulated learning for their students (Paris & Winograd, 2003). A number of instruments have been devised to help monitor self-regulatory processes in real-world settings (e.g. Bandura, 2006). Such instruments have found self-regulation to be associated with positive outcomes across a range of age groups, including enhanced academic performance, improved motivational beliefs and students making more effective use of peers and teachers (Bandura, 1991; Wolters, Yu & Pintrich, 1996; Wolters & Pintrich, 1998). In this latter study, student self-regulation was found to be the same across three different subject areas, suggesting that self-regulatory skills are highly transferable.

As we can see, the ideas and practices relating to metacognition and self-regulation overlap to the extent that:

it is often difficult to discern a substantive difference between ‘metacognition’ and ‘self-regulation’. While it may be that studies of metacognition morphed into self-regulation because researchers realised how metacognition was tied to factors such as strategy use, study skills, expectation, and so on, the two labels nonetheless are often used interchangeably.

(Duffy et al., 2009, p. 242)

Others have concluded that the difference between metacognition and self-regulation is that “metacognition involves cognitive orientation, while self-regulation is more concerned with human action” (Al-Harthy, Was & Isaacson, 2010, p. 2; e.g. see Dinsmore, Alexander & Loughlin, 2008).

The educational value of developing students’ metacognitive and self-regulatory abilities is supported by a number of studies that report significant effect sizes on learning and study skills, and academic attainment across a range of subjects (e.g. see Dignath et al., 2008; Hattie, Biggs & Purdie, 1996; Whitebread, 2013). In a meta-analysis of 51 learning skills interventions, Hattie et al. (1996) reported an effect size of “a very respectable 0.57 for performance” (p. 128). In addition, as stated in the ‘conceptual framework’ above, in the EEF Teaching and Learning Toolkit ‘metacognition and self-regulation’ are considered to be among the most effective practices schools can engage in. The evidence on which the EEF based this evaluation includes meta-analyses and reviews of the literature by Perry, Albeg & Tung (2010); Schunk (2008); and those listed in Table 2.1, for which effect sizes are reported.

Table 2.1. Metacognition and self-regulation: summary of effect sizes.

Study	Effect size
Abrami et al. (2008)	0.34
Chiu (1998)	0.67
Crawford & Skipp (2014)	0.09
Dignath et al. (2008)	0.62
Donker et al. (2014)	0.66 (0.72 FSM)
Haller, Child & Walberg (1988)	0.71
Higgins et al. (2005)	0.62
Klauer & Phye (2008)	0.69
Torgerson et al. (2014)	0.74 (0.18 FSM)

Adapted from EEF (2017b)

Since the Teaching and Learning Toolkit was published, further evidence as to the efficacy of Learning to Learn approaches among students with lower prior attainment has become available. For example, a recent controlled study of chemistry undergraduates reported that metacognitive training improved student performance on the American Chemical Society general final exam, with the grades of the bottom quartile improving by 10% compared with the control group (Casselmann & Atwood, 2017).

A metacognitive movement

Throughout the last 40 years, and especially since the turn of the century, there have been a number of attempts to translate the research on metacognition and self-regulation into educational programmes with the aim of replicating these positive effects at scale. A selection of such programmes can be seen in Table 2.2.

Table 2.2. Examples of educational initiatives oriented toward metacognition.

Educational initiative	Example citations
<i>Learning about Learning</i>	Säljö (1979)
<i>Learning to Learn</i>	Hounsell (1979); Nisbet & Shucksmith (1984); Higgins et al. (2007a); Wall et al. (2010)
<i>Learning How to Learn</i>	Novak & Gowin (1984); James et al. (2006)
<i>Learning to Study</i>	Gibbs (1986)
<i>Learning to Think</i>	Perkins et al. (1994)
<i>Thinking about Thinking</i>	Collins & Mangieri (1992)
<i>Thinking Together</i>	Mercer & Littleton (2007)
<i>Building Learning Power</i>	Claxton (2002); Claxton et al. (2011)
<i>Learning to Learn: The L2 Approach</i>	Smith (2009)
<i>Opening Minds</i>	RSA (2011); Aynsley, Brown & Sebba (2012)

Of the programmes listed in Table 2.2, which should be viewed within the context of wider ‘school improvement’ and ‘school effectiveness’ movements (e.g. see Gray et al., 1999), there are four Learning to Learn curricula in particular that have been implemented and evaluated on a fairly large scale in the UK in the last 15 years. These are *Learning to Learn in Schools* (Higgins et al., 2007a); *Learning How to Learn* (James et al., 2006); *Building Learning Power* (Claxton et al., 2011) and the Royal Society of Arts (RSA) *Opening Minds programme* (RSA, 2011). There have also been a number of attempts to implement Learning to Learn curricula in other countries. Before I review these four Learning to Learn curricula, as well as looking at some international examples from Finland, Spain and the United States, it will be useful to consider how the field has evolved throughout this period.

Four generations of Learning to Learn

Claxton (2006) suggests that the Learning to Learn field can be viewed as having evolved through four successive generations:

There have, over the last twenty years or so, been three generations of

response, each more powerful than the last... we are now ready to make a step change into a Fourth Generation approach to helping young people become better learners. Each of these generations is still with us: they overlap and linger, rather than replacing each other in a series of neat revolutions. But there are strong signs that the 3rd generation is rapidly metamorphosing into the Fourth...

(Claxton, 2006, p. 1)

The characteristics of Claxton's four generations of Learning to Learn are summarised in Table 2.3.

Table 2.3. Four generations of Learning to Learn.

Generation	Characteristics
1	<ul style="list-style-type: none"> • Focus on raising attainment, the outcomes of schooling • 'Good teaching' was about content and knowledge acquisition
2	<ul style="list-style-type: none"> • Focus on study skills – hints and tips for retaining and recalling for tests • 'Good teaching' as before, plus delivering these techniques
3	<ul style="list-style-type: none"> • Focus on social and emotional factors (e.g. self-esteem) • Characteristic ways of learning (e.g. learning styles, 'brain-based learning') • Concerned with the 'how' of teaching
4	<ul style="list-style-type: none"> • Focus on how students can be helped to help themselves; 'habits of mind' • Transparency – students encouraged to reflect on the processes of learning • Teachers engaged in becoming better learners, e.g. through action research • Developmental and cumulative – concerned with the 'how' of learning

Adapted from Claxton (2006)

Claxton's description of the first generation – where learning was synonymous with outcomes, and 'good teaching' focused on such features as clarity, pace, good subject knowledge, literacy and numeracy – is essentially that seen in the excerpt from Miel (1959) above, where 'learning about how learning happens' was viewed as a concern for teachers, especially when designing curricula. Second generation approaches were characterised by an emphasis on study skills and a desire to help students perform better in exams. This was based on the idea that as well as learning knowledge, students can learn a range of practical techniques to help them organise information, time and resources, to improve their retention

of knowledge and to revise more effectively. In the second generation, then, we begin to see the emergence of meta-learning strategies. As might be expected, some of these efforts were more effective than others; in a meta-analysis, Hattie et al. (1996) reported that the extent to which such study skills interventions are successful depends on the context within which they are taught, and whether the process engages metacognitive strategies such as monitoring and reviewing.

The third generation of Learning to Learn can be seen as a wave of theory and practice that placed an emphasis on personalisation and the emotional aspects of learning. Third generation approaches represent a significant shift from generations one and two, in that they required the teacher to think carefully about the individual students in their classes, and to plan and teach accordingly. However, a number of these practices have since been debunked. For example, one widespread practice was to give students a survey to determine whether they are primarily a visual, an auditory or a kinaesthetic learner (the so-called VAK model); teachers were then expected to differentiate their lesson activities to suit the preferred learning style of each student. Other influential concepts in third generation approaches to Learning to Learn were the theory of multiple intelligences (Gardner, 1983); Brain Gym ® (e.g. see Hyatt, 2007); emotional intelligence (Goleman, 1995), personalised learning (Hargreaves, 2004) and the Social and Emotional Aspects of Learning (SEAL; DCSF, 2007). The perceived self-esteem of students was also given primacy during this period:

It became widely believed that children couldn't learn (as well, or at all) if they were stressed, and so 'good teaching' came to include the modulation of the emotional climate of the classroom. Self-esteem, it was thought, could be undermined by the experience of failure, so a 'good' teacher might try to do her best to protect her students from this distress by concealing her (inevitable) judgments of (relative or absolute) failure as much as possible, and by creating gentle gradients of difficulty in the tasks she set, so that children could proceed smoothly upwards without ever getting frustrated or confused – and therefore upset.

(Claxton, 2006, p. 3)

The increasing recognition of the importance of emotion in learning has been described as a 'therapeutic turn' in educational policy and practice (Smith, 2002), and has been the focus of debate within the philosophy of education. Here we find essentially two camps, with some authors suggesting that a concern for self-esteem is appropriate in some circumstances (e.g. Smith, 2002; Cigman, 2004; Kristjansson, 2007), while others have expressed concern at the

way in which “professional and popular support for these ideas... [*has*] become a new social and educational orthodoxy” (Ecclestone, 2004, p. 11; see also Hayes, 2003).

It is understandable that the therapeutic turn triggered such unease. Third generation approaches to Learning to Learn were accompanied by a proliferation of branded teaching materials, often marketed to schools in pseudo-scientific language. Phrases such as 'exercising the whole brain' became widely used, as did products such as *Baroque-a-bye-baby*, which promised that “its musical offerings will mimic mother's heartbeat at 60 beats per minute, offering ‘mathematical perfection and symmetry’ designed to ‘stimulate your child's brain’” (Healy, 2010). With the benefit of hindsight, it is easy to mock the naivety of claims such as these, and some have expressed anger at the snake oil opportunism of some of the profiteers (e.g. Goldacre, 2006). However, Claxton offers a more forgiving analysis, pointing out that third generation thinking “redirect[*ed*] teachers’ attention away from the traditional preoccupation with content and acquisition – from the ‘What?’ ... to a genuine interest in the ‘How?’ ... such lapses and excesses are part of the growing pains – the adolescence, if you like – of any worthwhile educational innovation” (Claxton, 2006, p. 4-7).

It is certainly true that some third generation practices have fallen short of the promise that trumpeted their arrival. In particular, learning styles – the idea that you can reliably diagnose a person's innate preferences and then use this to prescribe certain educational activities – are now widely viewed as overly simplistic and unhelpful (e.g. see Reiner & Willingham, 2010). As Sternberg and Grigorenko noted: “People are probably not 'types'... but rather vary continuously and somewhat differently as a function of diverse person-situation interactions... Styles, like abilities, are not etched in stone at birth. They appear to be largely a function of a person’s interactions with the environment, and they can be developed and socialised” (Sternberg & Grigorenko, 1997, p. 706). Similarly, a review by Coffield (2004) concluded:

the idea of a learning cycle, the consistency of visual, auditory and kinaesthetic preferences, and the value of matching teaching and learning styles, are all highly questionable... some of the best known and [*most*] commercially successful instruments have such low reliability, poor validity and negligible impact on pedagogy that we recommend that their use... should be discontinued.

(Coffield, 2004, p. 20)

While some third generation approaches to Learning to Learn have been called into question, there remains some validity in some of these ideas. The promotion of independent study skills, the shift of focus away from the 'what' and toward the 'how' of teaching and learning, and a concern for the emotional climate of the classroom, all remain central concerns for teachers today. Part of the problem is that many of the third generation methods were presented as ready-made packages that could be bought off the shelf and applied to any classroom. “Third generation approaches... tended to be rather bitty. There were plenty of practical ideas around, but they lacked a framework that would make those ideas add up to more than the sum of their parts... where was the big picture?” (Claxton, 2006, p. 5).

Building on insights gained through third generation approaches to Learning to Learn – as well as learning from the mistakes and excesses of that period – Claxton describes fourth generation approaches to Learning to Learn as being characterised by teachers working to develop and make explicit teaching and learning practices *in conjunction* with their students:

In fourth generation approaches... transparency and student participation are becoming more common. Instead of simply dishing out good advice to students as consumers, classrooms are becoming places of day-by-day knowledge generation about learning, with students being involved, in all kinds of ways, in discovering for themselves, both individually and collectively, what the ingredients of 'good learning' are, and how best they can help themselves develop.

(Claxton, 2004, p. 8; original emphasis)

In essence, where a third generation practitioner might ask: “How can I help students learn better?”, a fourth generation teacher might ask “How can I help them become better learners?” (Claxton, 2006, p. 12). Despite the apparent simplicity in this change of emphasis, Claxton argues that such a development could have significant ramifications:

This cumulative goal... demands nothing less than a new approach to development, one that places children's development as learners at the centre of our understanding of what growing up is all about. While the old 'intelligence' framework was firmly in place, such a view of childhood was effectively blocked. If most of a child's ability was pre-ordained, there was clearly little point in trying to cultivate it. But now that we know just how learnable learning is – and how dubious the old IQ story is – we are realising that there is a vacancy for this long-term learning-power perspective on development.

(Claxton, 2006, p. 15; original emphasis)

This definition of fourth generation Learning to Learn – where teachers make the processes of learning explicit to their students – finds a parallel with the conclusion of John Hattie, reached upon carrying out a synthesis of over 800 meta-analyses, the “largest ever collection of evidence-based research into what actually works in schools to improve learning”:

The remarkable feature of the evidence is that the biggest effects on student learning occur when teachers become learners of their own teaching, and when students become their own teachers. When students become their own teachers they exhibit the self-regulatory attributes that seem most desirable for learners (self-monitoring, self-evaluation, self-assessment, self-teaching). Thus, it is visible teaching and learning by teachers and students that makes the difference.

(Hattie, 2009, p. 22)

Large-scale evaluations of Learning to Learn curricula

Having set the context of how the field has evolved throughout the last 20 or so years, I will now consider the four Learning to Learn curricula mentioned above: *Opening Minds* curriculum (RSA, 2011); *Learning to Learn in Schools* (Higgins et al., 2007a); *Learning How to Learn* (James et al., 2006); and *Building Learning Power* (Claxton et al., 2011) – as well as looking at some international examples from Finland, Spain and the United States.

Opening Minds

The RSA *Opening Minds* programme is a competency-based approach whereby schools create an “integrated curriculum” based around five key competences: citizenship, learning, managing information, relating to people and managing situations (RSA, 2011). *Opening Minds* was first trialled in 2000, and was subsequently implemented in more than 200 schools throughout England and Wales (RSA, 2011). Despite such widespread implementation, there is little evidence that *Opening Minds* was able to replicate the positive research findings in the literature on metacognition and self-regulation. For example, a two-year research project carried out by the National Teacher Research Panel (NTRP) could conclude only that the students “seemed well-settled” and “more engaged” and that “we felt... there was no detrimental effect [*of Opening Minds*] on the students’ English learning” (NTRP, 2006, p. 1-4). The authors state that there was “some evidence of improved progress in literacy” and that there was some evidence of improved learning “reflected in value added data” (p. 2).

However, no details of this evidence are included in the report, which was not published in a peer reviewed journal. Similarly, an evaluative literature review carried out on behalf of the RSA in 2012 – twelve years after *Opening Minds* was launched – was able to conclude only that “the little empirical work that exists in this area suggests that RSA should be encouraged: their competency framework is more balanced than most others reviewed in this report” (Aynsley et al., 2012, p. 2). This study was unable to find any evidence that *Opening Minds* was associated with improved academic learning; indeed, the section of the review entitled *Evidence to support a competency-based approach* does not include any evidence of improved academic outcomes.

Learning to Learn in Schools

Between 2000 and 2010, a large-scale study was carried out by the *Campaign for Learning* in conjunction with researchers from Newcastle University, Durham University and the UCL Institute of Education (e.g. Higgins et al., 2007a; Wall et al., 2010). The *Learning to Learn in Schools* study was carried out in 41 primary and secondary schools across four local authorities. In this study, groups of teachers undertook a series of professional enquiries over four phases of innovation and evaluation, developing and evaluating various aspects of learning-centred practice within their contexts. Following Claxton's classification of four generations, Higgins (2009) reported that:

Phases one and two mainly investigated (the) third generation of Learning to Learn, with teachers in primary and secondary schools researching ideas such as emotional intelligence, brain-based learning and learning styles. Phases three and four have tried to integrate teacher and learner enquiry as part of an active process of learning as central to the process of education.

(Higgins, 2009, p. 3)

In alignment with this evaluation of the *Learning Skills* programme at Sea View, the authors of the *Learning to Learn in Schools* evaluation point out that “for an intervention to be seriously considered, it would be desirable to have a demonstrable impact on school attainment” (Higgins et al., 2007a, p. 46). This evaluation of the *Learning to Learn in Schools* project included some positive findings, including encouraging student feedback and increased parental engagement. In addition, the authors note that “where either whole-school or the majority of classes have been involved in Learning to Learn... results... were fairly

consistently above those expected” (p. 46). However, overall the *Learning to Learn in Schools* project had no clear impact on the students’ academic learning in primary or secondary schools: “over the three years, there is no clear evidence for Learning to Learn having a general effect, either negative or positive, on the GCSE results of the secondary schools involved... Similarly... there is no clear evidence of Learning to Learn having a significant impact on national test results at the end of KS2” (Higgins et al., 2007a, p. 46).

Building Learning Power

Building Learning Power (BLP) is a whole-school approach to teaching and learning that centres around 17 “learning capacities”, organised into four domains of learning:

- Reflectiveness (planning, revising, distilling meta-learning)
- Reciprocity (interdependence, collaboration, listening/empathy, imitation)
- Resilience (absorption, managing distraction, noticing, perseverance)
- Resourcefulness (questioning, making links, imagining, reasoning, capitalising)

(Claxton et al., 2011, p. 42)

Following the publication of *Building Learning Power* (2002), “thousands of schools and classrooms around the planet... experimented with BLP” (Claxton et al., 2011, p. 4). In a follow-up book, *The Learning Powered School* (2011), Claxton et al. collate findings from a range of sources, including student performance on tests and examinations, inspection reports, external evaluations, action research projects, students’ self perception and people’s perceptions of the process. With regard to student performance, an analysis of KS2 SAT results from eight primary schools reveals a “mixed picture” (p. 246), with some evidence of overall improvement following implementation of BLP. This pattern is also reported in a similar analysis of GCSE results from nine secondary schools. However, it is not clear how these schools were sampled from the thousands using BLP, and the results have not yet been published in a peer-reviewed journal. As Claxton points out: “The approach has been 12 years in the making, so we are only just beginning to collect data... Because it is multifaceted and longitudinal, BLP doesn't lend itself to the kinds of simple ‘cause and effect’ studies that many journals publish. But we are working on it!” (G. Claxton, personal communication, April 12, 2011).

Learning How to Learn

The *Learning How to Learn* (LHTL) project ran from 2001 to 2005, as part of the wider *Teaching and Learning Research Programme* (TLRP) initiative. This study attempted to overcome the kinds of researcher bias associated with closely managed intervention programmes, by attempting to simulate the kind of support schools usually receive. Typically, this comprised an introductory session at a staff training day, with follow-up support provided by Local Authority advisers. The team behind the LHTL study were dismissive of the idea that it is possible to develop a learning-centred mindset through a taught discrete course:

Of course... LHTL capabilities would involve the development of dispositions and skills, but these were unlikely to be sufficiently generic to allow them to be fostered in specific study skills of 'learning to learn' courses... we came to the conclusion that LHTL cannot be separated from learning itself: i.e., learning *something*. Rather, it is an activity involving a family of learning practices (tools) that enable learning to happen. This explains our preference for 'learning how to learn' over 'learning to learn' – the *how* word is important...

(James et al., 2006, p. 3; emphases added)

Instead, the LHTL project “took a narrower view of learning within the curriculum and the development of students' understanding of their academic learning through a focus on formative assessment and feedback in lessons” (Higgins, 2009, p. 4; e.g. see Sadler, 1998; Black and Wiliam, 2006). This thinking was influenced by an earlier study by the same researchers, which they describe as a “failed attempt to develop a test of learning to learn based on what students actually do in unfamiliar contexts” (James & McCormick, 2007, p. 3). The view of the LHTL research team was that “the ultimate goal of assessment for learning and LHTL is to promote learning autonomy” (James et al., 2006, p. 20). Here, LHTL was viewed as “a set of practices that can be developed by students to help them to learn autonomously, in new settings, when teachers are not present to support or encourage them. These would be crucial for lifelong learning” (James et al., 2006, p. 3). With these notions of autonomy and lifelong learning in mind, the LHTL study set out to investigate two key questions. First, how can LHTL practices be developed and embedded in classrooms without intense outside support? And second, what conditions in schools and networks support the creation and spread of such knowledge and practices?

As with the *Learning to Learn in Schools* study, the LHTL evaluation reported pockets of effective practice: “Three of the four schools with the highest value added had high levels of engagement with the project” (James et al., 2006, p. 3). However, once again the impact of the LHTL project on students’ academic learning was mixed: “Has the project observed improvements in (attainment)? As might be expected, the answer was ‘Yes and No’... performance varied between schools...” (James et al., 2006, p. 3).

An international perspective

In recent years, Learning to Learn has also featured centrally in research and practice internationally, especially in Europe. For example, Learning to Learn featured as one of the eight ‘key competences’ in the European Education Council Framework of Key Competences (Education Council, 2006). Indeed, it has been noted that Learning to Learn has been given greater prominence in other EU countries than in England and Wales. In 2003, Ofsted published a comparative study of the education of six year olds in England, Denmark and Finland, in which they observed that:

The curriculum for six year olds in England was influenced strongly by the national recommendations for a daily literacy hour and mathematics lesson, which have contributed substantially to improvements in the quality of teaching and learning. Although literacy and numeracy were not neglected in the other two countries, curriculum priorities were expressed rather differently: personal and social development, learning to learn and preparation for school in Denmark; these, together with ethical and physical development, in Finland.

(Ofsted, 2003, p. 38)

Learning to Learn competencies and motivation for lifelong learning were identified as key objectives in the framework for evaluating educational outcomes published by the Finnish National Board of Education in 1995. Here, these were “viewed as outcomes that do not fall into the domain of any particular school subject; rather, they were to be seen as common pedagogical goals for all school subjects” (Hautamäki & Kupiainen, 2014, p. 179). In the Finnish model:

Learning to learn is seen to comprise a cognitive component – basic knowledge and (thinking) skills – and an affective component that steers the use of these competences... The aims of the Learning to Learn Project are twofold: first, to provide ‘epidemiological’ data of the measured learning-

related factors for system-level evaluation, and second, to serve individual schools and municipalities as a tool for school development.

(Hautamäki & Kupiainen, 2014: p. 179)

Much of the focus in Finland, and more widely throughout Europe in the last twenty years or so, has been on finding ways to meaningfully measure Learning to Learn. Three national tests have been developed, which are combined within the European test: the University of Helsinki test, the Bristol University test and the Dutch test (e.g. see Hoskins and Fredriksson, 2008). However, these efforts have met with limited success: as Stringher (2016) points out, “One tool cannot account for the complexity of this notion even in preschool children” (p.121).

Despite the widespread emphasis on Learning to Learn throughout the EU, this review of the literature did not uncover any clear evidence of a positive relationship between Learning to Learn and academic subject learning from the European literature. For example, in Spain, the system-wide *Law of General Organization of the Educational System (LOGSE)* reform was passed in 1990. This approach sought to “incorporate [*the principles of Learning to Learn*] in all areas of knowledge, rather than creating a curricular space of their own, apart from other subjects” (Moreno & Martín, 2007: p176-7). Thus, this approach attempted to embed Learning to Learn throughout the curriculum, rather than teaching it as a separate course. Moreno and Martín (2007) report that although the *LOGSE* reform was passed in 1990, “now the curriculum recognises many of the characteristics of the concept of Learning to Learn” (p.176). Following *LOGSE*, in 2006 Spain passed the *Ley Organica de Educacion* (Organic Law of Education), a competence-based curriculum that includes Learning to Learn as a key competence. While the authors note that the explicit recognition of Learning to Learn marks “an important advance”, it does not seem to have had a positive impact on student outcomes: in the absence of explicit strategies for the development and transfer of autonomous learning skills and dispositions, “this meagre emphasis on the steps of curriculum development is one of the reasons why Spanish students do not use autonomous learning strategies to a very great extent” (Moreno & Martín, 2007, p. 178).

The theory and practice of Learning to Learn has also become prominent in the United States in recent years, albeit via a different medium. On *Coursera*, a popular online learning platform, a course entitled *Learning How to Learn* was described in the *New York Times* as

“arguably the world’s most successful online course” (Schwartz, 2017). Produced by Barbara Oakley, a professor of engineering at Oakland University in Michigan, *Learning How to Learn* has been taken by 1.8 million students in 200 countries. Once again however, despite the apparent popularity of this course, this literature review was unable to locate any published research from the United States that reported a clear, positive correlation between Learning to Learn and academic outcomes using existing indicators of student learning.

Making sense of a mixed picture

Clearly, there is a paradox in the literature on Learning to Learn. As we have seen, a compelling body of research literature dating back to the 1970s reports clear and consistent academic gains arising from teaching and learning practices rooted in metacognition and self-regulation. Much of this evidence comes from meta-analyses, often seen as a sign of a robust research finding. However, where attempts have been made to translate these insights into Learning to Learn programmes that can be implemented at scale, the positive impact on academic subject learning has not materialised.

There are two ways of interpreting these findings. One would be simply to say: let’s move on. Despite the research evidence for metacognition and self-regulation in small-scale studies and meta-analyses, it has not proven possible to translate these insights into large-scale programmes that reliably lead to gains in student learning when implemented at scale. We might therefore accept Bennett’s assertion that Learning to Learn is “not even a thing”. However, there is a second way to interpret these findings, which is to consider the possibility that there may yet be alternative ways of designing and implementing Learning to Learn programmes that *do* enhance subject learning. Perhaps in carrying out large-scale evaluations of educational practices that are really still in development, we are in danger of putting the cart before the horse and diagnosing it lame. Rather than dismissing Learning to Learn as an educational cul-de-sac, we might instead inquire: why have the positive research findings relating to metacognition and self-regulation not been reproduced when these practices have been scaled up into whole-school approaches? Is it because it cannot be done, or just that it has not yet been done as well as it might? Is it the practices that are the problem, or something to do with the process of scaling up? Might it be something to do with the manner or time in which these programmes were conceived, implemented or evaluated – or a combination of these factors? Perhaps most importantly: have these lines of inquiry been thoroughly

exhausted, or might there still be ways to learn from, and improve upon, early attempts to replicate the positive research findings at scale? Might there be a fifth generation of theory and practice that would develop the field further still?

The first thing to note is that in each of the examples outlined above, pockets of effective practice were identified where results did improve – however, because the quality of provision was mixed across a large number of schools, the net effect was one of no discernible impact on academic outcomes. Where good practice was identified, a number of common features are apparent, including a coherent, whole-school approach, high levels of engagement from staff, and consistent support from the Headteacher and senior leadership team. It therefore seems likely that had the researchers applied stricter selection criteria to the schools they included in their evaluations, the findings would have been different. I will return to this theme in chapter five.

There may be a number of additional reasons why whole-school Learning to Learn programmes have not yet fulfilled their potential in ways that can be detected using existing indicators of learning. These include the issue of whether Learning to Learn should be taught, embedded, or both; the issue of whole-school versus patchwork provision; and a range of issues relating to implementation and evaluation. I will now discuss these in turn, with a view to considering how the field might be developed further. In particular, in this thesis I will consider the notion of the complex intervention – a design idea that is common in other fields such as medicine, psychotherapy and social work, but which is not yet widespread in the education literature. Following this, I will discuss some of the key literature that informed the planning and delivery of *Learning Skills* provision at Sea View.

Taught vs. embedded vs. both

Throughout the last 40 years, there have been contrasting views as to how Learning to Learn should be implemented in schools (e.g. see Hounsell, 1979; Waeytens, Lens & Vandenberghe, 2002). Early attempts tended to fall into one of two categories: those that sought to teach and develop learning skills explicitly as a separate course (e.g. Da Costa, 1979; Hills & Potter, 1979), and those that sought to embed the principles of metacognition within existing programmes of study (e.g. Elton, Hodgson & O’Connell, 1979; Entwistle, 1979; Helweg-

Larsen, 1977). Evidence as to the efficacy of Learning to Learn being taught through a separate course is mixed; for example, Biggs and Rihn (1984) found in favour, while Ramsden, Beswick and Bowden (1986) did not. It therefore appears that implementation and context may have a significant bearing on the efficacy of taught Learning to Learn courses. Waeytens et al. (2002) proposed that by the turn of the century, the matter had been laid to rest: “Nowadays, the educational community agrees that ‘learning to learn’ cannot be taught in a separate course but has to be embedded in regular courses... For many researchers, the discussion about the implementation of ‘learning to learn’ ends with a plea for an embedded approach” (p. 307). However, this is problematic, for a number of reasons. First, there are very few issues on which “the educational community agrees” and so such generalised statements are usually automatically wrong. However, there is also a strong case for re-examining the notion that “learning to learn cannot be taught in a separate course but has to be embedded in regular courses”. Following Hounsell (1979), in the same paper Waeytens et al. (2002) identify two distinct interpretations of Learning to Learn among teachers: the ‘narrow’ conception, which is described as being “limited to mere tips and advice in order to prepare (for) examinations or tests” (p. 313); and the ‘broad’ conception, in which the aim is to “develop attitudes and skills which are important outside the school and classroom context” (p. 316). Following “extensive” interviews with 53 Belgian secondary school teachers, Waeytens et al. (2002) reported that only 28% of teachers had a ‘broad’ conception of Learning to Learn, and most of the remaining 72% of teachers with a ‘narrow’ conception of Learning to Learn reported “not having enough time” to pursue it in their classes. For the majority of teachers, “teaching how to learn seems of minor importance. They do not consider it an essential part of their task” (p. 314). In contrast, “for the majority of [*teachers with a broad conception of Learning to Learn*], it is not a problem to find time to teach students how to learn. These teachers ‘make time for it’” (p. 316). It is also worth noting that at the time of this study, there was a policy in Belgium that “imposed ‘learning to learn’ as one of the objectives for secondary schools. It is stated that schools and teachers have to spend time on ‘learning to learn’ throughout all the different subjects” (p. 306). There is, therefore, a clear contradiction in the study by Waeytens et al. (2002): if the majority of teachers do not buy into a broad conception of Learning to Learn – and the majority of those with a narrow conception of Learning to Learn do not make time for it in their lessons, even when it is mandated by national policy – then one can hardly expect a “plea for an embedded approach” to be sufficient as a strategy for improving student outcomes.

Striking a similar tone, as noted above, James et al. (2006) concluded that “LHTL cannot be separated from learning itself, i.e. learning something” (p. 3). Again, here we find an appeal for an ‘embedded only’ approach to Learning to Learn. However, there is a contradiction here too. The LHTL study is based on an assumption that autonomous behaviours, developed through practices relating to *Assessment for Learning*, can meaningfully transfer to “new settings, when teachers are not present ... for lifelong learning” (p. 3). If one cannot rely on the transfer of learning-centred skills and attitudes to take place from one corridor of a school to the next, surely there can be little hope for autonomous behaviours to transfer to life beyond the school gates. As I will argue below, although transfer may not always happen automatically, there is good reason to believe that it can and does happen when it is carefully managed at both ends of the process. If one wishes to implement Learning to Learn successfully, it seems likely that the best approach would be to teach the skills explicitly through a discrete, taught course *and* to have Learning to Learn embedded in subject areas throughout the school *and* to have a coordinated whole-school strategy for ensuring that skills and attitudes developed through the taught course are successfully transferred to subject areas throughout the school. This notion of a combined ‘taught and embedded’ approach is supported by a review of learning skills interventions by Higgins et al (2007b): “the findings of this review suggest that the teaching of learning skills may need to be made explicit as well as embedded in the curriculum; previous reviews have suggested that an embedded approach was preferable” (p. 18). I will consider this review in more detail in chapter five.

Typically, secondary schools implementing Learning to Learn in the UK have adopted either an embedded approach in year seven only (for example using the RSA *Opening Minds* framework to deliver traditional subject content through cross-curricular projects), or have taught discrete courses – also typically in year seven. For example, in a recent collection of *Curriculum Journal* articles comparing competency-based curricula (CBCs), the four UK secondary schools included in the study were selected on the basis that they had committed a significant proportion of their year seven curriculum time to a CBC (Downey et al., 2013a, 2013b; Byrne et al., 2013a, 2013b). In three of the four schools, the curriculum materials had been ‘bought in’. It is not clear whether any of the schools attempted to establish a whole-school approach to competence-based learning throughout all subject areas; nor is there any mention of explicit strategies for promoting transfer. The approach used by these four schools can therefore be characterised as ‘taught only’. Other approaches to Learning to Learn have

consisted of individual teachers, or groups of teachers, carrying out action research case studies, as with the *Learning to Learn in Schools* project (Higgins et al., 2007a; Wall et al., 2010). While some of the case studies featured in the *Learning to Learn in Schools* project featured both taught and embedded components, the fact that the third phase of this study comprised 85 case studies across 32 schools suggests that this was more a patchwork of different approaches than an evaluation of a joined-up, whole-school approach to teaching and learning with clear strategies for promoting transfer.

Whole-school provision

As stated above, Learning to Learn is most effective when it is implemented as a coherent, whole-school approach to teaching and learning. In each of the four evaluations reviewed above, it appears that the criteria for selection were quite inclusive, incorporating a number of different approaches to Learning to Learn under a single evaluation. There is good reason to believe that adopting a coherent, whole-school approach may be a critical factor in the success of a multifaceted intervention. For example, a Department for Education (DfE) evaluation of the Social and Emotional Aspects of Learning (SEAL) initiative reported only “non-significant effects of the SEAL programme on pupils’ social and emotional skills and mental health difficulties, and no significant effect on their pro-social behaviour” (Wigelsworth, Humphrey & Lendrum, 2011, p. 213). However, a National Strategies report into the efficacy of SEAL had previously reported that a “consistently important quality of SEAL implementation was having a genuinely ‘whole-school universal’ approach... (this) was the strongest predictor of an enhanced school ethos, characterised by positive social relationships, attitudes and behaviour” (Banerjee, 2010). Similarly, a more recent review reported that “ratings indicative of a whole-school universal approach to SEAL were significantly associated with school ethos, which in turn mediated associations with pupils’ social experiences, overall school attainment, and persistent absence” (Banerjee, Weare & Farr, 2013, p. 718). It therefore appears that the extent to which schools adopted SEAL as a whole-school approach (the importance of which was emphasised in SEAL guidance documentation) may have been a critical determinant of the programme’s impact on student attainment. A similar emphasis on the need for whole-school implementation of Social and Emotional Learning initiatives was also reported in a meta-analysis from the U.S. (Durlak et al., 2011).

Issues of evaluation

Each of the evaluations of Learning to Learn initiatives outlined above took place on a large scale, across multiple classrooms, schools and local authorities. It must therefore have been extremely difficult to exercise any form of meaningful quality control over the practices that were enacted in so many classrooms on a daily basis. In some of the evaluations, it is not clear what precisely was being practiced, or what the selection criteria were for inclusion in the evaluation. Given the amount of ‘noise’ even within a single school, where overlapping and sometimes conflicting agendas are often implemented simultaneously, it is perhaps not surprising that large-scale evaluations covering many schools and many different implementational styles failed to detect a clear ‘signal’ arising from the Learning to Learn initiative. It is therefore possible that the large-scale, inclusive nature of these evaluations (typically involving dozens of geographically diverse schools, some implementing Learning to Learn as a coherent, whole-school approach, others resembling a patchwork of case studies at the classroom level) may have undermined the researchers’ ability to determine the extent to which Learning to Learn impacted on student learning. It would be interesting to carry out a new, large-scale evaluation, using strict criteria for selection. For example, if there were a sufficient number of schools where there was a combined approach (i.e. a taught course *and* embedded practice across the curriculum) combined with a coherent whole-school strategy for promoting transfer from the taught course into subject areas, it seems likely that such an evaluation would find a stronger correlation between Learning to Learn and student outcomes using existing indicators. I will return to this theme in chapter five, when I consider how the Learning to Learn field might develop in the years to come.

Issues of implementation

Another shortfall of previous initiatives is that Learning to Learn has been seen as an ‘off the shelf’ approach that can be bought in and implemented in a top-down way. As a consequence, the importance of creating a sense of agency and ownership among the teachers delivering Learning to Learn may have been overlooked. The importance of this has been noted in a number of studies. For example, a 2006 report on school-based interventions concluded that “whether a particular program “works” in a specific population may rest on whether sufficient background work has been done in that population and whether the population itself is invested in the implementation of the intervention” (Jaycox et al., 2006, p. 321). Similarly,

Dignath et al. (2008) noted that metacognition and self-regulation interventions typically show the highest effect sizes when they are implemented by the people who designed them.

The sequence of steps through which Learning to Learn is implemented in schools is also of critical importance. Watkins (2010) suggested that the effective implementation of Learning to Learn requires two consecutive shifts: first, from teacher-centred to student-centred practice; and second, to learning-centred practice. The reason these shifts are viewed as being consecutive is that:

attempts to accelerate the process and move directly from teacher-centred classrooms to learning-centred classrooms usually entail the imposition of a teacher-centred language of learning. Research... has shown that this does not have the intended positive effects. It is an example of what learning-oriented researchers have called a “lethal mutation” of their findings. When research-based, learning-centred classroom practices are subsequently packaged and promoted, they become teacher-centred practices, omit the principles of learning, and lose their positive effects...

(Watkins, 2010, p. 6)

Taken together, the identification of issues relating to implementation and evaluation outlined above lend support to the idea that the field of Learning to Learn may have some distance left to run. If it were possible to design, implement and evaluate a whole-school approach to Learning to Learn in ways that make allowances for the variables outlined above, then it would be interesting to see whether a relationship can be detected between Learning to Learn and student outcomes using existing indicators. This, in essence, is the rationale for the *Learning Skills* programme described and evaluated in this thesis.

LEARNING TO LEARN: A CRITIQUE AND A DEFENCE

Setting aside the fact that large-scale Learning to Learn initiatives have so far fallen short of achieving their promise in terms of academic gains, there is also a body of theoretical and research literature and thinking to suggest that the very idea of Learning to Learn is ill-conceived. The challenges are essentially twofold. The first is conceptual – that the notion of “generic” transferrable learning skills rests on a misunderstanding or an ignorance of “cognitive architecture” (e.g. see Tricot & Sweller, 2014). This critique is rooted in an understanding of ideas such as the role of domain-specific knowledge in higher order processes such as creativity or critical thinking; the distinction between biologically primary

and biologically secondary knowledge; and cognitive load theory. The second challenge is empirical – that there is evidence in the research literature of ‘constructivist’ or ‘discovery’ approaches to learning being less effective than ‘direct’ or ‘explicit’ instruction. I will now discuss these challenges in turn.

Domain-specific knowledge vs. generic skills

In this country, we are winning the argument in favour of a knowledge-rich curriculum... We must continue to expound the evidence in favour of how a knowledge-rich curriculum benefits all pupils, particularly the most disadvantaged.

(Gibb, 2017)

Under the current UK Conservative government, there has been a shift away from the skills agenda promoted by the New Labour administration (1997-2010) and towards a knowledge-based or a knowledge-rich curriculum. However, this renewed emphasis on knowledge should not be seen as a party political concern, since the idea has support from across the political spectrum. For example, E.D. Hirsch Jr., an influential advocate of a ‘core knowledge’ curriculum, has declared himself “practically a socialist” (Tyre, 2014). Hirsch’s support for a knowledge-based curriculum centres around the idea of cultural literacy, which he defines as:

the network of information that all competent readers possess. It is the background information, stored in their minds, that enables them to take up a newspaper and read it with an adequate level of comprehension, getting the point, grasping the implications, relating what they read to the unstated context which alone gives meaning to what they read.

(Hirsch, 1987, p. 2)

According to Hirsch, a knowledge-rich curriculum is needed to provide young people with the minimum background information that enables one to take part in the national conversation – to understand a typical broadsheet newspaper article, say. In an influential book entitled *Cultural Literacy*, Hirsch included an appendix with a list of 5000 words, phrases and dates, headed “What Literate Americans Know” (Hirsch, 1987, p. 152-215).

Hirsch’s proposal that we should promote cultural as well as written literacy in schools is not a direct critique of Learning to Learn, unless one infers that schools should spend more time teaching knowledge and less on other things. However, a further line of support for a

knowledge-rich curriculum that comes from cognitive science has been interpreted by some to be present a direct challenge to skills-based education. As Willingham (2009) has written:

Trying to teach students skills such as analysis or synthesis in the absence of factual knowledge is impossible. Research from cognitive science has shown that the sorts of skills teachers want for their students – such as the ability to analyse and to think critically – require extensive factual knowledge... Factual knowledge must precede skill.

(Willingham, 2009, p. 19)

This recognition of the importance of knowledge has been seized upon by some to promote an exclusively knowledge-based curriculum, taught traditionally with a primary focus on memorisation. For example, in the UK a small but increasing number of teachers and school leaders have concluded that schools should focus almost exclusively on getting as much knowledge into students' long-term memories as possible. As the Head of English at one free school put it: "We drill knowledge relentlessly" (Facer, 2016).

This thinking can also be seen in Gove's reading of Willingham's work, with his assertion that "memorisation is a necessary pre-condition of understanding" (Gove, 2012). However, a closer reading of Willingham's work reveals a more nuanced perspective on the role of knowledge in learning:

The implication is that facts must be taught, *ideally in the context of skills...* *We want our students to think, not simply to memorise.* When someone shows evidence of thinking critically, we consider her smart and well-educated. When someone spouts facts without context, we consider her boring and a show-off... The conclusion from this work in cognitive science is straightforward: we must ensure that students acquire background knowledge *in parallel with practicing critical thinking skills...* *cognitive scientists know that thinking skills and knowledge are bound together...* Our goal is not simply to have student know a lot of stuff – *it's to have them know stuff in service of being able to think effectively*"

(Willingham, 2009, p. 20-38; emphases added).

Willingham prefaces this discussion with a quote from J.D. Everett, written in 1873: "There is a great danger in the present day lest science-teaching should degenerate into the accumulation of disconnected facts and unexplained formulae, which burden the memory

without cultivating the understanding.” It is clear, then, that Willingham’s central message is one of balance:

The cognitive processes that are most esteemed – logical thinking, problem solving and the like – are intertwined with knowledge. It is certainly true that facts without the skills to use them are of little value. It is equally true that one cannot deploy thinking skills effectively without factual knowledge.

(Willingham, 2009, p. 36)

To summarise Willingham’s position, while knowledge may be necessary for the development of critical thinking skills, it is by no means sufficient. In other words, we need to teach knowledge *as well as* strategies that help young people learn how to think critically, to solve problems and so on.

Although the importance of knowledge is not widely contested, some proponents of Learning to Learn have questioned the need for knowledge to be taught. For example, Claxton has written that:

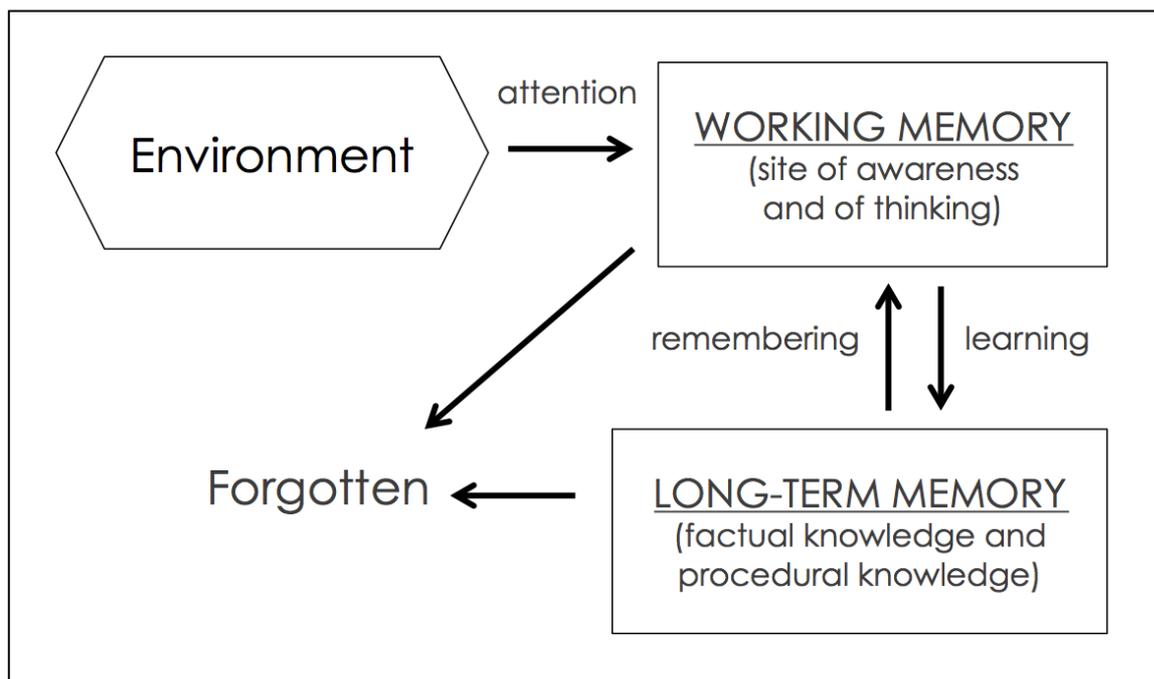
knowledge is changing so fast that we cannot give young people what they will need to know, because we do not know what it will be. Instead, we should be helping them to develop supple and nimble minds, so that they will be able to learn whatever they need to...

(Claxton, 2013, p. 1)

This is a variation of the idea expressed by John Holt at the start of this chapter: “our job must be to try to turn out young people who love learning so much, and who learn so well, that they will be able to learn whatever needs to be learnt” (Holt, 1964, p. 173). Often, this idea is linked to a sense that technology has fundamentally changed the way people learn; nowadays, the argument goes, with a powerful computer in their pocket, children can just “look it up”. This idea has been strongly contested in recent years (e.g. see Christodoulou, 2014), partly drawing on ideas derived from cognitive load theory.

Cognitive load theory

Cognitive load theory is based on the working memory model of the mind first proposed by Baddeley and Hitch (1974). A simplified version of this model can be seen in Figure 2.2.



(Adapted from Willingham, 2009, p. 42)

Figure 2.2. A simplified working memory model of the mind.

In this scheme, working memory is defined as the ‘site of awareness and of thinking’; this is often thought of as the temporal, mental space we ‘live in’. There are two ways for information to enter the working memory: by paying attention to the environment (e.g. teacher, book, screen); or by recalling what has already been stored in the long-term memory. In a seminal 1956 paper, George Miller proposed what became known as Miller’s law – that the number of ‘bits’ of information that can be held in the working memory is limited to “the magical number seven, plus or minus two” (Miller, 1956, p. 81). While the precise value has been contested over the years (e.g. Cowan, 2001, places the value at four, plus or minus one), the central idea of Miller’s law is widely accepted and can be easily tested: most people can recall a novel string of seven numbers, for a few seconds at least – far more successfully than for a 12-digit number, say.

However, work by Ericsson and others has shown that the limited capacity of working memory only applies to novel information, and that these limits disappear when dealing with familiar information stored in the long-term memory (e.g. see Ericsson & Charness, 1994; Ericsson, Krampe & Teschroer, 1993). To place this idea in a classroom context, suppose a student needs to calculate 7×8 as part of a larger problem. If they have to use a calculator or work it out, doing so would take up their limited working memory space; this would prevent

them from being able to think about the larger problem as well as they might had they memorised their times tables. Thus, by storing information in the long-term memory we can “cheat” the limits of Miller’s law and free up the working memory to attend to other things.

As with Hirsch, cognitive load theory has not been used to critique Learning to Learn *per se*. However, it does present a challenge to the idea of discovery learning, or ‘minimally guided instruction’, especially for novices:

cognitive load theory suggests that the free exploration of a highly complex environment may generate a heavy working memory load that is detrimental to learning. This suggestion is particularly important in the case of novice learners, who lack proper schemas to integrate the new information in their prior knowledge.

(Kirschner, Sweller & Clarke, 2006, p. 80)

In response to the challenge presented by cognitive load theory, it should firstly be recognised that Learning to Learn is not a ‘minimally guided’ approach to delivering subject knowledge. While teaching Learning to Learn can involve stepping back at times to allow students (and their teachers) to find out what they can and cannot do unassisted, this is done judiciously and not as a default mode of instruction. Indeed, although Learning to Learn is sometimes characterised as a kind of woolly-minded, child-centred progressive pedagogy, as we shall see in the second half of this chapter, the *Learning Skills* programme at Sea View was delivered through traditional teaching methods such as modeling, explaining, deliberate practice and feedback. In a sense, *Learning Skills* is an attempt to deliver progressive ends through traditional means. A key distinction here is to note the difference between pedagogy and curriculum. In the *Learning Skills* programme, metacognition, self-regulation and oracy were not features of a child-centred pedagogical approach, but the procedural knowledge to be learned. Mercer made an analogous point recently, when drawing a distinction between oracy education and dialogic teaching: in essence, oracy education is learning to talk, while dialogic teaching is talking to learn (Mercer, 2018).

Related to cognitive load theory, drawing on aspects of evolutionary psychology Tricot and Sweller (2014) emphasise the primacy of domain-specific knowledge, and suggest that “generic skills” cannot be taught in any meaningful sense:

All educationally relevant knowledge acquired during instruction is, and only is, domain-specific. This view provides the major point of departure from the nearly universal consensual view that can best be summarised by the suggestion that knowledge imparted during instruction includes some mixture of domain-general and domain-specific information.

(Tricot & Sweller, 2014, p. 267)

Following the evolutionary psychologist Geary (2008, 2012), Tricot and Sweller draw a distinction between biologically primary and biologically secondary knowledge. Biologically primary knowledge includes “learning to listen and speak, learning to recognise faces, engage in social relations, basic number sense or learning to use a problem solving strategy such as means-ends analysis” (Tricot & Sweller, 2014, p. 268), while biologically secondary knowledge is defined as “reading, writing and arguably, all other content taught in modern educational establishments” (p. 260). According to Tricot and Sweller, biologically primary knowledge “is acquired easily, unconsciously and without explicit tuition. Barring learning deficits such as those associated with autism, it will be acquired automatically simply as a consequence of membership of a normal society” (p. 268). This is presented as “an alternative to the perspective that teaching generic skills is important” (p. 265).

In this argument, Tricot and Sweller conflate the ideas of biologically primary knowledge and generic skills, and conclude that generic skills cannot and should not be taught. While the distinction between biologically primary and secondary knowledge may be useful from an evolutionary standpoint, to conclude from this that “learning to listen and speak” is something that is “acquired easily, unconsciously and without explicit tuition” – and that therefore schools need not concern themselves with oracy education – is an extremely tenuous conclusion to draw. Although it is true that humans have an innate capacity for spoken language, there is also overwhelming evidence that speaking and listening skills can be taught to a very significant degree. Furthermore, a compelling body of research literature suggests that when this is done well, it is associated with a range of benefits including cognitive, social and emotional outcomes. I will summarise this literature in the final section of this chapter, when I set out the research evidence underpinning each component of the *Learning Skills* intervention.

Direct vs. ‘minimally guided’ instruction

A further challenge to practitioners of Learning to Learn comes from empirical studies where traditional approaches to instruction have proven more effective than constructivist approaches. In an influential review article, Kirschner et al. (2006) argue that:

After half a century of advocacy associated with instruction using minimal guidance, it appears that there is no body of research supporting the technique. In so far as there is any evidence from controlled studies, it almost uniformly supports direct, strong instructional guidance rather than constructivist-based minimal guidance during the instruction of novice to intermediate learners.

(Kirschner et al., 2006, p. 83)

According to Kirschner et al., the reason that minimally guided instruction is ineffective is that it “appears to proceed with no reference to the characteristics of working memory, long-term memory, or the intricate relations between them” (p. 76). Through the lens of cognitive science, memory is seen as synonymous with learning:

The aim of all instruction is to alter long-term memory. If nothing has changed in long-term memory, nothing has been learned. Any instructional recommendation that does not or cannot specify what has been changed in long-term memory, or that does not increase the efficiency with which relevant information is stored in or retrieved from long-term memory, is likely to be ineffective.

(Kirschner et al., 2006, p. 77)

This process of getting information into the long-term memory is seen as requiring effortful thought, an idea expressed by Coe as “learning happens when people have to think hard” (2013, p. xiii), and by Willingham as “memory is the residue of thought” (2009, p. 41). These ideas have also been developed into an approach to teaching known as the *Unified Learning Model* (Shell et al., 2010).

In response to the assertion of Kirschner et al. (2006) that the constructivist approach to teaching and learning “appears to proceed with no reference to the characteristics of working memory, long-term memory, or the intricate relations between them” (p. 77), it is worth noting that the cognitive importance of metacognition and metamemory is well documented – concepts that are at the heart of Learning to Learn. Metamemory is defined as “knowledge

and beliefs about the capacities, functioning, limitations and development of one's own memory and the human memory system in general" (Pierce & Lange, 2000, p. 277). In a meta-analysis of 60 studies, Schneider and Pressley (1998) reported that the correlation between memory performance and metamemory was +.41, suggesting a "moderate tendency for children with good metamemory knowledge to have superior memory performance to children with poor metamemory" (Baddeley, Eysenck & Anderson, 2015, p. 390). Similarly, the neuroscience of metacognition is becoming increasingly well understood:

The past two decades have witnessed the birth of the cognitive neurosciences, spurred in large part by the advent of brain scanning technology. From this discipline, our understanding of psychological constructs ranging from perception to memory to emotion have been enriched by knowledge of their neural underpinnings. The same is now true of metacognition.

(Fleming & Frith, 2014, p. 1)

Metacognition is, by definition, a complex set of mental processes and behaviours that involves students setting their own goals, identifying and selecting strategies, monitoring progress and evaluating their own performance. It is therefore difficult to see how this could be developed in a 'fully guided' environment.

Another commonly cited source of evidence for the superiority of 'fully guided' over 'minimally guided' instruction comes from the unfortunately named Project Follow Through, which has been described as "the most extensive educational experiment ever conducted" (NIDFI, 2015). This study, which was designed to determine which teaching methods are most beneficial for disadvantaged children, involved over 200,000 children in 178 communities and compared 22 different models of instruction over a nine year period (1968-1977), including an approach known as Direct Instruction. It should be noted that Direct Instruction (capitalised) is a subset of direct instruction (lower case). While direct instruction is a general term for explicit, guided teaching, Direct Instruction is a highly controlled, scripted approach to teaching and learning developed in 1964 by Siegfried Engelmann and Wesley Becker, which includes the following key features:

- Learners taught in small groups constituted by ability
- Attention focused on the teacher
- Scripted presentation of carefully designed instruction
- Active responding as a group and individually

- Responding is cued by the teacher
- Frequent feedback and correction
- High pace

(Parsons & Polson, 2000)

The Project Follow Through evaluation found that Direct Instruction significantly outperformed the other methods of instruction in tests of reading, maths, spelling, language and across the domains of basic, cognitive and affective skills (Parsons & Polson, 2000; see also Watkins, 1997). It has since been argued that “the results of the Follow Through evaluation have been virtually ignored by the educational establishment” (Watkins, 1997, p. vii). Since Watkins wrote this monograph, Project Follow Through has come to wider attention and it is increasingly cited by advocates of traditional pedagogy and/or a knowledge-based curriculum; however, this happens more in the realm of social media and blogging than in academic journals. For example, a search of “Project Follow Through” on Twitter yields 108 mentions in 2017, all in reference to this 50-year-old study. The superior outcomes arising from the use of Direct Instruction in this large-scale, comparative study presents a challenge to proponents of constructivist approaches to instruction. However, once again, the findings of Project Follow Through do not present a direct challenge to Learning to Learn, as long as one recognises that Learning to Learn is not a ‘minimally guided’ or constructivist approach to teaching subject knowledge.

While there are well-grounded responses to each of the challenges outlined above, advocacy for knowledge-based schooling (and a parallel rejection of skills-based education) is gaining traction at present, especially within the Anglosphere, while Learning to Learn is in a serious state of decline. If Learning to Learn is going to survive as a field of theory and practice, it needs to respond head-on to the conceptual and empirical challenges outlined above, and to learn lessons from early attempts to replicate the findings relating to metacognition and self-regulation at scale.

Part of the challenge in teaching Learning to Learn effectively is to recognise that the material to be learned is tacit (rather than explicit) knowledge, and that this presents the teacher with a uniquely challenging task. The notion of ‘tacit knowledge’ or ‘tacit knowing’ is attributed to Polanyi (1958), who sought to “reconsider human knowledge by starting from the fact that *we can know more than we can tell*. This fact seems obvious enough, but it is not easy to say exactly what it means” (1967, p4, original emphasis). Tacit knowledge has since been defined

as “skills, ideas and experiences that people have in their minds and are, therefore, difficult to access because it is often not codified and may not necessarily be easily expressed” (Chugh, 2015). The challenge for teachers of Learning to Learn must therefore be to make such tacit knowledge tangible – making the implicit, explicit – by modelling, discussing, practicing and mastering such knowledge, skills, attitudes and habits until they become assimilated into the behavioural and attitudinal norms of the individual.

One way in which *Learning Skills* moves the field forward in developing such tacit knowledge is by reconceptualising Learning to Learn as a complex intervention. In the next section, I will explain what this term means, and how it shaped the design of the *Learning Skills* programme. Following this, I will outline some of the key literature that was influential in the design and implementation of the *Learning Skills* programme at Sea View.

COMPLEX INTERVENTIONS

Before I became a teacher, I worked in neuroscience labs at University College London and Harvard Medical School, and as a medical writer in the pharmaceutical industry. An idea I encountered many times in my work as a scientist, particularly in the field of medicine, is that of the complex intervention: “Complex interventions are widely used in the health service, in public health practice, and in areas of social policy that have important health consequences” (Craig et al., 2008a, p. 979).

Put simply, a complex intervention is an “intervention with several interacting components” (Craig et al., 2008b, p. 6). The UK Medical Research Council suggest that complex interventions are characterised by a number of key features, including the number of interacting components; the number and difficulty of behaviours required by those delivering or receiving the intervention; the number of groups or organisational levels targeted by the intervention; the number and variability of outcomes; and the degree of flexibility or tailoring of the intervention permitted (Craig et al., 2008b, p. 7). There are many other definitions and features of complex interventions:

These tend frequently to emphasise that they have multiple interacting components, and non-linear causal pathways. Complex interventions are often contrasted in the health literature with ‘simple’ interventions, in particular

medical interventions, which are generally seen as having simple linear pathways linking the intervention and its outcome.

(Petticrew, 2011, p. 397)

In a lab, a researcher of the natural sciences might be able to isolate a single variable and determine a direct, causal relationship between an input and an output variable. However, in education research, the idea that a researcher can manipulate just one factor in a school and then determine its causal effect on an outcome of interest is at odds with the nature of social reality, which is inherently complex. In a recent synthesis of the literature on ‘implementation and protocol evaluations (IPE) for interventions in education settings’, Humphrey et al. (2016) outline the problem succinctly:

One immediate limitation... is an implicit assumption of linear sequencing in the development of interventions (that is, x is done first, then y, then z), when in fact the real world dictates a more complex picture, in which the temporal relationship between different development and evaluation activities is cyclical, interactive and non-linear... For example, even the basic starting point of ‘defining and understanding the problem’ may need to be revisited at different points in the development process as the nature of the problem or the understanding of it changes over time.

(Humphrey et al., 2016, p. 16)

Complex adaptive systems

This notion of non-linear causality is a feature of a ‘complex adaptive system’ (CAS). Cilliers (1998) characterises a CAS as having:

- A large number of elements with many interactions
- Interactions which are non-linear, i.e. large-scale causes can have small impacts and vice versa
- Interactions which lead to feedback loops, both positive and negative
- An ‘open’ system, having interactions with elements in external environments beyond the immediate system
- Elements which interact with their environment making the identification of boundaries difficult
- A system which is far from equilibrium and therefore needs a constant energy flow for it to operate
- The importance of history, past processes playing a role in forming the present, often unpredictably
- Each element only acting on local information rather than information from the whole system

(Cilliers, 1998, p. 4-5)

In recent years, there has been an increasing recognition that the CAS offers a powerful working model for schools and other organisations, and so-called ‘systems thinking’ has become influential reconceptualising schools and companies as ‘learning organisations’ (e.g. Senge, 1990; Senge et al., 2000). A wider discussion of systems thinking in education is beyond the scope of this thesis. For the purposes of this study, I am concerned with the classic notion of a complex intervention, defined as an intervention with several interacting components.

The rationale for using complex interventions in education is that the ‘marginal gains’ that might arise from any individual component or area of practice will stack up and interact, to produce a larger effect size overall. To give an illustrative example from the medical literature, a study by Mathiesen et al. (2013) evaluated the use of a complex intervention to treat postoperative pain. The standard treatment for post-operative pain is “a large amount of opioid consumption” (p. 2089), which is associated with a number of unpleasant side-effects. In this study, the use of morphine was compared with a “comprehensive multimodal pain treatment” comprised of seven different substances, administered either systemically or locally to the site of injury. Compared with an active control group, in which patients received morphine as standard, patients receiving the complex intervention showed a statistically significant reduction in the amount of opioid used on postoperative days one and two; a significant reduction in time to be mobilised from bed; and significantly fewer side-effects (nausea, sedation and dizziness) on postoperative days one to six. There are many similar studies in the medical literature describing wide-ranging benefits associated with complex interventions, when compared with simple interventions using just a single line of treatment (e.g. Joshi, 2005; Kehlet & Dahl, 1993). When it came to designing the *Learning Skills* programme at Sea View, it was a natural step to draw on my understanding of the medical literature and to approach the design process as a complex intervention. Before I outline the complex *Learning Skills* intervention at Sea View and the literature that informed each component of it, I will compare the use of complex interventions in the education and medical literature.

Complex interventions in education and other fields

To determine the extent to which complex interventions appear in the education literature, the ERIC education research database (eric.ed.gov) was mined using the search term < "complex

intervention" OR "multimodal intervention" OR "multi-modal intervention" >. This elicited 131 results. When the same search terms were entered into a medical literature search engine (PubMed Central; ncbi.nlm.nih.gov), 3542 results were revealed. There were therefore 27 times as many mentions of complex interventions in the medical literature as in the education literature (Figure 2.3).

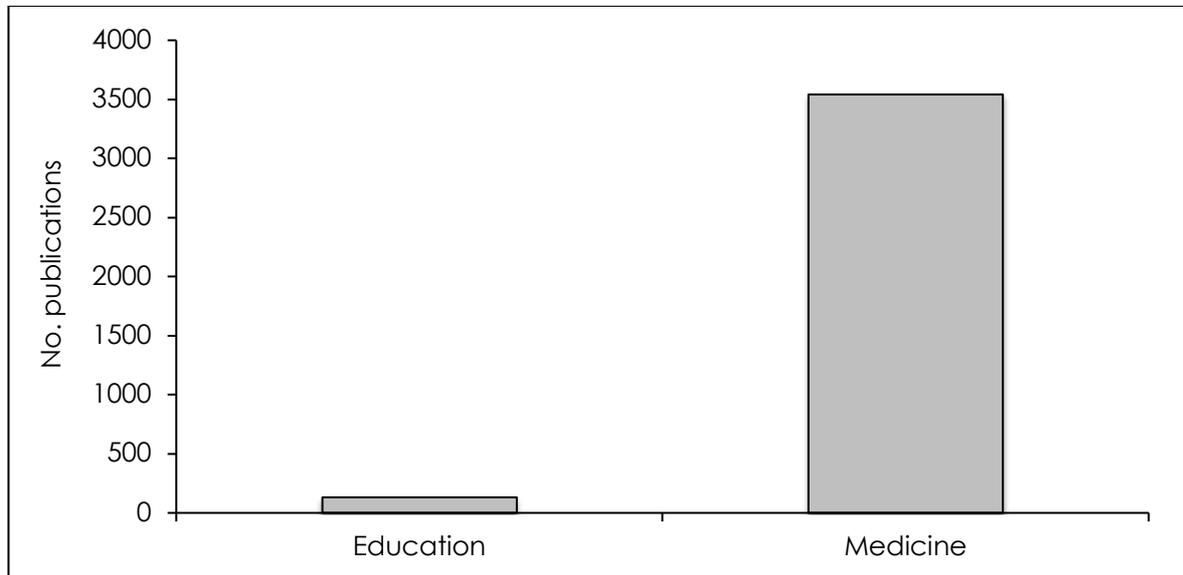


Figure 2.3. References to complex interventions in educational and medical literature.

However, the disparity is even greater than this crude comparison reveals. To compare the way in which the language of complex interventions is used in each of these fields, a random sample of 20 texts from the medical literature was reviewed, covering a date range from 1995 to 2017. Of these, all 20 texts explicitly referred to complex or multi-modal interventions in the classic sense described above.

The 131 publications elicited from searching the ERIC education database were grouped into categories according to the field or focus of the article. A breakdown of these 131 articles can be seen in Figure 2.4.

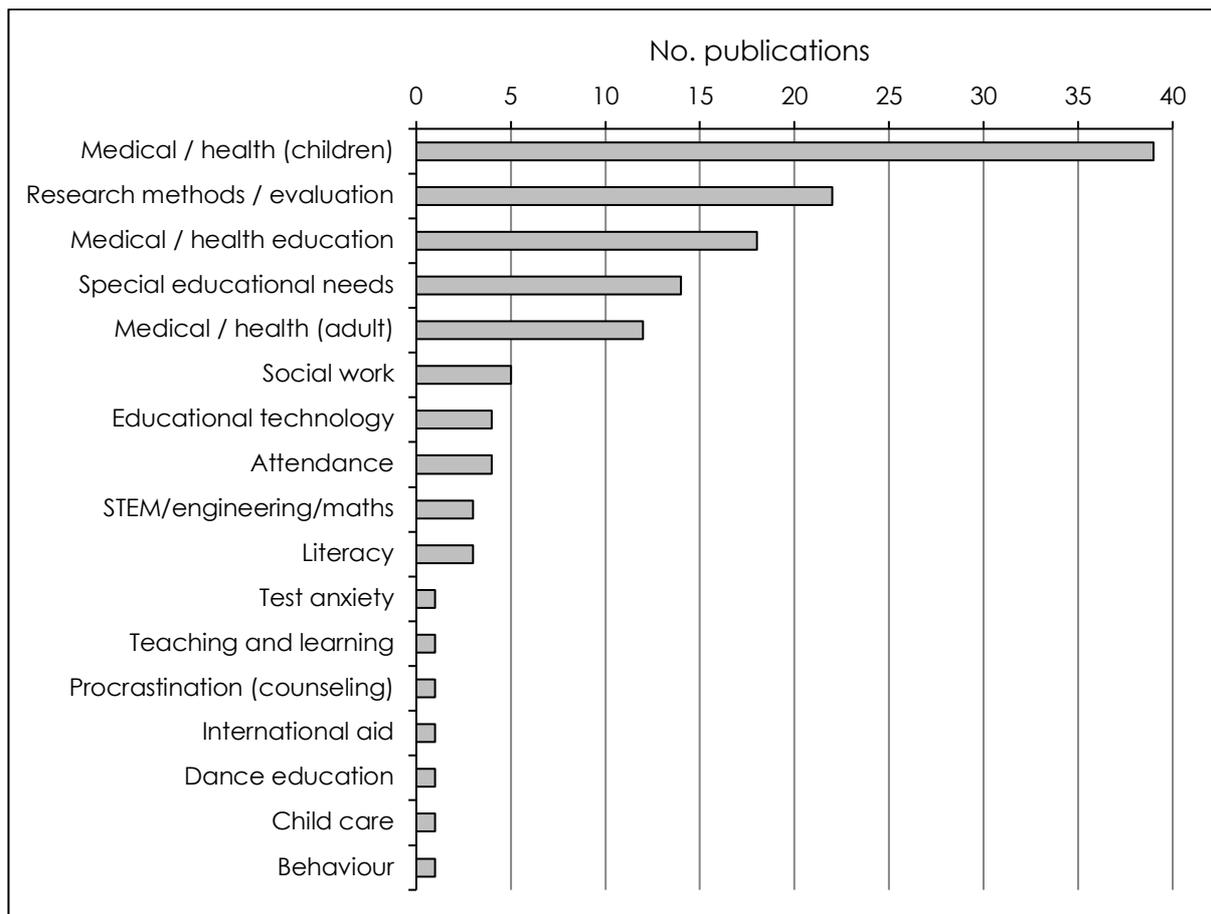


Figure 2.4. References to complex interventions in the educational literature.

As can be seen here, the majority of these articles were either medical or health-related (there are several clinical journals included in the ERIC database), or related to research methods/evaluation. It is also clear that the notion of complex interventions is apparent within the literature on medical education, with 18 publications, each referring to complex or multi-modal interventions in the classic sense. The most common use of complex interventions in education is in the field of Special Educational Needs and Disabilities (SEND). However, the majority of these studies use the term to describe an intervention that involves the use of multiple sensory modes of perception, rather than in the classic sense outlined above. For example, a study by Pieretti et al. (2015) reports on an approach which uses “auditory, tactile, and kinaesthetic modalities and includes a unique, interactive visual focus that attempts to provide a visual representation of a phonemic category” (p. 131).

The 131 articles elicited through the ERIC search were reviewed according to the following three criteria:

- a) Relates explicitly to practices within the education sector (rather than say medical/health, or research methods/evaluation)
- b) Refers to the notion of a complex intervention in the classic sense (i.e. an intervention comprised of multiple components)
- c) Published in an academic journal

Of the 131 publications reviewed, only five articles met these criteria. These are summarised in Table 2.4, and relate to the fields of Special Educational Needs and Disabilities (SEND); educational technology (Ed tech), and Science, Technology, Engineering and Maths (STEM).

Table 2.4. Five publications on complex interventions in education.

Theme	Summary	Citation
SEND	Review of 16 research studies on treatments in school settings for children with attention deficit hyperactivity disorder (ADHD). Concludes that the most effective treatment of ADHD “is a multimodal intervention that frequently includes concurrent medication in addition to parent training, school interventions and child intervention” (p. 52).	Miranda, Jarque & Tarraga (2006)
	Reflection on intervention studies. Refers to Gersten et al. (2005) in the same issue which “was a complex intervention, involving many components”, although Gersten et al. do not describe their study as a complex intervention. Argues that “we are at the point where more attention needs to be devoted to studying more complex, multicomponent treatments” (p. 221).	Graham (2005)
Ed tech	“When we want to know the outcomes of a school district’s implementation of Internet connections for its schools, along with the installation of new hardware and software, staff development for integrating ICT into the curriculum, plus the addition of technology specialists to each school staff, where do we begin and what methods do we use?” (p. 17). Argues for the use of program logic mapping and experimental designs (p.30).	Venezky (2001)
	Presents a complex intervention to help children who are reluctant to use computers to become comfortable and gain minimal competence with a computer. The intervention involves seven modes organised by the acronym PRO-TECH: Practice, Risk-Taking Imagery and Behaviours; Organisation and Planning; Tactile Exploration; Emotions; Cognitions; Helping. This features in a special issue of the journal <i>Elementary school guidance and counseling</i> on multimodal theory, research and practice, which reveals extensive use of complex interventions in the field of counseling.	Crosbie-Burnett & Pulvino (1990)
STEM	Discusses “the development of an instrument to measure student perceptions of the interdependent nature of STEM content knowledge in the context of a complex classroom intervention implemented in five schools” (p. 107). The wider complex intervention is not discussed in detail, but is described as a “complex classroom intervention”	Hernandez, Bodin, Elliott et al. (2014)

This phase of the literature review revealed that in some instances, the word ‘multicomponent’ is used interchangeably with ‘complex’ or ‘multimodal’. A second search of the ERIC database including the search terms < “multicomponent intervention” OR “multicomponent intervention” > elicited 316 publications, compared with 131 when ‘multicomponent’ was not used. It is therefore likely that the notion of complex interventions is more widespread within the education literature than this brief review of the literature reveals. However, when these same search terms were entered into the medical literature search engine, 5333 publications were revealed, compared with 3542 in the original search. The point therefore remains that complex interventions are significantly under-represented in the education research literature, relative to other fields.

It is clear that complex interventions are more prevalent in the education sector than is evident within the five articles reviewed in Table 2.4. For example, the review by Miranda et al. (2006) includes seven studies described as ‘multiple component interventions’. Another example of a complex intervention in education is the Cognitive Acceleration through Science Education (CASE) programme, which combined the use of multiple practices such as careful sequencing of well-planned and resourced lessons; practical demonstrations designed to induce a state of ‘cognitive conflict’ among students; collaborative approaches to constructing meaning through group work; metacognitive components; and bridging learning to existing experiences (Adey & Shayer, 1994). Achievement for All (AfA), a UK-based charity that creates bespoke, whole-school programmes for raising attainment can also be seen as a complex intervention:

AfA operated at a number of different levels, including individual, family and school. It was a complex, multi-component intervention that contained a blend of prescriptive (e.g. structured conversations with parents were manualised) and flexible (e.g. schools were able to prioritise two of the five wider outcomes noted above and use project funding to enhance their provision in these areas) forms of activity.

(Humphrey et al., 2016, p.18)

Notwithstanding these exceptions to the rule, the point remains that the *language* of complex interventions is largely absent from the education literature. This in turn suggests that complex *thinking* is perhaps less common in education than in other fields. Whereas in medicine the case for using complex interventions to improve patient outcomes has been made many times, in education the case has not explicitly been made for the complex

intervention as a framework for improving outcomes for students, or for school improvement. Instead, in education there has been an overwhelming emphasis on “endless silver bullets... the new initiatives that appear each month from people who claim they know how to fix educational underachievement” (Allen, 2017). In the UK, this focus on silver bullets can be seen in the EEF’s roster of Randomised Controlled Trials (RCTs), a research programme that is set to spend around £0.25 billion of public money over a 15-year period with a view to finding out “what works” in education. Almost all of the 131 studies undertaken to date seek to evaluate single variable interventions as a method for improving standardised scores in maths and English. Examples of single variables currently being investigated by the EEF include daily singing, the use of picture books, providing breakfasts, texting students and short bursts of physical activity in between lessons (EEF, 2017c).

The main use of the phrase ‘complex intervention’ in the education literature relates to the use of ‘design experiments’, an approach to education research imported from engineering. For example, Brown (1992) uses the phrase ‘complex intervention’ to describe studies that take place in classrooms, rather than laboratory settings. However, Brown also recognises the multifaceted nature of complex interventions and the problems this presents to evaluators, pointing out:

the major problem of trying to conduct design experiments consisting of many interwoven aspects. Components are rarely isolatable, the whole really is more than the sum of its parts. The learning effects are not even simple interactions, but highly interdependent outcomes of a complex social and cognitive intervention. And this presents a methodological headache for traditional psychology, allergic as it is to multiple confounded experiments.

(Brown, 1992, p. 166)

Striking a similar tone, Gorard and Taylor (2004) use the phrase ‘complex intervention’ to describe a mixed methods approach to evaluating complex phenomena. However, they do not draw a clear distinction between a complex intervention and the evaluation of it, but instead conflate the two:

by randomising schools, and through careful attention to the choice of a control condition, schools are willing to participate in RCTs. Using a range of research methods, including observation, interview and survey, the quality of the intervention is increased in its development and formative evaluation. Also, the factors affecting its success, such as context and delivery, can be evaluated

within the trial. This is the power of combining methods in complex interventions. Experiments are not only ‘quantitative’.

(Gorard & Taylor, 2004, p. 99)

Here, the phrase ‘complex intervention’ is not used to refer to an intervention *per se*, but to evaluation – specifically, mixed methods evaluations of complex phenomena. Cobb et al. (2003) suggest that such design-based approaches to evaluation:

ideally result in greater understanding of a learning ecology – a complex, interacting system involving multiple elements of different types and levels – by designing its elements and by anticipating how these elements function together to support learning. Design experiments therefore constitute a means of addressing the complexity that is a hallmark of educational settings.

(Cobb et al., 2003, p. 9)

Perhaps one reason for the lack of complex interventions in education research is that, as Brown (1992) points out, they present a number of problems for evaluators. In medicine, these difficulties have been reported as relating to the difficulty of standardising the design and delivery of the interventions (Rifkin, 2007; Hawe et al., 2004); their sensitivity to features of the local context (Rychetnik et al., 2002; Wolff, 2001); the organisational and logistical difficulty of applying experimental methods to service or policy change (Ogilvie et al., 2006; Petticrew et al., 2005); and the length and complexity of the causal chains linking intervention with outcome (Victoria et al., 2004). Humphrey et al. (2016) similarly point to a number of difficulties associated with complex interventions in education: “complex multi-component interventions requiring action at multiple levels and the commitment of multiple participants take longer to implement successfully... are more likely to be discontinued... and typically become diluted due to their broader scope” (p. 15).

Despite the difficulties associated with evaluating complex interventions, if their use improves outcomes for young people, then there is a strong case for incorporating complex thinking into the design and implementation of educational interventions. In the next section, I will outline the *Learning Skills* programme at Sea View, highlighting some of the key literature that underpins each component of this complex intervention.

LEARNING SKILLS: COMPONENTS OF A COMPLEX INTERVENTION

As we saw above, the phrase ‘complex intervention’ has been used by some authors (e.g. Brown, 1992; Gorard & Taylor, 2004) to refer to a ‘design experiment’ – essentially, a mixed methods evaluation of a real-world phenomenon. In this thesis, when using the phrase ‘complex intervention’ I refer only to the design of the *Learning Skills* programme itself. When discussing the *evaluation* of the *Learning Skills* programme, I refer to the investigation as a mixed methods case study. I make this distinction because it is useful to differentiate between the intervention and its evaluation.

In the remainder of this chapter, I will outline some of the key literature that informed the inclusion of each component of the *Learning Skills* programme at Sea View. I will also describe how the *Learning Skills* programme translated these research findings into practice, and how it developed from a year seven taught course into a whole-school approach to teaching and learning. Following this, I will describe how the planning and teaching of the *Learning Skills* programme was guided by the principles of ‘evidence-informed practice’ and ‘implementation science’. Finally, I will discuss how the *Learning Skills* intervention, and this evaluation of it, can be seen as taking place within a sociocultural framework.

Components of a complex intervention

Dedicated teaching team

As stated above, the *Learning Skills* programme began with an email from the Headteacher to all teaching staff, inviting applications to become a part of the team. Following a competitive selection process, a team of five teachers was established. The resulting *Learning Skills* team was highly committed to the project, meeting up during the summer holidays to plan the curriculum and create resources. As we will see in the teacher interviews, this establishment of a dedicated team was of critical importance to the future success of the programme, since such interventions are far more successful when they are implemented by the teachers who designed them than when delivered by a combination of volunteers and “sceptical conscripts” (Downey et al., 2013b, p. 378; Dignath et al., 2008).

At the outset, the project brief was extremely open-ended: the *Learning Skills* team were simply tasked with designing a “thinking curriculum” for all year seven students, the classes would be mixed ability, and there would be five consecutive lessons a week. The first task was to identify which knowledge, skills, habits and attitudes the students needed to develop, and then to either adopt or create a framework around which to structure the learning. The team could then design a curriculum with these goals in mind. The Qualifications and Curriculum Authority (QCA) had recently published the Personal Learning and Thinking Skills (PLTS), a framework of six “generic skills” that schools were expected to develop under the then New Labour government (QCA, 2007; see Appendix 2). At the outset then, with five lessons a week and only the one-page PLTS framework to work from, the *Learning Skills* team was tasked with devising a substantial programme of study from the ground up. Watkins (2010) describes the shift from a performance-centred to a learning-centred classroom as taking place along three successive dimensions: a) more active learning, b) more collaborative learning, and c) more learner-driven learning. He further suggests that when these three dimensions are in place, it becomes possible to address a fourth dimension: more learning about learning (Watkins, 2010, p. 6-7). Upon reviewing the research literature, a number of key ideas and practices were identified to help make this transition from performance to learning-centred practice. Rejecting the idea of buying in pre-prepared curriculum materials, the *Learning Skills* team set out to assemble a ‘complex intervention’ comprised of multiple strands of evidence-informed practice. I will now explain how the *Learning Skills* programme combines the use of taught and embedded practices, before discussing each component of the *Learning Skills* programme in turn.

Taught vs. embedded vs. combined

As outlined above, previous Learning to Learn initiatives have either focused on teaching learning skills through a taught course, or embedding them across the curriculum. In the beginning, the *Learning Skills* programme at Sea View adopted the former approach. Over the following three years however, this developed into a more pragmatic *combined* approach whereby a broad conception of Learning to Learn was both taught explicitly (in years seven, eight and nine) *and* embedded in subject learning throughout the curriculum. This two-tiered approach was augmented by a number of whole-school practices designed to promote the transfer of skills and attitudes developed through the *Learning Skills* programme into subject areas throughout the school. Typically, schools in the UK have adopted either an embedded

approach in year seven only (often using the RSA's Opening Minds competence framework to deliver traditional subject content through cross-curricular projects), or have taught Learning to Learn as a discrete course. Based on this review of the literature, as far as I am aware *Learning Skills* is the first example of an explicitly combined approach to Learning to Learn to enter the literature.

Another way in which *Learning Skills* differs from previous Learning to Learn initiatives is the way in which the taught course expanded throughout KS3. The first *Learning Skills* cohort had five lessons a week in year seven, three lessons a week in year eight, and five lessons a fortnight in year nine; in total, they had more than 400 lessons of *Learning Skills* throughout KS3. Table 2.5 summarises the taught and embedded features of the *Learning Skills* programme at Sea View in 2012-13 (the third year of the programme), with examples of supporting literature.

Table 2.5. Components of the *Learning Skills* programme, with supporting literature.

Component of the <i>Learning Skills</i> programme	Taught / embedded / teacher-based	Examples of supporting literature
<i>Self-regulation</i> (Project-based learning)	Taught course (Y7, 8)	Barron & Darling-Hammond (2008); Dignath et al. (2008); Hung (2008)
<i>Metacognition</i> (reflective learning journals, reflective plenary tools, shared language of learning)	Taught course (Y7, 8 & 9) and embedded	Haller, Child & Wahlberg (1988); Whitebread & Pino Pasternak (2010); Chiu (1998)
<i>Collaboration</i> (paired → group, familiar → unfamiliar)	Taught course (Y7, 8) and embedded	Howe (2009, 2010); Laughlin et al. (2006); Roseth et al. (2006); Slavin (2008, 2010)
<i>Oracy</i> (e.g. weekly philosophical inquiries, paired talk tasks, debates, ground rules for exploratory talk...)	Taught course (Y7, 8 & 9) and embedded	Barnes (1975, 2008); Mercer & Littleton (2007); Littleton & Mercer (2013); Topping & Trickey (2007a, 2007b, 2007c); Gorard et al. (2015)
<i>Formative assessment</i> (comment-based feedback)	Taught course (Y7, 8 & 9) and embedded	Black & Wiliam (1998); Fuchs & Fuchs (1986); Hattie (1992); EEF (2017a)
<i>Personal effectiveness</i> (organisation skills)	Taught course (Y8)	Harrison, James & Last (2012)
<i>Thinking & Reasoning Skills</i> (critical thinking, problem solving, argumentation, fallacies...)	Taught course (Y9)	Halpern (1998); Moseley et al. (2005)
<i>Transfer</i> (managed approach – transfer out, transfer in)	Taught course (Y7, 8 & 9) and embedded	Engle (2006); Hipkins & Cowie (2014)
<i>Shared language of learning</i> (displays, planners, reflections – used to bookend lessons)	Taught course (Y7, 8 & 9) and embedded	Claxton et al. (2011); Dweck (2006); Perkins (1995)
<i>A weekly CPD programme</i> (embedding learning-centred practices throughout the school)	Teacher-based	Bell et al (2010); Joyce & Showers (2002); Timperley et al. (2007), Timperley (2011)

Oracy

Perhaps the main way in which *Learning Skills* differs from previous Learning to Learn initiatives is the emphasis on developing the students' ability to use talk as a tool for reasoning and collaborative learning. In recent years, researchers in developmental

psychology, linguistics and education have emphasised the importance of talk in children's cognitive and social development (e.g. see van Oers et al., 2008, Whitebread et al., 2013). This idea was first expressed by Vygotsky, who recognised the central importance of interpersonal communication in the cognitive development of individuals (Vygotsky, 1962, 1978). In the words of Vass and Littleton (2010): "it is through speech and action with others that we learn to reason and gain individual consciousness" (p. 107).

As one might expect, language development is affected by the extent to which spoken communication is experienced in childhood. We have known for a number of years that the quality and quantity of pre-school children's conversations in the home are good predictors of educational attainment in later life (e.g. Hart & Risley, 1995; Goswami & Bryant, 2007). It is also clear that such positive findings result when children are explicitly taught how to use talk effectively in groups (Dawes, 2008). For example, a systematic review of research reported a positive correlation between the use of extended responses in group interactions and student learning (Howe & Abedin, 2013). In addition, a recent study carried out at MIT found evidence of the way in which taking conversational turns leads to increased activation in the left inferior frontal lobe (Broca's area), which "significantly explained the relation between children's language exposure and verbal skill" (Romeo et al., 2018, in press). Describing the importance of this study, John Gabrieli, the senior author, said: "The really novel thing about our paper is that it provides the first evidence that family conversation at home is associated with brain development in children. It's almost magical how parental conversation appears to influence the biological growth of the brain" (Trafton, 2018).

There is now a compelling body of research literature detailing the way in which spoken communication experienced by children impacts on a range of cognitive, social and emotional and life outcomes. A summary of some of the key findings from this research literature is presented in Table 2.6.

Table 2.6. The importance of oracy: a summary of key research findings.

Category	Area of impact	Example citations
Cognitive outcomes	Improved attainment in English, Maths, Science...	Adey & Shayer (2015); Gorard et al. (2015); Hanley et al. (2015); Kutnick & Berdondini (2009); O-Connor et al. (2015); Rivard & Straw (2000); Wilkinson et al. (2015)
	Improved literacy skills	Bishop & Snowling (2004); Dockrell et al. (2015); Dockrell & Connelly (2009); Donaldson & Cooper (2013); Dunsmuir & Blatchford (2004); Maxwell et al. (2015)
	Improved verbal / non-verbal / quantitative reasoning	Alexander (2008); Goswami (2015); Goswami & Bryant (2007); Mercer et al. (1999); Mercer & Howe (2012); Resnick et al. (2015); Topping & Trickey (2015)
	Enhanced communication for students with SEND	Goatley (1996); Maxwell et al. (2015); Peacey (2009); Sheehy (2009); The Communication Trust (2013)
	Enhanced communicative and cognitive skills for bilingual students	Akerman & Neale (2011); Bialystok & Feng (2010); Grosjean (2010); Grundy (2016); Inoue & Nakano (2004); Lauchlan et al. (2013); Sorge et al. (2016); Schweizer et al. (2012); Woemans et al. (2017)
	Transfer of comprehension, reasoning skills to other subjects	Adey & Shayer (2015); Wilkinson et al. (2015); Zohar & Nemet (2002)
Social and emotional outcomes	Self-esteem / self-confidence	Ofsted (2010); Trickey & Topping (2006)
	Engagement and on-task focus	Chiu (2004); Kutnick & Berdondini (2009); Webb et al. (2015)
	Social development / peer interactions	Howe & Mercer (2007)
	Emotional intelligence	Alexander (2008); Ofsted (2003); QCA (2008)
	Greater empathy	Jensen (2008)
	Ability to handle stress	Akerman & Neale (2011)
Life outcomes	Overcoming social disadvantage	The Communication Trust (2013); Hart & Risley (2005); Locke et al. (2002); Roulstone et al. (2011); Waldfoegel & Washbrook (2010)
	Fewer exclusions, less juvenile offending	Bryan et al. (2007); Clegg (2004)
	Improved future earnings	Ashley et al. (2015); De Vries & Rentfrow (2016)

Given the benefits associated with effective spoken communication among young people, it is unfortunate that oracy remains under-represented in schools, compared with written literacy and numeracy (Millard & Menzies, 2016). On the one hand, it is profoundly troubling that people's life chances can be predicted so powerfully by their exposure to and immersion in spoken language as children. On the other hand however, it's empowering to realise that teachers are uniquely positioned to make choices, when planning and teaching lessons, that will have a significant impact on the life outcomes of future generations.

One way in which students' talk was prioritised in the *Learning Skills* programme was through weekly philosophical inquiries, using an approach known as Philosophy for Children (P4C). P4C has been studied fairly extensively, and has been associated with significant gains across a range of academic, cognitive and affective domains (e.g. Topping & Trickey, 2007a, 2007b, 2007c). P4C was one of the first practices to be identified as a feature of the taught course, and weekly philosophical inquiries remained a feature of the programme throughout the four years it ran.⁵

The main way in which the *Learning Skills* programme developed oracy skills among the students – and a method that also became influential in shaping the way students interacted in P4C sessions – was through the use of ‘ground rules for exploratory group talk’. In the Spoken Language and New Technology (SLANT) project (Mercer, Phillips & Somekh, 1991), researchers analysed how children interact around computers and identified three broad categories of classroom talk - cumulative, disputational and exploratory – which have been described as “social modes of thinking” (Mercer, 1995, p. 104). These have been summarised as follows:

- Cumulative talk: ‘in which speakers build positively but uncritically on what the other has said’;
- Disputational talk: ‘characterised by disagreement and individualised decision making’;
- Exploratory talk: ‘in which partners engage critically but constructively with each other's ideas’.

(Wegerif et al., 1998, p. 200)

⁵ In 2011, Sea View underwent a process of forced academisation. This triggered a period of significant upheaval at the school, with very high levels of staff turnover. One consequence of this was that the *Learning Skills* programme was discontinued in summer 2014.

These three categories are not considered mutually exclusive, and a single conversation can include features of all three kinds of talk. However, this model has proven useful and is a central feature of the *Thinking Together* programme, a “dialogue-based approach to the development of children’s thinking and learning” (thinkingtogether.educ.cam.ac.uk) that has been linked to gains in maths and science (e.g. see Mercer & Sams, 2006; Mercer et al., 2004; Soong, Mercer & Er, 2010). While cumulative talk can be useful, for example when pooling ideas or sharing information that might be relevant to a particular problem or topic, disputational talk is not considered to be an educationally valuable mode of discourse. However, it is exploratory talk that is of most interest to teachers wishing to help young people learn to think together in more productive ways. Mercer (2008) suggests that exploratory talk is characterised by the following features:

- Everyone listens actively
- People ask questions
- People share relevant information
- Ideas may be challenged
- Reasons are given for challenges
- Contributions build on what has gone before
- Everyone is encouraged to contribute
- Ideas and opinions treated with respect
- There is an atmosphere of trust
- There is a sense of shared purpose
- The group seeks agreement for joint decisions

(Mercer, 2008, p. 1)

In the *Learning Skills* programme, students were explicitly taught about these three modes of communication. The features of exploratory talk were then modelled and explained to the students through the use of videos and role-plays, and each class created a set of ground rules. While these varied slightly from one teaching group to the other, a typical set of ground rules for exploratory group talk might include the following:

1. We will talk together to think about what to do
2. We will share what we know with each other
3. We will ask everyone to say what they think
4. Everyone will listen carefully to others and consider what we hear
5. We will give reasons for what we say
6. We will pay attention and try to think of good ideas
7. We will decide what to do only when everyone has said all they want
8. We will try to agree about what we think

(Thinking Together, 2017)

In the *Learning Skills* taught course, and subsequently in lessons throughout the school, the use of ground rules for exploratory group talk was embedded and used to facilitate discussions between students. As well as focusing on exploratory talk and the use of weekly philosophical inquiries sessions, oracy was also developed through public speaking and structured debates. Public speaking was developed through an expectation that at the end of each project, students were expected to present their work to the rest of the class. This was reinforced and formalised in one of the year seven projects (in half-term five), which focused on public speaking and structured debates. In this project, students were taught the language of structured debates (e.g. motions, government versus opposition, opening, rebutting, constructing arguments and counter-arguments, closing), and took part in weekly debates that involved the whole class. Once all students had researched arguments for and against the motion, each week they were randomly allocated to various roles, such as chairing the debate, arguing for or against the motion, judging the debate or being in the audience (audience members were able to continue researching the topic in response to the arguments presented, and could pass information to the teams to help with their case). Once again, the features of effective public speaking and formal structured debate were taught explicitly to students, primarily through traditional teaching methods such as modelling, explaining, providing opportunities for extended practice, and through sharing and responding to detailed feedback from students and teachers.

Self-regulation

Self-regulation is a broad term that refers to “thoughts, feelings and actions that are planned and adapted to the attainment of personal goals” (Duckworth et al., 2009, p. ii). Self-regulation is thought to consist of a number of related constructs, such as self-regulated learning, co-regulated learning and socially shared regulation of learning (Schunk & Zimmerman, 2001, p. 79). While the *Learning Skills* programme touched upon each of these constructs, this review of the literature will focus on self-regulated learning. Self-regulated learning consists of several related thought processes and behaviours, such as:

- Holding positive beliefs about one’s capabilities
- Using effective strategies to organise ideas
- Setting goals for learning
- Concentrating on instruction
- Using resources effectively

- Monitoring performance
- Managing time effectively

(Schunk & Ertmer, 2000)

At Sea View, the *Learning Skills* team took the view that the ability of students to self-regulate would best be developed through project-based learning (PBL). This association between self-regulation and PBL also features repeatedly in the research literature (e.g. English & Kitstantas, 2013; Gerlach, 2008; Stefanou et al., 2013; Dippold, 2015).

As might be expected for such a broad term, research looking at the impact of PBL on academic learning reveals a mixed picture. For example, a recent large-scale study looked at the effect of PBL on literacy among year seven students (Menziez et al., 2016). This study, which had 12 secondary schools in the treatment group and 12 in the control group, found that PBL had “no clear impact on either literacy... or student engagement with school and learning” (p. 4). It also found that “PBL may have had a negative impact on the literacy attainment of pupils entitled to free school meals” (p. 4). However, there is evidence elsewhere to suggest that PBL can have a positive impact on student learning. For example, a review by Duckworth et al. (2009) reported that “There is a positive overall relationship between self-regulation and academic achievement. Children and young people with more adaptive personal skills and learning resources are more likely to succeed academically (p. i; see also Duncan et al., 2007; McClelland et al., 2000). They also report that “individual elements of self-regulation – e.g. attitudes toward learning, attention and persistence – are also related to academic achievement (Duckworth et al., 2009, p. ii; see also Yen et al., 2004). This mixed evidence as to the impact of PBL on academic learning was also reflected in a recent review, which described the association as “promising but not proven” (Condliffe et al., 2017, p. iii). However, the authors make a number of recommendations for how to make PBL effective. These include having design principles that a) are measureable and observable, b) address both content and assessment, c) are informed by practice and/or designed with practitioners, and d) and are adapted to fit their local context (p. 50-51).

In the year seven and eight taught course, all students carried out six projects a year (one per half-term). The key features of the projects in 2012-13 (the third year of the study period) are summarised in Table 2.7.

Table 2.7. The year 7 and 8 projects, 2012-13 (*Learning Skills* cohorts two and three).

Year	Half-term	Project title	Individual or group?	Central themes	Outcome
7	1	Who am I?	I	Identity / organisation	Booklet & presentation
	2	Christmas Market	G	Collaboration / interpersonal	Christmas Market stall
	3	Independent research	I	Study skills / organisation	Oral presentation (individual)
	4	Group research	G	Study skills / interpersonal	Oral presentation (group)
	5	Oral communication	I & G	Debating / public speaking	Debate & oral presentation
	6	Teaching others	G	Collaboration / organisation	Lessons taught to year 5s
8	1	Sex and relationships	I & G	Collaboration / research	Educational resource
	2	Human Rights	I & G	Citizenship / communication	Children's book
	3	Drugs education	G	Students as researchers	Research report
	4	Allotment	G	Community / collaboration	Allotment bed
	5	£2 challenge	I	Enterprise / organisation	Accounts/payment for trip
	6	Campaigning	I & G	Active citizenship	Campaign artefacts, letters

Each project was structured in such a way as to enable students to explicitly develop the individual components of self-regulated learning. At the start of each half-term, students were presented with a simple project brief. Following this, they co-constructed success criteria for the project, based on four tiers of assessment (Fail/Pass/Merit/Distinction). They then set short, medium and long-term goals for how they would organise their time throughout the half-term. This included deciding how they would spend their time in lessons, as well as setting themselves homework tasks for each week of the project. At the start of each week, students monitored and reviewed progress toward their goals, and adjusted their planning for the week accordingly. Each project resulted in a tangible outcome, as seen in the right hand column of Table 2.7. At the end of each half-term, all projects went through a process of peer, self and teacher assessment, and an overall grade was agreed upon. These were moderated to

ensure consistency of provision across the department; interestingly, it was often noted that the students often gave their own work a lower grade than the teacher thought it deserved.

Metacognition

Once a fortnight, all students in year seven had a lesson dedicated to metacognitive reflection. These lessons would begin with a short meditation or guided visualisation exercise, to establish a calm atmosphere in which students could reflect on their learning. Following this, there would be a period of silent writing in their RLJs, whereby students would respond to prompt questions or ‘talking points’ relating to their learning that week. The focus of the reflective writing would vary from one fortnight to the next; however, each week the questions would usually focus on a particular subject area, such as:

- How well do you learn in *Learning Skills* lessons?
- What do you actually do in order to learn in *Learning Skills* lessons?
- What kinds of things do you learn in *Learning Skills* lessons?
- How well do you feel you learn in French?
- What obstacles stand in the way of you learning more effectively in French?
- What strategies have you tried?
- What might be worth trying in future?
- How can what we do in *Learning Skills* help you learn more effectively in French?
- Who do you know that learns well in French?
- What things do they do that enables them to learn effectively in French?

RLJs were marked fortnightly using a ‘dialogue marking’ approach, providing *Learning Skills* teachers with regular opportunities to identify any particular obstacles the students were facing, or to recommend strategies for developing their self-regulatory learning behaviours.

The other main way in which students were able to develop metacognitive awareness was through the development of a shared language of learning (see below). For example, at the start of a *Learning Skills* lesson students would be asked to identify a process of learning that they anticipated they would need to use in the lesson. Following this, there would be regular plenaries where students were asked to stop focusing on ‘what’ they were doing, and to consider instead ‘how’ they were learning. During *Learning Skills* lessons, teachers would also often interrupt the class with a short ‘transfer plenary’, whereby they would ask the

students questions such as: “How might what we are doing today help you learn more effectively in Maths?” I will consider this in more detail in the discussion of transfer, below.

Collaboration

As can be seen in Table 2.7, the majority of the projects in years seven and eight were group-based. To develop and embed productive interactive behaviours and habits among the students, a strategy was devised whereby at the start of the year, each student was allowed to sit with a partner of their choosing, working through a series of open-ended discussion-based tasks until they were able to engage in exploratory talk for extended periods of time. The teacher would circulate during these lessons, providing formative feedback and highlighting best practice to the whole class. Once students had gained the ability to engage in exploratory talk with a partner of their choosing, a third person was introduced and the cycle repeated. Students were frequently reminded of the expectation that by the end of the year, they would be able to engage in exploratory talk with any student they were paired or grouped with. By the end of the year, the teachers chose who the students sat and worked with.

Some of the components of the *Learning Skills* programme summarised in Table 2.5 are quite abstract, and therefore difficult to observe directly in lessons (e.g. metacognition, self-regulation, transfer). In contrast, collaboration and oral communication were perhaps the most easily observable features of *Learning Skills* lessons. During the group work projects, much of the teachers’ time in lessons was spent helping students learn how to overcome the difficulties involved in working with others, anticipating problems and resolving conflicts as they arose. Overcoming the challenges of working with others was something the students often wrote about in their RLJs.

Research into the use of group work in schools reveals a mixed picture. Where group work is used effectively, it has been associated with significant gains in a number of subjects, ranging from reading comprehension and written English to maths, science and the humanities – as well as gains in cognitive tests of verbal, non-verbal and numerical reasoning, widely seen as powerful predictors of subject attainment (e.g. see Thurston et al., 2008; Slavin, 2010; Howe, 2009; Howe, 2010). However, in the absence of adequate training or poor implementation, many students and teachers associate group work with problems such as free-riding and social loafing (Hall & Buzwell, 2013). Whenever students encountered problems in working with

others, the *Learning Skills* teacher would chair a restorative meeting with the students involved to resolve the problems. This involved asking simple, scripted questions of each student in turn to discover how the problem behaviours arose, to elicit what had happened and why, and then to guide the students toward identifying the best way forward. Over time, the use of such restorative meetings reduced as students developed the ability to resolve conflicts among themselves. This was also augmented by emphasising the importance of ground rules for exploratory talk at the start of any group task, and by regularly revisiting the rules to ensure that they were well-suited to the task in hand, amending them as and when necessary.

Autonomy

Some researchers of Learning to Learn have singled out the concept of autonomy for special consideration (e.g. James et al., 2006). Autonomous or self-directive behaviours can be difficult to define; however, the nature of autonomy can be brought into focus by considering alternative orientations. Deci and Ryan's (1985) causality orientations theory (COT) recognises that people differ in the extent to which they seek to be autonomous or controlled in the regulation of their behaviour. The COT model identifies three orientations with regard to causality – autonomy, control and impersonal. In the control orientation, individuals regulate their behaviour through a reliance on externally or internally imposed controlling events, such as rewards and deadlines. Individuals with an impersonal orientation tend to believe that behavioural outcomes are beyond their control, and feel unable to regulate their behaviour to achieve desired outcomes. In contrast, autonomy-oriented individuals tend to be self-determining, regarding characteristics of their environment as cues with which to regulate their actions according to their goals.

In a review of learning-centred practices, Watkins (2001) concludes: “Meta-learning plays a key role in a learner’s self-regulation of learning, building the autonomy upon which even collaborative work thrives... promoting learners as active and collaborative constructors of meaning with autonomy and self-direction can enhance performance” (p. 7). There are parallels here with the extent to which individuals identify with having an internal or external ‘locus of control’ (Rotter, 1966), a psychological construct which describes the extent to which people feel able to control their own behaviour. Similarly, as with students who identify as having either a learning orientation or a growth mindset, research evidence suggests that the more students are supported to be autonomous in their behaviours, the better they perform

in school attainment tests (e.g., Fortier, Vallerand & Guay, 1995). However, it is important to recognise that giving students choice may not always be positive. For example, Kirschner & van Merriënboer (2013) suggest that “providing some autonomy – but not too much – appears to us to be broadly consistent with the motivation research” (p. 178).

At Sea View, students were able to exercise autonomy in a range of ways, including being able to choose the topics for many of their projects in year seven; choosing how to set about working on a project, and deciding the order in which things needed to be done; choosing how to share their learning to the rest of the class; choosing who they worked with (as outlined above) and where to work; choosing topics for discussion in philosophical enquiries; co-constructing ground rules, as well as success criteria for projects; and through the embedded use of peer and self-assessment.

Shared language of learning

When the *Learning Skills* department was formed in the 2010 summer term, the main point of reference informing how the team would design the year seven curriculum was the PLTS framework (QCA, 2007). The PLTS framework was “developed and refined over a number of years in consultation with employers, parents, schools, students and the wider public” under the then New Labour administration (QCDA, archived 2011). The aim of the PLTS framework was to help schools develop the kinds of soft skills that employers often say are lacking in school leavers – soft skills that have been described as having “hard outcomes” (CBI, 2016).

The PLTS framework comprises six groups of skills, each subdivided into six criteria (see Appendix 2). For the first year of the *Learning Skills* programme, the PLTS framework was used in two ways: as a shared language of learning, and as a framework for formatively assessing student progress within the *Learning Skills* programme. Efforts were also made to incorporate the language of PLTS into lessons throughout the school, with posters displayed in classrooms defining each skill and giving examples of what it might look like in a classroom context. In addition, teachers throughout the school were required to use PLTS criteria to supplement their use of lesson objectives and outcomes, providing a ‘how’ to accompany the ‘what’ of learning. However, it soon became apparent to the *Learning Skills* team that the PLTS framework was not well suited to either of these tasks. A central concern

was that the framework was too large and unwieldy, and managerial in tone: even after a year of continuous reference, neither the students nor the teachers knew all 36 criteria by heart. As a consequence, the extent to which the PLTS were ‘lived and breathed’ by students and staff was quite limited. Recognising the need for a more practical, student-friendly language of learning, at the end of the first year, the *Learning Skills* team set about creating a new framework of ‘Habits of Mind’, inspired by a model developed in the U.S. (Costa & Kallick, 2000).

During the second year of the programme, the ‘Habits of Mind’ framework was evaluated through the use of lesson observations, surveys and student interviews. This analysis can be found in chapter four. Through this strand of inquiry, a number of problems were identified with the way in which the Habits of Mind framework was (or was not) being used throughout the school. One problem was that the school had a set of five Core Values, which overlapped with the Habits of Mind and this created confusion among students and teachers alike. It therefore became apparent that there was a need to create a new whole-school language of learning for the third year running.

At the time the ‘Habits of Mind’ evaluation was carried out – in the Spring term of 2011/12, the *Learning Skills* programme was in its second year. In September 2011, the school converted to academy status. Adding to the confusion surrounding the Core Values and the Habits of Mind, the academy chain introduced six Entrepreneurial Attributes that they wanted all their schools to recognise and value. Again, there was significant overlap between the Entrepreneurial Attributes, the Core Values and the Habits of Mind; ‘team work’ featured in all three, for example. As a consequence, the decision was made to scrap the Habits of Mind and the Core Values, and to use the Entrepreneurial Attributes as a basis for a new language of learning. The six Entrepreneurial Attributes were creativity, teamwork, determination, problem solving, risk taking and passion. However, these are broad categories of behavior. Simply to say ‘we need to use team work today’ is not particularly helpful as a method for helping students learn effectively – or indeed, to get better at team work. The *Learning Skills* team recognised the need to develop a language of learning that would allow students and teachers to identify which particular *aspects* of teamwork might be most appropriate in a given lesson, for example.

Drawing on the work of Claxton, Dweck and others, the third and final language of learning to be used at Sea View was referred to as the ‘Learning Brain’ (see Figure 2.5). This was displayed in every classroom in the form of a large coloured poster, as well as in the students’ planners.

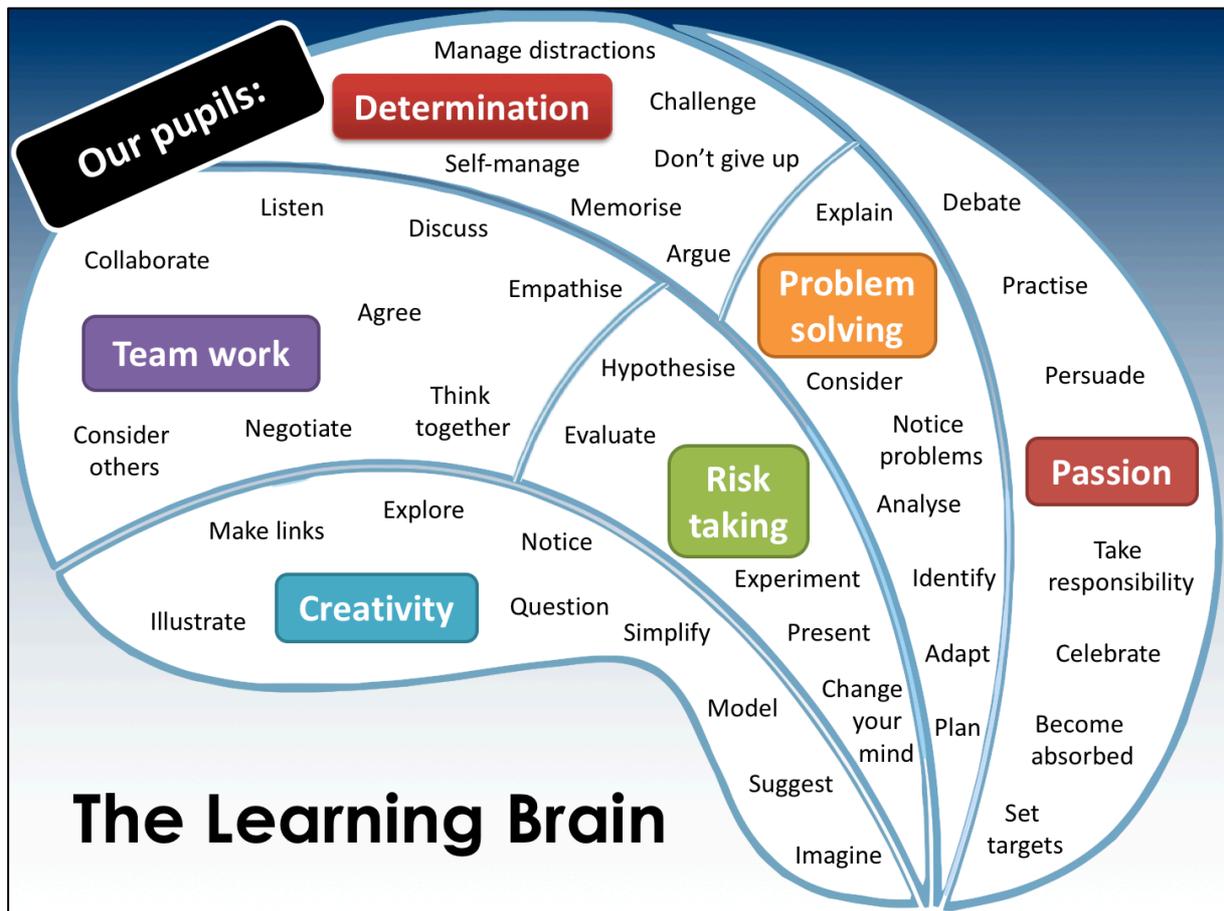


Figure 2.5. The learning brain: a whole-school language of learning (2012-13 version).

In this scheme, the large words in coloured boxes are the six broad Entrepreneurial Attributes, while the smaller words in black font were referred to by students and teachers either as ‘processes of learning’ or ‘learning muscles’. This framework was designed in such a way as to enable students to drill down through the six Entrepreneurial Attributes, to consider and reflect on the particular processes and behaviours that drive learning forward. For example, ‘team work’ might involve listening carefully, working toward agreement or thinking together, while ‘problem solving’ might involve planning, noticing problems or adapting to changing circumstances. Some teachers feel uncomfortable using the phrase ‘learning muscles’, perhaps because of an association with Brain Gym ®. However, the *Learning Skills*

team found that referring to Claxton's metaphor of school as a 'learning gymnasium' enabled students to grasp the idea that through deliberate practice and feedback, they can 'get better' at any of these processes, from memorising facts to target setting. In this way, the Learning Brain was designed so as to enable students to develop what Carol Dweck (2006) refers to as a 'growth mindset' (i.e. the belief that one can improve performance through effort, as well as through innate ability). As we will see in the student and teacher interviews, the 'Learning Brain' model was met favourably by students and teachers, as well as by Ofsted, who noted in an inspection report that students "can talk about how, as well as what, they are learning. Lessons in "learning to learn" are helping them to do this. They enjoy explaining, for example, which 'learning muscles' they are using... They are expected to apply their skills across subjects..." (Ofsted, 2012 ⁶).

Transfer

The importance of transfer in the learning of knowledge and skills has long been recognised in the literature. One idea that has prevailed is the notion that transfer occurs only when 'identical elements' are shared between tasks (e.g. Thorndike, 1913; Brown & Kane, 1988). Although Thorndike later recanted this view (Thorndike & Gates, 1929), the notion that transfer doesn't happen unless the surface features of two tasks are self-evidently similar persists to this day (e.g. Gentner & Toupin, 1986; Holyoak, Junn & Billman, 1984; Willingham, 2002). The existence of negative transfer, whereby people transfer knowledge or strategies to situations where it is inappropriate to do so, has further problematised the notion of transfer as a desirable or achievable educational goal (McNeil, 2008; Ross, 1987; Schwartz, Chase & Bransford, 2012). Such reservations have featured in arguments against the explicit teaching of Learning to Learn (e.g. see Waeytens et al., 2002). However, an alternative narrative exists within the literature on transfer to suggest that meaningful, deep level transfer – i.e. that based on deeper conceptual or analogous principles – *is* achievable when certain conditions are met. Some recent key developments in transfer that are of relevance to the *Learning Skills* programme are summarised in Table 2.8.

⁶ Reference withheld to preserve anonymity

Table 2.8. Recent developments in transfer, and their relevance to *Learning Skills*.

Key developments in transfer	Example citations	Relevance to <i>Learning Skills</i>
The importance of language; language attributes are not cognitively separate, but transfer readily and are interactive	Baker (2006); Littleton & Mercer (2013)	<ul style="list-style-type: none"> • Whole-school language of learning, co-constructed with students • Whole-school emphasis: exploratory talk
Intercontextuality; framing different learning contexts so that students come to see both the similarities and differences between them	Engle (2006)	<ul style="list-style-type: none"> • Plenaries for transfer • Learning Journals
The importance of dispositions. The critical role of teachers asking regular questions, to prompt transfer thinking	Claxton (2006)	<ul style="list-style-type: none"> • Whole-school language of learning • Plenaries for transfer • Learning Journals
“Emerging evidence indicates that cognitive, intrapersonal, and interpersonal competencies can be taught and learned in ways that promote transfer”.	Pellegrino & Hilton (2012)	<ul style="list-style-type: none"> • Interpersonal: Embedded approach to restorative justice • Intrapersonal: Meditation, reflective learning journals, • Cognitive: Philosophy for Children, Exploratory Talk, Thinking and Reasoning
The applicability of knowledge is neglected in schools. Identification of three themes: <ul style="list-style-type: none"> • The importance of the perspective/stance of the learner • The neglected role of motivation • The existence of specific, validated techniques: teaching for transfer 	Goldstone & Day (2012)	<ul style="list-style-type: none"> • Rationale for the overarching focus on whole-school transfer – especially the whole-school CPD programme, whereby all teachers engaged in taught workshops on evidence-based teaching and learning methods and carried out action research projects as a method for trialling and developing learning-centred pedagogy
The importance of ‘expansive framing’ in promoting transfer	Engle et al. (2012)	<ul style="list-style-type: none"> • Plenaries for transfer
Three bridges for transfer: detect, elect, connect. The importance of motivation and disposition	Perkins & Salomon (2012)	<ul style="list-style-type: none"> • Plenaries for transfer • Learning Journals
Learning by mapping across situations	Reed (2012)	<ul style="list-style-type: none"> • Curriculum mapping among middle leaders to co-ordinate whole-school provision, with a view to promoting transfer
The importance of motivation and disposition in transfer – students need the “will” as well as the “skill”	Pintrich & de Groot (1990); Perkins & Salomon (2012)	<ul style="list-style-type: none"> • Plenaries for transfer • Learning Journals • Identity project • Student autonomy within projects
The importance of “noticing”	Lobato, Rhodehamel & Hohensee (2012)	<ul style="list-style-type: none"> • Meditation / Reflective Learning Journals • Plenaries for transfer
Transfer as synonymous with Learning to Learn: “the question of how teachers might design learning experiences with transfer in mind is essentially the same question as how to design for Learning to Learn” (p297-298)	Hipkins & Cowie, 2014	<ul style="list-style-type: none"> • Plenaries for transfer • Learning Journals

As can be seen in the bottom row of Table 2.8, Hipkins & Cowie (2014) suggest that transfer is perhaps the most important issue of all when planning a Learning to Learn intervention. At Sea View, transfer was operationalised as a combination of two complementary sets of practices: transfer *out* of *Learning Skills* lessons, and transfer *in* to other subject areas.

Transfer out

As stated above, once a fortnight, students in year seven had one lesson dedicated to writing in their RLJs. The aim of these lessons was primarily to provide the space in which students could think about their learning in different contexts, and to plan how they would transfer insights gained through *Learning Skills* lessons to other areas of their lives. In addition to this, throughout the taught *Learning Skills* course in years seven to nine, there was an ongoing effort to encourage students (a) to reflect on their increasing knowledge and understanding of themselves as learners, and of learning itself; and (b) to apply this knowledge and understanding to other subject areas, or to aspects of their life beyond the school gates. Typically, these ‘plenaries for transfer’ would simply take the form of a single question, followed by a think/pair/share discussion – e.g. “How might [*what we are doing today*] help us learn better in [*insert subject*]?” The *Learning Skills* team found that students were adept at making such connections, even where the similarities between tasks (e.g. between planning an allotment and learning in P.E.) might appear tenuous at first glance.

Transfer in

At the outset, the *Learning Skills* team were focused primarily on developing the year seven taught course. However, in the second and third years, as we will see in the Habits of Mind evaluation, the issue of how to promote whole-school transfer became a central concern for the *Learning Skills* team. A number of strategies were put in place as part of a managed approach to facilitating the transfer of knowledge, skills, habits and attitudes from the taught *Learning Skills* course into subjects throughout the school. The shared language of learning – and the expectation that students and teachers throughout the school would use this language regularly, as a framework for discussing the ‘how’ of learning – was instrumental in providing students with a more joined-up diet of learning across the curriculum. To augment this aspect of the *Learning Skills* programme, in the second and third years there were whole-staff meetings in which teachers from each department created subject-specific policies for how to

use the shared language of learning to embed a focus on the ‘how’ of learning in lessons and through other activities such as report-writing and parents’ evenings. Examples of subject-specific Habits of Mind policies from year two can be seen in Appendix 3. In the third year, there were also clear whole-school expectations relating to how the shared language of learning would be referred to in lessons throughout the school. These were enacted through changes to the learning walk and lesson planning proformas, to ensure that in each lesson, there was explicit metacognitive reflection regarding the ‘how’ of learning, as well as the ‘what’.

Another important factor in promoting transfer throughout the school was a concerted effort to develop a more consistent, joined-up approach to whole-school teaching and learning. When the *Learning Skills* programme first began in 2010/11, the school’s CPD programme was based around half-termly meetings of teaching and learning communities. However, in the third year of the programme, this had evolved such that all teachers and support staff met for an hour of collaborative Continuing Professional Development (CPD) each week. In addition, by the third year of the programme, three members of the original *Learning Skills* team had a whole-school responsibility for Teaching and Learning; primarily, this involved planning and delivering workshops on learning-centred teaching and learning practices for all teachers. These weekly sessions rotated around three key strands: a) taught workshops, in which all staff explored an aspect of learning-centred practice (e.g. exploratory talk; embedding metacognitive reflection; formative assessment; differentiation through scaffolded questioning); b) team sessions, in which colleagues worked collaboratively in departments to embed these ideas into their practice; and c) an action research component with a focus on developing and evaluating the impact of learning-centred practices, whereby all teachers and support staff undertook a systematic professional inquiry into a chosen aspect of their practice.

Personal effectiveness

The year eight programme followed the Award Scheme Development and Accreditation Network (ASDAN) Award of Personal Effectiveness (AoPE) course, whereby students were required to produce a portfolio to show that they had met agreed success criteria across a range of skills and competences (working with others, planning and reviewing learning, dealing with problems in everyday life, planning and carrying out research, group discussion,

preparing for and giving a presentation, and developing self). The rationale for focusing on personal effectiveness in the year eight programme was to develop the students' organisational skills, and to consolidate the self-regulatory learning behaviours developed throughout the year seven programme. This course followed a thematic approach to PSHCE, with six half-termly projects on themes such as diversity and discrimination; sexual health; drugs education; enterprise; and community campaigning (see Table 2.7, above).

The ASDAN personal effectiveness courses have been a source of controversy in recent years, with some commentators using them as shorthand for a range of so-called 'Mickey Mouse' courses that proliferated under the New Labour government (e.g. Harris, 2011). In 2012, the government announced that most vocational and all skills-based qualifications would not be included in school league tables from 2014, on the grounds that they have "no equivalency" to more traditional qualifications such as GCSEs, AS and A-levels (Gove, 2012).

However, as mentioned in chapter two, a large-scale study by researchers at the University of the West of England reported that completing an ASDAN personal effectiveness course was significantly associated with improved attainment in other, more traditional subject areas (Harrison, James & Last, 2012). Analysing data from the National Pupil Database, comprising more than 500,000 students who completed GCSEs in 2010, this study found that students taking the ASDAN CoPE course at level two had a 10% increased likelihood of achieving GCSE English at A* to C, and a 5% increased likelihood of achieving 5A*CEM, compared with students in comparable schools not offering CoPE. In particular, CoPE was found to benefit students with low KS3 attainment, those with SEND, those from BME communities, and those eligible for FSM. It therefore appears that teaching students personal effectiveness and organisational skills may help them learn more effectively in more traditional, academic subjects.

Critical thinking skills

Can critical thinking actually be taught? Decades of cognitive research point to a disappointing answer: not really.

(Willingham, 2007, p. 8)

Teaching critical thinking and reasoning skills is notoriously difficult to do well. Part of the problem is that the ability to think critically is largely dependent on how much one knows about a given topic. Therefore, the argument goes, schools should just focus on teaching knowledge, rather than trying to teach critical thinking skills in a content-free environment. However, as Willingham has pointed out elsewhere, although knowledge may be necessary for critical thinking, it is by no means sufficient; instead, “we must ensure that students acquire background knowledge *in parallel with* practicing critical thinking skills” (Willingham, 2009, p. 22, emphasis added). On a related note, the *Learning Skills* team at Sea View took the position that an essential precondition to being able to think critically is to know a lot about what critical thinking is. In this view, ‘critical thinking and reasoning’ is viewed not only as a set of processes, but also as a body of knowledge that can be explicitly taught as a curriculum.

In 2011, a new Level Two (GCSE equivalent) *Thinking and Reasoning Skills* (TARS) qualification was published (OCR, 2011). This provided the basis for the year nine *Learning Skills* taught course, for which students had five lessons a fortnight; however, for budgetary reasons students were not entered for the exam. The rationale for teaching TARS was to provide all students with a formal training in the language and practices of critical thinking and reasoning, and to provide them with opportunities to use this knowledge in discussions, debates and through extended writing. The TARS course covers skills such as reasoning, understanding and evaluating arguments, evaluating credibility of sources, ethical reasoning, creative thinking, information processing and problem solving. These skills were taught through an engaging curriculum that focused on personal and social issues; bioethics; the politics of freedom and justice; global poverty, conflict and environmental issues; scientific issues; and mysteries and conspiracies. Critical thinking and reasoning skills were also developed in philosophical inquiries in year seven and through the use of structured debates, particularly in years seven and nine.

A whole-school approach

As discussed above, the individual components that made up the *Learning Skills* programme at Sea View were chosen in part because there was some basis in the research literature for an association with academic or cognitive gains. However, whether such a ‘complex

intervention’ comprised of a combination of such practices can be implemented in such a way as to enhance students’ academic learning remains to be determined. While there is a compelling body of literature to suggest that learning-centred practices are more effective than those with a performance focus (e.g. see Watkins 2001, 2010), previous evaluations of Learning to Learn programmes have failed to find consistent evidence of enhanced subject learning. The *Learning Skills* programme at Sea View aimed to overcome such methodological constraints by focusing on developing a coherent, whole-school approach to teaching and learning within a single school. As stated above, there is evidence in the research literature to suggest that adopting a coherent, whole-school approach may be a critical factor in the success of a multifaceted intervention (Wigelsworth et al., 2012; Banerjee, 2010; Durlak et al., 2011).

Fundamentally then, *Learning Skills* is different to previous Learning to Learn interventions in two key ways. First, it is a complex intervention, comprised of multiple areas of practice for which there is evidence in the literature of academic gains; and second, it was developed over three years into a whole-school approach to teaching and learning. In essence, the *Learning Skills* programme and this evaluation of it are an attempt to determine whether these key differences to previous initiatives may help unlock the promise of Learning to Learn as a framework for school improvement. One factor that is perhaps the most critical to the success or otherwise of any intervention is to give careful consideration to the way in which it is implemented.

Implementation science

In recent years, the field of ‘implementation science’ has emerged in an attempt to address the problem of ‘knowledge mobilization’: how do we translate knowledge from the research literature about ‘what works’ into social policies and social practices that have the desired effect on the ground (e.g. see Lendrum & Humphrey, 2012; Durlak & DuPre, 2008; Kelly & Perkins, 2012)? Kelly (2012) suggests that the “core implementation components and processes... are embedded in the following practice and policy areas:

- The recruitment and selection of those who will deliver interventions in schools
- The provision of pre- and in-service training prior to implementation
- Ongoing consultation and coaching for those involved in providing programmes and interventions

- The monitoring and evaluation of staff skills and practice in delivering the programmes and interventions
- The collaborative development of a decision-support data system to evaluate the effects of the intervention and support for effective decision making about its impact
- The provision of facilitative administrative supports which offer clear leadership and reinforcement to keep staff skilled and motivated
- The provision of systems interventions to ensure the availability of financial, organisational and human resources required to implement the intervention effectively.”

(Kelly, 2012, p. 123-124)

At Sea View, the key features of the way in which the *Learning Skills* programme was implemented include: the appointment of a school co-ordinator, dedicated to seeing through programmatic change; the active support of the Headteacher and senior leadership team; a team of specialist teachers to design and teach timetabled *Learning Skills* lessons; selective staffing and timetabling of the taught component; training of all teachers and support staff in leading learning-centred change in their classrooms; teachers carrying out collaborative action research projects to provide them with the time and support needed to implement learning-centred transformations in their classrooms; the involvement of teachers and students in generating, sharing and embedding the use of a shared language of learning, to maximise the transferability of learning-centred practices throughout the school; the instrumentalisation of whole-school expectations relating to learning-centred practices, through lesson observation proformas, learning walks and reward systems; and implementation of the above in evidence-informed ways that take account of the local context, through cycles of evaluation and re-implementation over a number of years.

Evidence-informed practice within a self-improving school system

From the outset, the *Learning Skills* team set out to design the curriculum in accordance with the principles of evidence-informed practice (EIP). There has been an increased emphasis on EIP in the UK in recent years. In contrast with evidence-based practice – the notion that practice should be rooted in “conscientious, explicit, and judicious use of current best evidence in making decisions”, and which has been criticised for turning professionals into “technicians who follow a recipe” (e.g. see Woodbury et al., 2014) – evidence-informed practice has been defined as “a combination of practitioner expertise and knowledge of the best external research, and evaluation-based evidence” (www.education.gov.uk, 2014; cited in

Brown, Stoll and Godfrey, 2017, p. 132). This can be seen as part of a wider shift in policy, from top-down school reform under the New Labour government (1997-2010) to a more localised ‘self-improving school system’ under the Conservative/Liberal Democrat coalition (2010-15) and the current Conservative administration (Greany, 2015). Under the banner of a self-improving school system, schools have been given greater autonomy through the rapid expansion of the academies programme, with an accompanying reduction in central and local oversight (Godfrey, 2016). In an analysis of the Department for Education 2010 White Paper *The importance of Teaching* and Dr. Ben Goldacre’s (2013) report into the use of evidence in education, Greany (2014) identifies four criteria in the government’s view of a self-improving system:

- 1) teachers and schools are responsible for their own improvement
- 2) teachers and schools learn from each other and from research so that effective practice spreads
- 3) the best schools and leaders extend their reach across other schools, so that all schools improve
- 4) government intervention or support is minimised

(Greany, 2014)

This emphasis on research involves the combined use of different kinds of evidence. Brown, Stoll and Godfrey (2017) identify three types of evidence:

- 1) use of formal research produced by researchers;
- 2) evidence produced by practitioner enquiry such as action research;
- 3) interpretation of data routinely collected by schools

(Brown, Stoll & Godfrey, 2017, p. 132)

There are a number of benefits related to the development and use of EIP in schools. Supovitz (2015) notes that high-performing school systems often emphasise the use of research evidence and data analysis as a framework, a) for identifying problems or areas for improvement, and b) for identifying strategies to improve those aspects of school life. Similarly, there is evidence to suggest that where research and evidence feature centrally in initial and continuing professional development, there are positive consequences in terms of teacher, school and system performance (e.g. Mincu, 2014; Cordingley, 2013; Godfrey, 2016).

Research studies looking at how teachers use research suggest that it is possible to characterise teachers' engagement with EIP along two dimensions: their attitude toward research, and their engagement with research. Figure 2.6 (adapted from Brown, 2017) presents this idea as a two-by-two matrix, revealing four types of evidence use among teachers.

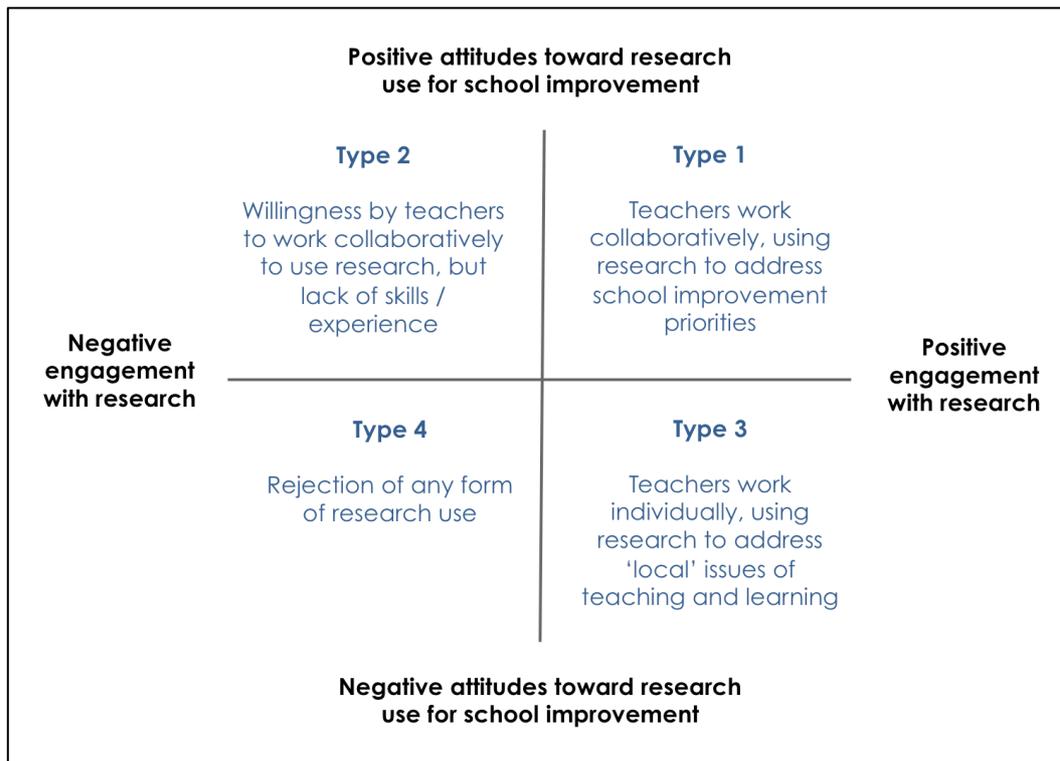


Figure 2.6. Types of evidence-informed practice among teachers.

Following this scheme, in its first year the *Learning Skills* team was comprised of a mixture of type one and type two teachers, with types three and four evident among the wider teaching body. As the teacher interviews reveal, despite having applied to be a part of the *Learning Skills* team, nobody in the team had heard of the phrase 'Learning to Learn' until it was introduced by myself in a planning meeting, and they were not aware of any research in this area. However, in planning meetings throughout the first year, the *Learning Skills* team did refer to research literature regularly – notably *Visible Learning* (Hattie, 2009); *Evidence Based Teaching: A Practical Approach* (Petty, 2006); studies of Philosophy for Children (e.g. Trickey & Topping, 2004, 2006; Topping & Trickey, 2007a, 2007b, 2007c); and research into classroom talk and collaborative learning (e.g. Mercer, 1995, 2000; Mercer & Littleton, 2007; Slavin, 2008, 2010).

As the *Learning Skills* programme developed and took shape over time, the team adopted a two-tiered approach to EIP. The first step was to look outward to the research literature, to determine which teaching and learning practices might be best suited to the task of helping students get better at learning. The second step was to look inwards, combining professional expertise with formative and summative assessments, to make professional judgments about how well each component of the programme was working in the Sea View context, and how it might be further developed. A phrase the *Learning Skills* team used to sum up this approach was to ‘implement evidence-informed practices in evidence-informed ways’.

A sociocultural intervention

While the *Learning Skills* programme was comprised of several strands of practice as outlined above, fundamentally it centres around three key concepts: metacognition, self-regulation and oracy. While these ideas can be separated out in theory, in practice there is significant overlap and interaction between the three. In particular, oracy was absolutely central to the programme, since spoken language was the medium through which much of the learning was modeled, developed and expressed.

The main structural feature of the *Learning Skills* programme in years seven and eight was the use of half-termly projects, designed to help students develop the ability to self-regulate their learning. As we will see in the teacher interviews, there was a sense among the *Learning Skills* team that students are overly micro-managed in secondary schools. Their day is broken up into hourly lessons, each lesson is broken up into sections, and all learning is driven by the teacher. In this context, it is easy for many students to ‘slip beneath the radar’ – they learn to ‘look busy’, and may not present any behavioural problems to the teacher; however, when the teacher asks them a simple question or looks in their book, it becomes apparent that they are not learning effectively in such a controlled, top-down environment. The rationale for having half-termly projects was that a student cannot ‘look busy’ for six weeks. In the context of a long-term project, it is far easier for teachers to identify which students struggle to regulate their learning. They could then have individual conversations with those students, help them identify strategies to move their learning forward. Often, these conversations focused on everyday organisational behaviours, such as running a to do list, managing distractions, or scheduling reminders on their phone to help them remember to do things when they needed doing. In these projects, the principle guiding the role of the teacher was to guide them toward

learning or mastering knowledge or skills that the students currently felt they were incapable of doing.

Alongside oracy and long-term projects, a third important feature of the *Learning Skills* programme is that the students were grouped in mixed ability classes. As stated above, an explicit aim of the course was to ensure that all students learnt to speak, listen and work productively with all other students. The rationale for having mixed ability groups was that students would be able to share and learn new knowledge skills, habits and attitudes from each other, as well as from the teacher.

To the extent that *Learning Skills* was an oracy-based intervention, focused on students working beyond their current comfort zone and learning from one another within a mixed ability setting, the programme can be seen as operating within a sociocultural framework. Sociocultural theory is a school of thought derived from the work of Lev Vygotsky, which views learning as a social process and recognises the importance of social and cultural relations in the development of the individual:

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (inter-psychological) and then inside the child (intra-psychological). This applies equally to voluntary attention, to logical memory and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

(Vygotsky, 1978, p. 57)

In sociocultural theory, this process of individual growth through interacting with others is seen as being mediated through the use of cultural and psychological tools, of which spoken language is a prime example (Mercer & Howe, 2012). Vygotsky proposed that young people learn and develop when they are in the 'Zone of Proximal Development' (ZPD), which he defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). The utility of the ZPD as a model for understanding learning has been challenged, however. For example, Mercer and Fisher (1992) suggested that "there is a danger that the term is used as little more than a fashionable alternative to Piagetian terminology or the concept of IQ" (p. 342), while Palinscar (1998) asserted that the ZPD is "probably one of the

most used and least understood constructs to appear in contemporary educational literature” (p. 370). Building on the idea of the ZPD, Mercer (1996, 2002) proposed the Intermental Development Zone (IDZ) as a more useful frame of reference:

The IDZ is a dynamic frame of reference which is reconstituted constantly as the dialogue continues, so enabling the teacher and learner to think together through the activity in which they are involved. If the quality of the IDZ is successfully maintained, misunderstandings will be minimised and motivations will be maximised. If this is successful, the teacher will be able to help the learner transcend their established capabilities and to consolidate their experience in the zone as improved capability and understanding. If the dialogue fails to keep minds mutually attuned, however, the IDZ collapses and the scaffolded learning grinds to a halt.

(Mercer, 2002, p. 143)

In *Learning Skills* lessons, students were set tasks that were designed to stretch them beyond their “established capabilities”, navigating their way through long-term projects through a process of continual dynamic dialogue with their teacher and peers of mixed abilities. The IDZ therefore provides a useful model for the way in which students were enabled to “transcend their established capabilities”, developing new knowledge and understandings with regard to how they learn in different contexts. Through the regular use of metacognitive reflection using a shared language of learning across the curriculum, the *Learning Skills* programme was designed in such a way as to enable students to transfer knowledge, skills, habits and attitudes from the inter-psychological to the intra-psychological domain, thus becoming more effective at learning across a range of contexts.

CHAPTER THREE: RESEARCH METHODOLOGY

Because *Learning Skills* is a complex intervention comprised of multiple components, it is fitting that a study seeking to describe and evaluate it should be similarly multifaceted. This mixed methods evaluation combines the use of three study designs, and incorporates eight strands of qualitative and quantitative data collection and analysis. In order to present the findings in a coherent way, for each strand of the study the research methods and findings will be presented together in chapter four, using the following headings: rationale; methods of data collection and analysis; findings and discussion; strengths and limitations.

Mixed methods research has attracted considerable controversy in recent years. In particular, some scholars have argued that it is fundamentally misguided to combine the use of qualitative and quantitative research methods, since they are underpinned by epistemological and ontological assumptions and worldviews that are fundamentally irreconcilable. In this chapter, I will outline some of the philosophical and methodological assumptions that underpin a study of this nature, and consider how mixed methods research is underpinned by the philosophy of Pragmatism. I will also examine the way this study combines the use of three study designs: case study, quasi-experiment and mixed methods research. First, it will be useful to frame this discussion by setting out some problems with the currently fashionable notion that education research should be concerned with ‘working out what works’.

SOME PROBLEMS WITH ‘WHAT WORKS’

As discussed in chapter two, since the change of government in 2010 there has been an increased emphasis on research and evidence in UK education policy, as part of a shift toward a ‘self-improving school system’. This can be seen as part of an wider international shift toward the idea that professional practices should be based upon, or informed by, evidence (e.g. Wiseman, 2010). As Biesta (2010) points out:

There is, of course, something intuitively appealing about the idea that evidence should play a role in professional work, and it is difficult to imagine an argument against engagement with evidence... The important question... is not *whether or not* there should be a role for evidence in professional action, but what kind of a role it should play.

(Biesta, 2010, p. 492; original emphasis)

One influential development in the UK was the publication of a report by Dr. Ben Goldacre, commissioned by the Department for Education (DfE), entitled *Building Evidence into Education* (Goldacre, 2013). In the opening paragraph, Goldacre suggests that there is a “huge prize waiting to be claimed by teachers. By collecting better evidence about what works best, and establishing a culture where this evidence is used as a matter of routine, we can improve outcomes for children, and increase professional independence” (p. 7). In particular, Goldacre recommends that education should follow the example of medicine in adopting the widespread use of RCTs: “Medicine has leapt forward with evidence based practice, because it’s only by conducting “randomised trials” – fair tests, comparing one treatment against another – that we’ve been able to find out what works best” (Goldacre, 2013, p. 7). Responding to Goldacre’s report, Mary James – then the President of the British Education Research Association (BERA) – dismissed Goldacre’s argument in strong terms:

I have to admit to being deeply underwhelmed... His journalistic approach, in both his speech and his accompanying paper, is superficial and shows no real understanding of research in education, and especially the debates that have been around these issues for many, many years.
(James, 2013)

As James points out, education research has a long history of grappling with the question of ‘working out what works’. One of the problems with Goldacre’s report is the fact that many features of medical RCTs do not lend themselves to education research. For example, medical RCTs often have a placebo control, to account for the well-known ‘placebo effect’ whereby a patient’s condition will often improve simply because they feel they have been treated, regardless of the treatment effect. To have a placebo control in an education trial, one would have to have teachers in the control group doing things that were known to have no impact: the educational equivalent of a sugar pill. Aside from the ethical issues arising from such an idea, it would also be impossible in practice since, as John Hattie has pointed out, “virtually everything works. One only needs a pulse and we can improve achievement” (Hattie, 2009, p. 16). Another standard feature of medical RCTs is the use of a double-blind. In a single-blind study, the patient does not know which treatment they are receiving. In a double-blind study, the treatments are coded so that the medical staff don’t know which is which either; this prevents them from being able to influence the wellbeing of the patient, knowingly or otherwise. To double-blind an education RCT, you would have to have teachers in both the treatment and control conditions who literally did not know what they were doing.

As well as the logistical problems with using RCTs in education research, there are also some deep-rooted philosophical and methodological issues to consider. As I argued in chapter two, schools and classrooms are complex, dynamic, nonlinear systems that are at odds with scientific notions of ‘fair testing’ and the detection of neat, linear, causal relationships. Simply put: social science is not natural science. One key difference is that in the social sciences, research and evidence can be viewed through a number of different lenses or ‘interpretive paradigms’. The stance a researcher takes has significant ramifications for the whole process of research, ranging from the kinds of questions asked and the methods of data collection and analysis used, to the ways in which conclusions and interpretations are drawn from the findings.

The desire to objectively determine ‘what works’ in education is representative of a philosophical stance known as realist positivism (Dunne et al., 2005). Realist positivism is based on the idea that social reality exists independently of human perception, that social phenomena can be objectively and reliably measured using quantitative research methods, and that the evidence produced can then be put to use through the use of ‘policy levers’, with predictable consequences. An example of realist-positivist thinking can be seen in a 2010 speech by Michael Gove, then Secretary of State for Education, in which he called for

more data generated by the profession to show what works, clearer information about teaching techniques that get results, more rigorous, scientifically robust research about pedagogies which succeed and proper independent evaluations of interventions which have run their course. We need more evidence-based policy making, and for that to work we need more evidence.

(Gove, 2010)

The ‘what works’ agenda and the realist-positivist stance that underpins it have been widely criticised as a basis for social research and social policy (e.g. Hammersley, 2005; Smeyers & Depaepe, 2006; Biesta, 2007) and have been described as “naïve realism” (Scott, 2000). Biesta (2010) examined the ‘what works’ agenda at a number of levels, and concluded that “in the epistemological domain there is a *knowledge deficit*, in the ontological domain an *effectiveness or efficacy deficit* and in the practice domain an *application deficit*” (Biesta, 2010, p. 493, original emphases).

MIXED METHODS RESEARCH

Qualitative research methods such as participant observation and interview are “at least as old” as quantitative research, and have long been the dominant approach in fields such as social anthropology (Morgan, 2007, p. 55). Their use in education research expanded considerably in the 1980s, following the establishment of a philosophical case for paradigm change. This shift has been described as a “quiet ... qualitative revolution” (Denzin & Lincoln, 2003, p. ix). In an influential book, Lincoln and Guba (1985) contrasted the prevailing positivist paradigm with a stance they called ‘naturalistic enquiry’, which later became known as constructivism. This development marked the beginning of what has been described as a “shift from the positivist to the metaphysical paradigm” (Morgan, 2007, p. 55).

The increasing recognition of the value of qualitative research methods has led some researchers to combine the use of multiple research methods within a single study. In adopting a mixed methods approach, the researcher “links... both quantitative and qualitative data to provide a unified understanding of a research problem” (Creswell & Garrett, 2008, p. 322).

Mixed methods research has been described as:

a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction and collection and analysis of data and the mixture of qualitative and quantitative approaches... As a method, it focuses on collecting, analysing, and mixing both qualitative and quantitative data... Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

(Creswell & Plano Clark, 2007, p. 5)

The idea of using more than one method to ‘triangulate’ research findings has featured in the psychological literature since the 1950s (e.g. Campbell & Fiske, 1959). However, mixed methods research has “come into its own as a research approach in the last 20 years” (Creswell & Garrett, 2008, p. 323). It has been described as the “third movement” in the evolution of research methodology (Tashakkori & Teddlie, 2003, p. X). In this view, the “first movement is quantitative research, and the second is qualitative inquiry. The third movement offers a middle ground that mediates quantitative and qualitative disputes” (Denzin & Giardina, 2015, p. 34).

The question of paradigm incompatibility

Some authors have rejected the possibility of a mixed methods approach to social research, on the basis that the kinds of knowledge generated by constructivist and positivist research methods are fundamentally incompatible. This problem has been described variously as ‘paradigm incompatibility’, ‘communication breakdown’, and ‘incommensurability’ (Kuhn, 1996; Tashakkori & Teddlie, 2003; Morgan, 2007).

The question of paradigm incompatibility presents a significant challenge to those wishing to carry out mixed methods research. If a researcher uses a questionnaire to measure self-esteem, say, they do so within a positivist tradition that views self-esteem as an abstract object, independent of human perception, that can reliably be measured using psychometric instruments. If they then interview those same subjects to explore their perceptions of self-esteem, they do so within a constructivist tradition that views knowledge as something that may have been partly pre-constructed by the subject, and which is partly co-constructed through the process of the interview. They could analyse the transcribed text of that interview using quantitative measures, such as by counting the frequency of certain words spoken by the participants; this would be a positivist move. Alternatively, they might analyse that same text using thematic analysis; this again would be a constructivist or an interpretivist move. Philosophically, such a ‘pick and mix’ approach to methods of data collection and analysis is problematic, since the different methods of data collection and analysis are rooted in fundamentally contradictory ontological and epistemological stances. While Guba and Lincoln (2005) consider it possible to combine qualitative and quantitative methods within a single study, others “deny the possibility of combining methods that are rooted in different paradigmatic assumptions” (Morgan, 2007, p. 62-63). As Sale, Lohfeld and Brazil (2002) have suggested: “one cannot be both a positivist and an interpretivist”.

In response to this challenge, some scholars have sought to minimise the problem of paradigm incompatibility on the basis that the use of mixed methods is widespread, and of little concern to researchers in the field. For example, Hammersley has suggested that “the common tendency to contrast two traditions or approaches to the study of the social world... is fundamentally mistaken. This is illustrated by the fact that a large amount of research... combines both kinds of method and data” (Hammersley, 1998, p. 141). Striking a similar note, Fielding and Fielding (2008) note the distinction between the concerns of theoretical and

applied researchers:

The status of [*mixed methods research*] contrasts in the academic and applied research spheres. [*Mixed methods research*] remains controversial in the academic sphere. Since the... 1950s, the social sciences have developed a range of considered objections on the grounds of epistemology and incommensurability of methods. The situation contrasts with that in applied research, where many regard [*mixed methods research*] as a practical necessity.

(Fielding & Fielding, 2008, p. 566)

This line of thinking comes close to an *argumentum ad populum*, a logically fallacious argument that concludes a proposition is true simply because many or most people believe it, or act as though it were true. Others have suggested that social researchers do not need to tie their colours to the mast of any one philosophical stance:

drawing a positivist and anti-positivist approach to educational research may seem to have little value... Hopefully, what should be clear is that linking any procedure slavishly to any particular approach is wrong. The reality, of course, is that a range of procedures pertinent to the research at hand should be used rather than a resolute adherence to any deemed more appropriate.

(Opie, 2004, p. 9)

One of the problems with the metaphysical paradigm is that “it never directly addressed one of the central issues it raised: What is the relationship between metaphysical beliefs and research practices?” (Morgan, 2007, p. 63). A further discussion of this relationship is beyond the scope of this thesis. However, it is worth reflecting briefly on the fact that the argument of ‘paradigm incompatibility’ rests on an assumption that it is impossible for a researcher to hold two opposing positions simultaneously, without being hopelessly compromised. Thus, to the assertion of Sale, Lohfeld and Brazil (2002) that “one cannot be both a positivist and an interpretivist”, one might reasonably ask: why not? Are qualitative and quantitative research methods not simply different tools or lenses through which we can view different aspects of social reality – each with strengths and limitations? And does using multiple lenses not simply enable the researcher to see more of what is before them, while helping overcome the limitations associated with any single approach?

Rather than viewing mixed methods research as awkwardly bestriding conflicting metaphysical positions, a number of authors have turned to the philosophy of pragmatism as a

basis for conducting mixed methods research (e.g. Creswell & Garrett, 2008; Tashakkori & Teddlie, 2003; Maxcy, 2003; Johnson & Onwuegbuzie, 2006). The emergence of pragmatism as a methodological stance draws on the wider philosophy of classical Pragmatism (capital P), and in particular on the work of John Dewey (for an extended discussion, see Biesta & Burbules, 2003). Within the social sciences, the pragmatist position “either ignores paradigmatic differences between quantitative and qualitative research, or recognises their existence but in the interests of exploring research questions with as many available tools as possible, it shoves them to the side” (Bryman, 2008, p. 19). Pragmatism differs from the metaphysical paradigm in that it places the research question at the heart of the enquiry. Recognising the limited explanatory power of purely positivistic and anti-positivistic approaches, the mixed methods researcher seeks to approach research questions using a variety of methods (Tashakkori & Teddlie, 1998). However, as Morgan (2007) argues, a pragmatic approach to social research goes beyond researchers’ immediate concern for addressing research questions:

The great strength of this pragmatic approach to social science research methodology is its emphasis on the connection between epistemological concerns about the nature of the knowledge that we produce and technical concerns about the methods that we use to generate that knowledge. This moves beyond technical questions about mixing or combining methods and puts us in a position to argue for a properly integrated methodology for the social sciences.

(Morgan, 2007, p. 73)

In combining the use of qualitative and quantitative research methods, this study is conducted within the pragmatic tradition. It is important to recognise that mixed methods research does not simply involve the collection of qualitative and quantitative data, but requires that these different kinds of data are combined or integrated in seeking to resolve the research questions. In chapter five, I will consider how the findings from each strand of data collection and analysis might be combined to address the five research questions that underpin this study.

In the next section, I will discuss the way this study combines the use of three study designs – case study, quasi-experiment and mixed methods research – and outline how a range of qualitative and quantitative research methods of data collection and analysis will be combined to explore the research questions in ways that could not be adequately addressed using any single method in isolation.

RESEARCH DESIGN

At heart, this study is a straightforward evaluation of the *Learning Skills* programme at Sea View. However, while the study is evaluative it should not be viewed as an evaluation *per se*. Evaluation, as opposed to pure research, is seen by some authors as being committed to a “political stance, an attitude to the government of education” (MacDonald, 1987, p. 42). Stronach & Morris (1994) have suggested that evaluations have become more “conformative”, and prone to “giving undue weight to the perceptions of programme participants who are responsible for the successful development and implementation of the programme” (p. 5).

Some of the distinctions between evaluations and other research designs are conceptual, since many approaches to research share methods of data collection and analysis, and are essentially evaluative in nature. However, as an insider-researcher, Stronach & Morris’s (1994) warning against confirmation bias – the tendency for researchers to select participants, or interpret participants’ responses, in ways that confirm the researcher’s pre-existing beliefs – was important to bear in mind in the planning, execution and interpretation of this study. For this reason, this study combines the use of three study designs: case study, quasi-experiment and mixed methods research. I will now consider each of these study designs in detail.

Case study

In relation to the primary outcome measure – a comparison of the treatment and control cohorts at GCSE – this study covers a period of time from September 2009, when the pre-*Learning Skills* control cohort joined the school, through to August 2015, when *Learning Skills* cohort one received their GCSE results. As a secondary measure, the study also looks at the GCSE outcomes for the second and third *Learning Skills cohorts* in August 2016 and 2017 respectively. Although the study period spans eight years in total, it is not a longitudinal study in a technical sense, since it does not involve repeat data collection at multiple time-points. Rather, it can be described most simply as an eight-year case study.

Case study has been described as “the study of an instance in action” (Adelman, Jenkins & Kemmis, 1980, p. 73), or a “single instance of a bounded system” (Creswell, 1994, p. 12).

The case study approach can vary significantly in scope. As Mabry (2008) states, case studies “may be as minutely targeted as a single person... [however] more commonly, case study research in social science concentrates on instances of greater complexity, such as a community’s approach to addressing a prevailing societal issue, a programme’s effectiveness, or a policy’s implications” (p. 214).

This evaluation of the *Learning Skills* programme is a study of a clearly bounded phenomenon, in that the intervention had clear limitations in time and space. The fact that *Learning Skills* is a complex intervention also lends itself to case study, since the approach “exhibits a profound respect for the complexity of social phenomena” (Mabry, 2008, p. 217). Because case study seeks to describe and evaluate complex phenomena in great breadth and depth, it also lends itself to a mixed methods approach:

(U)nderstanding a case almost always requires going beyond countable aspects and trends... The clashing motifs of natural science (sometimes referred to as hard science or quantitative or experimental research) and social science (contrastingly referred to as soft science or qualitative, interpretive or hermeneutic research) may present themselves to case study researchers as a choice or may be resolved in mixed-methods inquiry...

(Mabry, 2008, p. 215)

Yin (2009) suggests that there are five features of an exemplary case study. First, it must be “significant” (p. 185). Significance is defined in terms meeting two criteria: “the individual case or cases are unusual and of general public interest”, and “the underlying issues are nationally important – either in theoretical terms or in policy or practical terms” (p. 185). Second, it must be “complete” (p. 186). Completeness is characterised in three ways: a) “the boundaries of the case – that is, the distinction between the phenomenon being studied and its context – are given explicit attention” (p. 186); b) “the investigator expended exhaustive effort in collecting the relevant evidence” (p. 186); and c) the “absence of certain artifactual conditions”, for example “if the study ended only because resources were exhausted, or because the investigator ran out of time” (p. 187). Third, the case study must consider “alternative perspectives”, such as “the consideration of rival propositions and the analysis of evidence in terms of such rivals” (p. 187). In seeking to analyse the findings of this study in a complete way that takes account of alternative interpretations, in chapter five I will adhere to the two phases of research advocated by Altrichter, Posch and Somekh (1993) – the constructive and the critical – where the latter phase is “devoted to checking findings and the

search for counter evidence” (Dunne et al., 2005, p. 77). Fourth, the case study must “display sufficient evidence”. This can be done in three ways: a) the case study should “judiciously and effectively present the most relevant evidence”, without this selectiveness meaning that the evidence is “cited in a biased manner” (p. 188); b) to “present enough evidence to gain the reader’s confidence that the investigator “knows” his or her subject” (p. 189); and c) through an “indication that the investigator attended to the validity of the evidence” (p. 189). Fifth, the case study “must be composed in an engaging manner” (p. 190). These five characteristics of an exemplary case study provide a useful framework that informed the planning, execution and interpretation of this study.

Quasi-experimental research

As I argued in chapter one, the measure of any Learning to Learn initiative should rest on whether or not it improves the students’ attainment in subject learning across the curriculum. For this reason, the primary outcome measure in this study is the students’ attainment in subject learning (an interim measure at the end of year nine, and a final measure upon completion of their GCSEs in Year 11). However, schools results often fluctuate from one year to the next, and one cohort can differ significantly to the next in terms of student demographics or prior attainment. In order to determine the extent to which any changes in subject learning can be attributed to the *Learning Skills* intervention, in the primary outcome analyses, the attainment of the *Learning Skills* cohort one was compared against that of a matched control group (the previous cohort at the same school) who did not receive the *Learning Skills* treatment.

Randomising allocation to treatment and control groups is the gold standard in experimental design. However, since this is a study of an already-existing intervention that involved an entire year group, randomisation was not possible in this instance, and so a quasi-experimental design was used. This does not necessarily render the study any weaker than if randomisation had taken place. As Cook & Wong (2008) have pointed out: “Many dismiss quasi-experiments as being grossly inferior to randomised experiments. However... under some circumstances, well-executed quasi-experiments’ outcomes are comparable to randomised experiments’ outcomes” (p. 112). This study follows a non-equivalent control design, the most widely used quasi-experimental design, which compares a treated group with an untreated group using a pre-test and a post-test. The notation for this study design can be

seen in Figure 3.1, where N represents non-random allocation, O_1 represents pre-treatment measure, X means treatment, and O_2 represents the post-intervention measure.

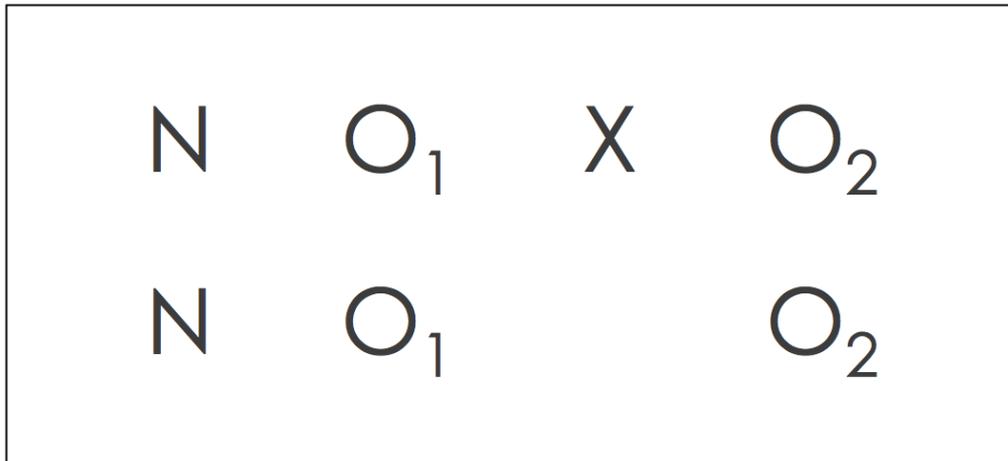


Figure 3.1. Notation of the quasi-experimental non-equivalent control design.

The two most important factors in quasi-experimental study design are a) how the treatment and control groups are selected, and b) how similar the groups were beforehand (Cook & Wong, 2008). In particular, the validity of a quasi-experimental study rests on how well the control group is matched to the treatment group prior to the intervention. Ideal matches would not differ between treatment groups other than for participation in the intervention, thus ruling out selection as a threat to internal validity. If the groups are well-matched, and allocation to the treatment and control groups approximates randomisation, then one can argue that the study meets the assumption of equivalence on which randomised experiments rest.

In this study, the treatment and control groups are two adjacent year groups at the same school. This criterion of selection approximates randomisation, since the deciding factor is whether a student's date of birth falls either side of an arbitrary cut-off date. However, it was also important to check for matching of prior attainment between the two cohorts, as well as taking into account a range of other factors that may affect the primary outcome measure. A comparison of the control and treatment cohorts at baseline is presented in chapter four. As we will see, in this study the control and treatment cohorts had comparable data at entry to the school, as evidenced by their CAT scores and KS2 data. In addition, the control and treatment cohorts were similar in a number of other important ways. For example, they were at the same school; they had the same school leadership team and teaching staff; there were no large-scale changes to the school culture, pastoral support or behaviour policy that affected one cohort

any more than the other; and both cohorts were in KS3 (in years 8 and 9, respectively) when the school subsequently became an academy. It could therefore be argued that the control and treatment groups were a closer match than if the study had compared students of the same age but in different schools, as is often the case in large-scale RCTs.

Mixed methods research

Creswell and Plano Clark (2011) have suggested several ways in which mixed methods research achieves things that purely qualitative or quantitative approaches cannot do alone. First, mixed methods research “provides strengths that offset the weaknesses of both quantitative and qualitative research” (p. 5). Second, mixed methods research “provides more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone” (p. 5). And third, mixed methods research helps answer questions that cannot be answered by qualitative or quantitative approaches alone. This can be seen when considering the primary outcome measure in this study. For example, if the students’ attainment in subject learning increased post-intervention, but students and teachers said that they did not feel *Learning Skills* transferred successfully into other subject areas, then any claim that the improved attainment may have been caused by the *Learning Skills* intervention would be weakened. Similarly, if students said that they felt transfer *had* happened, but their attainment in subject learning did not increase – again, one might question whether the transfer was happening to the extent that students said it was, or whether it was actually helpful. However, if the students’ attainment in subject learning increased after the intervention, *and* the students said they thought it had helped, *and* they had written as much in their RLJs, *and* teachers at the school felt that *Learning Skills* had been a contributory factor – then, in the presence of such an accumulation of aligned evidence from different data sources, one might construct a case for causality between *Learning Skills* provision and the subsequent changes in academic attainment.

Mixed methods studies can follow a number of distinct designs. The two main types are the convergent design, and the explanatory sequential design (Creswell, 2013). In the explanatory sequential design, quantitative data collection and analysis is followed by qualitative data collection and analysis (e.g., if a survey was administered and then a sample of students were selected for interview). In this study however, the data collection follows a convergent design, whereby qualitative and quantitative data was collected and analysed in parallel, before the

results were analysed and interpreted in parallel to see whether the findings are in alignment. A schematic of the convergent mixed methods study design is shown in Figure 3.2 (adapted from Creswell, 2013).

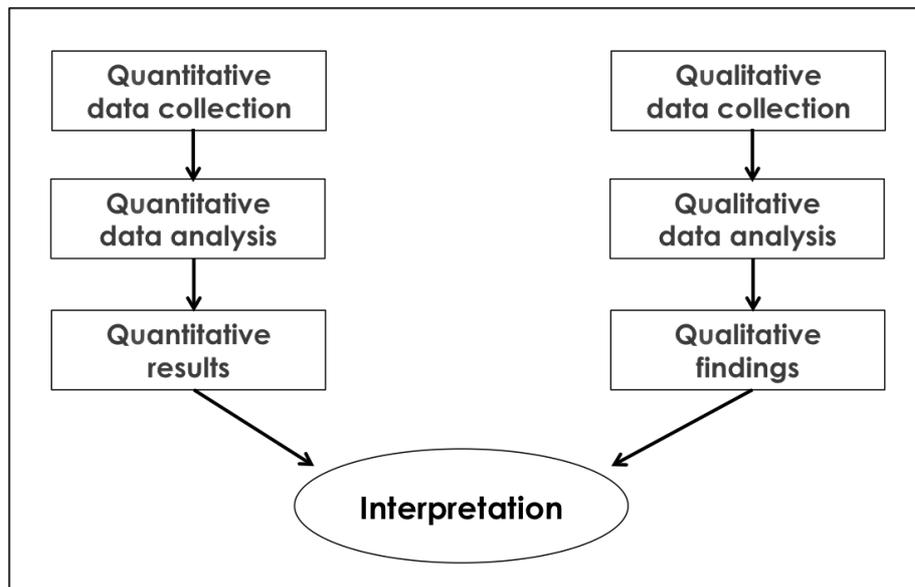


Figure 3.2. Schematic showing the convergent mixed methods study design.

The doctrine of convergent validation implicit in this research design is based upon a comparison of results from the parallel, systematic use of diverse methods, data sources and theories, to see whether there is agreement between different kinds of data (Denzin 1989). Should compatible findings emerge from the use of different measurement procedures, such alignment would enhance the validity of the findings (Fielding & Fielding, 2008, p. 556).

RESEARCH ETHICS

Prior to beginning this study, the research design and plans for data collection were checked against the BERA Ethical Guidelines for Educational Research (BERA, 2011). In September 2011, a detailed research proposal was shared and discussed with the school's Headteacher, and written, informed consent was obtained. A letter was also sent to the parents and carers of all students taking part in the study, explaining the purposes and scope of the study. This included an explanation regarding matters of confidentiality and anonymity and the right to withdraw at any time. Parents and carers were given the option to withdraw their child's data from the study at this stage, although none did. Where data collection was not naturally occurring, such as with the use of psychometric questionnaires, students were informed that

there was no obligation to complete the questionnaire, and that if they did, their responses would be treated confidentially and anonymised. Prior to the interview stage, the sampled students were firstly approached in person to determine whether they would be happy to be interviewed. Following this, letters were sent home to obtain written consent from both the participants and their parents/carers. At the start of the student and teacher interviews, guarantees of confidentiality, anonymity and the right to withdraw were again made clear (notwithstanding the usual caveat with regard to confidentiality and safeguarding, which was also communicated to students).

The University of Cambridge PhD handbook states that “it is essential that the [registration] viva is held before the student starts for conduct their data collection” (p. 11). This study is unusual in that some of the data collection had already taken place prior to the start of the study period, and further data collection took place prior to the registration viva. In order to gain ethical approval at the outset of the study, in December 2011 I submitted a research proposal and ethics checklist. This was reviewed by Dr. Linda Hargreaves, who made the following comments:

It is clear from the research proposal that the items ticked in the shaded boxes (Items 7a, 7g, 17) do not amount to ethical issues that require any further discussion or advice, or pose any harm or threat to the well-being of the pupils. The boxes ticked refer to practices that are normal school practices. The researcher has been thorough in obtaining informed consent from parents and students. The researcher may be seen as a ‘gatekeeper’ because he is the pupils’ teacher but he is not acting a gatekeeper. The ‘prolonged period of testing’ refers to a period of achievement testing that is carried out regularly in this school, and most others. There is no need to modify the research design.

(L. Hargreaves, personal communication, January 11, 2012)

An updated, signed copy of the ethics checklist for this study can be found in Appendix 4. Since the original letter of consent was obtained from the Headteacher, there were a number of changes to personnel at the school, including the Headteacher. To confirm that the informed consent remains valid, in November 2016 I wrote to the current Headteacher to inform them that the study is still ongoing, and to obtain consent for the analysis to continue. I also sent them the abstract of the *Curriculum Journal* article outlining the three-year interim outcomes (Mannion & Mercer, 2016). The Headteacher replied by letter to provide written consent for the study to continue as planned (see Appendix 5).

CHAPTER FOUR: RESEARCH METHODS AND FINDINGS

In this chapter, I will outline the research methods, findings, strengths and limitations relating to each strand of the study. Because there are eight strands of data collection and analysis, the research methods and findings for each strand will be presented together, rather than discussing the methods and findings separately.

The primary aim of this study was to follow a single cohort of students (*Learning Skills* cohort one) from year seven through to year 11, and to compare their progress with the previous year group, who did not take part in any *Learning Skills* lessons. In seeking to evaluate the *Learning Skills* programme more comprehensively – and in an attempt to capture how the programme developed over time – some of the strands of inquiry presented below include data collection and analysis relating to the second and third *Learning Skills* cohorts; where this is the case, it will be made clear.

This mixed methods case study combines the use of a range of naturally occurring and elicited data, including: baseline measures; attitude to learning scores; psychometric questionnaires; the Habits of Mind evaluation; RLJs; student interviews; teacher interviews; student attainment after three years (the interim year nine analysis); and student attainment after five years (the year 11 GCSE analysis for the control cohort, and for *Learning Skills* cohorts one, two and three). A timeline of data collection can be seen in Figure 4.1.

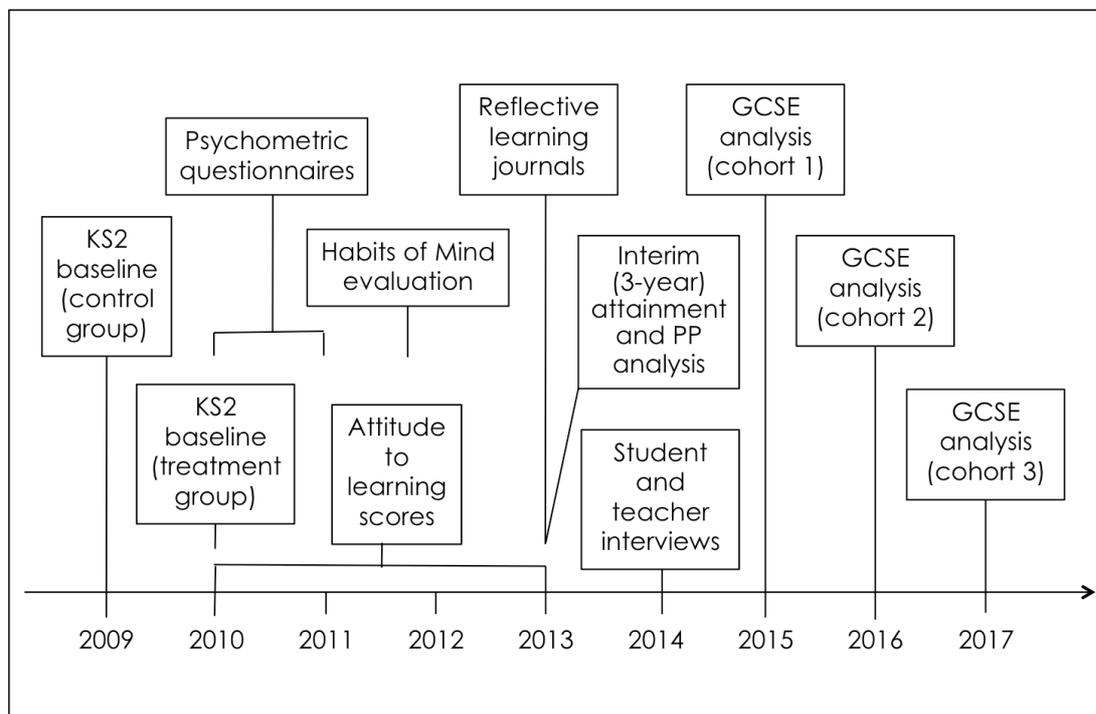


Figure 4.1. Timeline of data collection.

Mixed methods research has been defined as that which “involves collecting both quantitative and qualitative data (in response to quantitative and qualitative research questions), the merging, linking, or combining of the two sources of data, and then conducting research as a single study or a longitudinal project with multiple phases” (Creswell & Garrett, 2008, p. 326). In keeping with this definition, the research questions that guide this study are outlined in Table 4.1, with brief details of the research methods through which they were investigated.

Table 4.1. Research questions and the methods used to investigate them.

Research question	Quantitative methods	Qualitative methods
1. <i>What was the relationship between Learning Skills provision and student attainment in subject learning across all curriculum areas?</i>	<ul style="list-style-type: none"> • Baseline SATs, CATs, demographics • Attitude to learning scores • Student attainment: subject learning comparison (control vs treatment, years nine and 11) 	<ul style="list-style-type: none"> • Student interviews • Teacher interviews • RLJs
2. <i>To what extent does the quality of Learning Skills provision in year seven predict student attainment at GCSE?</i>	<ul style="list-style-type: none"> • Baseline SATs, CATs • Attitude to learning scores • Student attainment: subject learning at GCSE (control vs <i>Learning Skills</i> cohorts one, two and three) 	<ul style="list-style-type: none"> • Teacher interviews
3. <i>What was the relationship between Learning Skills provision and the attainment of students eligible for the PP?</i>	<ul style="list-style-type: none"> • Baseline SATs, CATs • Student attainment subgroup analysis 	<ul style="list-style-type: none"> • Teacher interviews
4. <i>To what extent did the knowledge, skills, habits and attitudes developed through the Learning Skills programme transfer into other subject areas?</i>	<ul style="list-style-type: none"> • Habits of Mind evaluation • Student attainment: subject learning comparison (control vs treatment, years nine and 11) 	<ul style="list-style-type: none"> • Student interviews • RLJs
5. <i>What was the non-cognitive impact of the Learning Skills programme?</i>	<ul style="list-style-type: none"> • Attitude to learning scores • Psychometric questionnaires (pre vs. post year seven) 	<ul style="list-style-type: none"> • Student interviews • Teacher interviews • RLJs

In this chapter, I will present the quantitative data analysis first, beginning with the primary outcome measure (student attainment at three and five years). I will then present the remaining quantitative and qualitative data analyses in chronological order, in accordance with the timeline in Figure 4.1. Following this, in chapter five, I will use a summarise the findings as they relate to each of the five research questions.

QUANTITATIVE DATA COLLECTION AND ANALYSIS

STUDENT ATTAINMENT

Rationale

As I argued in chapter one, regardless of a school's rationale for implementing a programme such as *Learning Skills*, any attempt to evaluate the impact of such a programme should rest on, or at least include, the question of whether or not it improved student attainment across the curriculum. For this reason, the primary outcome measure in this study was student attainment across all subjects, from when they began the intervention in year seven through to completing their GCSEs in year 11.

Methods of data collection and analysis

In order to track progress in a manageable way over the five-year study period, student attainment was analysed at two time points: an interim analysis at the end of year nine (three-year outcomes), and a final analysis at the end of year 11 (five-year outcomes). In each case, the attainment of students in the treatment cohort (*Learning Skills* cohort one) was compared with that of students in the control cohort (the pre-*Learning Skills* cohort). As a secondary analysis, the GCSE attainment of students in *Learning Skills* cohorts two and three were also compared.

As well as comparing the overall attainment of the students in each cohort, in both the interim and final analysis, the impact of the *Learning Skills* programme on the 'disadvantage gap' was evaluated by comparing the relative attainment of PP and non-PP students within and across the two cohorts. As we will see in the 'baseline measures' section below, the prior attainment of the two cohorts was very similar as the students entered the school, while the PP gap was larger in the treatment cohort at entry to the school (indeed, in the control cohort there was a 'negative gap' at entry to the school, with PP students slightly outperforming non-PP students in KS2 SATs).

Interim (three-year) analysis

When the interim analysis was carried out at the end of year nine, student attainment data was entered on to the school's data management system three times a year (autumn, spring and summer). Since KS3 SATs had been abolished by the time of this study, the year nine analysis was based on teacher assessments. The assessments teachers used to determine a student's national curriculum level for each subject naturally varied from one department to the next; however, in each subject, the grade was based on summative assessments, using levelled criteria that were shared with students beforehand. In each department, the levelling process was also subject to quality assurance processes of moderation and standardisation.

In order to take account of the fact that any single point of assessment might not give an accurate representation of each student's ability level in a subject – a student may be absent for example, or they might have an 'off day' – in the interim analysis, for each subject, the teacher assessment grades from each data point (autumn, spring and summer) were combined, and an average grade was calculated for each student. Because the attainment of students in both cohorts was some way below the national average when the study period began, with the majority of students neither hitting nor exceeding their target grades in KS2 and the average CAT scores some way below the national average, the measure used to evaluate the impact of *Learning Skills* in the interim analysis was the proportion of students either hitting or exceeding their target grade. Throughout the study period, students' target grades were calculated using the Fischer Family Trust (FFT) D metric. FFT-D is generally seen as an aspirational target grade, since it assumes that each student will achieve the same average progress as students in the top quartile of similar schools in the country. The use of FFT-D was particularly ambitious in the case of Sea View, since the school was in special measures throughout the study period; it was situated in an area of high social and economic deprivation; it had higher than average numbers of students eligible for the PP; it served a community where students were typically below the national average at entry; and it had a history of low attainment at GCSE.

Final (five-year) analysis

For the final (five-year) analyses of GCSE results at the end of year 11, for each cohort, the students' results were harvested once all re-marks had been completed. The attainment of

students in the treatment and control cohorts were compared across the following range of measures: Average Points Score (APS); Total Points Score (TPS); the number of passes achieved at grades A*-G, A*-C and A*-A; the proportion of students achieving five passes at grades A*-C including English and Maths; and comparisons of attainment within each individual subject.

Data analysis

Where two data sets satisfy a number of criteria, inferential statistics analyses can be carried out to help determine the probability that any differences in outcomes between the treatment and control groups may be due to chance, and therefore to what extent they can be considered to have arisen from known differences between the two cohorts. This is desirable because careful statistical testing allows one to “make inferences from the sample data to the population from which they were drawn” (Opie, 2004, p. 209).

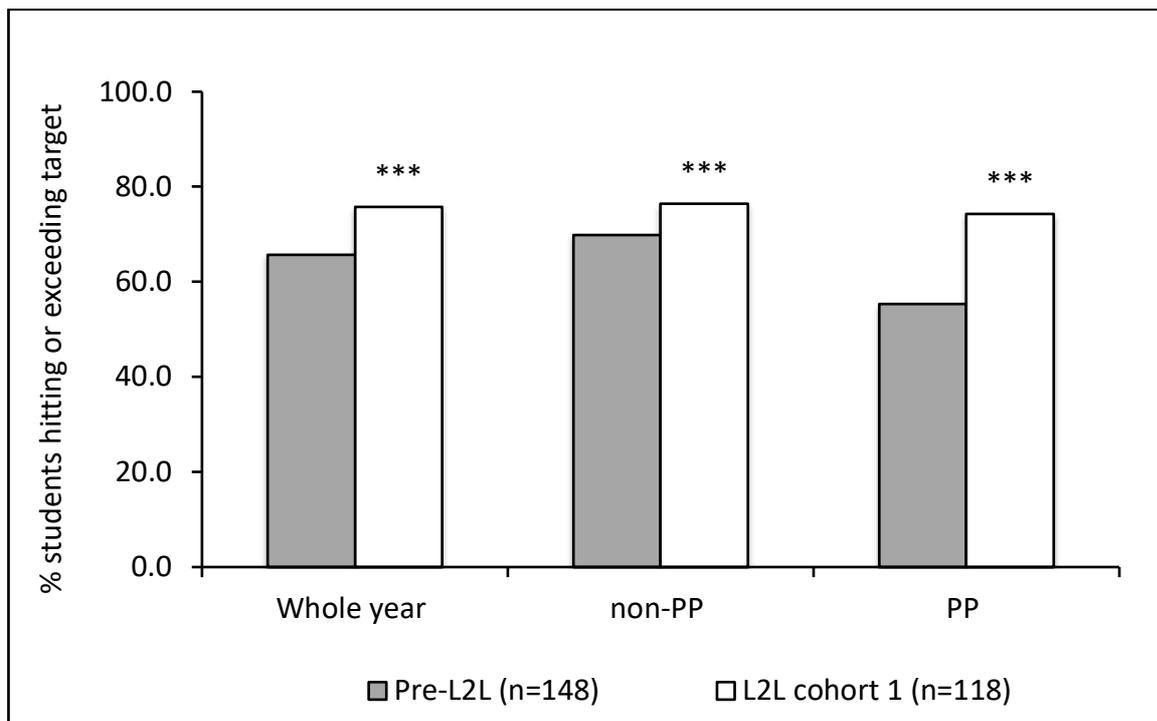
In order to determine whether to compare the student attainment data using parametric or non-parametric statistical testing, it is firstly necessary to check whether the data meet the assumptions that underpin parametric tests. Typically, these include: random independent samples; interval or ratio level of measurement (as opposed to ordinal or nominal data); normally distributed; no outliers; homogeneity of variance; and an appropriate sample size. As discussed in the ‘baseline measures’ section above, in this study, it was not possible to allocate students to the treatment and control cohorts through the use of random sampling. However, it can be argued that students being born in one year or the next constitutes a weak form of randomisation which, given that the other assumptions hold, provides a basis for the use of parametric statistical significance testing. In this study, in both the interim (three-year) and final (five-year) analyses, the data satisfied these assumptions, and statistical significance testing was used to compare the two cohorts.

To determine whether the difference in the attainment of the treatment and control cohorts was statistically significant, an independent samples t-test was used. In the interim analysis, the two-tailed test was used, since there was no prior knowledge to suggest the direction in which any differences might lie. For the final (five-year) analysis, the one-tailed test was used, since the interim findings had strongly suggested that the treatment cohort was achieving significantly higher grades, on average, than the control cohort.

To enable these statistical analyses, the students' attainment data was transformed into numerical values as follows: U = 1, G = 2, F = 3, E = 4, D = 5, C = 6, B = 7, A = 8, A* = 9. This can be considered a 'naturalistic' transformation, since the intervals between grades A, B, C are equivalent to the intervals between grades eight, seven, six and so on. However, for some analyses, it was necessary to carry out further transformations of the data which in some sense distort the naturally occurring data. For example, in order to determine whether the differences in the numbers of students achieving 5A*CEM were statistically significant, the data were transformed such that grades U, G, F, E and D were each transformed to the number '0', while grades C, B, A and A* were each transformed to the number '1'. This also applies to the A*-G, A*-C and A*-A analyses. In these cases, where the data are transformed into a binary format, it is not possible for the data to be normally distributed and so the relative performance of each cohort was compared using the non-parametric, independent samples Mann-Whitney U test.

Findings and discussion: interim (three-year) analysis

By the end of year nine, there was a significant increase in the proportion of students either hitting or exceeding their target grade in *Learning Skills* cohort one, compared with the control group. As can be seen in Figure 4.2, these improvements were more pronounced among disadvantaged students (i.e., those eligible for the PP), although the gains among non-PP students were statistically significant also.



*** Statistically significant differences, vs. control group; $P \leq 0.001$.

Figure 4.2. Student attainment at the end of year 9: treatment vs. control cohort.

Figure 4.3 compares the attainment gap between students eligible for the PP and their peers, and shows how this gap closed significantly in the *Learning Skills* treatment cohort, compared with the pre-*Learning Skills* control cohort. Most striking here are the data on the right hand side of the figure: when we combine the students' attainment data across all subjects at the end of year nine (averaging the autumn, spring and summer assessments in each subject, for each student), the attainment gap between PP and non-PP students was 25% in the pre-*Learning Skills* control group ($P \leq 0.001$), compared with just 2% in the *Learning Skills* group ($P = 0.687$).

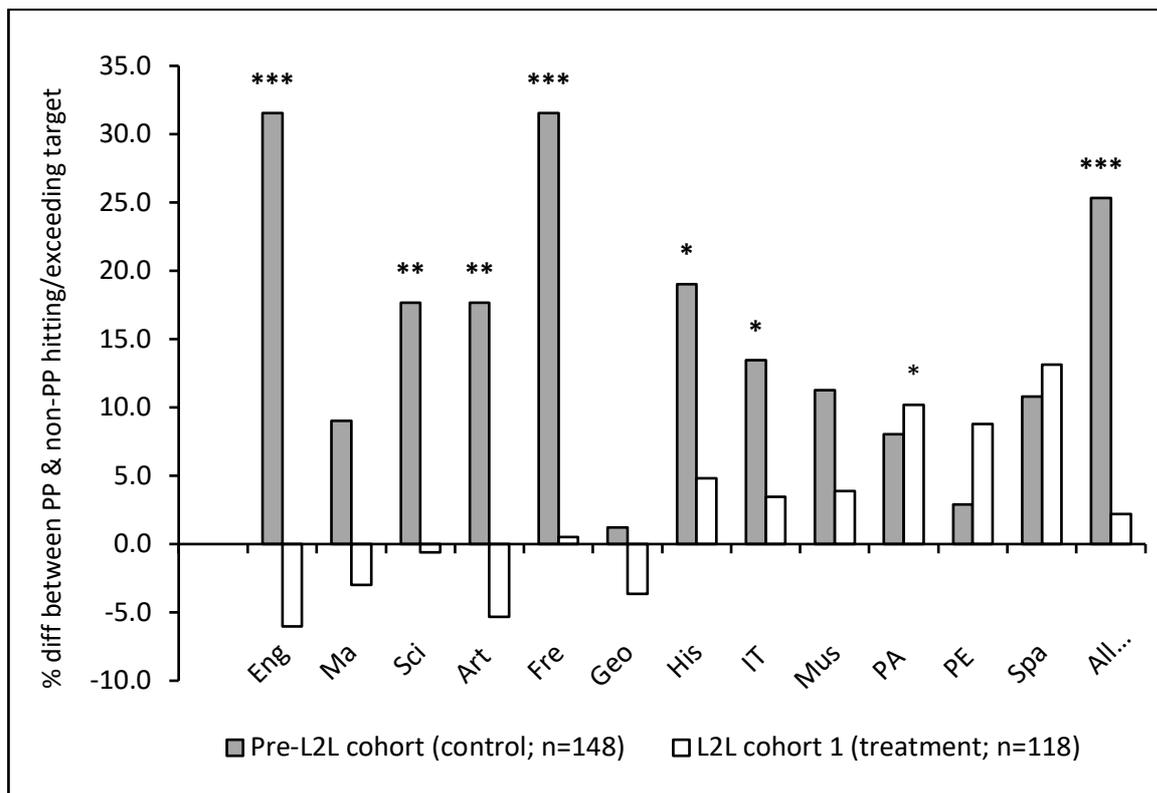


Figure 4.3. Pupil Premium gaps at the end of year 9: treatment vs. control cohort.

In nine of the twelve subjects, the attainment gap between PP and non-PP students was lower in the *Learning Skills* cohort. In the pre-*Learning Skills* control group, differences between PP and non-PP students were statistically significant in six of the subjects (English, Science, Art, French, History and IT) by year nine, whereas in the *Learning Skills* cohort none of the gaps were significantly different. As can be seen in the five white bars with negative values, in five of the subjects (English, maths, science, art and geography), following three years of *Learning Skills* the gap had closed so far that the difference lay in the opposite direction, with PP students outperforming non-PP students.

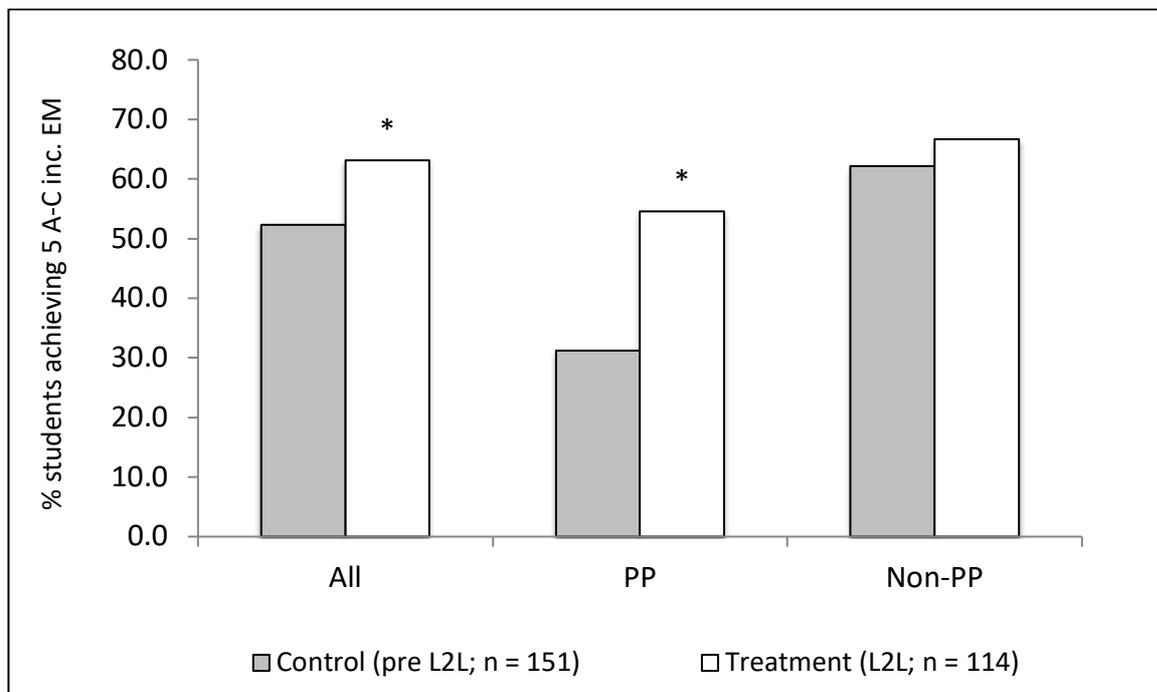
In three of the subjects (performing arts (PA), physical education (PE) and Spanish), the PP gap was larger in the *Learning Skills* cohort at the end of year nine. In the case of PA, this difference was statistically significant. However, the findings relating to these three subjects are idiosyncratic. In the case of Spanish (and also French, where the PP gap was 31.6% in the control cohort and 0.5% in the *Learning Skills* cohort), the numbers of students taking the subject at the end of year nine was much lower than the other subjects (around 40 students for each language, with a much lower than average proportion of students eligible for the PP). Consequently, the findings for French and Spanish are less robust than for the other subjects.

In the case of PA and PE, it should be noted that the students' target grades in these subjects are based on their academic performance in English, maths and science at KS2. It is therefore widely acknowledged that students' target grades (on which this analysis rests) are far less reliable as indicators of future performance in practical subjects such as PA and PE, than for academic subjects such as English, maths and the humanities.

In summary, this interim analysis at the end of year nine suggests a strong association between *Learning Skills* and academic learning across the curriculum, with disproportionate gains among students eligible for the PP. It is worth noting that throughout KS3, the control cohort had over 400 more lessons of subject learning than the treatment cohort, making the subsequent accelerated gains in subject learning among the *Learning Skills* cohort all the more remarkable. However, as stated above, this interim analysis was based on teacher assessments, rather than standardised tests of subject learning. The possibility therefore remains that these findings could be explained by anomalies in the way teachers assessed the students, rather than being a consequence of the *Learning Skills* programme.

Findings and discussion: final (five-year) analysis

Figure 4.4 shows the proportion of students achieving 5A*-CEM at GCSE in the treatment and control cohorts. As can be seen here, the findings from the year nine interim analysis were repeated in year 11, with statistically significant gains in subject learning among the *Learning Skill* cohort as a whole, and when comparing the attainment of PP students across the two cohorts.

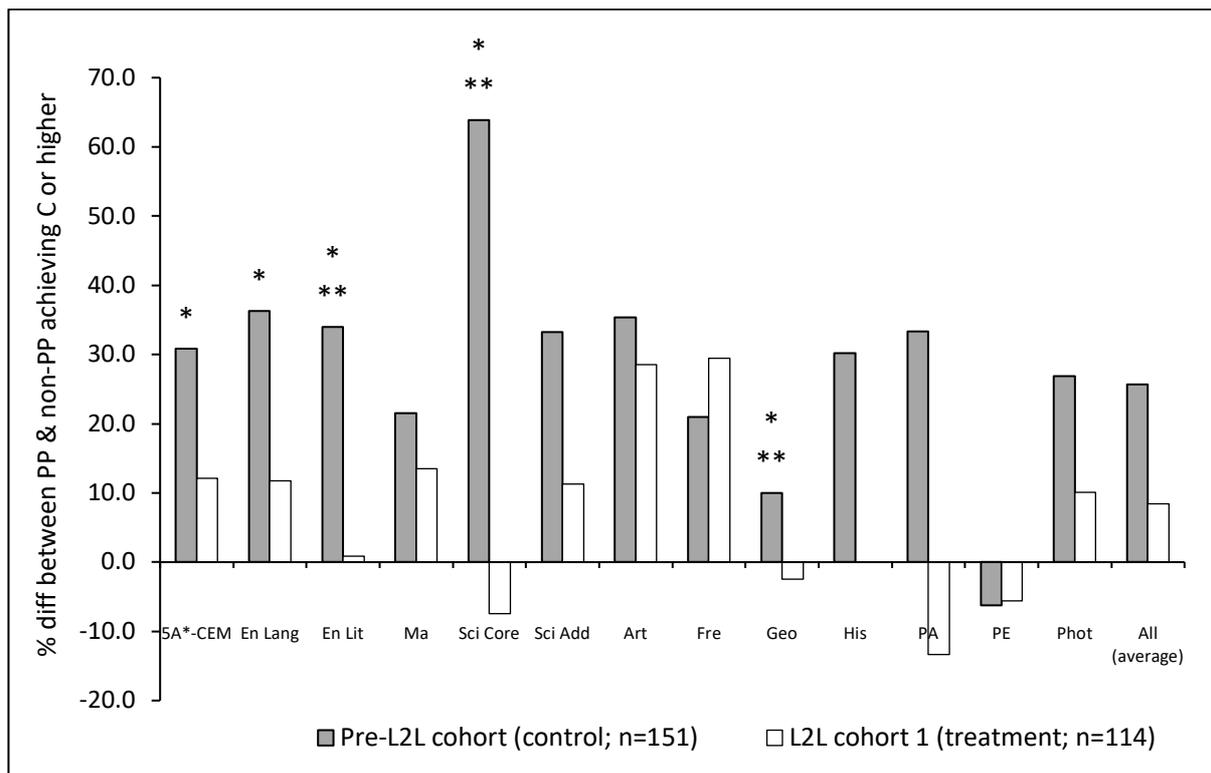


* Statistically significant differences, vs. control group; $P \leq 0.05$.

Figure 4.4. Student attainment at the end of year 11: treatment vs control cohort.

In the control cohort, 52.3% of students achieved 5A*CEM at GCSE; at the time, these were the best set of results in the school’s history. When *Learning Skills* cohort one sat their GCSEs a year later (in 2015), 63.2% of students achieved 5A*CEM, an improvement of 10.9%. As with the three-year interim analysis, non-PP students in the *Learning Skills* cohort performed better than non-PP students in the control cohort (66.7% attaining 5A*CEM in the *Learning Skills* cohort, vs. 62.1% in the control cohort). However, as with the interim findings, the gains were most pronounced among students eligible for the PP (54.6% of PP students attaining 5A*CEM in the *Learning Skills* cohort, vs. 31.3% in the control cohort – a statistically significant increase of 23.3%).

Figure 4.5 shows the PP gap in each subject at the end of year 11. Here, the bars on the left correspond with the data in Figure 4.4, showing the 5A*CEM PP gap in each cohort at the end of year 11. As with the interim analysis, by the end of year 11, PP students in the *Learning Skills* cohort outperformed non-PP students in a handful of subjects (Science, Geography, PA and PE), a pattern of results that would be expected if economic disadvantage was not a significant predictor of educational achievement.



* $P < 0.05$ (PP students achieving C or above, treatment vs. control; Mann Whitney U test, one-tailed)

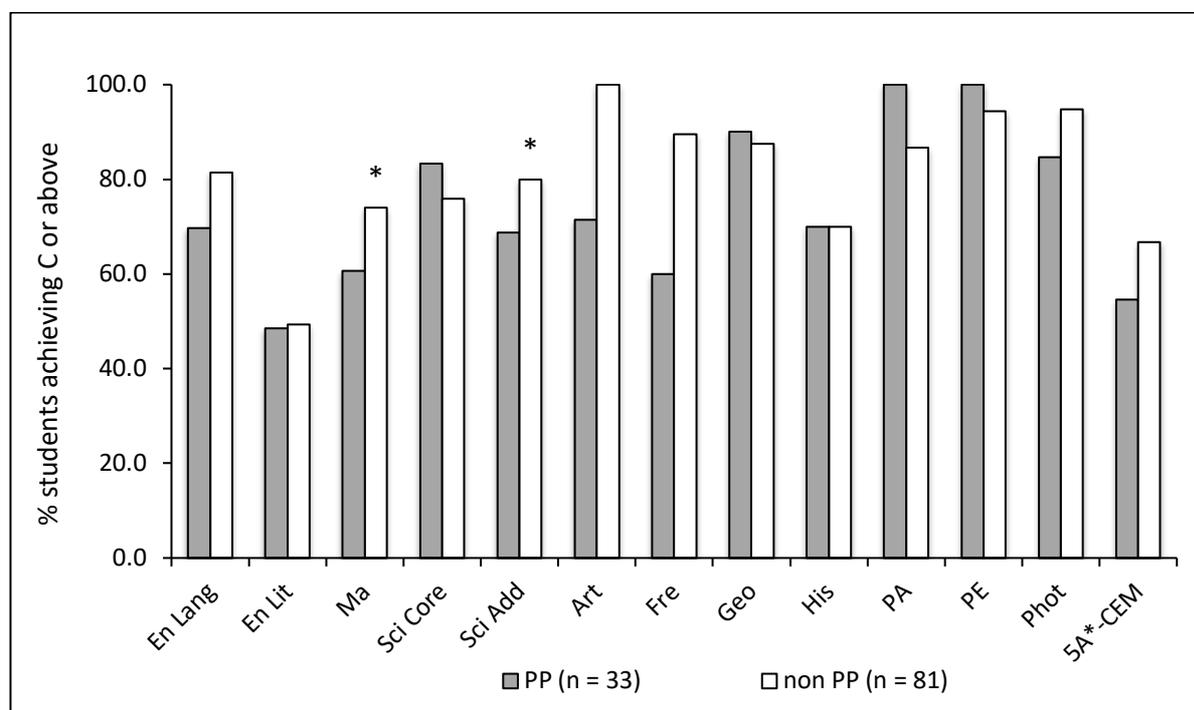
** $P < 0.05$ (PP students grade distribution, treatment vs. control; Mann Whitney U test, one-tailed)

Figure 4.5. Pupil Premium gaps at the end of year 11: treatment vs control cohort.

The two bars on the right hand side of Figure 4.5 show the average PP gap in students achieving a C grade across all subjects. In the pre-*Learning Skills* control cohort, the PP gap was 25.7%, while in the *Learning Skills* treatment cohort, the PP gap was 8.5%. Because these data relate to the proportion of students achieving a C grade, rather than hitting or exceeding their target grade, these data are not really comparable with the interim analysis (where the PP gap was 25.3% in the control cohort, and 2.2% in the treatment cohort). Consequently, it is not possible to determine from this analysis whether the difference in PP gap in the *Learning Skills* cohort (from 2.3% in year nine to 8.5% in year 11) represents a real change in the relative performance of PP and non-PP students. However, it is clear that the PP gap at GCSE decreased dramatically from the control cohort to the treatment cohort, representing a 66.9% decrease in the gap between disadvantaged students and their peers.

While the PP gap closed considerably in the treatment cohort, it is important to note that the gap still existed – albeit to a lesser extent. To illustrate the extent to which the PP gap still existed within the treatment cohort at GCSE, Figure 4.6 shows the proportion of PP and non-

PP students achieving a C grade in each of their subjects. Here, the bars on the right hand side correspond with the two white bars on the right hand side of Figure 4.4 (where 54.6% of PP students achieved 5A*CEM, compared with 66.7% of non-PP students).

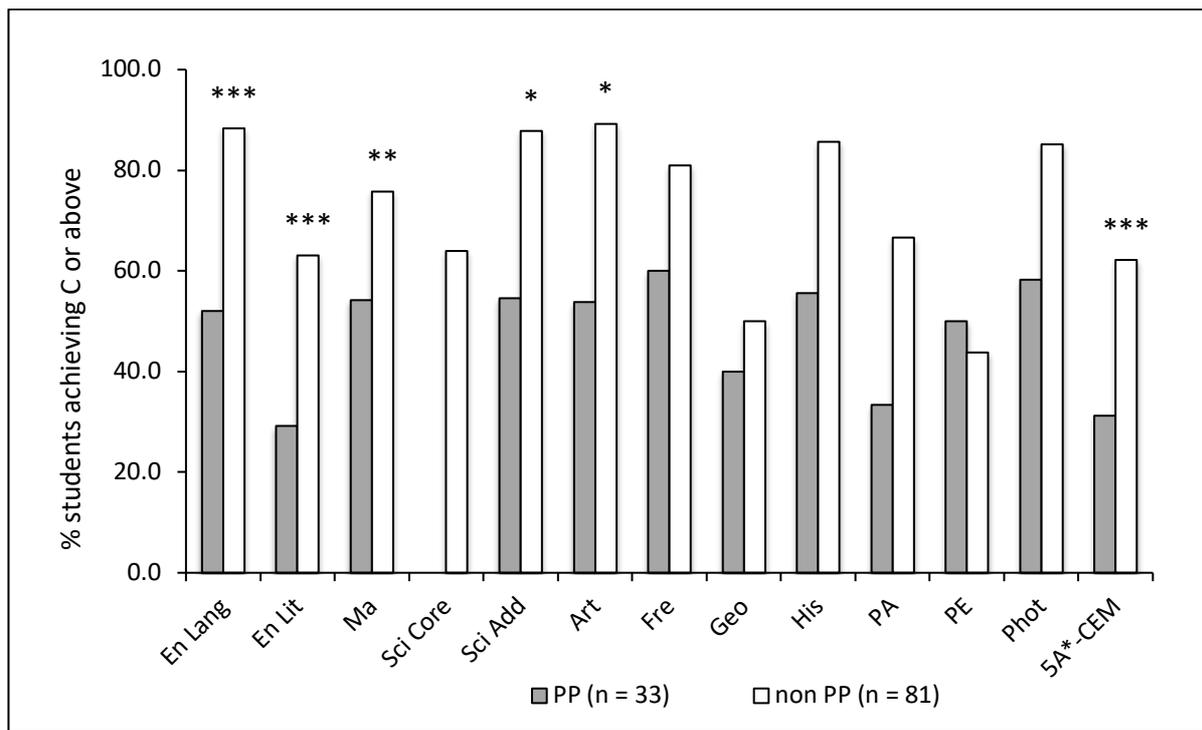


* $P < 0.05$ (grade distribution; Mann-Whitney U test, one-tailed)

Figure 4.6. Pupil Premium vs. non-Pupil Premium GCSE attainment, treatment cohort.

In seven of the twelve subjects, fewer PP students achieved a C grade than non-PP students. In two of these subjects (Maths and additional science), the difference was statistically significant ($P < 0.05$). In one subject (History), the attainment of PP and non-PP students was identical, while in four subjects (Core Science, Geography, PA and PE), PP students outperformed non-PP students (these are the four subjects with negative PP gaps as seen in Figure 4.5, above). This serves as a sobering reminder that while the *Learning Skills* programme may have gone some way toward levelling the playing field between disadvantaged students and their peers, the PP gap persisted in the majority of subjects, albeit to a lesser extent.

To view these findings in context, Figure 4.7 shows the proportion of PP and non-PP students achieving a C grade in each of their subjects in the control cohort.



*** $P < 0.001$; ** $P < 0.01$; * $P < 0.05$ (C or above; Mann-Whitney U test, one-tailed)

Figure 4.7. Pupil Premium vs non-Pupil Premium GCSE attainment, control cohort.

In the control cohort, compared with non-PP students, fewer PP students achieved a C grade in 11 of the 12 subjects. In five of these subjects (English Language, English literature, maths, additional science and art, the differences were statistically significant. The gap between PP and non-PP students achieving 5A*CEM in the control cohort was also statistically significant (31.3% PP, vs. 62.1% non-PP; $P < 0.001$).

Pupil Premium analysis: local and national contexts

Sea View is located in the south of England, in a former local authority of nine schools. To contextualise this closing of the PP gap within the local cluster of schools, Table 4.2 shows how the PP gap changed from 2014 to 2015 for each school in the local cluster. Since it was not possible to access attainment data for non-PP students from all schools, this data does not represent the gap between PP and non-PP students; rather, it shows how the gap changed, from 2014 to 2015, between proportion of PP students achieving a C grade in both English and Maths, and the whole-school population. Because the whole-school population data include the PP data, this represents a conservative estimate of the PP gap as a whole.

Table 4.2. The Pupil Premium gap, 2014-15: Sea View vs. local cluster of schools.

School	2014			2015			% change in PP gap from 2014 to 2015 (F - C)
	Whole-school % (A)	PP % (B)	PP gap & (A-B=C)	Whole-school % (D)	PP % (E)	PP gap % (D-E=F)	
A	69	50	19	77	48	29	10
B	63	45	18	70	43	27	9
C	63	49	14	63	42	21	7
D	47	35	12	61	43	18	6
E	50	25	25	52	22	30	5
F	60	40	20	71	52	19	-1
G	30	23	7	39	38	1	-6
H	51	27	24	50	35	15	-9
Sea View	61	38	23	67	58	9	-14
Average	54.89	36.89	18	61.11	42.33	18.78	0.78

The figures in the right hand column in this table, representing the change in PP gap in each school from 2014 (control year) to 2015 (treatment year) are plotted in Figure 4.8. As can be seen here, Sea View achieved the largest reduction in PP gap in the local cluster of nine schools, in a year when the PP gap increased slightly across the cluster of schools as a whole.

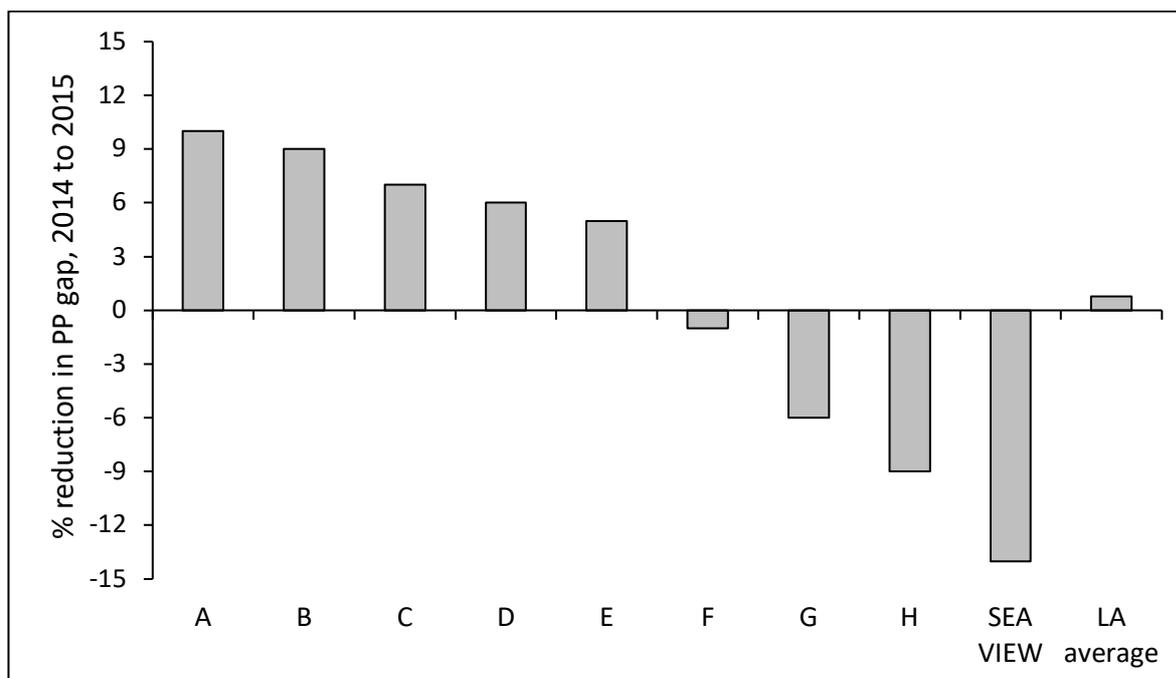


Figure 4.8. Change in Pupil Premium gap across the local cluster, 2014-15 (A*C EM).

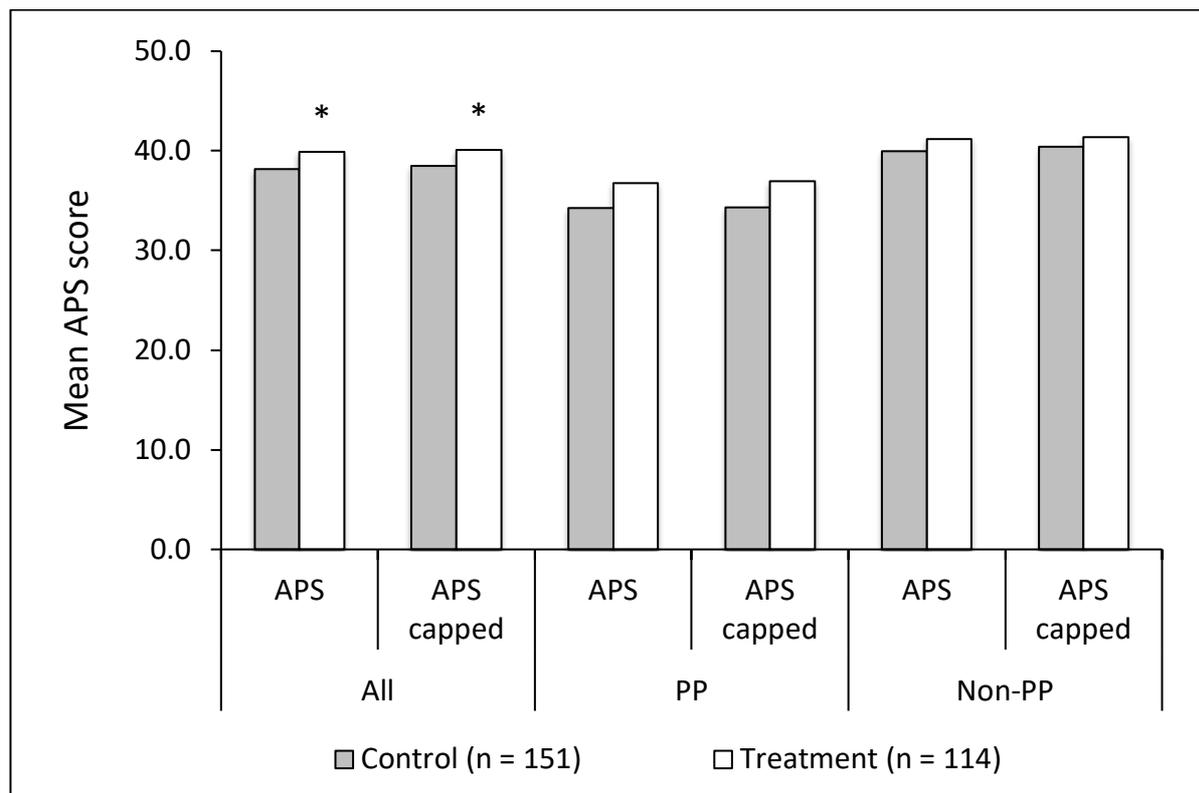
To view these findings in a wider context still, Table 4.3 summarises national statistics relating to the PP gap from 2011 to 2016. As can be seen here, in 2014 (the control year), the PP gap in terms of the proportion of students achieving 5A*CEM was 27.5%; by 2015, this gap had increased to 28%. Here then, we can see that the significant decrease in PP gap at Sea View from 2014 to 2015 took place in a year when the gap increased, both within the local cluster of schools and across the nation as a whole.

Table 4.3: National Pupil Premium statistics, 2012-15 (5A*CEM)

	2011-12	2012-13	2013-14	2014-15
PP	38.5%	40.9%	36.5%	36.7%
Non PP	65.7%	67.9%	64.0%	64.7%
All pupils	58.8%	60.6%	56.6%	57.1%
PP vs non-PP gap	27.2%	27.0%	27.5%	28.0%

As well as looking at the proportion of students achieving 5A*CEM and the PP gap, student attainment was analysed in terms of Average Point Score (APS), APS capped, Total Point Score (TPS), TPS capped, and the average number of GCSE passes per student in the grade ranges A*-G, A*-C and A*-A. APS and TPS are measures used to average a student's results

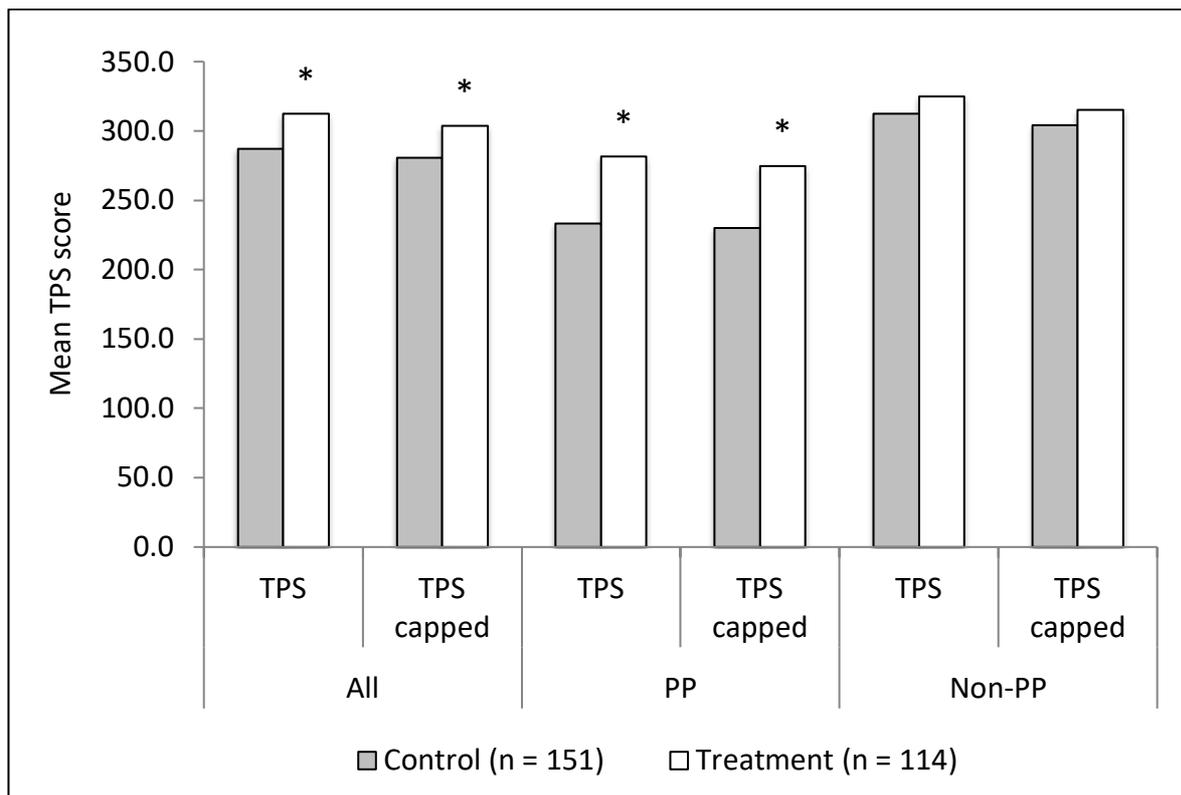
across all their subjects, where each grade is given a point score, as follows: A* = 58, A = 52, B = 46, C = 40, D = 34, E = 28, F = 22, G = 16. APS capped gives the average overall figure for each student across their top eight subjects, while TPS gives the total score for their top eight subjects. The subjects may therefore differ from one student to the next. APS and TPS capped are seen as useful statistics, because they mitigate a student's overall score being weighed down by just one or two subjects that they may have performed poorly in. Figure 4.9 compares the APS and APS capped scores for the treatment and control groups, and breaks the overall scores down into PP and non-PP students.



* $P < 0.05$ (APS distribution; independent samples t-test, one-tailed)

Figure 4.9 GCSE Average Point Score (APS) and APS capped: treatment vs. control.

As can be seen here, students in the treatment cohort achieved higher APS scores than in the control cohort. This was true for both PP and non-PP students. The overall difference in APS and APS capped was statistically significant ($P < 0.05$). Figure 4.10 compares the TPS and TPS capped scores for the treatment and control groups, and breaks the overall scores down into PP and non-PP students.

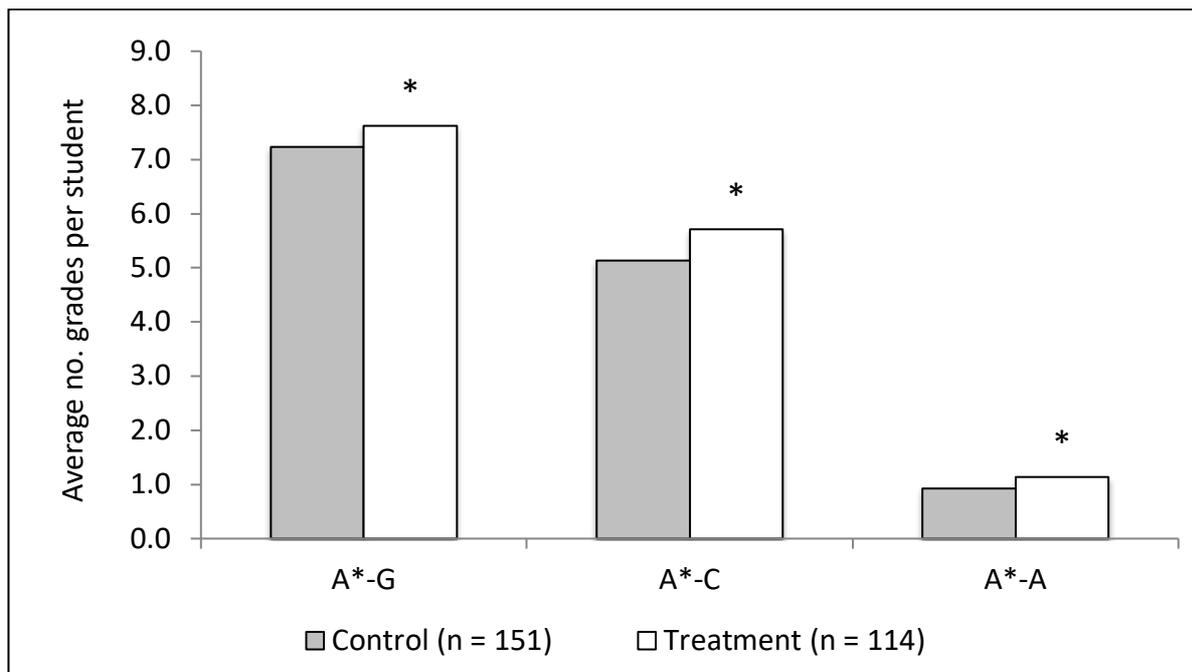


* $P < 0.05$ (TPS distribution; independent samples t-test, one-tailed)

Figure 4.10. GCSE Total Point Score (TPS) and TPS capped: treatment vs. control.

Once again, students in the treatment cohort achieved higher TPS scores than in the control cohort. This was true for both PP and non-PP students. The overall difference in TPS and TPS capped was statistically significant, as was the difference between PP students in the treatment and control cohorts ($P < 0.05$).

Figure 4.11 shows the average number of GCSE passes achieved by students in the treatment and control cohorts, in the grade ranges A*-G, A*-C and A*-A. As can be seen here, in each case the average number of qualifications gained was higher in the treatment cohort than the control cohort. These differences were statistically significant in each of the three grade ranges ($P < 0.05$).



* $P < 0.05$ (treatment vs control; Mann-Whitney U test, one-tailed)

Figure 4.11. GCSE comparison, treatment vs. control: A*-G, A*-C, A*-A grades.

As stated above, in the second year of the *Learning Skills* programme there were changes to the staffing in the department due to staffing cuts, such that half of the students in year seven were taught by ‘sceptical conscripts’. As we will see in the teacher interviews below, the Head of *Learning Skills* described the impact of these changes as “huge... they lost a dedicated staff who not only understood what they were doing but believed in it with their heart and soul, and they were replaced by cover teachers who didn’t want to be there.” This unforeseen disruption enabled a secondary, retrospective analysis of attainment data, looking at the extent to which the quality of *Learning Skills* provision in year seven correlated with GCSE results five years later. The GCSE results of the pre-*Learning Skills* control cohort, and *Learning Skills* cohorts one, two and three, are summarised in Table 4.4. The way in which GCSEs are measured changed between 2016 and 2017, with the introduction of a new numerical grading system for English and maths (with other subjects to follow suit in 2018). Here, ‘Basics EM’ refers to the proportion of students who achieved either an A*-C grade in both English and maths (2014 to 2016), or grade 9-4 (2017).

Table 4.4. Comparing year 11 GCSE results: control vs. treatment cohorts 1, 2 and 3.

Year	Cohort	5A*CEM	Basics EM
2014	Pre- <i>Learning Skills</i> cohort (control)	52.3%	54.2%
2015	<i>Learning Skills</i> cohort one (treatment 1)	63.2%	68%
2016	<i>Learning Skills</i> cohort two (treatment 2)	53.1%	61%
2017	<i>Learning Skills</i> cohort three (treatment 3)	-	70% (FFT5)

As can be seen here, in both the 5A*CEM and the Basics EM metrics, there was a spike in student attainment for *Learning Skills* cohort one, and a dip in the second *Learning Skills* cohort. This dip only lasted for one year, with 70% of students in *Learning Skills* cohort three attaining grades 9-4 in English and Maths (placing them in the top 5% of similar schools nationally). This retrospective analysis of headline figures aligns with the central hypothesis being tested in this study – that *Learning Skills* helps students learn more effectively in ways that are detectable using existing indicators. When the quality of *Learning Skills* provision was compromised in its second year due to staffing changes, there was a corresponding dip in results five years later.

To summarise, this primary outcome analysis found that students in the treatment group (who took part in more than 400 *Learning Skills* lessons throughout years seven, eight and nine) went on to achieve significantly higher grades in subject learning across the curriculum, compared with students in the control cohort (who had more than 400 additional lessons of subject-based learning). This pattern was evident in both the interim (three-year) and final (five-year) GCSE analyses. It is striking that the patterns of attainment were very similar in the interim and final analyses, both in terms of overall attainment and in terms of the PP gap. While non-PP students in the treatment cohort performed better than non-PP students in the control cohort in both the interim and final analyses, the gains in subject learning were particularly pronounced among students from disadvantaged backgrounds.

Given these findings, it is interesting to consider the baseline measures set out below, which revealed slight differences at entry to the school in terms of the PP. When the control cohort

entered the school, the PP gap was not yet apparent; indeed, PP students in the control cohort performed better than non-PP students in their KS2 SATs. We can therefore see that the PP gap in the control cohort clearly opened up significantly as the students progressed through KS3. Conversely, in the treatment cohort, the PP gap was already in evidence at entry to the school, in line with national trends. When one considers the subsequent closing of the PP gap in the treatment cohort, it should therefore be recognised that the accelerated progress of PP students is even more pronounced than is apparent in the raw data, since students in the treatment cohort started from a position of greater disparity between disadvantaged students and their peers.

Strengths and limitations

I will consider the wider limitations relating to this study in chapter five. In this section, I will consider some strengths and limitations as they apply specifically to the interim and final analyses of the primary outcome measure in this study. Because the interim analysis took place at the end of year nine, it relied on the use of teacher assessments. Although quality assurance procedures are used within schools to maximise the reliability of the data collected, the use of teacher assessments is not generally viewed as being as reliable or valid as the use of standardised instruments. For example, some teachers are quite generous markers, while others are more strict. The generalisability of findings arising from the interim analysis is therefore unclear.

The five-year final analysis goes some way to addressing this issue, since it rests upon the use of standardised GCSE data, rather than teacher assessments. However, when one compares Figures 4.2 and 4.4, or Figures 4.3 and 4.5, it is striking how similar the data looks between the interim and final analyses. This lends support to the notion that the interim findings were a genuine reflection of the students' attainment at that time, and not an anomaly caused by the use of teacher assessments. The range of measures considered here also reveal a consistent pattern of enhanced academic attainment among the treatment cohort. This is true when the attainment of the *Learning Skills* cohort is compared against the control cohort, the local cluster of schools or the wider national picture.

Clearly, the grade a student achieves in a GCSE exam is primarily a product of the cognitive skill and effort of that student, and their teacher. Therefore, to suggest that the improved

GCSE results may have partly been due to the *Learning Skills* programme is a bold claim, and not one that should be made lightly. For example, as I will discuss in the ‘baseline measures’ section below and more extensively in chapter five, the fact that the school was in special measures at the time of this study, with a history of poor results, means that any subsequent gains might have been due to other factors relating to special measures, or to ‘regression to the mean’, a statistical phenomenon whereby an outlier, when measured again after a period of time, is likely to have moved closer to the mean. However, given that the control and treatment cohorts were very similar in terms of prior attainment, one needs to ask: why was the academic attainment significantly higher in the treatment cohort than the control cohort? When considering the subsequent differences in attainment at GCSE between the treatment and control cohorts, one needs to consider: what was the main difference between these two cohorts? Clearly, the main difference between these two cohorts of students is that all students in the treatment cohort took part in more than 400 *Learning Skills* lessons between the ages of 11 and 14, while the control cohort had more than 400 additional lessons of subject-based learning.

It should be borne in mind that this was a relatively small pilot study, with just 118 students in the treatment cohort (114 by the time they reached year 11). The attainment of students often fluctuates from one cohort to the next, and one must remain open to the possibility that these results were caused by some other factor than the *Learning Skills* programme. This, in part, is the rationale for the eight strands of secondary data collection and analysis – to determine the extent to which this relationship can be considered causal. If there is strong alignment of findings from multiple strands of data collection and analysis, it would be possible to build a case that the significant gains in subject learning in the treatment cohort may have been due, at least in part, to the *Learning Skills* programme. I will return to the questions of causality and generalisability in chapter five.

BASELINE MEASURES

Rationale

In order to evaluate the impact of the *Learning Skills* programme on student attainment over five years, it was necessary to have a point of comparison. However, since this is a case study of an existing school intervention and not an experimental study, it was not possible to have a

control group from the same year group at Sea View. Indeed, this would have been undesirable, since it would have halved the size of the treatment group in a cohort of only 118 students. Although a local school with a similar demographic profile was invited to take part in the study as a control group, the offer was not taken up. For this reason, the decision was taken to use the previous year group at Sea View as a historical control group.

Because this study uses the previous cohort as a control group, it was not possible to randomise students to the treatment and control conditions. On the one hand, this weakens the use of statistical significance testing in this study, as discussed above. However, randomisation alone does not guarantee a fair test. For example, in a recent RCT into the impact of Philosophy for Children on English and maths attainment (Gorard et al., 2017), the treatment and control cohorts were not matched. As it happened, the treatment cohort had far lower prior attainment, prompting suggestions that the subsequent gains in the treatment cohort could have been caused by ‘regression to the mean’, rather than a treatment effect (Thornton, 2015; Inglis, 2015).

Returning to the present study, it could be argued that allocation to the treatment or control cohort by virtue of one’s birth date constitutes a weak form of randomisation. Assuming that the cohorts are otherwise comparable in terms of prior attainment, this would satisfy the assumptions of randomisation better than if randomisation had been used in the absence of cohort matching. This provides the rationale for the baseline measures analysis – to determine whether the prior attainment of the treatment and control cohorts was similar at entry to the school. If the academic attainment was similar between the two groups at baseline, this would provide a basis for a fair comparison of attainment at three and five years.

Methods of data collection and analysis

A number of measures were taken to compare the demographic make-up and prior attainment of the two cohorts as they entered the school. First, demographic data relating to the treatment and control groups were compared (no. students, gender, ethnicity, special educational needs and eligibility for the PP; see Table 4.5, below). Following this, the attainment of treatment and control students in KS2 Standard Attainment Test (SAT) was compared (English, maths and science), as well as their Cognitive Abilities Test (CAT) scores. CATs are a set of multiple choice tests often used by schools at the start of year seven, whereby students

complete three assessments of verbal, non-verbal and quantitative reasoning. For each paper, a student is awarded a norm-referenced score ranging from 60 to 140; a score of 100 is in line with the national average. For both cohorts, the D-level CAT test was used, which is designed for students aged from ten years and six months, to 12 years and 11 months (GL Assessment, 2008).

As well as comparing the overall attainment of the treatment and control cohorts, analysis was also undertaken to determine the nature of the PP gap in each cohort, and to compare the PP gap across the two cohorts. Since the students' attainment in KS2 SATS and year seven CAT scores were normally distributed in each cohort, their scores were subjected to parametric statistical significance testing, using an independent samples t-test. Because there was no prior information suggesting in which direction any differences in prior attainment might lie, statistical significance testing of baseline data was two-tailed.

Findings and discussion

Student demographics

Demographic data relating to the *Learning Skills* (treatment) and *pre-Learning Skills* (control) cohorts are shown in Table 4.5. As can be seen here, the control cohort was larger than the treatment cohort (n=148 and n=118, respectively). One possible reason for the reduction in cohort size is that in 2009 (the year before the *Learning Skills* programme began), only 26% of year 11 students left with 5A*CEM. Following this, in June 2010, the school was placed into special measures by Ofsted. This is likely to have had a negative impact on the numbers of parents selecting the school as their 'first choice', or choosing a different school during the summer holidays. The proportion of females in each year group was slightly higher than the national average, but similar across the two groups (56.8% control, 58.5% treatment), and the proportion of non-white British students was much lower than the national average in both year groups. The proportion of students with an identified SEND was slightly higher in the treatment cohort (24.3% control, 32.2% treatment); and eligibility for the PP was similar across the two cohorts (30.4% control vs. 31.4% treatment).

Table 4.5. Demographic data relating to the control and treatment cohorts.

Variable: n (%)	Cohort	
	Pre-Learning Skills (control)	Learning Skills cohort one (treatment)
Total no. students	148	118
Gender		
Female	84 (56.8)	69 (58.5)
Male	64 (43.2)	49 (41.5)
Ethnicity		
White British	129 (87.2)	109 (92.4)
Non-White British	19 (12.8)	9 (7.6)
Special Educational Needs		
None	112 (75.7)	80 (67.8)
School action	19 (12.8)	17 (14.4)
School action plus	17 (11.5)	21 (17.8)
Statement	0 (0)	0 (0)
PP		
Not eligible	103 (69.6)	81 (68.6)
Eligible	45 (30.4)	37 (31.4)

CAT scores

Both the control and treatment cohorts sat CAT tests within the first two weeks of starting year seven. Their attainment in each of the tests, and their average scores, can be seen in Figure 4.12. As can be seen here, the treatment cohort had slightly higher scores on average than the control cohort in verbal reasoning, but had lower scores for non-verbal and quantitative reasoning, and lower average CAT scores overall. Both cohorts were below the national average at entry (i.e. an average CAT score of less than 100). None of the differences in CAT scores between the two cohorts were statistically significant.

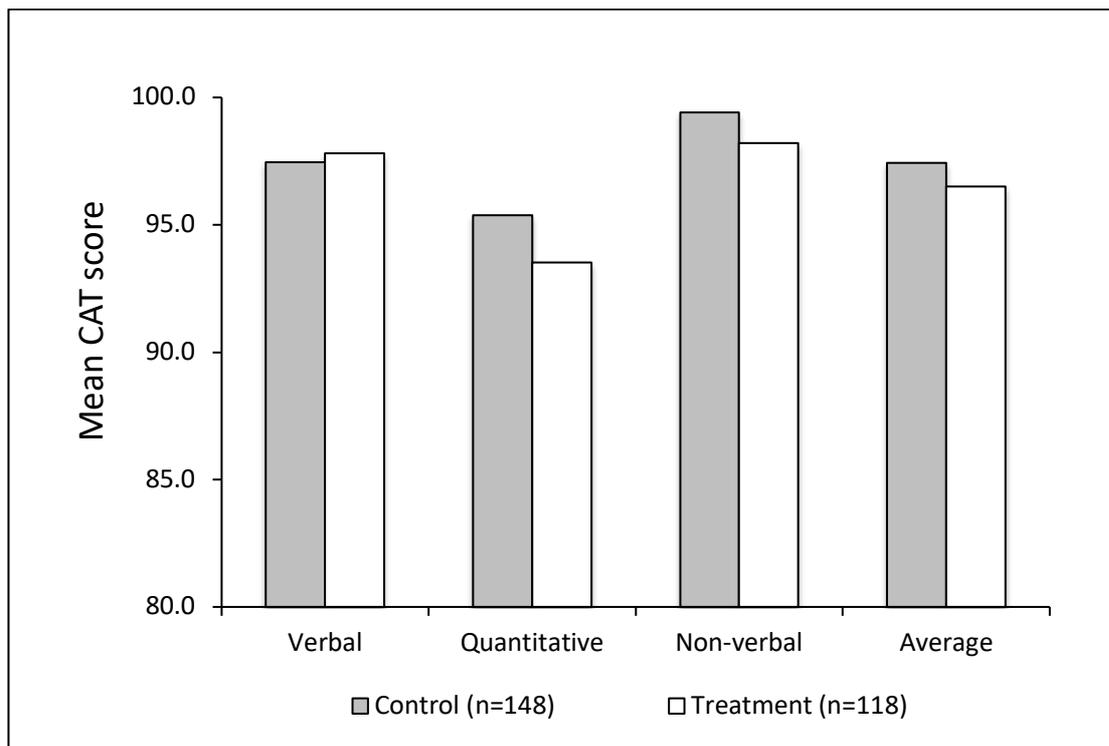
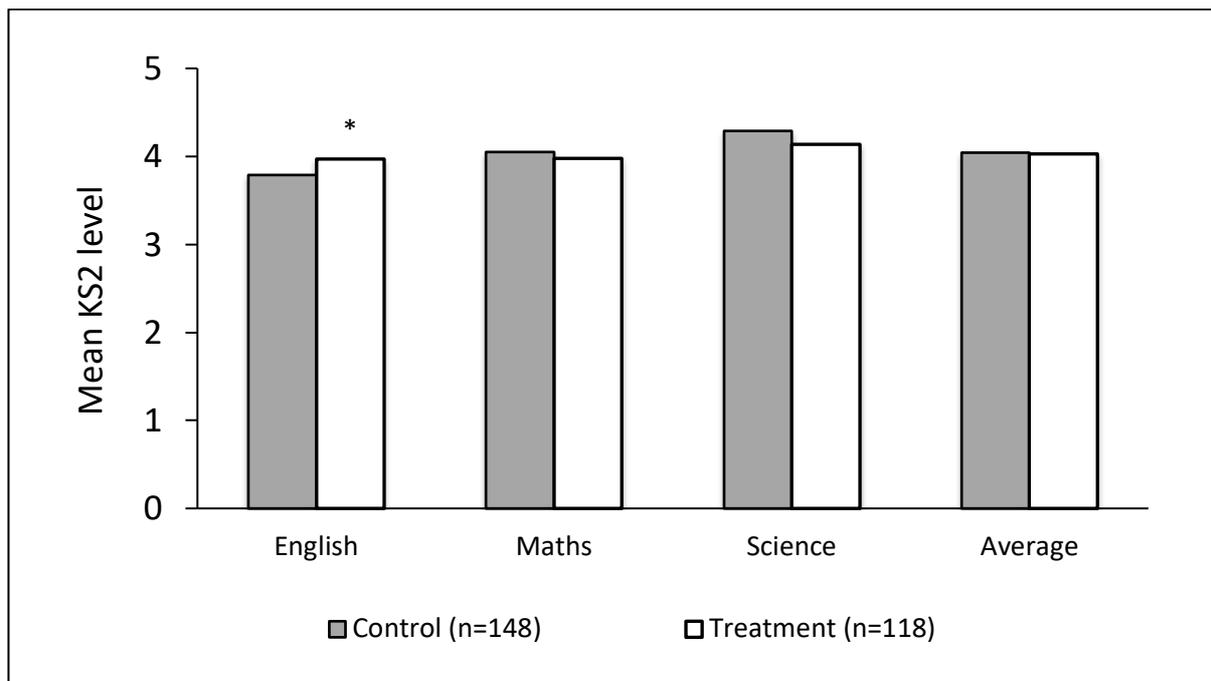


Figure 4.12. Baseline measure: CAT scores at entry, treatment vs. control.

Key Stage 2 SATs

Figure 4.13 compares the attainment of the treatment and control cohorts for English, maths and science SATs, as well as providing an average score. While one might argue that it is problematic to take an average of discrete grades (i.e., students are awarded a grade three, four or five), this method provides a way of comparing the prior attainment of the treatment and control cohorts at a glance. Looking at the bars on the right hand side of the figure, we can see that the average SAT scores were virtually identical between the treatment and control cohorts (4.03 and 4.04 respectively). The maths and science scores were lower on average in the treatment group than in the control group, and the English scores were higher on average in the treatment group. Although this difference was relatively small numerically (average 3.79 in the control group, vs. 3.97 in the treatment group), it was statistically significant ($P < 0.05$). For this reason, one must remain open to the possibility that any subsequent differences in attainment between the two cohorts might be due, at least in part, to this difference in English SAT scores at entry. I will consider this more closely in chapter five, when I relate the study's findings back to the five research questions.

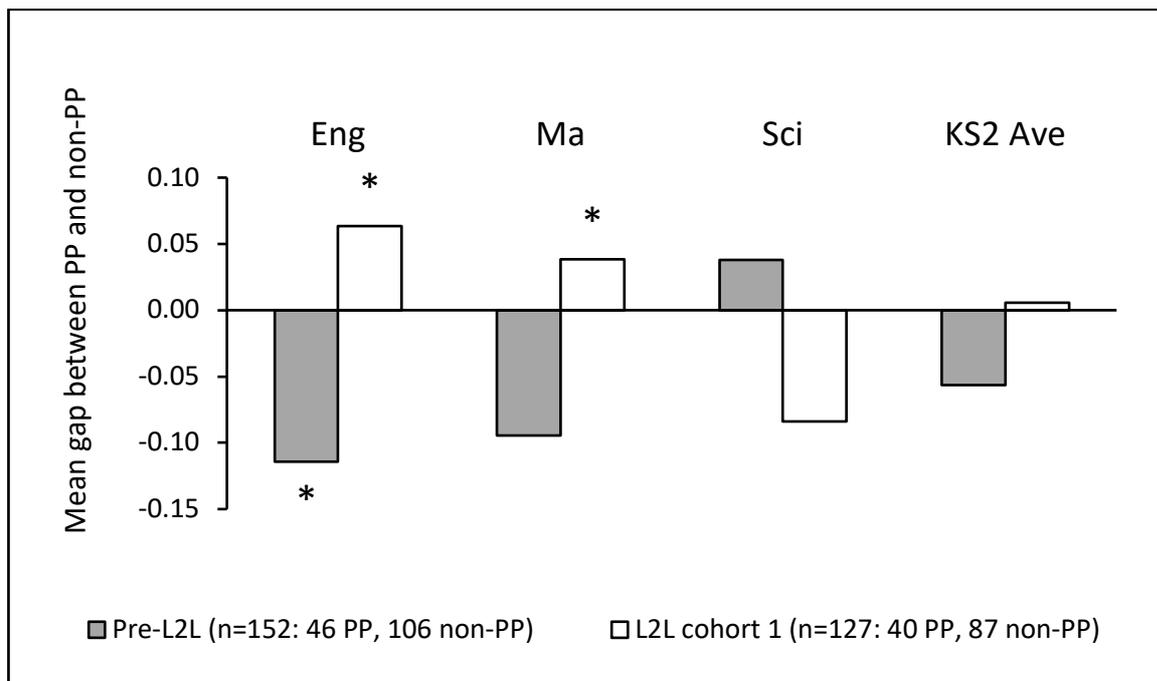


* Treatment vs. control (independent samples t-test, two-tailed; $P < 0.05$).

Figure 4.13. Baseline measure: KS2 attainment at entry, treatment vs control.

Pupil Premium gap

To determine whether there was any difference in the prior attainment of PP and non-PP students – and to compare the PP gap at entry to the school across the treatment and control cohorts – the KS2 SATs scores were analysed using PP as a grouping variable. As can be seen in Figure 4.14, in the pre-*Learning Skills* control cohort, PP students performed slightly better in their KS2 SATs than non-PP students overall (as can be seen in the fact that the grey bars are below zero for English, maths and for the KS2 average). This bucks the national trend, whereby PP students typically perform worse than non-PP student at KS2. In the *Learning Skills* treatment cohort however, there was a slight deficit between PP and non-PP students at entry to the school, in line with national trends. This difference in the PP gap between the treatment and control cohorts at entry to the school is worth bearing in mind when considering any subsequent gains made by PP students in the *Learning Skills* cohort, relative to the control cohort. I will return to this point in chapter five.



* $P \leq 0.05$ (PP vs. non-PP students, within cohort comparisons)

Figure 4.14. Baseline measure: PP gap, treatment vs. control (Key Stage 2 SATs).

Strengths and limitations

The primary outcome measure in this evaluation of the *Learning Skills* programme at Sea View is whether it had any impact on the academic attainment of students in their subject learning across the curriculum. For the interim (three-year) analysis, this was based on teacher assessments, since KS3 SATs had been abolished by the time of this study. However for the baseline and final (GCSE) measures, the analysis rests on standardised, external measures of students' learning in their subjects across the curriculum. This baseline analysis establishes that the prior attainment of the control and treatment cohorts was broadly similar in terms of demographics, and in terms of KS2 SAT and CAT scores. This therefore establishes a basis for comparing the attainment of the two cohorts in the interim (three-year) and final (five-year) analyses.

As stated above, when seeking to compare two cohorts of students, the ideal is to randomise students to either the treatment or control conditions. In seeking to evaluate the impact of the *Learning Skills* programme at Sea View, which had already been running for a year when the study period began, randomisation was not possible in this study. One might argue that randomisation would not be necessary in what is essentially a small pilot study – an

exploratory enquiry to determine whether there might be any value in the *Learning Skills* programme as a framework for school improvement. Should this study conclude that *Learning Skills* has enough merit to consider extending its use to other schools – and should this scaling up prove successful enough to warrant further investigation – then a larger-scale RCT type study could be carried out to determine the efficacy of the intervention at scale.

Finally, it is understood that the gap between disadvantaged students and their peers widens as they progress through the school system (Andrews, Robinson & Hutchinson, 2017).

Consequently, while the prior attainment of the control and treatment cohorts was roughly similar in both the SAT and CAT comparisons, the slight differences in terms of the PP gap at entry to the school should be borne in mind when considering any subsequent differences between the two cohorts after three and five years.

ATTITUDE TO LEARNING

Rationale

As is the case in many schools, when entering teacher assessment scores for each subject, teachers at Sea View were required to enter an attitude to learning (ATL) score for each student. This practice remained constant throughout the study period. At Sea View, each term (autumn, spring and summer) and in each subject, each student was awarded an ATL score on a scale of one to six, using the criteria outlined in Table 4.6.

Table 4.6. Criteria for determining a student’s Attitude to Learning score at Sea View.

Attitude to Learning	Grade	Likely Outcomes	Expectation
Excellent and sustained attitude to learning, aware of targets and striving to meet or exceed them. Always working to the best of their ability, eager to learn and help others learn.	6	Will achieve academic potential	Meeting target grade
Positive attitude to learning, aware of targets and striving to meet or exceed them. Usually working to the best of their ability, motivated and engaged in their learning.	5	Is likely to achieve academic potential with encouragement and determination.	Working towards target grade.
Usually a positive but inconsistent attitude to learning. Aware of their targets and the attitude required to achieve them. Completes work set and engages most of the time but showing signs of potential under-achievement.	4	Needs encouragement to maintain good standards. A little extra effort will quickly move students back into the “Green” area.	Unlikely at the moment to achieve target grade
Reluctant to work and few signs of wishing to achieve target grades. Their attitude to learning affects their own and other student’s progress at times. Needs occasional encouragement in order to be involved in the lesson.	3	In danger of underachieving and certainly not consistently demonstrating an appropriate attitude to learning.	Unlikely at the moment to achieve target grades
Poor attitude to learning which frequently affects their own and other student’s progress. Needs regular encouragement in order to take part and get the grades they can.	2	Underachieving and subject to regular sanctions. Can expect to be monitored by teachers and student services. May receive exclusions.	Well below target.
Very poor attitude to learning with serious disruption to their own learning and that of others. Frequent sanctions and very little desire to achieve the grades they are capable of.	1	Is likely to face lengthy exclusions. In danger of permanent exclusion or managed transfer to another school.	Well below target.

As well as evaluating the impact of the *Learning Skills* programme in this study, naturally the Senior Leadership Team (SLT) at Sea View also sought to evaluate the programme in real time – especially since the school was in Special Measures. This was particularly important as the first *Learning Skills* cohort reached the end of year seven, and the SLT considered whether to extend timetabled *Learning Skills* lessons into year eight. One way in which the

SLT sought to determine the impact of the *Learning Skills* programme in year seven was by comparing the students' ATL scores with previous cohorts.

Methods of data collection and analysis

As with student attainment, teachers at Sea View were required to enter ATL scores three times a year, for all students from years seven to 11. In order to explore the relationship between the *Learning Skills* programme and students' ATL scores in different subjects, the students' ATL scores were collected for the control and treatment cohorts in years 7, 8 and 9. Because only the headline figures were made available by the school's data management officer, it was not possible to conduct statistical significance testing on the students' ATL scores.

Findings and discussion

Year seven ATL scores for the treatment and control cohorts are shown in Figure 4.15. As can be seen here, the ATL scores were higher in the treatment cohort than control in English, maths and science and other subjects combined. In maths, the difference was small (81.8% of students being awarded a grade five or six in the control cohort, vs. 82.5% treatment). However, the differences in other subjects were much greater (English 75.6% control vs 86.2% treatment; science 61.9% control vs. 92.0% treatment; other subjects combined 84.8% control vs. 92.0% treatment).

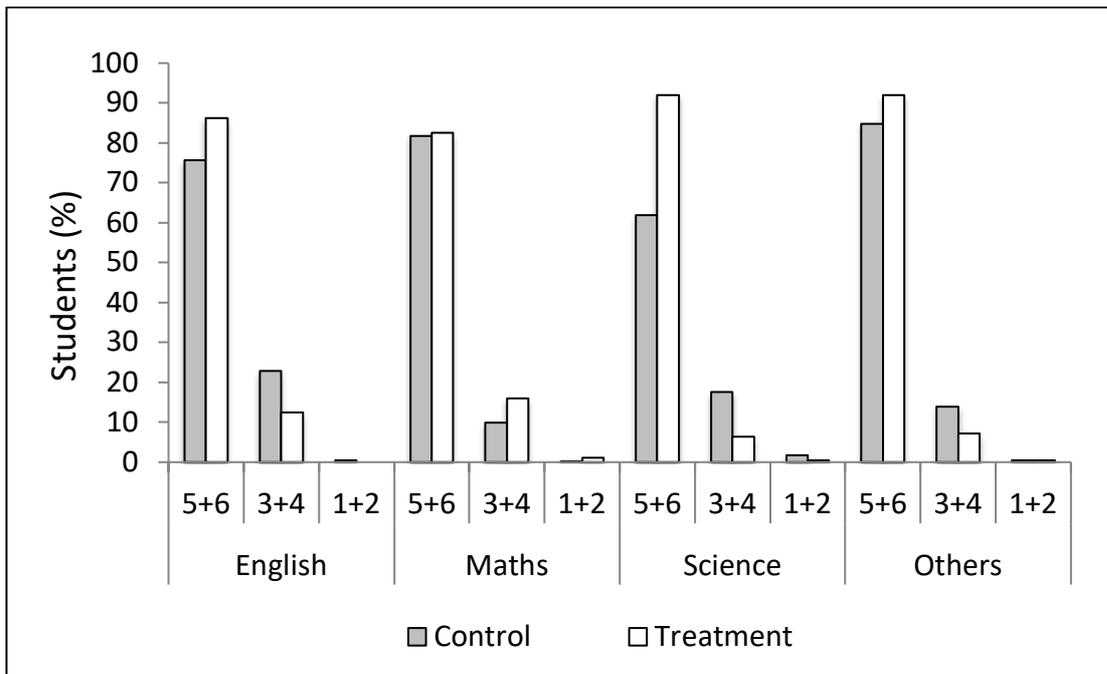


Figure 4.15. Year 7 Attitude To Learning scores: treatment vs. control.

Overall, the average proportion of students achieving a grade 5 or 6 in the control cohort was 76%, compared with 88.2% in the treatment group. As can be seen in Figure 4.16, this pattern continued into year eight (all subjects combined: 71.4% control, vs 78.8% treatment).

Interestingly, by year nine there was little difference between the two cohorts (70.4% control vs. 70.7% treatment). However, it is worth noting that it is usual for ATL scores to diminish as students progress through a school.

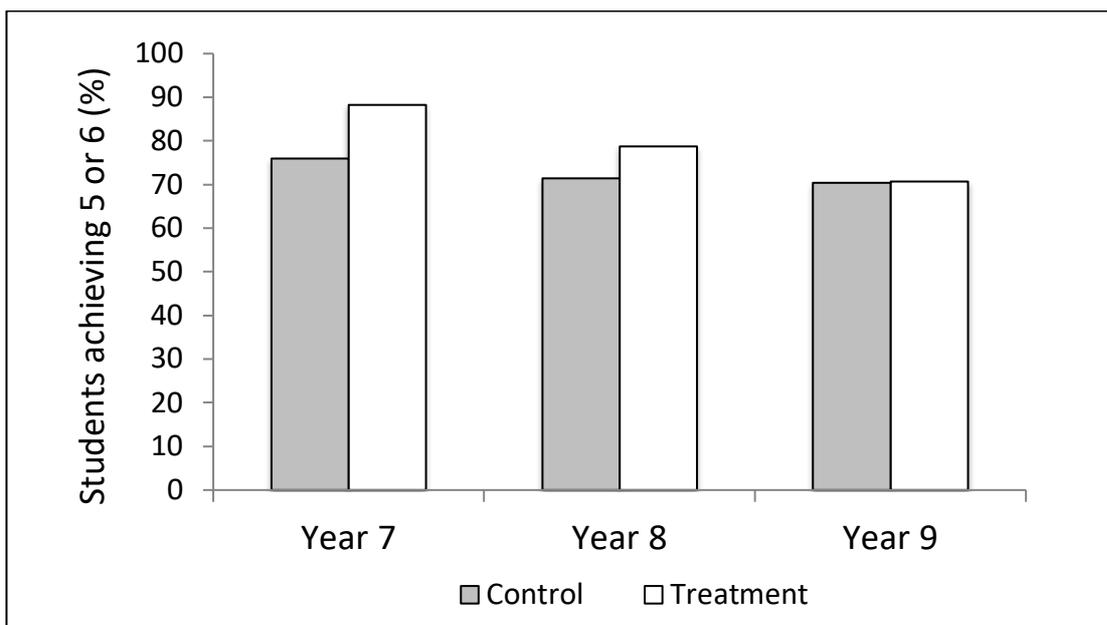


Figure 4.16. Attitude to learning scores throughout Key Stage 3: treatment vs. control.

As stated in the introduction, in the second year that *Learning Skills* ran, due to issues relating to staffing and timetabling, the year seven *Learning Skills* programme was delivered primarily by teachers who self-identified as ‘sceptical conscripts’. It is interesting to note, therefore, that when comparing the year seven ATL scores of *Learning Skills* cohorts one, two and three, there was a clear dip in *Learning Skills* cohort two (see Figure 4.17). Here, the proportion of students achieving grades five or six for ATL in fact dipped below the level seen in the control cohort (76.0 control, vs. 72.4% *Learning Skills* cohort two). The following year, the *Learning Skills* team returned to being taught by dedicated, specialist teachers, and the proportion of students achieving grades five or six for ATL across all subjects rose again (86.1% for *Learning Skills* cohort three). While one must remain cautious not to conflate correlation with causality, it is interesting to note this evidence of an apparent relationship between the quality of *Learning Skills* provision and the proportion of students being awarded the highest ATL scores across all subject areas. It is also interesting to note the way in which this aligns with the ‘sceptical conscript’ analysis in Table 4.4, above. I will return to this question in chapter five.

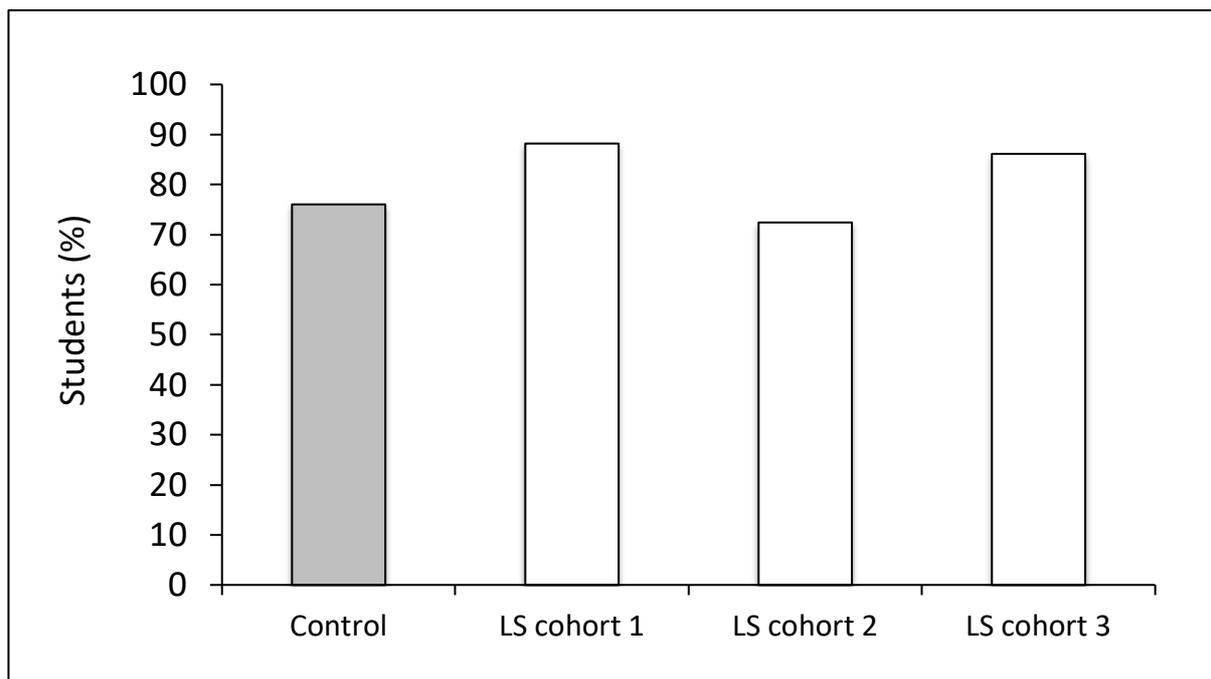


Figure 4.17. Year 7 Attitude to learning scores: *Learning Skills* cohorts 1, 2 and 3.

Strengths and limitations

The findings presented above suggest an association between *Learning Skills* provision and ATL scores across the curriculum. However, there is good reason to expect a significant degree of error in the ATL data included in this study, and we should treat these findings with a good degree of caution. In particular, given the nature of the criteria outlined in Table 4.6, it is likely that there is considerable variation in the way different teachers award ATL grades. In a relatively small school, there is also the potential for this variation to interact with other factors such as staffing allocations and cohort size, leading to significant variability in the distribution of ATL scores from one cohort to the next. At Sea View, there were only five teaching groups in *Learning Skills* cohort one (n=118), and only four teaching groups in *Learning Skills* cohort two. If one teacher in a given department was given two year seven groups, say – a fairly common occurrence – and that teacher was more sparing in their allocation of high ATL scores than their colleagues, then that combination of variation in scoring and staffing allocations would have a profound impact on the overall allocation of ATL scores in that year group. Given how widely ATL scores have been used in the English education system for several years now, there is a surprising lack of published research into the reliability and validity of their use. Having worked at Sea View for eight years, I am aware that teachers never received any training or took part in moderation with regard to the allocation of ATL scores. In such a context, given the factors outlined above, a significant degree of variation is to be expected. Nevertheless, any such distortions arising within an individual subject area should be levelled out by the fact that the data presented here take an average of ATL scores across all subjects combined. For this reason, it is likely that the data presented in this section reflect the students' actual ATL – or at least, their teachers' perceptions of their ATL – to at least some degree.

PSYCHOMETRIC QUESTIONNAIRES

Rationale

In an attempt to determine the non-academic impact of the *Learning Skills* programme, all year seven students from cohort one completed seven psychometric questionnaires at the start and end of year seven (i.e. in September 2010 and July 2011), covering a range of affective and psychological domains. Each questionnaire used in this study has been used in previous

studies, and subjected to reliability and validity testing; the questionnaires used are listed in Table 4.7 with an example citation for each.

Table 4.7. Questionnaires completed by *Learning Skills* cohort one (pre vs. post Y7).

Questionnaire	Example citation
Curiosity and exploration	Kashdan et al. (2009)
Identity	Fondacaro et al. (2006)
Life satisfaction	Huebner (1994); Huebner, Suldo & Valois (2003)
Meaning in life	Steger et al. (2006); Steger et al (2008)
Mindfulness	Brown & Ryan (2003)
Personal growth	Robitschek (1998)
Self-esteem	Rosenberg (1965, 1979)

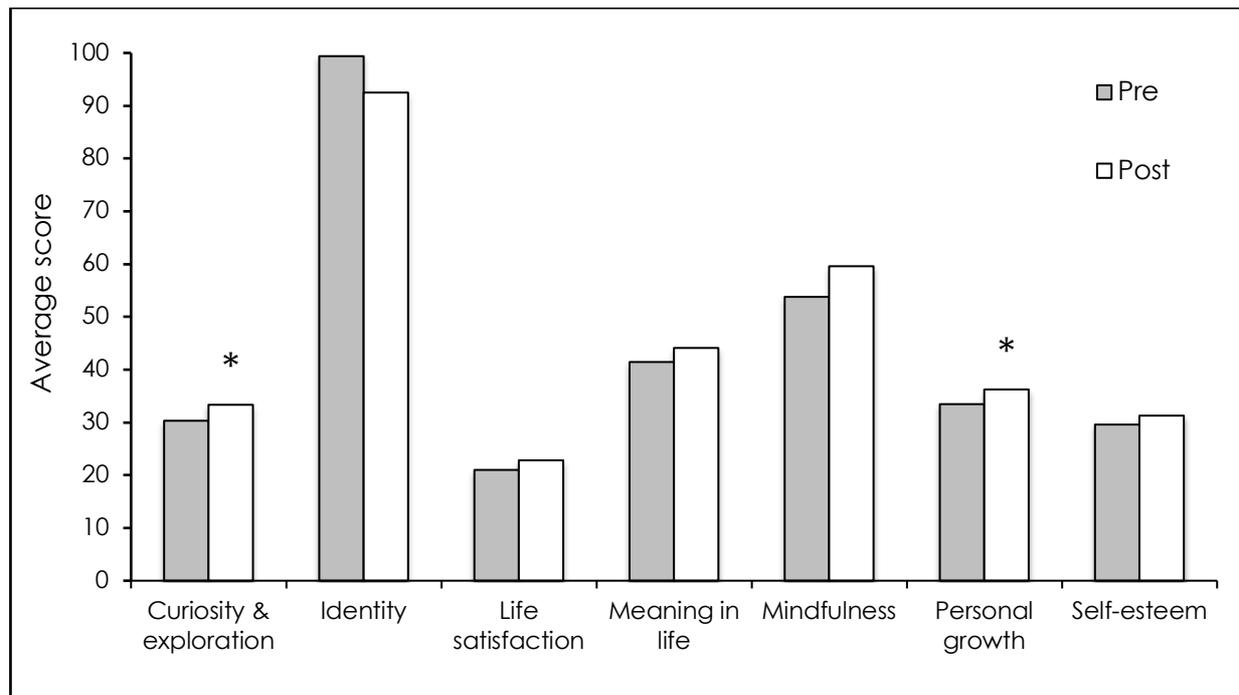
Methods of data collection and analysis

A copy of each questionnaire can be found in Appendix 6. For the purposes of this study, a few minor alterations were made to the questionnaires as they appeared in the research literature. The format of each questionnaire was adapted for reasons of consistency; simple visual aids were added to each questionnaire to help students understand the scales more easily; and for each questionnaire, a glossary was provided to help increase the consistency in the way students interpreted key words and phrases. In the pre-intervention measure, the questionnaires were completed in an exam hall setting, immediately after completion of the CAT test papers. In the post-intervention measure, questionnaires were completed in classrooms, again in exam conditions. In both instances, teachers and teaching assistants were also available to help students understand key terms if they required assistance.

Findings and discussion

Because the questionnaires were administered on paper rather than electronically, the time required for data entry of such a large data set would have been vast (118 students, seven questionnaires, each administered twice). For this reason, the questionnaire analysis was limited to a sample of 18 students. These were selected at random, and the same sample of 18

students was used for the pre and post-intervention measure. Of these 18 students, 10 were male; six were eligible for the PP; six were identified as having SEND at the level of School Action Plus (the level below a statement); and one was identified as having SEND at the level of School Action (i.e., monitoring only). To determine the extent of changes in questionnaire responses between pre and post-year seven, a paired samples t-test was conducted on the data set for each questionnaire.



* $P \leq 0.05$. Paired samples t-test, two-tailed ($n=118$).

Figure 4.18. Questionnaire findings summary: *Learning Skills* cohort 1, pre vs. post Y7.

Figure 4.18 shows a summary of findings from the psychometric questionnaire analysis. The intention here is not to compare the findings of each questionnaire – since each uses a different scale, the scores are not comparable with one another – but to provide a brief visual summary of the questionnaire scores. As can be seen here, in six of the seven questionnaires administered, there was an increase from pre to post year seven. In two of these (curiosity and exploration, and personal growth) the gains were statistically significant. A sense for what these changes might mean can be discerned by reading the questionnaires in Appendix 6.

Strengths and limitations

In this study, the pre-intervention questionnaires were administered under examination conditions, when the students had just completed their CAT tests at the start of year seven (September 2010). However, in the post-intervention measure, completed in July 2011, the questionnaires were completed during a *Learning Skills* lesson. This difference in environments – one in an exam hall at the start of the year, where students may have felt fatigued following completion of a CAT test, and one in a familiar environment in a classroom that the students were used to – may have had a significant impact on the internal reliability of the questionnaire analysis.

In both instances, teachers and teaching assistants were on hand to help students understand the questions should they request it. However, while steps were taken to make each questionnaire as accessible as possible, with a visual guide to the scale and a glossary for each questionnaire, it was not possible to arrange for additional provision to be made for students who usually require access arrangements in formal examinations (e.g. a reader, a scribe, or additional time). It is also possible that the use of different scales and response types in the questionnaires may have led to confusion among some students, calling into question the validity of the questionnaires. However, apart from the difference in setting, these other considerations apply equally to the pre and post-intervention measures. The small sample size of questionnaire data (n=18) also means that these results should be treated with caution, and it cannot be assumed that these findings are representative of the cohort as a whole.

Finally, it is worth noting that these questionnaires were filled out on paper and entered manually into a computer by the researcher. Due to the large volume of questionnaires (seven questionnaires per student, administered twice), even with a small sample size of 18 students there is a potential for human error that would have been ruled out with the use of online questionnaires. Taken together, these limitations mean that the psychometric questionnaires administered in this study are of limited utility in evaluating the non-academic impact of the *Learning Skills* programme.

These limitations should be given due consideration in interpreting any findings arising from the questionnaire data. However, it is worth noting that this psychometric questionnaire analysis was useful in informing planning for subsequent cohorts. For example, as can be seen

in Figure 4.18 above, one questionnaire – Identity – showed a decrease from pre to post year seven. This finding was instrumental in helping inform the decision to make identity a central feature of the *Learning Skills* programme for cohorts two and three, as it did not feature in cohort one. In particular, while the first project in cohort one was about ecology, in cohorts two and three the first project focused on identity, whereby students spent their first half-term at the school answering the question “Who am I?”

QUALITATIVE RESEARCH METHODS AND ANALYSIS

Interviews

The aim of an interview is to understand an issue or topic from the participant’s point of view. However, there are several different kinds of interviews, and different ways of interpreting interview data. Kvale and Brinkmann (2009) suggest that contrasting epistemological conceptions of interviews can be illustrated by thinking of the interviewer either as a miner or as a traveller. For the miner, interviews are regarded “as a site of data collection separated from the later analysis”, whereas for the traveller “interviewing and analysis [*are viewed*] as intertwined phases of knowledge construction, with an emphasis on the narrative to be told to an audience” (p. 49). While these metaphors are “not logically distinct categories”, Kvale and Brinkmann suggest that the miner-traveller distinction “may inspire the researcher to reflect upon what conceptions of knowledge he or she brings to an interview inquiry” (p. 48).

This study involved three different sets of interviews: the Habits of Mind evaluation (a combination of individual and paired interviews of students conducted by two undergraduate researchers), small group student interviews, and individual teacher interviews. The ‘Habits of Mind’ student interviews followed a structured format, in that they followed a set of questions in a predetermined order. However, they also contained features of a semi-structured interview in that additional questions were used to ask students to elaborate where appropriate, and paraphrasing was used as a technique for clarifying points made by participants. The group student interviews also followed a structured format. However, these interviews were conducted as a group discussion; for example, students were reminded of the ‘ground rules for group talk’ at the outset of the interview. The rationale for using group interviews, rather than further individual student interviews, was to enable the interview to

more closely resemble the kind of group discussions students were used to having in *Learning Skills* lessons. In this way, it was hoped that the students would engage in a more critical manner, giving reasons for their thinking and building on one another's ideas, rather than simply 'mining' each student for their individual response to a set of predetermined questions. The teacher interviews followed a more classically semi-structured format, in that an interview guide was prepared in advance with topics and questions to be discussed, but the order in which they were asked was decided in the interview itself. In addition, different questions were used to interview the Headteacher and head of *Learning Skills* than when interviewing teachers of learning skills or the non-*Learning Skills* teacher. In this sense, while the 'Habits of Mind' student interviews more closely resembled the 'miner' conception of the interview, whereby students' views were captured using a predetermined set and order of questions that were asked of all students, the teacher interviews and the group student interviews more closely resembled the 'traveller' conception, whereby events are remembered and meanings co-constructed between the interviewer and interviewee. All interviews were recorded and transcribed in full and additional notes were taken during the interviews, with the consent of the interviewees. A copy of the student interview schedules and the teacher interview guides can be found in Appendices 6, 7 and 8.

Content analysis and thematic analysis

"The research process, almost universally, begins with a concept and ends with a text" (Dunne et al., 2005, p. 11). In a similar way, an interview is a process that begins with a research question and ends with a text. A number of methods can be used to analyse textual data, each with strengths and limitations, and the method used depends on the aims of the study. For example, in content analysis, the text is studied to identify the key words, phrases, sentences, paragraphs; these are organised firstly into codes, and then the codes are grouped together into themes. Content analysis has been described as "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Krippendorp, 2004, p. 18). In discourse analysis, as well as examining the main themes, attention is also paid to genre – the way in which ideas are expressed – and to the precise words used. There are also several subtypes of discourse analysis, such as conversation analysis and relational analysis, where attention is given to the nuances of verbal and non-verbal communication. Despite the differences between these different methods of qualitative textual analysis, each method features the use of direct quotations to support conclusions.

“This is intended to bring the reader of the report into the reality of the situation that was studied” (Schulz, 2012).

For four strands of the study – Habits of Mind, RLJs, student interviews and teacher interviews – the text data were analysed using an inductive, bottom-up approach that includes features of content analysis (CA) and thematic analysis (TA), where the concepts and themes emerge from the data. CA and TA are commonly used approaches; however, “boundaries between the two have not been clearly specified” and the terms are often “used interchangeably” (Vaismoradi, Turunen & Bondas, 2013, p. 398). Although some researchers view CA “as an alternative to numerical analysis of qualitative data” (Cohen, Manion & Morrison, 2007, p. 475), one key distinction between the two is that in content analysis, the codes and themes are tallied, allowing the researcher to identify the “relative frequency and importance of certain topics” (Anderson & Arsenault, 1998, p.101-102). This “measuring (of) the frequency of different categories and themes... in content analysis” allows the numerical data to be used, “with caution, as a proxy for significance“ (Vaismoradi et al., p.398). While one should not ascribe any great significance to the frequency of codes or themes in this study, for each of these four strands of the study, tables are presented detailing these tallies. This is useful because if one code only appears three times and another appears 23 times, to limit the discussion of each code to a small number of illustrative excerpts would give an impression of equivalence which would not be representative of the data.

Aside from the frequency tables, the textual data from the four qualitative strands of the study was analysed according to the principles of TA. This involves identifying emerging patterns, categories and themes through the iterative analysis of a textual dataset. TA was first introduced to the literature in the 1970s (e.g. Merton, 1975), since which time a number of different methods have emerged. While some scholars consider TA to be a phenomenological methodology, the approach used in this study draws on the work of Braun & Clarke (2006, 2013), who emphasise the theoretical flexibility of TA and view it “just as an analytic method” (2013, p. 120) that can be applied across a range of methodological approaches. In this study, TA was carried out according to the framework of six stages suggested by Braun and Clark (2006): 1) familiarisation with the data; 2) coding; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes; and 6) writing up. While there is a logical sequential order evident within these stages, Braun and Clark emphasise that the framework is not to be used in a linear way, but rather that analysis is a recursive process that evolves

through repeated practice (p. 121). I will now briefly expand on what was involved in each stage of the analysis, as it relates to this study.

1. Familiarisation with the data

In the student and teacher interviews, the recordings were transcribed; in the case of the RLJs the text was coded directly from the students' books. Where interviews were transcribed, the data were organised into units of analysis. This involved separating out the key words, phrases and sentences onto a new line. This process of organising the data into units of analysis enables the researcher to familiarise themselves with the data in preparation for coding to begin for the first interview in the corpus. In the case of the teacher interviews, because of the large quantity of data – there were over 33,000 words in the teacher interview text corpus – the text was analysed at the level of utterance, rather than at the sentence or phrase level. Utterances varied in length from a single word to a paragraph. Strengths and limitations relating to the TA of the teacher interviews are outlined below.

2. Coding

In the next stage of analysis, a short description was attributed to each chunk or line of text, a process referred to as 'open coding'. Codes can emerge for a number of reasons, for example if an idea is repeated, is there is something surprising, or if something is stated as being important. Once the entire corpus had been coded, a list was made of all the codes. This list was then analysed with a view to reducing the total number of codes; in some cases, this involved creating new codes that combined two or more of the original codes. Where new codes were created, these were checked back against the original data to check that the codes matched the source data, a process known as 'constant comparison'.

3. Searching for themes

In the next stage of analysis, the codes were further condensed to create a list of five to seven overarching themes that adequately represent the open codes, a process known as 'closed coding'. This was done in several stages, again using the process of constant comparison to check the new closed codes against the original data. The final group of themes should a)

reflect the purpose of the research, b) be exhaustive (i.e. encapsulating all the open codes with none excluded), and c) be sensitive to what is in the data (Schulz, 2012).

4. Reviewing themes

In the fourth stage, all the quotes that make up each theme were collected together. These were then reviewed to examine the relationships between quotes, to look at whether and how different quotes interact and relate to one another, and to determine how they should be grouped together within the overarching theme.

5. Defining and naming themes

Once the themes had been established for one interview, they were defined and named, and the process was repeated for the remaining interviews. Again, the process of constant comparison was used to ensure that the themes established in the first interview reflected the remaining interview data, or whether they needed to be amended to take account of the new data. Once all the interviews had been analysed in this way, a final set of five to seven themes describing the entire text corpus was established.

6. Writing up

The final stage of analysis involved constructing a narrative from the themes, sub-themes and codes. Here, the themes were described and summarised, and quotes selected to illustrate the key ideas emergent within the theme. The relationships between the sub-themes and themes can also be elucidated at this stage. In this final stage of analysis, the text data, codes and themes were combined to form an overarching theory that adequately encapsulated and summarised the interview data.

The process outlined above describes an inductive, bottom-up approach to thematic analysis. In chapter five, I will summarise the findings using a deductive approach, using the five research questions as themes for grouping the findings presented in chapter four.

Strengths and limitations

Interviews

In this study, three different interview types were used to explore the views of students and teachers relating to a range of issues. In each case, the type of interview was matched to suit the purpose of the study. In the Habits of Mind interviews, students' views were explored to help evaluate a particular aspect of the *Learning Skills* programme – the whole-school language of learning that was used in the second year of the programme. The general student interviews were conducted in groups in an attempt to reproduce the kinds of group discussions that students were used to having in *Learning Skills* lessons. The teacher interviews followed a more semi-structured format, so as to respond to and capture the particular issues that related to the different teachers being interviewed. To capture the views of participants as faithfully as possible, interviews were analysed in an inductive, bottom-up way. In the case of the teacher interviews, because of the large volume of data, the coding and thematic analysis was done at the level of utterance, rather than at the finer level of sentences and phrases. As a consequence, it is likely that some nuance may have been lost in this aspect of the analysis. It is also worth bearing in mind that conducting and analysing interviews is a highly subjective process, in which a respondent's subjective thoughts and experiences are reproduced and interpreted by the interviewer. Both the interviewer and interviewee bring to the meeting their own values, history and experiences; this influences the choice of questions, the order in which they are asked, the way the participants respond to the interviewer, and the lens through which the responses are interpreted.

Content analysis and thematic analysis

Using an inductive, bottom-up approach to analysing interviews enables the participants' views to be represented in an open and transparent way. Indeed, CA requires that the rules for analysis are made explicit, transparent, and public (Mayring, 2004, p.267-9), to allow for the possibility of verification or otherwise through reanalysis and replication (Cohen *et al.*, 2007, p.475). However, even despite such transparency, a feature of CA is that the identification of themes and codes is subjective and decided by the researcher alone. The potential for researcher bias is therefore inherent in the process. Anderson and Arsenault (1998) point out an additional “major limitation of content analysis: it counts as data only what is there and

rarely what is missing!” (p.102). This is a disadvantage of using an inductive approach, rather than a deductive approach where the themes are determined prior to analysis, based on preliminary data collection or on findings from the research literature. Instead, the analysis of the interviews and RLJs presented in this chapter should be viewed simply as a process for constructing a ‘grounded’ or bottom-up account of the participants’ responses.

HABITS OF MIND

Rationale

As stated above, at first, the PLTS framework was used as a shared language of learning (QCA, 2009). However, throughout the first year of the *Learning Skills* programme, it became apparent that the PLTS framework was not well suited to this task, for the reasons explained in chapter two. As a consequence, in the second year, the *Learning Skills* team created a new language of learning, which was referred to as the ‘Habits of Mind’ and was based around just three areas: thinking, being and doing. These were each subdivided into three habits (nine in total), and each of the nine habits were broken down into three criteria (27 in total). A one-page summary of the ‘Sea View Habits of Mind’ can be found in Appendix 7. This new language of learning was shared with staff, new posters were created for use in every classroom, and again teachers were trained in how to use this language to focus on the ‘how’ of learning in lessons throughout the school.

As discussed in the literature review, the issue of transfer is of critical importance to the success of any Learning to Learn initiative, since the evidence suggests that while the transfer of knowledge and skills can take place from one context to another, it tends not to happen automatically. As a consequence, at Sea View there was a recognition that the process of transfer needed to be carefully managed at both ends of the process: *transfer out* of the *Learning Skills* classroom, and *transfer in* to subject areas throughout the school. Having a shared, whole-school language of learning – understood and regularly referred to by students and staff alike – was viewed as being centrally important to both these processes.

Methods of data collection and analysis

In order to explore student perceptions relating to the ‘Sea View Habits of Mind’ – and to determine the extent to which this language of learning was being used in classrooms throughout the school – the Habits of Mind were evaluated in three ways: through lesson observations, student interviews and student questionnaires.

In order to overcome bias in seeking to explore student perceptions and teacher practices relating to the ‘Sea View Habits of Mind’, in this strand of the study the data was collected by two student researchers from a local University, who had been placed at the school for several weeks as part of their Bachelor of Education degree. All data in the ‘Habits of Mind’ strand were collected in the spring term of 2012, the ‘Habits of Mind’ having been launched in September 2011.

Lesson observation

Initially, the two student researchers undertook two days of lesson observations in the form of ‘pupil shadowing’. The aim of this aspect of the evaluation was to familiarise the researchers with the students, the year seven curriculum and whole school teaching and learning practices, and to enable them to determine the extent to which the Habits of Mind were being referred to in subject learning across the curriculum. In total, the researchers shadowed 12 year seven students across 24 lessons, covering all subjects on the year seven curriculum. In order to gain a realistic, naturalistic understanding of how the Habits of Mind were (or were not) being referred to in lessons throughout the school, teachers were not informed that their use of ‘Habits of Mind’ were being observed by the student researchers, but simply that they were shadowing students. Teachers were debriefed afterwards however, and the findings from this strand of the evaluation were shared with all staff.

Student interviews

In total, 40 interviews were carried out with 58 students from years seven, eight and nine, either individually or in pairs. Interviews were structured, in that they followed a set schedule of questions in a pre-determined order. However, they also included some features of semi-structured interviews, such as following up on students’ responses as deemed appropriate, or

paraphrasing to clarify points made. The interview schedule was designed in conjunction with the University researchers to explore student views around two key areas: *Learning Skills* lessons, and the Habits of Mind. A copy of the Habits of Mind interview schedule can be found in Appendix 8.

Student questionnaires

In order to distil student perceptions relating to the Habits of Mind into a more condensed form, for the third strand of the 'Habits of Mind' evaluation an anonymous, three-item questionnaire was developed. Although this really was a quantitative measure, it is presented here as part of the Habits of Mind strand, which primarily involved qualitative data analysis.

Findings and discussion

Lesson observations

The student researchers provided the following report from their lesson observations:

Out of the 24 observations carried out across the year seven cohort, only one teacher, in a maths class, made explicit reference to the 'Habits of Mind' during the lesson, identifying the habits that the pupils would need to use in order to complete the activity/task successfully.

In every lesson, there were opportunities to incorporate the 'Habits of Mind' into the lessons... however teachers failed to exploit these opportunities to develop pupils' understanding and metacognition.

'Habits of Mind' displays were often poorly located, and the text which accompanied images often too small to decipher. Also the displays gave examples using various celebrities or iconic figures which the pupils could relate to. However, pupils failed to understand the meaning of some 'habits' such as 'critical thinker' or 'reflective learner' etc... definitions supporting the examples may be beneficial.

In all lessons, pupils were using the 'Habits of Mind' subconsciously; however, they had no awareness or comprehension of the specific habit they were using at a specific time, or for a specific task. Opportunities for teachers to encourage reflection among pupils were often missed: "What habits have you been using today? Why?"

The *Learning Skills* team found this independent feedback to be a useful insight into what was happening across the school with regard to using the ‘Habits of Mind’ framework as a tool for metacognitive reflection, and for ‘transfer in’ to subject learning. Even in this initial phase of the Habits of Mind evaluation, it was clear that there was significant room for improvement in terms of whole-school practices. In order to understand how to improve the situation, the *Learning Skills* team needed to learn more about students’ perceptions relating to the ‘Habits of Mind’. These would be explored more fully through the student interviews, also carried out by the student researchers.

Student questionnaires

The second strand of the Habits of Mind evaluation was an anonymous, three-item questionnaire, which was designed to inform the planning and execution of the student interviews.. This was completed by 74 students; the responses are summarised below, in Figures 4.19, 4.20 and 4.21.

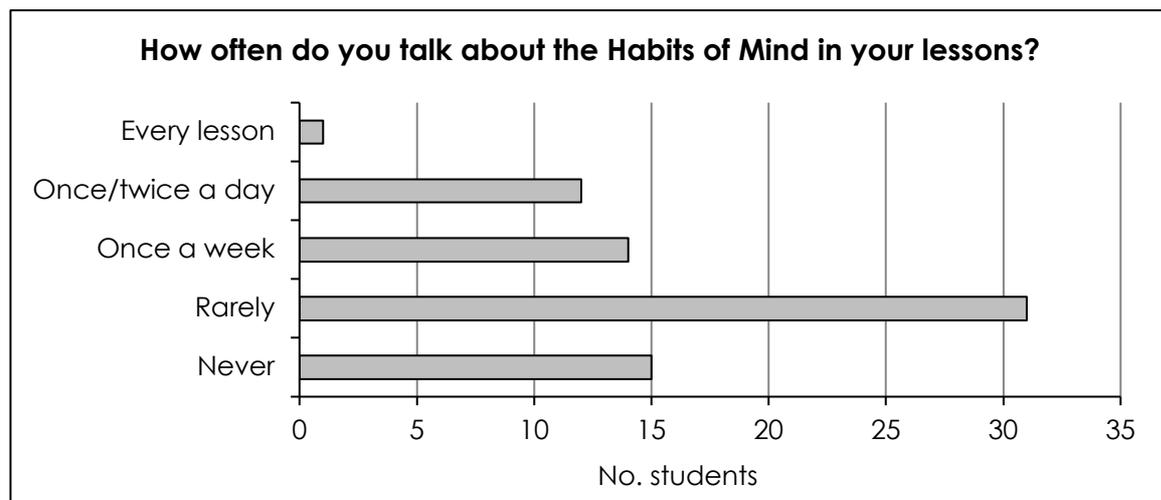


Figure 4.19. Habits of Mind questionnaire: frequency in lessons.

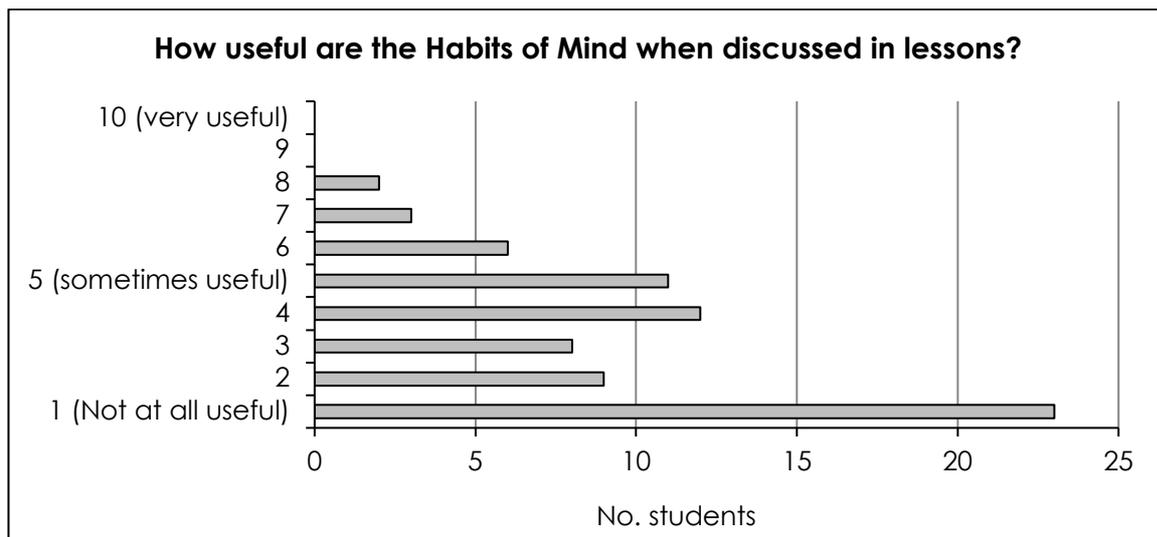


Figure 4.20. Habits of Mind questionnaire: usefulness in lessons.

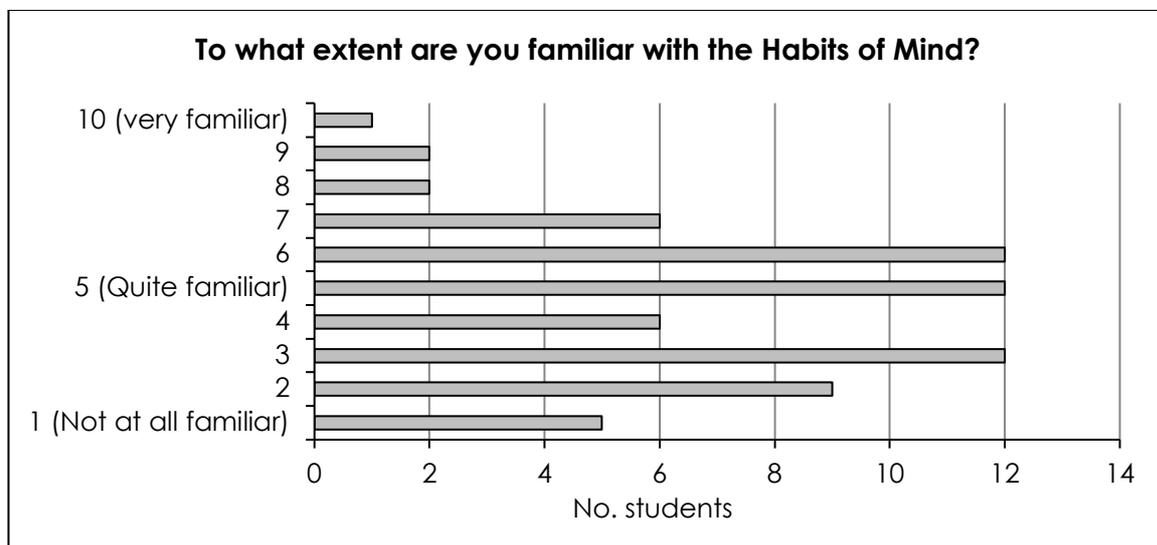


Figure 4.21. Habits of Mind questionnaire: familiarity among students.

To summarise these responses, students said that Habits of Mind were rarely referred to in lessons – less than once a week (Figure 4.19); that when they were referred to in lessons, the majority of students found it “not at all” or less than “sometimes” useful (Figure 4.20); and when asked how familiar they are with the Habits of Mind, the distribution of responses was toward the “not at all familiar” end of the spectrum, with only one student saying they are “very familiar” (Figure 4.21). Taken together, these survey responses paint a clear picture that the Habits of Mind were not being as widely used, or viewed as useful, as had been hoped for. To explore this further and to understand why this might be the case, interviews were carried out with 58 students, either individually or in pairs.

Student interviews

The student interviews were collated into a single text corpus of around 150 pages. Following the method outlined by Braun and Clarke (2006), the data was familiarised through transcription and close reading. Codes were then ascribed to the students' responses, and these were tallied. If a student mentioned a code more than once, this was counted twice – therefore, the tally here refers to the total number of mentions within the text corpus, rather than the total number of interviews in which that code was mentioned. Upon collating the codes into themes, three clear categories emerged – utterances relating to *Learning Skills*, Habits of Mind and transfer – with positive and negative comments relating to each. These six themes, and the codes that constituted each, are summarised in Table 4.8. As can be seen here, the most frequent theme to emerge from the student interview data was negative comments relating to the Habits of Mind, with a ratio to positive comments of around 2:1. Similarly, when the students were asked about the extent to which reference to the Habits of Mind had transferred to other subjects throughout the school, there was also a 2:1 ratio of negative to positive comments. With regard to *Learning Skills* lessons themselves, the balance of positive to negative comments was roughly even.

Table 4.8. Habits of Mind student interviews: codes and themes

Theme	Theme tally	Code	Code tally
<i>Learning Skills</i> positives	17	<i>Learning Skills</i> enjoy / appreciate	7
		<i>Learning Skills</i> learned about self	4
		<i>Learning Skills</i> group work good	3
		<i>Learning Skills</i> expanding worldview	3
<i>Learning Skills</i> negatives	15	<i>Learning Skills</i> boring/bad	6
		<i>Learning Skills</i> too much planning/writing	4
		<i>Learning Skills</i> calls for more oracy	3
		<i>Learning Skills</i> not enough doing	2
		<i>Learning Skills</i> pointless	1
Habits of Mind positives	15	Habits good / all memorised	6
		Habits unconscious / implicit	4
		Habits used / used a lot	2
		Habits everywhere	1
		Habits improve	1
		Habits useful	1
Habits of Mind negatives	32	Habits boring	10
		Habits confusing	4
		Habits vs core values confusion	3
		Habits pointless	4
		Habits transfer	1
		Habits get in the way	1
		Habits improve	1
		Habits not working	1
		Habits resistant	1
Transfer positives	8	Transfer to other subjects	6
		Transfer out of school	2
Transfer negatives	16	Transfer weak / use faded over time	12
		Transfer not happening (other subjects)	4

The relevance of these findings to the *Learning Skills* team will be discussed below. In this section, I will share some excerpts from the student interviews to illustrate the most commonly cited codes within each of the six themes. Some of the excerpts included here relate to wider themes than a straightforward examination of the Habits of Mind framework as a language of learning. However, it will be instructive to include some of these wider themes

here, since the student perceptions garnered through these interviews were used to inform future improvement planning of the *Learning Skills* programme.

Learning Skills positives

One theme to emerge from the student interviews was the extent to which the students either enjoyed or appreciated their *Learning Skills* lessons. While the enjoyment of *Learning Skills* was by no means universal, as we shall see below, a number of reasons were provided by students as to their enjoyment or appreciation of the programme. One code to emerge was the notion that students learned about themselves through the *Learning Skills* programme, as can be seen in the following excerpt: ⁷

- R: What have you learned about yourself from doing the *Learning Skills* lessons?
S: I'm a bit of a recorder.
R: Do you think you are quite reflective then? Because if you record things then you're able to look back at them aren't you?
S: Yeah I am reflective.
R: That's interesting. And do you think you only found that out... did you know that before about yourself?
S: Not until I did *Learning Skills*, about three lessons in...
R: Yeah?
S: I didn't know that I was too much of a recorder. But then I got more... I did more recording... as I did the lessons. So I wanted to look back at them.

As well as learning about themselves, another code to emerge from the student interviews was that *Learning Skills* lessons had expanded their understanding of the wider world, as can be seen in the following excerpts:

- S: [*Learning Skills*]... it's sort of... it's fascinating.
R1: Yeah? What bits do you find interesting about it?
R2: Or fascinating, to use your word?
S: What goes on in the world... It makes me realise we're the lucky people and everywhere else is... we need to help them.

Given that the *Learning Skills* programme did not involve teaching a set curriculum or body of subject knowledge, one aspect of the students' enjoyment of the programme that was

⁷ R = researcher; R1 = Researcher 1; R2 = Researcher 2; S = student

perhaps surprising was the notion that *Learning Skills* made them work hard, as can be seen in the following excerpts:

R: Do you think the *Learning Skills* programme helps you get better at learning?
S: Yeah... I like *Learning Skills* coz it's like, in other subjects you don't really use your brain as much but in [*Learning Skills*], you have to think quite a lot and it's fun.

--

R: What has been your favourite *Learning Skills* lesson so far?
S: Probably the ecological stuff. It might sound weird, but I liked the homework where we had to do like 12 pages. I enjoyed that.

Learning Skills negatives

As stated above, these interviews also gave students the opportunity to discuss aspects of the *Learning Skills* programme that they did not enjoy or find useful, or that they found frustrating. One code to emerge from the interviews was a perception among students that *Learning Skills* lessons involved 'too much planning and not enough doing', as can be seen in the following excerpts:

R1: So this campaign... what are you guys doing, are you in the same group?
S1/S2: Yeah.
R1: What are you doing?
S1/S2: Going to help old aged pensioners.
R1: Oh that's really nice. How long have you been doing that for now?
S1: About two weeks.
S2: A lot of planning so we haven't really done a lot.
R1: So how long have you spend on this project?
R2: On the planning.
S1: Maybe two weeks?
S2: Yeah.
S1: Because we started the week before last...
S2: We were doing it last week, we might have started the week before.
R1: So that's four lessons, maybe six, that you've spent on planning?
S1: Yeah. And we're still planning.
S2: It'd be better like less planning and then just going over there and doing it, instead of lots of planning and then doing it.
R2: So it kind of needs to be sped up a bit?
S1: Yeah. Cos you forget... we forget about what we did before, and then we go and do the actual thing six weeks later. So we forget about what we did first to start with.

In response to this feedback, with regard to future planning it was agreed that all projects should have a tangible, meaningful outcome for all students. In particular, the year seven campaign project that the researcher refers to in the first of the excerpts above was perhaps the least successful of all the projects on the year seven programme of study; the following year, this was dropped in favour of a group research project.

Habits positives

As stated above, the main theme to emerge from the student interviews was negative comments about the Habits of Mind framework. These will be discussed below. However, there were also many positive comments made about the Habits of Mind. One code to emerge from the data was a recognition among students that the Habits of Mind were often used unconsciously or implicitly, and that this awareness can be made explicit through structured reflection. This can be seen in the following excerpt:

- R: What do you think about the Habits of Mind?
S: They're quite good, but like... you don't really know you're using them in school sometimes.
R: You don't actually notice that you're using them?
S: Yeah and then later you probably know. Coz creativity is like... when you're doing it, you don't know you're actually sort of doing a habit of mind.
R: OK, and why do you think that is?
S: I don't know.
R: Do your teachers ever talk about it?
S: Yeah they talk about the Habits of Mind and that you use them pretty much every day.
R: Yeah.
S: And you just don't really know about it.

Another code to emerge from the student interviews was that, where the Habits of Mind were referred to in subject learning, at least some students found this useful as a tool for metacognitive reflection, as can be seen in the following two excerpts:

- R1: How do you feel about the Habits of Mind?
S: They're really good, it teaches you a lot.
R2: OK, what does it teach you about?
S: It teaches you about being creative and... I've forgotten what they're called.
R2: That's all right.
S: I think it's to be improving the world I think?
R1: Oh, agent of change?

- S: Yeah.
- R1: Cool. Do you understand why the Habits of Mind exist?
- S: Er, because they want people to be better at things, I think.
- R1: Do you think you use them in all your different, in your other lessons s well?
- S: Yes, every lesson.
- R1: And do the teachers make you aware of that?
- S: Yes, because you have this sheet where you tick it off.
- R1: So do you do that every lesson?
- S: No.
- R2: How often do you use them?
- S: About five times a month.

A tendency for the student researchers to phrase questions negatively is apparent in the second excerpt above, although in this instance, the student responded positively to an invitation to criticise the Habits of Mind. There is also some emergent evidence here of transfer, with the student saying that their English and humanities teachers referred to the Habits of Mind in lessons; this code will be discussed below.

Finally, even where students made positive comments about the Habits of Mind, it was clear that the extent to which these practices were transferring into other subject areas left some room for improvement, as can be seen in the following excerpt:

- R: What about the Habits of Mind?
- S: They're... yeah, because I understand what they're trying to do, like critical thinking and stuff, and being a team player. Because like our core values as well... working in a team and one of the Habits is to be a team player.
- R: OK.
- S: And so I understand what they're trying to do.
- R: And do you think they're doing... do you think they're achieving...?
- S: Well, they don't mention Habits of Mind that much, but they have started since over half term a little bit more, but some people don't really listen that much.
- R: So do you use the Habits of Mind, do you hear about them in all your lessons, or it is just *Learning Skills*?
- S: Mostly just *Learning Skills*, but sometimes in other lessons.
- R: And what will the teachers say?
- S: They're just like, "You've got to use critical thinking".
- R: So they just say it?
- S: Yeah, they don't really...
- R: They don't say how you're using it?
- S: No.

Habits negatives

When the *Learning Skills* programme started in 2010, the school had a pre-existing set of Core Values, which were displayed in classrooms alongside the school rules. The Core Values took the form of a list of five words, with no further explanations or criteria attached; these were achievement, teamwork, responsibility, respect and perseverance.

As stated above, the year seven *Learning Skills* programme was initially planned around the PLTS framework. The language of the PLTS was not intended to replace the Core Values, but to sit nested within the year seven *Learning Skills* programme. Over time however, as the timetabled programme expanded into year eight in its second year (and then again into year nine in its third year), there was an increasing recognition that in order for the skills and attributes developed through the *Learning Skills* programme to transfer into other subject areas around the school, the language of learning used in the *Learning Skills* taught course would also have to be regularly referred to in lessons around the school. This led to some confusion between the Core Values and the Habits of Mind, as can be seen in the following excerpt:

- R: What about the Habits of Mind?
S: I reckon the ones that are useful are respect... all of them really except perseverance, because it's not like you can do something worldwide that you can keep on doing forever.
R: So what are the Habits of Mind?
S: Achievement, respect, responsibility, perseverance and team worker.
R: That's really good that you can remember those, but are they the Habits of Mind, or are they something else?
S: Core values.
R: Core values! Interesting.

From the perspective of the *Learning Skills* team, perhaps the most concerning code to emerge from the student interviews was the perception among some students that the Habits of Mind were boring, useless or pointless, as can be seen in the following excerpt:

- R: What about the Habits of Mind then, how do you feel about them?
S1: It's really bugging me.
R: What bugs you about it?
S1: Yeah.
S2: It doesn't really mean anything.

- R: OK.
- S2: Or do anything.
- R: Do you just not get what the point of it is?
- S1: I get it.
- R: Yeah.
- S1: But I don't think it does much.
- S2: And in tutor... I don't know why but he went on about it today and I was just, I literally shouted out "Shut up and let us get on with what we were doing"
- R: To your tutor? Because he was "yapping on about the Habits of Mind"?
- S2: Yeah.
- R: And what were you doing... what was it you were doing?
- S2: I was trying to do my history homework.
- R: And then he locked it [*the computer*]... and I was like "Why, I'm trying to do some work" and then he said "but I need to tell you... I've been told, all tutors have been told to remind you of the habits" and I went: "Who cares about the Habits of Mind?"
- R: So... do you think... do you understand why they could be useful to you?
- S2: No.
- R: So you don't think...?
- S1: I don't think they have any use at all.
- R: What about outside of school, do you think you use any of them?
- S1: I think we all use them but we don't think... we don't think teachers need to yap on about it all the time.
- R: OK.
- S1: Cos we... like... if we do creative stuff we can just go to art and do stuff in art and we don't really need to... well coz we need to do it in other lessons but it's like, we don't need to keep a record of it, it's boring.

Here, despite having just strongly criticised the Habits of Mind and practices relating to their use, the student nevertheless expressed some recognition for their use, acknowledging that "we all use them" and "we need to do it in other lessons but... we don't need to keep a record of it". As we will see in the next section, there was also some evidence from the student interviews to suggest that the Habits of Mind had transferred more successfully to other subjects, as well as to aspects of their lives beyond the school gates.

Transfer positives

As discussed above, after the first year, the *Learning Skills* team became increasingly aware of the critical importance of transfer to the success of the *Learning Skills* programme, since the research evidence suggests that while the transfer of knowledge and skills can happen across contexts, it does not happen automatically. As a consequence, the transfer of knowledge and skills needed to be carefully managed at both ends of the process.

The student interviews revealed some evidence of knowledge and skills transfer *out* from the *Learning Skills* taught course, as can be seen in the following excerpts:

- R1: What do you think about your *Learning Skills* lessons?
S1: I think they're good because they kind of help other lessons.
S2: Yeah, because you use like... you learn how to be independent, and you learn how to be a team player and all that.
R1: Yeah.
S2: So it helps you in other classes.
R1: OK so you, do you think it helps like generally, with your overall learning?
S2: Mmm (yes).
S1: To be honest, in the beginning I didn't really understand the point of it, and then as you go on it kind of helps you with your skills of learning.
R1: Yeah.
S1: So you get to learn how to... you know, help yourself be better at other things.

--

- R: Do you think *Learning Skills* has helped you in other subjects?
S: Yeah, I actually think it has a little bit because like we learn about creative thinking and team work and things like that... and then in other lessons when we're doing team work it shows us skills we can use.

There was also some evidence of transfer *in* to other subject areas, as can be seen in the following excerpt:

- R1: What about resilience? Do you ever hear about resilience?
S1: In maths, cos we have to get it right.
S2: If you get it wrong, you do it again.
R1: So you keep trying.
S1: Yeah, cos if we get it wrong we have to keep on going.
R2: Do you think some of the habits just relate to certain subjects?
S1: Yeah.
R1: So you'd link creativity with art, resilience with maths...
R2: What about critical thinking?
S1: PE?
S2: PE and what we're doing now.
R2: *Learning Skills*?
S2: Yeah.

There were a number of occasions in the interviews where the student researchers did not follow up on interesting avenues of discussion. For example, in this latter excerpt, it would have been interesting to ask the students how they use critical thinking skills in PE.

Finally for this section, there were a number of instances in the student interviews where the students spoke of the Habits of Mind transferring into their lives outside of school, as can be seen in the following excerpt:

- R: The Habits of Mind, do you think they're useful outside of school?
S: Yeah some... not all of them. Because, like you need perseverance and resilience and stuff outside of school as well, because... if you're doing stuff outside school and you want to get better at it, you're going to need to use perseverance...
R: Yeah.
S: So it's not only inside of school.

However, the majority of comments relating to transfer from the student interviews suggested that practices relating to the Habits of Mind were not successfully transferring to subject areas around the school, as can be seen in the following section.

Transfer negatives

In contrast to the comments made above, one code to emerge from the student interviews was the notion that the Habits of Mind were not regularly referred to in other subjects, revealing a mixed picture in terms of whole-school practices:

- R: Do many of your other teachers in your lessons ask about the Habits of Mind? Do they ever say "Oh what Habits of Mind do you think you're using now?"
S: Not really.
R: No? And they don't say: "today we're going to... look at being creative, today we're going to look at being an agent of change, they never say anything like that...?"
S: No. Only in *Learning Skills*.

--

- R: What lessons do they [*refer to Habits of Mind in*] mostly do you think?
S: What lessons? Every lesson.
R: So in English, maths and things as well?
S: Yeah. Except for Science. I've never seen them do it in Science.

On a number of occasions, the students suggested that even where Habits of Mind were mentioned in other subjects, their relevance was not understood or developed fully. Where this happened, students remained unclear as to their value, as can be seen in the following excerpts:

- R: Do your teachers in other subjects say “right today we’re going to need to persevere, or be resilient...”
- S: I think once when I was in Science my teacher said “We’re going to work on critical thinking”
- R: OK.
- S: Like how... I didn't get what... how it was useful, all we done is made like a chemical reaction. So I don't know how...
- R: You don't know how the critical thinking came into it?
- S: Yeah.

--

- R: Do they ever say to you, in maths for example, “We’re going to be doing some equations today and we’re going to have to be really resilient because it’s going to be difficult. We need to keep trying.” Do they ever say that, or do they just say “come on use resilience”...?
- S: They say it sometimes but they don’t say it that much in class.
- R: Yeah.
- S: They just like, they say a lot about the work and say “we want you to be resilient” but they don’t really say much about it in other classes.

Strengths and limitations

When reflecting on the Habits of Mind evaluation, the *Learning Skills* team firstly recognised that there were many reasons to be encouraged by the feedback received. While it was apparent that there remained many obstacles to overcome, it was also clear that there was some good practice happening in relation to the Habits of Mind – transfer out of *Learning Skills* lessons, transfer in to subjects and a significant minority of students saying that they found these practices useful to their learning. There was also evidence that the Habits of Mind had been more successful as a shared, whole-school language of learning than the PLTS framework used the previous year, the use of which had largely remained within the year seven *Learning Skills* taught course. It was also evident that there was much support among the students for the *Learning Skills* programme itself.

However, the *Learning Skills* team was keen to act on the critical feedback received through the Habits of Mind student interviews when planning the third year of the programme, especially with regard to developing a new language of learning. As well as recognising the pressing need to address the confusion arising from the simultaneous use of Habits of Mind and the overlapping list of Core Values, the *Learning Skills* team drew two key lessons from

the feedback received. First, it was clear from the student interviews that the Habits of Mind were viewed as a rigid framework of criteria – idealised modes of being that were seen as being something ‘other’ to the students, their learning and the teachers throughout the school, and a measure against which students would most frequently fall short. The next language of learning would need to be something that was looser – a more flexible vocabulary that was open to interpretation and reframing, something that students and teachers could adapt and add to when describing the *processes* of learning in different contexts. Second, related to this, the *Learning Skills* team wanted to address the perception that the Habits of Mind were “just a list stuck to the wall” – a list created by teachers. To address this, in the summer term of 2012, the *Learning Skills* team set up working parties with students and teachers to develop a new language of learning from the ground up – a language that was developed, and therefore ‘owned’, by students and teachers throughout the school. This resulted in the ‘Learning Brain’ diagram discussed in chapter two (Figure 2.5). This is a good example of how this mixed methods evaluation of the *Learning Skills* programme was used formatively as well as summatively, to help shape practice moving forward as well as evaluating impact retrospectively.

REFLECTIVE LEARNING JOURNALS

Rationale

The central question that drives this study relates to the impact of the *Learning Skills* programme on academic attainment. However, even if academic attainment were to increase in the *Learning Skills* cohort, that would not necessarily establish that the improvements had been *caused* by the *Learning Skills* programme. In order to examine this question, a number of measures were used to examine the ‘space in between’ the input and output variables, to triangulate the findings from the primary analysis. Fundamentally, the question of causation was explored qualitatively by examining what Sea View students and teachers wrote and said about the impact of *Learning Skills* on subject learning across the curriculum. In the final two strands of the study, I will examine this question through student and teacher interviews. In this section, I will look at what students wrote in their RLJs.

Methods of data collection and analysis

In year seven, once a fortnight, all students had one lesson of silent writing in their RLJ, as outlined in chapter two. In 2013, a random sample of 30 students' RLJs was collected. Due to fortnightly entries, the data set was considerable; to make the analysis more manageable, five pages of each journal were sampled, looking at entries from the autumn term 2012. The primary purpose of this strand of the study was to provide an insight into whether the students felt *Learning Skills* was helpful in terms of helping them learn more effectively in other subjects; however, it was expected that other codes and themes would emerge from the data. For example, the RLJ sample covered a period of time in which the students were attempting to complete the 'seven days challenge' for anti-bullying week, whereby they attempted to get through a week without saying a negative thing about anyone. As a consequence, many of the students' RLJ entries that week related to interpersonal relationships. As with the Habits of Mind interviews, the RLJ sample was analysed thematically according to the methodology outlined by Braun and Clarke (2006). However, rather than compiling the data into a single text corpus, each RLJ was analysed separately. Once codes and themes had been determined, illustrative quotes were taken from the RLJs. Because it is the content rather than the style that is of interest in this analysis, spelling mistakes have been corrected in the excerpts presented below. To give a sense of the style of writing within RLJs, for some of the longer entries, photographs are used instead of transcribed excerpts.

Findings and discussion

A summary of the codes and themes emerging from the RLJs can be seen in Table 4.9.

Table 4.9. Reflective learning journals: codes and themes

Theme	Theme tally	Code	Code tally
Interpersonal relations	50	Seven day challenge – difficult	27
		Seven day challenge – success	18
		Seven day challenge – strategies	5
<i>Learning Skills</i> positives	26	<i>Learning Skills</i> – confidence / helps	15
		<i>Learning Skills</i> – favourite lesson / enjoy	11
Transfer	24	Transfer	16
		No transfer	3
		Transfer maybe	5
Other subjects	46	Other subjects – favourites	19
		Other subjects – least favourites	27
General school	22	General – challenge	7
		General – strategies	7
		General – proud	8

As can be seen here, the biggest theme was ‘interpersonal relations’, as the sample covered anti-bullying week and the ‘seven days challenge’. Following this, the largest theme was ‘other subjects’. This is because students were responding to prompt questions on the board, which often focused on how they were learning in different subjects. The prompt questions responded to here included the following four questions:

- On a scale of 1 to 10, where 1 = not at all and 10 = a lot, how much have you enjoyed *Learning Skills* lessons this year?
- Why did you give it this number?
- Do you feel that *Learning Skills* lessons have helped you to learn better in your other subjects?
- If so, how? If not, why not?

Four of the five themes to emerge from the students’ RLJ entries are presented below, from most to least mentioned, with illustrative excerpts. The fifth theme (other subjects) does not add to this evaluation of *Learning Skills* programme, and so is not included here.

Interpersonal relations

The most frequent code to emerge within this theme was the surprising finding that almost all the students found it incredibly difficult to not say a bad word, either about or to their friends and family members, even for a single day. As can be seen in the following excerpts, very few students made it through the entire week successfully, and even then only with great difficulty:

Unfortunately, I only lasted until the Friday of the first week. It all began when I asked my baby cousin to hurry up, then my auntie started having a go at me so I turned around and started giving her a piece of her own medicine and then she stopped having a go at me.

--

Thursday – I done really well again but my sister knows about it now, so I think it might get harder. Friday I broke it because my sister was winding me up, so I called her names. Saturday my mum and my sister was really annoying, so I was annoying back and being horrible so I broke it.

--

Tuesday – told my brother to go away. Wednesday gave up. Stopped. Not doing it. Thursday gave up. Stopped doing it. Don't think I am strong. I lasted three days. I will be kind to my brother when he is mean. I've learnt I am really angry with myself. [*Teacher comment – "what do you mean by this?"*] I get mad about things people do to me and try and change or things I've done. I find it difficult to do it because I get really angry when my brother winds me up. I ask a question and my family don't get it. I am fed up. I have tried my hardest. I can't do this any more.

As can be seen here, some students wrote quite openly in their RLJs about the difficulties they faced at home, as well as in school. Over time, with teachers commenting and students responding, teachers were able to deepen their understanding of the students through the medium of RLJs.

A number of students reported success when reflecting on the 'seven days, seven nights challenge', as can be seen here:

On the Wednesday when we started, I did really well, I did not say anything or do anything negative. I was so happy with myself because I just ignored rude

people and walked away. The next day when I was asleep, one of my brothers was banging on my door and I said "Go away" and forgot the challenge because I was not really awake.

--

Today was really tricky. My brother was really annoying. I had to go upstairs to my room because he was really making me mad. I went upstairs so I wouldn't say anything back.

--

Today has been quite good. I haven't done anything or said anything so I think today has gone alright. I confused my brother by being really nice to him. Asking if he would want anything before he said anything annoying.

Here we can see that, as the week wore on, some students started to identify strategies they could use to avoid or de-escalate conflict. In total, five students within the sample identified specific strategies, including the following:

I usually go to my room and punch my pillow and stay in there until I calm down.

--

I am pretty sure that I didn't crack. I love pizza, I said to myself when I got annoyed.

--

I was nice to the person that annoyed me. The reason I was nice to them is because I really thought it would help them to stop being nasty to me and it sort of worked. The person was a bit confused at first but then they just walked away from me.

Learning Skills positives

A number of students were extremely positive about *Learning Skills* lessons in their RLJs. It could be argued that this data set is biased, since the students knew that their *Learning Skills* teacher would read their responses. However, it is also worth noting that some students did not hold back in criticising *Learning Skills*, as we will see below. Also, it should be noted that

this sample was taken from the third *Learning Skills* cohort. By this time, there was a consensus within the *Learning Skills* department that the taught course was stronger than in the first and second years. The main code to emerge within this theme was that the students felt the course had enabled them to become more confident, or that it helped them in some other way, as can be seen in the following excerpts:

I learn best in *Learning Skills*. I would give it 10/10 because I get along with the teacher and learn a lot. The thing I have enjoyed doing most in *Learning Skills* is the projects, because they have helped me get closer with my brother.

--

Awesome teacher and I learn about what happens in life. It helps me understand the world's problems.

--

The thing I am most proud of this year is the 'Who am I' project because I learnt how to stand up in front of a big group of people confidently.

The way in which *Learning Skills* (referred to here as 'Learning to Learn') helps students is also apparent in the excerpt in Figure 4.22. This theme of students finding their voice, standing up for themselves and communicating more effectively recurred in many of the students' RLJ entries throughout the year.

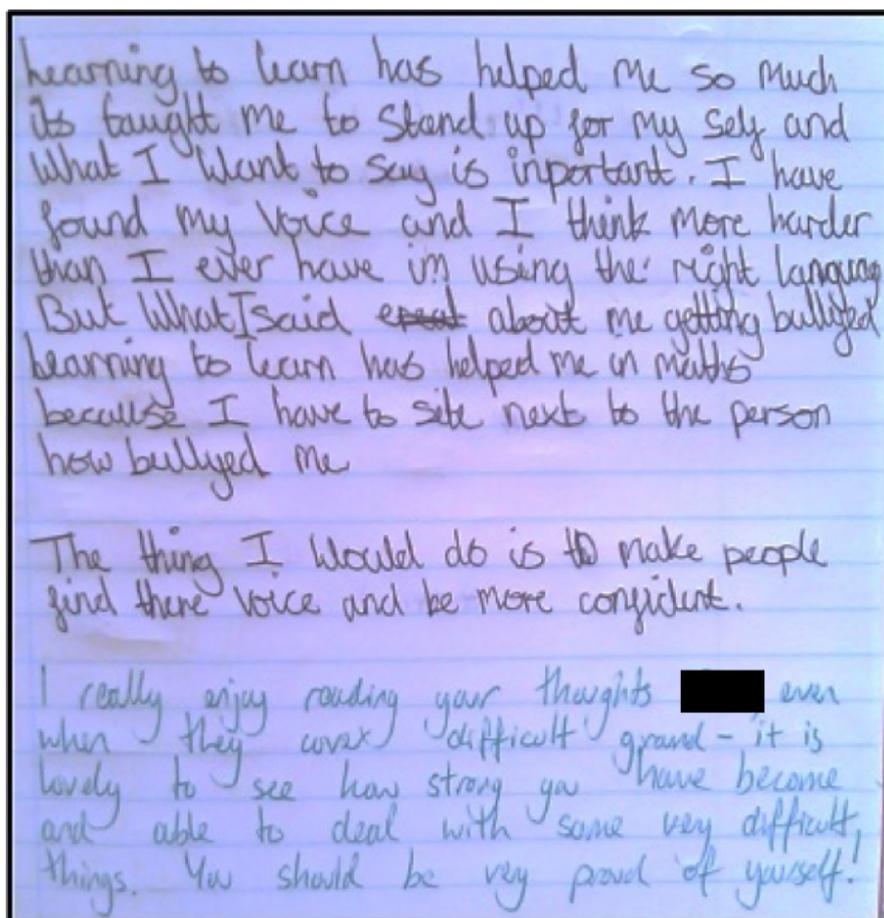


Figure 4.22. Reflective learning journal, excerpt 1.

The penultimate statement in Figure 4.22 is worth drawing out. Here, the student wrote about how *Learning Skills* had helped her in maths because she was now able to sit with someone who had previously bullied her. Elsewhere in the RLJ, she wrote about an instance when she helped that student with their work. This excerpt therefore provides a glimpse of one way in which knowledge and skills learnt in the *Learning Skills* taught course might transfer to other lessons – by helping them learn to navigate the potentially disruptive terrain of difficult interpersonal relations among their peer group. It is possible that this may have had the knock-on effect of helping the bully learn better in maths also.

Transfer

The theme of transfer emerged strongly within the RLJ data, although as noted above, in the entries sampled, students were prompted to write about whether they felt *Learning Skills* lessons helped them learn in other lessons in this section of their RLJ.

Learning Skills has helped me learn better in subjects because I've got a lot more confident. If I have *Learning Skills* before a lesson, I'm more calm (most of the time).

--

Learning Skills has helped me learn better in my other subjects because it has helped me communicate with the other people in my classes and helped me to be more confident when I'm talking in a large group of people.

--

Learning Skills has helped me to have a good memory, and now I have the courage to speak in all of my classes.

Here again, students identified that *Learning Skills* helps them learn better in other lessons because of a sense of greater confidence, improved communication and courage with regard to speaking up in lessons. Indeed, the majority the 16 instances of positive transfer referred either to confidence or to the ability to speak up in other lessons. Some students were able to elaborate further on the theme of transfer, as can be seen in Figures 4.23 and 4.24.

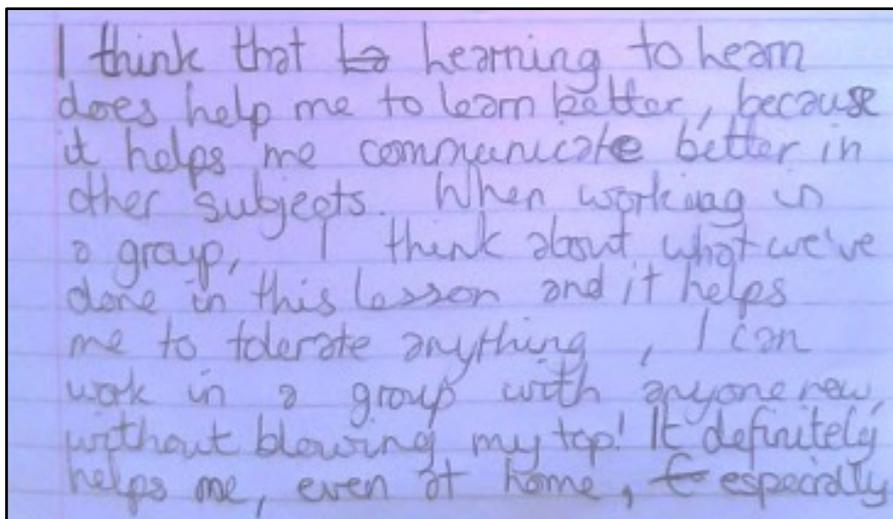
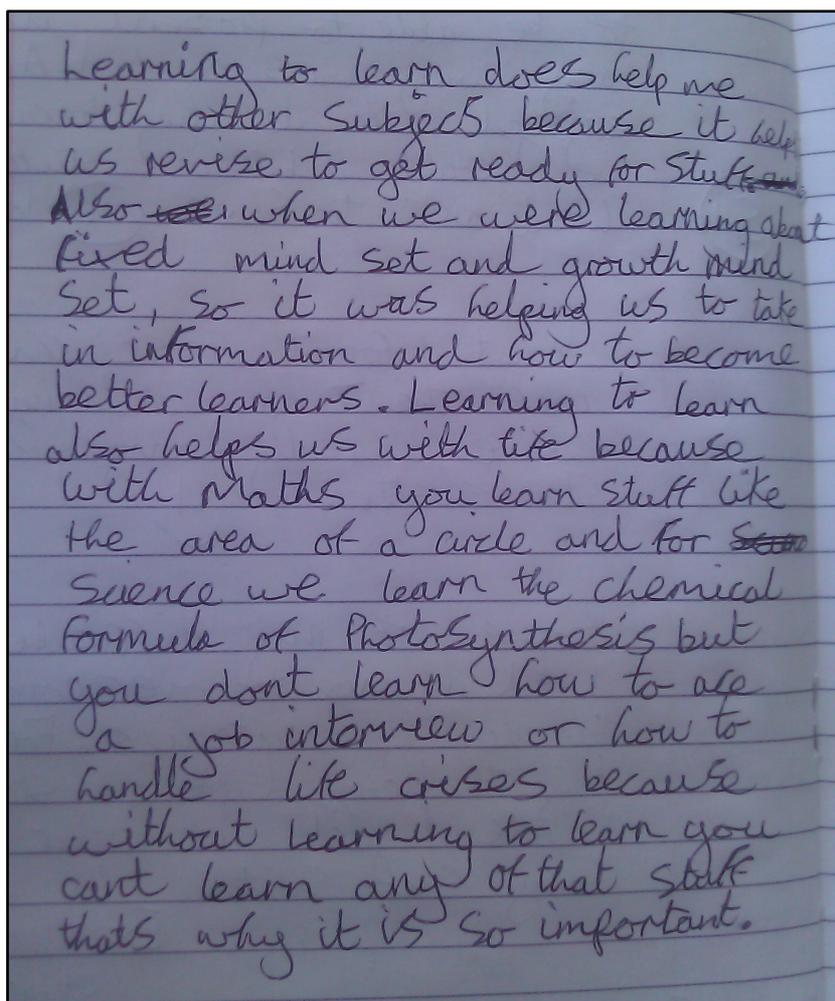


Figure 4.23. Reflective learning journal, excerpt 2.



Learning to learn does help me with other subjects because it helps us revise to get ready for stuff. Also ~~we~~ when we were learning about fixed mind set and growth mind set, so it was helping us to take in information and how to become better learners. Learning to learn also helps us with life because with maths you learn stuff like the area of a circle and for ~~sciences~~ science we learn the chemical formula of photosynthesis but you don't learn how to ace a job interview or how to handle life crises because without learning to learn you can't learn any of that stuff that's why it is so important.

Figure 4.24. Reflective learning journal, excerpt 3.

In Figures 4.23 and 4.24, we also start to see evidence of how knowledge and skills developed through the *Learning Skills* taught course transfer not only to other subject areas, but also to life beyond the school gates, helping the students learn “how to handle life crises” and “even at home”. However, other students were unclear about the transferrable aspects of *Learning Skills*, as can be seen in the following excerpts:

I haven't really thought about it. Maybe it helps in some ways.

--

Sometimes. Sometimes they're not linked.

--

Not really. Because we don't do a lot of class talking in other lessons.

Furthermore, a small number of students (three) were quite clear that *Learning Skills* did not help them learn more effectively in their other subjects, as can be seen in the following excerpts:

It doesn't really help with anything.

--

I think Learning Skills is fun but it hasn't helped in other lessons.

--

It doesn't help me. I think it is a waste of time.

As can be seen in Figure 4.25, even where students did not explicitly think *Learning Skills* helped them learn in other subjects, they did recognise that it “helps with listening skills and confidence in putting my hand up and saying something”. This is perhaps an example of implicit transfer, which could have been made more explicit to the students with better communication between teachers of *Learning Skills* and teachers of subjects across the school.

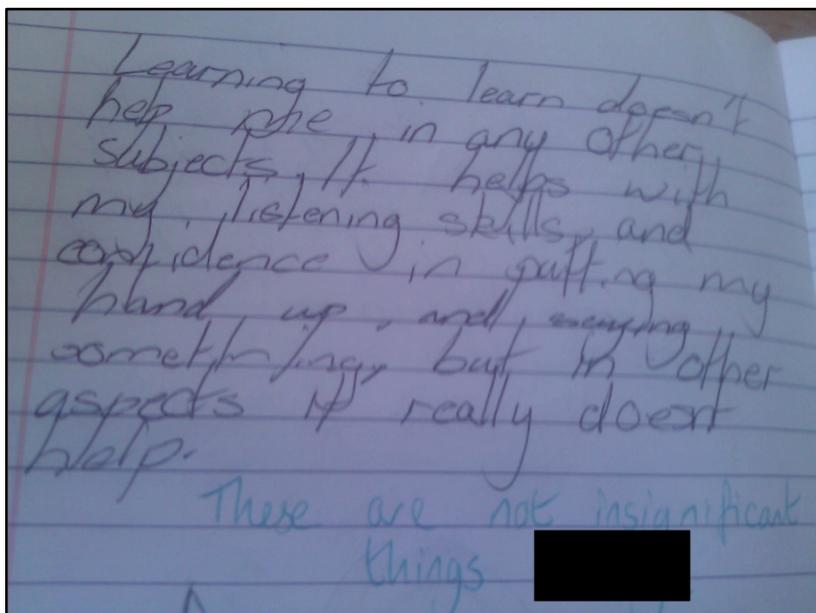


Figure 4.25. Reflective learning journal, excerpt 4.

General school

The least common theme to emerge from the RLJs was a group of comments relating to school life generally. As can be seen in the following excerpts, some of these comments related to interpersonal issues similar to those seen in the entries relating to the seven days challenge:

One thing I have found challenging this year is sitting with Student X and near Student Y.

--

Something I have found challenging this year is getting pushed away from my friends because I don't think anyone likes me any more.

--

The thing I am most proud of from my first year at Sea View is confidence because I'm a lot smarter I can speak up more.

A number of students wrote about the challenges they faced in terms of the amount and difficulty of work expected of them in year seven, as can be seen here:

Something I found challenging this year is some assessments that I have to do, because some of the questions are really hard.

--

I have found maths quite challenging this year because we are learning new stuff that we have never done.

--

Something I have found challenging this year is homework because there is lots of stuff to do and I have so much homework that I can barely fit any time in to do fun stuff.

Some of these students also wrote about strategies they had identified to help them overcome such challenges. Some of these related to fairly mundane issues, which students nevertheless felt concerned enough about to write about:

I used to get in trouble for not having pens now I have a pencil case that has four pens. I help my friends as well with giving them pens to borrow.

--

One strategy I have developed for overcoming difficulties is getting stuck in classes so I now ask teachers. This helps me because I can get on with my work and know what I'm doing.

Here, once again, several students wrote about interpersonal strategies they had developed to improve relations with their peers, as can be seen in the following excerpts:

One strategy I have developed for overcoming difficulties is trying to be nice to [*people*] when they are being mean to you.

--

The thing I have learnt is being nice to people that are annoying so I sit next to someone and I'm really nice and it annoys them.

--

One strategy I have developed for overcoming difficulties is I just walk away from my brother and sister when they are annoying me. This helps me because they know it is annoying me so they leave me alone.

Through this thematic analysis of the RLJs, we can see that by providing students with regular opportunities to reflect on difficulties they were facing, and to identify strategies to overcome them, the *Learning Skills* taught course and indeed the RLJs themselves had a transformative impact on student wellbeing and learning across the school.

Strengths and limitations

All students were informed at the start and end of the year that their RLJs may be used for research purposes; the right to withdraw and assurances relating to confidentiality and anonymity were also provided at these times. It was also made clear that the main purpose of the RLJs was to provide students with quiet time, once a fortnight, to reflect on how things are going, to think about what challenges they face and to identify potential strategies for overcoming such challenges. However, because the RLJ sessions were spread throughout the year, it is unlikely that students would have been explicitly conscious of the research context

when they were writing their entries. One of the strengths of using the students' RLJs is therefore that they provide a relatively unobtrusive method of observation.

Despite this, the fact remains that students were aware that their class teacher would read their journals – indeed, the dialogic nature of teacher/student interactions was a key feature of the RLJs. It is therefore possible that the students painted *Learning Skills* in a more positive light than they otherwise might have if their teacher was not going to read and comment upon their entries.

STUDENT INTERVIEWS

Rationale

As with the RLJs, the main reason for conducting student interviews was to explore the processes that take place between the input (*Learning Skills* provision) and output variables (academic attainment across the curriculum), with the aim of triangulating the findings from the primary outcomes of the study. The primary aim of the interviews was to find out a) what the students thought about the *Learning Skills* taught course, b) what they about their other subjects, c) whether they felt the *Learning Skills* taught course helped them learn more effectively in other subject areas, and d) if so, how.

Methods of data collection and analysis

Between December 2012 and July 2014, interviews were carried out with 31 students from *Learning Skills* cohorts one, two and three. Students were sampled at random, so as to represent a mixture of different demographic groups (e.g. PP; English as an Additional Language (EAL); Special Educational Needs and Disabilities (SEND); Able, Gifted and Talented (AG&T); label-free). In each case, interviews were conducted in groups of three or more students. Table 4.10 details when the interviews was conducted, and with whom.

Table 4.10. Student interview summary.

Date	Students interviewed	<i>Learning Skills</i> cohort
December 2012	3x Y7 (3 male)	3
July 2013	4x Y7 (2 male, 2 female)	3
July 2013	14x Y7 (10 male, 4 female)	3
March 2014	4x Y8 (2 male, 2 female)	3
June 2014	2x Y9, 1x Y10 (2 female, 1 male)	1 and 2
July 2014	3x Y10 (3 female)	1

Interviews followed a structured format; a copy of the student interview schedule can be found in Appendix 9. Students were pre-briefed as to the aims of the study and were given assurances with regard to anonymity, confidentiality and the right to withdraw. They were also asked to respond as honestly as possible. In each interview, as well as being asked about *Learning Skills*, students were also asked to share their likes and dislikes with regard to their favourite and least favourite subjects, about school in general and about life in general. The rationale for this approach was to frame the students' views of *Learning Skills* within the context of other curriculum subjects. As a teacher of *Learning Skills*, as well as the researcher, this approach was also chosen to mitigate any bias that may have been implicit through my questioning had I only asked about *Learning Skills*. However, the students' views of their other subjects, school in general and life in general are not of interest to this analysis, and only responses relating either directly or indirectly to *Learning Skills* are included in this analysis. In two of the interviews, additional questions were asked. In the December 2012 interview, I had just observed the students in a Science lesson, where the teacher had referred to ground rules for group talk, and so I asked them for their views on the use of ground rules for group talk in science. In the June 2014 interview, I shared the interim findings of the study with the students and asked them for their thoughts on the results.

As with the Habits of Mind interviews, the students' responses were transcribed and compiled into a single text corpus. This was then subjected to a line-by-line thematic analysis in accordance with the method outlined above.

Findings and discussion

The codes and themes to emerge from the student interview data are summarised in Table 4.11.

Table 4.11. Student interviews: codes and themes

Theme	Theme tally	Code	Code tally
<i>Learning Skills</i> positives	31	<i>Learning Skills</i> fun/enjoy	21
		<i>Learning Skills</i> helped/useful	5
		<i>Learning Skills</i> learn best in	5
		Intelligence / higher attainment	3
<i>Learning Skills</i> negatives	14	<i>Learning Skills</i> criticism	14
Transfer	19	Transfer	16
		No transfer / not sure	3

Learning Skills positives

The most common theme to emerge in this analysis was students saying positive things about the taught course, and the main code within this theme was students describing the lessons as fun, or saying that they enjoyed the lessons. Reasons given for the students' enjoyment of *Learning Skills* lessons included a sense of community involvement, the fact that the projects had real-world outcomes, learning to get along with others, taking part in philosophical inquiries and structured debates, the fact that they were allowed to choose which topics to research and discuss, meditating, writing in their RLJs, the fact that "it was mixed ability I felt like I could relax and not worry about my grades", and a sense that there was "less pressure to perform" in *Learning Skills* than in other subjects. As can be seen in the following excerpts, several of the students spoke at length about their enjoyment of *Learning Skills* lessons, providing a range of reasons:

I found it really fun and I like that... you pushed us to work with other people that I've never worked with, so I can see what it's like working with someone that I'd never usually work with. It makes you make more friends and you

learn that you might not always work with the people that you want to work with, but you have to get to like them or at least be civil if you want to get along. Because otherwise you won't be able to do what you need to do... I also loved the journal thing – I liked reflecting on my feelings and how I found the work in class so that you could read it and see what I needed improving on.

--

The bonding with friends. Making new friends because of the seating plans... The anorexia project because it was awesome and I'm still doing it now. I liked learning about something that was close to my heart. I also remember the meditating and how it let me focus more. I remember the building of the house and the hairdryer that blew it down, because I had a lot of fun with the people around me. It was kind of competitive with the people around me... Also, I remember the learning journals and you would feed back saying "oh I like what you've done here and well done for the wording." And you did really good feedback because you didn't grade it in the same way as other subjects, you used Merit and Distinction... and just gave us lots of detailed comments.

--

I like working in groups because you can bounce your ideas off the other people in the groups and you can just... I feel like I'm less pressured to work hard, because they're able to do some of the work instead of me doing all of it. And I like the fact that in *Learning Skills* you didn't really need to focus on what level we got – because I'm in top sets I feel a lot of pressure to get top grades, and I don't know... it's like I feel pressured to get a good level, and even though I do get good levels I still feel like it's not... I'd feel more comfortable if I didn't feel so pressured.

--

I loved the debating because we were set a side to be on, and we had to think of a way to agree with something that we disagreed with. I liked it because I felt challenged to think about what it actually was about and why I disagreed with it, and I wondered what it would be like coming from the other side. Knowing that I had to think about it from both sides, and that I had to agree with a point even if I really disagreed with it.

Two other codes come under the theme of '*Learning Skills* positives': these were either that *Learning Skills* was the subject they learned best in, or that *Learning Skills* helped the students, or that they found it useful in some way. In the following excerpts, two of the students describe how they learned "life skills", while one student (in the final quote) commented on the responsibility that came with some of the projects:

I believe that it's taught us life skills, like working independently but also in a team, and being able to organise your time well. Like the Christmas fair, because I could see there was a lot of stuff to get done, and there was a deadline, and you had to make sure everything got done at the right time.

--

I thought it was useful because it taught me how to work well in a team and it taught me how to solve problems.

--

The tasks that we did, like the £2 challenge and... the Christmas market... it was really good to have something to work towards. Like the Thorpe Park trip. And it helped us develop life skills. But it was quite a lot of weight on our shoulders, like we were only young...

In one of the interviews, the interim findings of the study were shared with the students (regarding the overall improved attainment; it was not considered appropriate to discuss the PP analysis with the students). Students were asked for their thoughts as to why *Learning Skills* might have led to higher attainment:

I think it's because when you're in *Learning Skills*, you learn how to do other things that you can use in other lessons. And you learn how to be more confident and what you learn sticks with you, and teaches you to act the same in other lessons.

--

Because... because you always made us say because. Like if there's a question and you think you know the answer, but then you go OK, so maybe it's not that, maybe it's this. And you can say, "well why is it that?" And then you go "Oooh, so actually it's this!" And then you go, "I'm smarticles!"

--

Well you sort of... it seems like they're able to take things from that lesson and then put it in all of their other lessons. With me, I wasn't really able to do that, but most people seem able to take it with them and use it in other situations. And even with me, it was a more relaxed environment in *Learning Skills* than in other lessons, it was just a different sort of environment. It was just more calm and relaxed, and it makes you able to concentrate a bit more because it's more quiet and I don't know, it's just easier to concentrate. It's just... we're able to feel more confident with what we're doing because there aren't any consequences if you don't do it, like we didn't really get levelled – it was really just "well done, you've done this" and it didn't focus on what you

haven't done. It's easier to learn how to do something when you're being told what you can do, and not what you can't do.

Learning Skills negatives

A number of students spoke openly about aspects of the *Learning Skills* course that they found challenging. Primarily, these comments related either to the paperwork involved in the year eight 'personal effectiveness' course, or to the staffing problems in the second year of the programme, where half the classes in the year seven course were taught by 'sceptical conscripts':

It got a little bit repetitious, we were doing the same folder work, paperwork, it just got a bit boring in a way. I feel like the teachers could have done a bit more to help us. We had to fill out quite a bit about how we were progressing, and I felt the teachers could have taken more time and effort to help us. I think we maybe made it more stressful than it was.

--

We didn't do anything, it was just boring. We had Miss X and Mr Y. We did the research projects but that's all we did. We never really got told what to do.

--

Nothing really. We didn't do that much. I remember coz we had Miss X. We only did the Zombie apocalypse for one lesson which I was disappointed about because I really enjoyed that.

Transfer

The student interviews were conducted at the end of the third year of the *Learning Skills* programme (i.e. in the summer term of 2013). The previous year, in the spring term of 2012, the Habits of Mind interviews had revealed that the transfer of knowledge and skills into other lessons was very limited. In the 2013 interviews, there was a much stronger sense among the students that *Learning Skills* lessons were helping them learn more effectively in other lessons:

It helped answering skills. Questioning skills. Like if someone tells you something, like in Science, I'll ask "Why does it do this? Why does it do that?"

--

The skill things, critical thinking and problem solving and stuff, we'd go over those in *Learning Skills* and it would... I don't know it just strengthened our ability to use those in class because we'd practiced using them so much in *Learning Skills* and it just became stuck in our heads, like it just became the way of learning. Like now, when I'm in a lesson I still do think about those... skills, and if I'm using them like working in a team, and working on my own, and making sure I don't give up, like I'm resilient and stuff, and I always make sure I try as hard as I can to achieve my goal.

--

I think it did because it developed my ability to manage a folder, because we pretty much have folders in every single lesson. So I'm a lot more organised and aware of my time in those situations. And like it helped me with marking and stuff, like we did a lot of 'what went well/even better if', peer assessment and stuff, and we do that a lot in lessons now.

--

Because you learn other lessons in *Learning Skills* without the pressure. Because in other lessons, say in English, they give you pressure – like “you have to do this, and you have to achieve this” and you're like... summarised in a group of people. Like 'some of you can do this and most of you can do this'. And you didn't have that in *Learning Skills*, because you're like 'Ah, the pressure is lifted off.' And... if you'd just been in *Learning Skills* and then went into English, you would do much better because you've just been in *Learning Skills* where you had no pressure.

Here again we find students talking about the how lack of pressure to perform in *Learning Skills* lessons helped them learn more effectively. There was also evidence in the student interview data of students transferring knowledge, skills, habits and attitudes not just to other lessons, but to their lives more widely, as can be seen here:

It's not just my lessons that it helps me in, it's also helped me in my assemblies to speak up more, it's helped me so I can debate more in class if I have a debate topic, and is someone's in class and they've said something then I can say 'wait a minute!' and I can say my like points, and then I can say 'I don't disagree with you I disagree with your point', like I can do the structured thing like where if you say 'OK I see it from your perspective but I am still outraged. I get that you think that, but it's all wrong to me, I have a different perspective of it'. And I could take him down more easily! I took him down that day.

--

I was really disappointed when I found out that we aren't going to have *Learning Skills* this year. But then I thought back to last year, and I thought

about everything that I have learned and how I can use that in other lessons. And it kind of sticks with you and then it becomes a part of you and your routine.

Here, we see evidence of the way in which the *Learning Skills* programme helped students develop the kinds of tacit knowledge as discussed in chapter two (p.65). Finally, two of the students interviewed did not feel that *Learning Skills* had helped them learn more effectively in their other lessons or were unable to say how, as can be seen in the following excerpt:

Not really. Because if I can hardly remember what happened it wouldn't help anyway. What I can remember it didn't have anything to do with what could help me with learning inside or outside of school. I just do what I normally do.

Strengths and limitations

Retrospectively asking students for their views on the *Learning Skills* programme was insightful, as they had had time to reflect on the course and the ways in which it had or had not impacted on their learning in other subjects. Students from each of the first three cohorts were interviewed, and the interviews provided an opportunity to garner the views from range of students (e.g. those identified as SEND, AG&T, PP as well as non-labelled).

As with the Habits of Mind interviews, the group student interviews were mainly structured, with some semi-structured features such as following up interesting avenues of discussion as they emerged. The fact that the students were interviewed in groups may have affected their responses, compared with if they had been interviewed individually. For example, they might have been more inclined to agree with one another, rather than responding with what they personally thought. There is also a possibility of bias in the responses of the students, since they were being interviewed by a teacher of *Learning Skills*. Even though I had not personally taught all the students interviewed, I was by then the head of *Learning Skills* and this may have affected the responses they gave. As a counter-measure, I began each interview by telling the students that I was interested in their honest responses, and that since their responses would be treated confidentially and anonymously, there was no reason to hold back on what they really thought. Finally, this was a sample of only 31 students from three cohorts of students. These responses should therefore only be seen as illustrative of, rather than representative of, the views of the three cohorts as a whole.

TEACHER INTERVIEWS

Rationale

Alongside the RLJs and student interviews, teacher interviews were conducted with a view to further triangulating the findings relating to the ‘space between’ the *Learning Skills* programme and the primary outcome variable of the students’ academic achievement across all subjects.

Methods of data collection and analysis

Throughout 2013-14, seven teachers were interviewed individually. One of these was the Headteacher, whose idea it was to implement the *Learning Skills* programme in the first place, and five were teachers of *Learning Skills*, each of whom also taught at least one other subject. Non-*Learning Skills* teachers were also invited for interview; however, only one volunteered to take part in the study (the Head of PE). A copy of the teacher interview guide can be found in Appendix 10. As with the Habits of Mind interviews and the student interviews, the teacher interviews were transcribed and compiled into a single text corpus. This was coded and organised into themes according to the TA process outlined above.

Findings and discussion

The teacher interview corpus was over 33,000 words in total. Following the inductive, bottom-up approach to thematic analysis outlined above, a diverse group of codes emerged from the teacher interview data; these were grouped together under three themes: origins of *Learning Skills*; comments relating to the taught course; and evaluative comments (see Table 4.12).

Table 4.12. Teacher interviews: codes and themes.

Theme	Theme tally	Code	Code tally
Origins of <i>Learning Skills</i>	107	Origin of <i>Learning Skills</i> at Sea View	56
		First heard of / thoughts on Learning to Learn	22
		Rationale for <i>Learning Skills</i>	17
		Early meetings of the <i>Learning Skills</i> team	12
The taught course	83	Lessons – content, processes, projects	26
		Early <i>Learning Skills</i> lessons	18
		Assessment	15
		Language of learning	14
		Mixing up the groups	10
Evaluating <i>Learning Skills</i>	139	Impact on subject teaching	25
		Closing the disadvantage gap	23
		Even better if...	20
		Independence / metacognition / knowledge	14
		Dedicated team	12
		Observing change in <i>Learning Skills</i> students	11
		Fear of failure	7
		Public speaking / confidence	6
		What went well?	6
		Older students spoon fed	4
		Taught vs embedded vs both	4

In order to focus in on the aspects of the teacher interviews with the most explanatory power in terms of evaluating the *Learning Skills* programme, further thematic analysis was undertaken to determine whether there was a common meta-theme evident within each of the three themes outlined in Table 4.12. Following several cycles of ‘constant comparison’, a meta-theme of ‘change/transformation’ was identified. I will now briefly review each of the three main themes to emerge from the teacher interviews, using the meta-theme of change/transformation as a lens through which to examine how the *Learning Skills* programme changed the way the school worked.

Origins of Learning Skills

The Headteacher and the teacher who led the *Learning Skills* department at the outset had worked together previously at a different school (School X), where they had implemented three iterations of similar year seven curricula over a four-year period. The first of these was known as the ‘Junior Model’, whereby year seven students had one teacher for the majority of their lessons. Reflecting on this early attempt, the head of *Learning Skills* commented that “from a getting-to-know-the-students perspective, it was fantastic”; however, “from a teacher workload aspect it was tough because each teacher had to learn the curriculum content of several other subjects very quickly”. As a consequence, the following year, this changed to a cross-curricular model, where students had different teachers but there was co-ordination between the different subjects. While the head of *Learning Skills* reported that this approach “felt more coherent”, the Headteacher commented that “I don’t think that was very successful – it is very difficult to manage and to coordinate.” Explaining how his thinking developed during this period, the Headteacher explained:

It started when I was at School X... we were trying to develop the skills young people need to be effective learners... just by following the national curriculum, those skills weren’t naturally developed because the way the national curriculum is set up, it tends to be content driven, and actually the processes of learning is something that... there are skills there that need to be taught discretely, I always felt. And... you need to actually make sure that you build them into the curriculum in a very identifiable way... So I decided that we would give some discrete time in the timetable, to actually ensure that through sort of project-based, cross-curricular learning students actually identified those skills. So the first thing is identifying what the skills are, and the second thing is creating the time and then creating the curriculum to make sure they’re actually delivered.

In the teacher interviews, it became apparent that the other teachers in the *Learning Skills* team were not familiar with the wider research on Learning to Learn when they applied to become a part of the team. However, the Headteacher’s vision for the programme was informed by research evidence, as can be seen here:

You know, I don’t think it matters which skills or attributes you identify... it’s the fact that you’re focusing on learning as opposed to performance. And there’s so much evidence, you know Chris Watkins’ stuff up at the Institute, it shows that schools that focus on learning get better outcomes than schools that focus on performance.

Here then, we can see that prior to the *Learning Skills* curriculum being implemented at Sea View, the Headteacher and head of *Learning Skills* had spent the previous four years developing similar approaches at their previous school. One key feature in both schools was the establishment of a team of dedicated teachers, as the Headteacher explains here:

At Sea View, the five hours or whatever that we give to *Learning Skills* is lost by other subjects, and that is a real pressure. And obviously, with the demand to keep the standards in English and maths going up... you know, it would be very easy to take time off *Learning Skills* and give it back to English and maths. So that's a real pressure. And I think the second pressure is, there's always a danger with a subject like *Learning Skills*, that it becomes the last thing that goes on the timetable, and it becomes a bit of a back filler for people who've got spare time on their timetable. Where it was successful at School X, and where it was successful when we set it up at Sea View, is that we had a dedicated team who wanted to make it work and who were prepared to give the time to plan and work together, way above what you would expect people to do. The fact that they would meet in the evenings over a bottle of wine to think about it and go 'let's get this right.' And I think unless you've got that dedicated team it won't work. I think you have to almost hand pick your teachers, because it does require very highly skilled teachers to make it work. And if it's just seen as an add-on to your timetable, people won't give it the commitment that it needs.

The importance of applying and being selected to be a part of the *Learning Skills* team was mentioned by each of the teachers interviewed for this study. As one teacher put it: "I wanted to be part of something bold and interesting... I remember feeling very excited about it". The excitement of the early meetings of the *Learning Skills* team was also mentioned by each of the teachers interviewed, as can be seen in the following excerpts:

We met in my classroom, and it was nice because it was... I remember it was just bouncing ideas around, and anything went – you know, there were very few restrictions about what we could and couldn't do. Everything was on the table, and there was a real feeling that we could make a difference, you know? And we had a budget, so we had a bit of money to play with, and we had the will from the senior team, especially the Headteacher who was throwing his weight behind it. And there was a real feeling of being let off the lead, being able to take the best of the ideas from the PLTS framework and get rid of what didn't work, and being able to put our stamp on it. That was exciting.

--

R: What do you remember about the early meetings/planning sessions?

T: I can remember them being very productive, enthusiastic, it was quite exciting. There were quite a lot of raised eyebrows I remember, at the beginning. And, you know, I have to remember that you guys didn't know me, I had come in from somewhere else and I was encouraging behaviours that were outside of the norm... I was encouraging you... and asking everybody's opinion and input. So I remember them being really creative meetings. Lots of ideas generated, lots of conversation. I remember there being, you know, they felt like a buzz, it felt like we were going to be doing something really interesting. And that you were on board. I never for a minute felt like I was dragging anybody with me. I felt like we were definitely all keen to do this kind of work.

In contrast with the excitement of the early meetings, the teachers' recollections of early *Learning Skills* lessons were somewhat more mixed. Largely, this stemmed from the fact that a key feature of the *Learning Skills* approach was to set the students off on long-term projects, and then to take a step back to allow them to struggle. This was a marked difference from subject teaching, where the teacher typically drives the learning process and intervenes as soon as a student shows signs of difficulty. An account of this early struggle can be seen in the following excerpt, from the interview with the Head of *Learning Skills*:

When you hand over the responsibility for learning to 11-year-olds, who have never had that given to them before, sometimes... they are just there with the responsibility but they don't know what to do with it. And that can take quite a long time. And so the nervousness that someone would look through the door and see some children really actively engaged and purposeful, and others just staring out the window because they're not quite sure what to do... it takes quite a lot as a teacher to tolerate that feeling... especially at that time... there were learning walks and mock Ofsteds and we were in special measures and everybody was looking at us all of the time. So I remember it being something that I was conscious of, of staying with it and trusting in the process. Because to the outside, it could have looked too risky. Well, what if they don't come through? What if they don't pick up their responsibility and learn how to run with it? What if they don't thrive as a result of this experiment? So I remember living with that, that being kind of on my mental dashboard a lot. Because I was asking other people to do the same thing. But fortunately, that didn't last very long because by Christmas... by the second half-term, there was a visible difference, even in the students who had really struggled, who had been like rabbits in the headlights or the whole of the first half-term. There was kickback from some students who had been very good at being good at school, at primary school, and so they knew how to perform for their teachers, they knew how to write beautiful essays and underline the title and behave and line up. And they were good at school. And then they were being told that those things were not valued above other things, and that they had to learn to get along with other students and they had to learn to plan and they had to... to think for themselves. And that felt quite frightening for some students. They didn't enjoy that. They

didn't know how to be good at that. They didn't know what to do for their teacher. So there was a real... that first half term was quite hairy, until it settled.

The notion that *Learning Skills* lessons enabled teachers to spend more time getting to know their students and to build relationships with them was highlighted by several of the teachers interviewed, as can be seen in the following excerpts:

It was all about relationship building... It was about gaining their trust, and making them feel comfortable within the classroom, making them feel comfortable and confident about their learning. So the classes were always really positive, and we knew that... we knew how to identify students who weren't confident or comfortable, or who had those particular issues. And we knew how to approach them, and we had the time to understand them individually as learners, and to help them with those particular learning needs. Which was exactly what *Learning Skills* really was great at.

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After three years... I felt that they trusted me more, I felt that they were more proud of the school, because they had been doing things and they had been listened to. So the response and the openness learned was very different... It's also the fact that because I had them for a few lessons, you can build up those relationships and get to know them underneath a bit better.

When asked to share examples of *Learning Skills* lessons that they had found to be particularly useful or effective, a number of teachers singled out P4C sessions. Interestingly, several of these comments referred to these sessions being as useful for the teachers as for the students, as can be seen in the following excerpts:

I saw the value in it very quickly, for noticing how long some students need in order to work out what they think. And how we almost never allow them that time and space in a normal lesson. So I learnt a lot from P4C as a teacher. I learnt how to wait and how to notice, how to listen and participate rather than be a leader. So I found it quite a powerful tool for me, for my personal development as a teacher. As with all things, some students liked it more than others, but they got a lot from it because it created a safe space where they could say what they wanted and it was fine. It was just talking, shooting the breeze, asking the big questions, muddling through things together, understanding that not everything has a right or wrong answer. That's a big thing for young people to learn.

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I used to get great value from P4C, we used to really enjoy it. Again, it's one of those things you have to persevere with. It's weird for them to explore ideas openly, especially secondary school, without fear. The very nature of P4C is delving into what they really think about things. And there's an element of school which is "be careful not to show what you really think about things, because then people will know how to hurt you". It's a bit like prison, without wanting to overdramatise things. But it is important to recognise that, you know, it's a big deal for a students to really open up and talk about big things – especially big things that they might not know very much about, you know, their ideas are only just really forming. But the more that you do it, the more you build trust in the class. And once trust starts to come, you get more from the students, and then it kind of snowballs... once a class is up and running with P4C, it just ups and runs... it's amazing.

This idea that *Learning Skills* lessons helped students overcome their fear of failure emerged strongly in two of the teacher interviews. The main way in which the *Learning Skills* course helped students to overcome their fear of failure was to set them ambitious goals that were beyond their capabilities – in the realm of "I can't do" that lies beyond the ZPD or the IDZ – and then to support them in meeting that goal. This was a feature of each of the half-termly projects; most often, this related to public speaking. In the following extended excerpt, a teacher describes an incident in which a student overcame their fear of public speaking:

Student X had a severe case of dyslexia and behaviour issues, and was a low achiever in all of his subjects and constantly getting into trouble. So that was his background. And he was... I think he didn't have any confidence... in terms of his reflections, he was really insecure and had a very low sense of confidence, not just with his learning, but in life, with his parents, with himself as a person... yeah, that was Student X. So on the very first day that we had our assembly presentations, I think it was to their same year group... he showed up, but then he disappeared 10 or 15 minutes before they were due to start their presentation. And everybody had their own specific roles, and they had rehearsed this. And Student X hadn't shown any sign of not wanting to do it or nerves... if you met Student X, he was the type of person who wouldn't show that he was nervous, he was always quite well spoken and always had something to say. So you would think that he was quite confident, but... anyway, I was surprised. So he disappeared because the assembly hall was filling up, and he was nowhere to be found. Some students and a couple of teachers went to look for him around the school building, and he hadn't turned up. I think a few minutes before, another student, I think it was Student Y, he said that he would step up – his exact words – and he would take Student X's place. So as soon as they were about to start, Student X turned up, and he was bright pink and just really flustered and looked frustrated. And I was like, 'What's brought this on? You can do this, we've rehearsed this many times – this is your opportunity to stand in front of everybody and just do something amazing'. I think he really wanted the time to talk it through, but we didn't have that time... So for that assembly he refused to go up and speak.

Somebody else had to speak on his behalf. And the following day... we had a whole week of presenting to every year group, so I think after seeing the first presentation and then overcoming his nerves he agreed to go up on the second assembly. And it was great. I think he was a little bit nervous, but everybody was just really supportive. I think he needed to do something like that just to prove to himself, and I think to everybody, that he was capable of speaking and memorising his words, and sharing his learning journey with everybody. And he spoke about his challenges and how he overcame those. That was a really big moment for him. So the fact that he had downright refused to speak, and he became quite aggressive about it, he disappeared and then he came back and then he refused. And then... I don't really know what happened for him to change his mind, I think he just needed time and to see everybody else stand up and feel the sense of achievement afterwards. Maybe he wanted a sense of that as well. But he did agree to do it in the following assemblies, and it was perfect. It was really perfect.

Here, we can see how a number of factors – extended projects, high expectations of students with low prior attainment, and a culture of patience and support – enabled a student with low prior attainment and a “low sense of confidence” to achieve something he thought he was incapable of. It should be recognised that this combination of factors was in place for all students in the *Learning Skills* taught course, and several of the teachers shared similar stories of students overcoming their fears to achieve things that they previously felt were beyond them. This idea of overcoming the fear of failure is also evident in the following excerpt, where a teacher reflected on how teaching *Learning Skills* had shaped their subject teaching:

R: Do you think teaching *Learning Skills* has had any impact on the way you teach science, and if so, how?

T: Massively. Massively... so many things. Even the language of how I teach. I don't think a day goes by where I don't refer, whether to it's to the whole class or to a student individually, to how fear of failure is paralysis for the brain. How just being afraid of getting things wrong will stop you learning faster than anything. How true confidence comes not from getting things right, but from being prepared to be wrong. I use that language pretty much every day, in pretty much every lesson, to reinforce that it's only from making mistakes that we learn. And by using this language myself, I'm constantly promoting metacognition in my students. And when I see it in them, when I see that fear in them, I can remind them that they are afraid, and I can point out “look what the fear has done to you, it's made you sit in front of a blank bit of graph paper for 20 minutes. The person next to you has had a go, and the people who have a go and get it wrong and have a go and get it wrong and have a go, will get it right eventually. If you sit in front of a blank sheet of paper, you will never get it right.” It's all about referring to that

fear of failure, and getting them to think about what that will do to their learning. It's just become second nature to me. Because it's true. It's like in *Dune*, isn't it? Fear is the mind killer.

This notion that teaching *Learning Skills* changed the way teachers taught their subjects was echoed by each of the teachers interviewed. This is a small but very direct way in which the *Learning Skills* taught course may have transferred into other subject areas – not just through the students and whole-school measures, but through the *Learning Skills* teachers themselves, in their own practice and in the impact they had on teaching within their departments and across the school.

One of the most significant transformations to happen within the *Learning Skills* course itself was with regard to assessment, as can be seen in the following extended exchange with the Head of *Learning Skills*:

T: The first year, we asked the students and the teachers to... collect evidence. So the students had scrapbooks, and if they had done something to develop their creative thinking or their team working skills, we would ask them to collect evidence. So that would either be evidence from their teacher, or photographic evidence, or something they had written themselves. And they would literally stick it into a scrapbook, or make a short video using flip cameras for their portfolio. There were lots of different ways to collect evidence of the progress they were making. And it very quickly turned into... I mean, the evidence they were collecting was great, but our obsession with counting the pieces of evidence so that we could put them into a graph so that we could present it to SLT was problematic, because we started counting them and then we realised very quickly that the ability and the interest of some children to collect evidence was not indicative of how well they were developing their skills, but of how well they could collect evidence. So we abandoned that method.

R: So what came next?

T: Well, we had this expression "you don't make a pig fatter by weighing it". We talked about how it's more like growing tomato plants... you know, a tomato plant is a good tomato plant when it starts to bear fruit. You don't dig it up every six months and get the ruler out to measure how much it's growing... We've come to understand that it takes time to grow a tomato plant, and that it needs nourishment and it needs water and it needs light... And I always felt that a child needs time to bear fruit, and that you don't need to put something in and then measure it straight away to understand that the thing that you had done would have an impact. We just needed to leave these children – like put the right

nutrients in, the right time and create the right conditions in order for them to bear fruit. And you could see... they were taking other tests all the time. The same students that I had in *Learning Skills*, I also had in French, I also had in PE, and they were also going to English, maths and all their other subjects. If they were becoming more self-managed, you would be able to see that in fewer PE kits being lost, and being able to manage their emotions. You would be able to see it in the number of homeworks being handed in on time. You would be able to see and measure the impact this course was having on their general educational progress. Because that's what it was designed for. It wasn't designed to just get better at those particular things, it was to apply them to their whole life. And to become more successful at life. And so if you started to look at the impact in the other subject areas, you would be able to see the progress.

As a consequence of these early attempts at assessing *Learning Skills*, combined with a belief that what they were doing would “bear fruit” in the end, after the first year, the *Learning Skills* team abandoned any attempt to try to measure *Learning Skills* itself. While some aspects of the course were assessed – speaking and listening skills were assessed formatively, for example, and students received a grade for their projects each half-term – the use of level descriptors as a way to measure progress within *Learning Skills* was abandoned. As seen in the student interviews above, a number of students stated explicitly that they were able to benefit from *Learning Skills* precisely because it wasn't assessed or leveled in the way other subjects are, and that therefore there was less pressure to perform in a certain way. This can also be seen in the following excerpt, from the perspective of a *Learning Skills* teacher:

R: Why do you think the Pupil Premium gap closed?

T: Because sometimes, when the kids that are not performing well, it's because they think they are no good at anything. And this gave them the opportunity to feel that that were good at something. And they actually felt that people care... I think that the important thing was that they didn't feel like they were being assessed in a particular way. So they just go for it because they're not so afraid of failing. Because they weren't being assessed in a way that can be seen in black and white. Does that make sense? I think it builds their confidence and... they think, “I might not be good at this, but I am good at that, and I'm actually part of this team and together we're doing something, and so it will be all right”. And it actually made them feel that they were part of the school, that they were doing things for the school and it got them to like the school better. And it makes their attitude in the classroom more relaxed... I think that was the big thing.

The third and final pattern to emerge from the teacher interviews was diverse group of codes that were essentially evaluative in nature. Applying the meta-theme of transformation to this theme, a number of the teachers commented that they had noticed changes in the students as a consequence of the *Learning Skills* programme. This is particularly apparent in the following extended exchange, with the Head of PE:

T: I came to this school from a school where attainment was higher and kids were more independent. When I arrived here, I found that all the kids expected to be spoon-fed. There was no independence. Even now, with the year 11s, they still crave that spoon-feeding. Because they haven't had any [*Learning Skills*]. They even struggle to start a piece of coursework off. I have to... put a page up on the board where I put the title up for them, I show them how to lay out their work, I show them how to structure it with like an introduction, their research, findings, opinions, their conclusions... they just don't know how to structure their work. I even have to start their sentences off – like they don't even know how to start a sentence...

R: How is your experience different at Key Stage 3?

T: It's huge. The type of feedback that they give to each other is much more constructive, it has more meaning and it's clearly not made up. It's accurate and demonstrates that they've really thought about what they're saying. I've got sentence stems that I take with me to some of the lessons and I don't need them, or if I do they only need to use it once and then they can transfer it and use it again and again in some of the other practical activities. In KS4, when we're teaching teamwork and leadership skills, there's usually the same students who do most of the leadership, whereas in KS3... there is contribution from all students. And they don't seem as scared to get things wrong. They're much more forthcoming, they give it a go and they are more critical of each other. Because it's a practical subject, some of the dialogue is in very short bursts. So we do practical activities and then we call them in and fire say three questions at once, and then say discuss. That could be in twos or in groups of six sometimes. And they usually have a time limit of say 30 seconds to discuss it with each other. Sometimes with KS4 they just sit there and just talk about something else, or they just sit there, but in years seven, eight and nine they have good discussions they stay on task... nearly all of the time, coming up with the appropriate answers.

R: Can you think back to Key Stage 3 before Learning Skills? How does it compare?

T: Asking them to discuss and give feedback. The feedback would always be so basic. Say in gymnastics, they would just say 'she didn't point her toes' – they'd just say what the person before them said. Whereas now, they all say different things and they all seem to want to say something different, they watch to say something different that they've observed. In terms of leadership... my year seven, eight and nine, even leading a warm-up, they could do that a lot better than the year 11s. Working together to set up equipment as well. That was a major problem when I came to the school, to ask them to set up a 10x10 square, it would take them a long time to do that, but now they are much more doers. In one lesson... a few weeks ago, was the feeling I had where I just facilitated the lesson, I didn't have to even be there really! And another teacher came over, and it was year seven girls, and they had to design a warm-up... they had to teach it, they had to organise themselves and agree on their own roles within it. They did this so quickly, they then led another group through the warm-up activity, and once they'd finished the other group, they had a big group discussion about what level each student achieved on their leadership skills and why they then each had to give that feedback back to each kid who did their warm-up activity. And the other teacher who came over couldn't believe the quality of the feedback. It included grades, and advice as to how to improve... Each session, I gave minimum instructions to them. You know, I didn't give them much to go on at all. And they just exceeded my expectations, they were just brilliant. I definitely think that *Learning Skills* has been a big influence in that. I also think the way in which we deliver PE has been a big influence on that, which does focus more on them leading each other, and using the whole school INSETs and whole staff meetings about Learning to Learn, using that within PE and discussing within meetings how to do it in PE.

As the only teacher who replied to the request for interviews from teachers across the school, it is important to recognise that this teacher's views may not have been representative of all teachers across the school; it is likely that she only volunteered to be interviewed because she had these views, and wanted to share them. However, this notion that students changed as a result of the *Learning Skills* programme was also mentioned by the Headteacher, as something that he had noticed, as had Ofsted inspectors:

I think it operates on different levels, because certainly teachers have noticed that children that have been through *Learning Skills* are better equipped to deal with the approaches that we have adopted now at Sea View towards learning, like group work and more independent learning. They seem to have the skills built in because they've been working on them. So that's on one level. I think it's also affects the students, their attitude to learning, that they're more positive about learning and why learning is important. And I think that comes through... certainly in the last Ofsted inspection when they spoke to the

students... because the lead inspector was not convinced by the whole idea of Learning to Learn. I think she was prejudiced against the whole programme. And... it came through very clearly when she spoke to the students that they really valued it, and that they could identify what the qualities of a good learner were. Because we'd identified what they were... They're starting to develop a vocabulary of learning, and I think that's going to have a profound impact in the long-term.

The interviews with the *Learning Skills* teachers took place after the interim analysis had been carried out. As we saw above, the interim analysis at the end of year nine revealed that in the *Learning Skills* cohort, the PP gap (all subjects combined) was just 2%, compared with 25% in the pre-*Learning Skills* control cohort. The idea that this change was caused at least in part by the *Learning Skills* curriculum featured strongly in the teacher interviews, as can be seen in the following extended excerpts:

R: Why do you think the Pupil Premium gap closed?

T: I think it boils down to time. These students had the time to develop themselves in ways outside of just academics. So if they are PP students or SEN students or any other cohort of disadvantaged students, then they have a range of issues that they are bringing in to the classroom, and of course that has an impact on their learning. So the students need time to be able to learn to control all of these issues within their lives and feel good about themselves, because they can then start to develop their own learning... I think *Learning Skills* gives them the time that they need to gain a sense of confidence, reassurance, trust. These are all the issues that are affecting their personal lives, and these are the issues that are affecting their learning. With *Learning Skills*, there's time for them to build positive relationships with their teachers or even their peers. Otherwise they're just going in to a classroom, a subject where they don't have that time and they are expected to achieve what other students are achieving, and it's really difficult for them. So I think time is definitely one of the most important factors for these students. For them to just have the time to process, and have the time to develop their self-esteem is really important. And... I think *Learning Skills* itself is just a really positive curriculum... because it's easy to see that the student is right at the heart of the curriculum... there's no denying that. I think all of the projects and objectives of *Learning Skills* are there to promote the person, the individual. Not just the learner but the person. So I think *Learning Skills* supports these students more than any other... Because they come in to school with a whole range of issues and I think they need that support, they need that time. And they need somebody to be able to introduce them to their own learning process so they can also take control. I think control might be an important aspect as well.

Where they might not have control in other areas of their lives, they can perhaps come in to the classroom and some of the projects are 100%, or at least 95% controlled by them. And the sense of ownership might give them a particular emotional release or some sort of response that that might make them feel a bit more positive over their lives, that they have some sort of control over something. I think these students, once they get over that hurdle of processing their personal issues, whatever issue it is that they are battling... once they get over that, if they ever do, then they are absolutely amazing and they can achieve anything they want to achieve... they are ambitious, they do want to learn, they do want to be really positive and supportive and they love their peers... you know, friendship is the most important thing and they would do anything for their peers... these are some really great individuals. So I think *Learning Skills* did some amazing things for a lot of students from disadvantaged groups.

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R: Why do you think the Pupil Premium gap closed?

T: In my experience, disadvantaged students... the ones that really need education are the ones that can dismiss it most readily, because they don't value it as much. The ones that come from middle class backgrounds already value education, and they grab it with both arms. And I suppose the whole system is rigged in favour of academically minded people. It just is, especially now with the new GCSE system. It is rigged for academically minded kids. And the academically minded kids tend to come from more middle class backgrounds, and more... affluent families. That's how it is. And people from disadvantaged backgrounds don't tend to be naturally academic. Of course there are exceptions, you know... I feel uncomfortable generalising like this, but I suppose it's the nature of the question I've been asked. And so where academia doesn't come naturally to children, they need a system that helps them to engage with and meet... academic subjects on their terms. And that's what *Learning Skills* does. It gives them the tools they need to handle a system that does not come naturally to them, and... that levels the playing field. Because they can now study and achieve alongside people for whom the system does come naturally.

To conclude this section on a more critical note, in the interview with the Head of *Learning Skills*, issues relating to staffing were discussed:

R: You mentioned issues of staffing earlier... what was happening there?

T: So we had a dedicated team in the first year that had been interviewed, that were on board and working hard and enjoying it. And then... at the end of the first year... we lost half the team. They got pulled back into their subject areas, because there were staffing cuts going on. By year

three it was rectified, but it was too late to do anything in year two... So I was asked to suck it up and manage as best I could, and then I would get it back for year three. So that's what we did.

R: What was the impact of these staffing changes on the students?

T: Huge. It had a huge impact.

R: How?

T: They lost a dedicated staff who not only understood what they were doing but believed in it with their heart and soul, and they were replaced by cover teachers who didn't want to be there. Who were given five hours a week of blank canvas to fill up with their passion and enthusiasm for their subject, and they didn't want to do that. They wanted lesson plans and boxes to tick. They were good teachers of their own subject but they did not want to be doing that, they were given it because they had time to fill on their timetable.

As mentioned above, this unexpected disruption to the quality of *Learning Skills* provision in the second year of the programme enabled a secondary analysis to emerge, to examine the extent to which *Learning Skills* provision in year seven predicts student attainment at GCSE. As predicted, there was a dip in attainment when *Learning Skills* cohort two sat their GCSEs, perhaps as a direct consequence of the staffing issues when they were in year seven. While it may seem to be a bold claim that staffing in year seven could have such a direct impact on GCSE attainment five years later, it is worth reflecting on the results of a recent study that found that the quality of teaching in reception class was “significantly related to later attainment at age 16” (Tymms, Merrell & Bailey, 2017).

Strengths and limitations

The teacher interviews were conducted after the *Learning Skills* programme had been running for between three and four years. As a consequence, teachers were able to reflect back over a long period of time and the changes they had seen. Teachers were shown the interview schedule in advance, so they had already given some consideration to what they would say. Therefore, the responses provided by teachers were more considered and in-depth than those elicited in the Habits of Mind interviews, for example.

A major limitation with regard to the teacher interviews relates to the sampling of non-

Learning Skills teachers: while teachers from across the school were invited for interview by email and in a staff meeting, only one teacher volunteered to do so. As a self-selecting sample of one, it is unlikely that this person's views were representative of the teaching body as a whole. However, the data emerging from the teacher interviews is not presented here as primary, but rather supplementary, as a means through which to triangulate the findings from the other strands of the study.

To summarise, in the RLJs, the student interviews and the teacher interviews, a clear pattern is evident whereby teachers and the majority of students were able to articulate a number of ways in which the *Learning Skills* taught course helped students learn more effectively, and so achieve higher grades, in their subject learning throughout the school.

CHAPTER FIVE: DISCUSSION

In this final chapter, I will summarise and synthesise the study's findings and consider some further strengths and limitations that were not addressed in the presentation of the individual data strands in chapter four. I will then outline some questions relating to causation and the generalisability of findings, considering three alternative ways in which the findings of this study might be interpreted. I will also discuss the significance of this study with reference to some of the literature reviewed in chapter two, reflecting on how this thesis contributes to knowledge and understanding about Learning to Learn. Finally, I will outline some ways in which the implementation and evaluation of *Learning Skills* could be improved, should it be scaled up to determine whether these findings can be replicated in other schools.

SUMMARY AND SYNTHESIS OF FINDINGS

In this section, I will consider how the findings from the eight strands of data collection and analysis presented in chapter four relate to the five research questions, using a deductive approach where each research question (RQ) is treated as a theme.

RQ1: What was the relationship between Learning Skills provision and student attainment in subject learning in all subjects?

The most powerful evidence to suggest a link between *Learning Skills* and subject learning comes from the comparison of student attainment in subject learning at three and five years, comparing the control cohort with *Learning Skills* cohort one. This analysis of the primary outcome (attainment in all subjects across the curriculum) reveals a consistent picture of accelerated subject learning among the treatment cohort, compared with the control group. When one considers that the control cohort had 400 more lessons of subject-based learning throughout KS3, the finding of improved attainment in subject learning among the treatment cohort is all the more noteworthy. Of course, it is important to recognise that correlation (i.e., that results were significantly higher in the *Learning Skills* cohorts) may not equate to causation. However, the hypothesis that the *Learning Skills* programme was at least partly responsible for the subsequent gains in academic attainment in the treatment cohorts is supported by the findings from the ATL analysis, the psychometric questionnaires, the Habits of Mind analysis, the RLJs, the student interviews and the teacher interviews. While a small

number of students questioned the value of *Learning Skills*, the RLJ and student interview analyses reveal that the majority of students thought that *Learning Skills* had impacted positively on their subject learning in other subjects, with many of them able to articulate how. Although a number of mechanisms of transfer were identified, the most common was that students reported a sense of increased confidence with regard to speaking in other lessons, meaning that they were able to participate more in lessons by asserting themselves and making their voices heard. Each of the teachers interviewed also reported having observed more proactive learning behaviours among *Learning Skills* cohorts, compared with older students at the school. Teachers were able to articulate a range of ways in which *Learning Skills* helped students learn more effectively in other subjects, and why it may have been particularly beneficial for students from disadvantaged backgrounds.

RQ2: To what extent does the quality of Learning Skills provision in year seven predict student attainment at GCSE?

Due to the staffing changes that resulted in “sceptical conscripts” teaching *Learning Skills* in the second year of the programme, it was possible to test the central hypothesis further. If the quality of *Learning Skills* provision in year seven is a predictor of academic attainment across all subjects at GCSE, then we would expect to see a spike for cohort one, a dip for cohort two and then a spike again for cohort three. This is precisely the pattern of results that was observed. When *Learning Skills* was taught by specialist teachers, the results significantly improved; when the quality of *Learning Skills* provision was compromised by staffing issues, the results dipped; and when the specialist team was restored for cohort three, the results increased again. It is not clear from this analysis whether this relationship was causal; since I had left the school by this time, I only had access to anonymised data for 2017 and so it was not possible to determine whether this dip in results correlated with those students taught by the non-specialist teachers in year seven. However, the findings do align with the concerns of the teacher who led the *Learning Skills* department at the time of the staffing cuts, who expressed deep concern about the motivation and commitment of the “cover teachers” who were “good teachers of their own subject but they did not want to be doing that, they were given it because they had time to fill on their timetable”.

This same pattern was also observed in the ATL analysis, which revealed a dip in year seven ATL in the second *Learning Skills* cohort. Taken together, there appears to be an association

between the quality of *Learning Skills* provision in year seven, ATL scores in year seven and GCSE attainment five years later. These findings also align with the notion of the “golden thread” discussed in chapter one, a theoretical model that explains how *Learning Skills* provision in KS3 might lead to improved academic attainment across all subject areas in KS3 and 4.

RQ3: *What was the relationship between Learning Skills provision and the attainment of students eligible for the Pupil Premium?*

The baseline analysis revealed that in the *Learning Skills* treatment cohort, there was a statistically significant PP gap at entry to the school. This is in line with national trends, whereby students from economically disadvantaged backgrounds typically achieve lower grades than their peers. In the control cohort, the gap went the other way at entry to the school, with students eligible for the PP significantly outperforming their peers. At the end of year nine, the PP gap in the control cohort was 25% (all subjects combined); in the *Learning Skills* cohort, the gap was just 2%. When one takes into account the differences at baseline, the improved attainment of PP students in *Learning Skills* cohort one is even greater, since they started from a position of greater disparity than the control cohort. This pattern of a significantly reduced PP gap in the *Learning Skills* cohort was also evident in the year 11 GCSE analysis, where the PP gap in the control cohort was 25.7%, compared with 8.5% in the treatment cohort. This represents a reduction in the PP gap at GCSE of 66.9% from one cohort to the next. In the interviews, teachers spoke at length about why the *Learning Skills* programme may have been disproportionately beneficial for PP students. Reasons given included the fact that *Learning Skills* was not assessed in the same way as other subjects, meaning that there was less pressure to perform in *Learning Skills* lessons compared with other subjects; the time given to project-based learning, and the way this allowed strong relationships to form between teachers and students; the fact by focusing on speaking and listening rather than writing, the students were on a much more level playing field in terms of ability than if it had been focused more on written literacy; and the fact that students were taught in mixed ability groups, enabling them to learn from and support one another.

As mentioned in chapter four, although the attainment of the control and treatment cohorts was broadly similar at entry, there was a small but statistically significant difference in the KS2 English SAT results, with the treatment cohort having performed better than the control

cohort (average score 3.79 vs. 3.97). It is therefore possible that the subsequent differences in the attainment of the two cohorts may have been due, at least in part, to this difference at baseline. However, there are a number of reasons to believe the significant gains in subject learning that followed were driven more by the *Learning Skills* programme than by this difference in English SAT scores at KS2. First, although there was a difference in English, the KS2 maths and science results were lower in the treatment group than in the control group at entry. However, the *Learning Skills* cohort subsequently performed significantly better in these subjects, compared with the control group. Furthermore, as shown in Figure 4.14, there was a statistically significant difference in the baseline KS2 English SAT scores of PP and non-PP students in both cohorts. However, in the control group, PP students outperformed non-PP students at entry to the school, bucking the national trend. In the control group, by the end of year nine there was a large, statistically significant attainment gap in English between PP and non-PP students, in favour of non-PP students (a difference of more than 30% in the proportion of students hitting or exceeding target; $P < 0.001$). There was therefore a clear slowing down in the academic progress of PP students throughout KS3 in the control cohort, relative to non-PP students. In contrast, in the treatment cohort, by the end of year nine the gap had closed so completely that PP students were outperforming non-PP students in English (a 6% difference in the proportion of students hitting or exceeding target, as seen in Figure 4.3), as well as in several other subjects. Looking at the PP gap analysis more widely, the gap at the end of year nine was 25% in the control group, and just 2% in the treatment group. This is far greater than the fairly modest difference in the attainment of the two cohorts in terms of KS2 English SAT results. It should also be noted that as well as closing the gap, the treatment cohort also performed significantly better *overall* than the control cohort, with significantly improved attainment even among non-PP students. Therefore, in contrast with interventions that target only PP students, the *Learning Skills* programme appears to have closed the PP gap in an equitable manner, with all students gaining from the programme and disproportionate gains among students from more disadvantaged backgrounds.

RQ4: To what extent did the knowledge, skills, habits and attitudes developed through the Learning Skills programme transfer into other subject areas?

The success of any taught Learning to Learn intervention rests on the question of whether the knowledge, skills, habits and attitudes developed through the taught course are able to meaningfully transfer into other subject areas. Transfer is notoriously difficult to achieve, and

since it does not always happen automatically, some researchers and practitioners of Learning to Learn have concluded that transfer is not possible. In this view, Learning to Learn is seen as something that should be embedded throughout all subject areas, rather than being taught through a separate course. In contrast, the *Learning Skills* programme was premised on the idea that transfer is possible, as long as it is carefully and explicitly managed and communicated at both ends of the process.

The Habits of Mind evaluation, carried out in the second year of the programme, revealed that transfer was not happening to a great extent at that time, with only a small number of teachers referring to the Habits of Mind in their lessons a term after the initiative had been launched. Following this, the *Learning Skills* team implemented a number of strategies to promote the transfer of knowledge and skills throughout the school. This included the development of a new language of learning to replace the Habits of Mind (the ‘Learning Brain’) as well as changes to the lesson planning and observation protocols, such that whole-school expectations with regard to metacognitive reflection in lessons were much clearer than they had been in the previous two years.

In the student interviews and RLJ analysis, carried out in the third year of the programme, the majority of students felt that what they learned in *Learning Skills* lessons *did* transfer to other subjects, with many of them able to articulate how. For example, in the student who said “I thought about everything that I have learned and how I can use that in other lessons. And it kind of sticks with you and then it becomes a part of you and your routine.”, we see an example of how the *Learning Skills* programme helped students develop the kinds of tacit knowledge that Learning to Learn is concerned with, such as metacognition, self-regulation and the development of proactive and prosocial learning attitudes and dispositions.

The fact that students performed better in their subject learning in both the interim (three year) and final (five year) analyses indicates that there was a high degree of alignment between several strands of the study (student attainment and the Habits of Mind, RLJs, student interviews and teacher interviews). However, it is also clear that the extent to which the knowledge, skills, habits and attitudes developed through the *Learning Skills* taught course successfully transferred to subject learning throughout the school varied significantly among students, teachers and subjects. Should the approach be trialled in other schools, this is an aspect of the *Learning Skills* programme that could be improved upon, by designing the

intervention with transfer in mind from the outset.

RQ5: What was the non-cognitive impact of the Learning Skills programme?

As well as evaluating the impact of *Learning Skills* on the students' academic attainment, this study also included data collection and analysis relating to a number of affective domains. The psychometric questionnaires, completed by *Learning Skills* cohort one at the start and end of year seven, revealed statistically significant gains in two domains – curiosity and exploration, and personal growth (see Appendix 6) – and a non-significant decrease in another domain (identity). Methodologically, the use of questionnaires in this study was problematic. To highlight one issue that was not discussed in chapter four, there was no control group in this strand of the study. It is therefore not known whether the changes were related to the *Learning Skills* course; it is quite possible that in a battery of seven questionnaires, students' scores would increase or decrease significantly if tested a year apart, regardless of any intervention effect. The questionnaire findings should therefore be treated with a good degree of caution.

More convincing evidence relating to the students' affective and interpersonal development came from the RLJs, where many of the students wrote about how *Learning Skills* had helped them learn how to get along with others, at school and in their home lives. These included quite rare occurrences, such as overcoming a fear of public speaking, as well as more everyday experiences such as being able to sit with a former bully in maths, or learning strategies that enabled them to improve relations with their siblings. In the interviews, teachers also spoke at length about how the *Learning Skills* course helped students overcome their fear of failure, to achieve things that they did not previously think they were capable of.

Taken together, the findings summarised above suggest that the *Learning Skills* programme at Sea View achieved some significant success in meeting its aims – to help the students become more effective at learning in ways that are detectable using existing indicators of learning. However, it is important to recognise the limitations of this relatively small pilot study, and to remain open to alternative interpretations of these findings.

STRENGTHS AND LIMITATIONS

One of the advantages of mixed methods research is that it helps overcome the limitations of any single method (Creswell & Plano Clark, 2011). However, increasing the number of methods used also increases the number of ways in which interpretations of the data need to be qualified and carefully considered. Herein lies a potential weakness in the pragmatist rationale for mixed methods research discussed in chapter three. In the following section, further to the limitations relating to each strand of data collection detailed in chapter four, I will consider some of the limitations associated with the broader themes of quasi-experimental research, case study, complex interventions, insider research, teacher assessments, interviews, statistical significance testing and TA. Following this, I will discuss issues of generalisability and causality relating to a study of this nature, and consider potential alternative explanations of the findings outlined above.

Quasi-experimental research

Quasi-experimental studies are generally used when it is not possible to randomise the allocation of subjects to the treatment and control conditions. By their nature therefore, quasi-experimental studies are often viewed as being inferior to randomised studies (Cook & Wong, 2008). While in this study it was possible to determine that the control and treatment groups were well-matched in terms of the students' prior attainment in KS2 SATS and pre-intervention CAT scores, it is possible that some unknown variable (e.g. the students' experiences at primary school) may have had an impact on their subsequent subject learning in ways that were not measured by this study. Another potential weakness of this design is that, because the two cohorts were adjacent year groups at the same school, technically the control group was a *historical* control group. The fact that the control and treatment cohorts were being compared on tests that were taken a year apart from one another may have allowed factors not detected by this study, such as changes to practices within various departments throughout the school, to have influenced their subsequent attainment in subject learning. Here, this study relies on an assumption that even if any such changes had taken place within the school, there is no known reason to believe that this would have impacted on the *Learning Skills* cohort any more or less than the control cohort. In addition to this, one has to consider that over the course of three years, the students in *Learning Skills* cohort one had over 400 *Learning Skills* lessons, while the pre-*Learning Skills* control cohort had the

equivalent number of additional lessons of subject-based learning. Given that the primary outcome measure in this study is subject learning across all curriculum subjects, it is reasonable to expect that the control cohort had a significant advantage over the *Learning Skills* cohort in this regard. This is by far the largest known difference between the two cohorts, and it is therefore reasonable to assume that any subsequent differences in subject learning between the two cohorts would have been influenced more by this factor than any other.

Case study

The use of case study raises a number of questions relating to the generalisability of findings. On the one hand, this is a study of a new, and therefore unique approach to Learning to Learn that was implemented in one school during a specific time period. Consequently, the context within which this study took place can be defined by certain features, such as the fact that the school was in special measures during the first two years of the study period. However, part of the rationale for carrying out an evaluation of this nature is to determine whether there might be any basis for scaling up the *Learning Skills* approach for use in other schools.

The idiographic nature of case studies means that they are not usually deemed generalisable to other settings. However, issues of generalisability are often oversimplified in the social sciences, since supposedly nomothetic methods such as RCTs are associated with numerous methodological and implementational issues when the findings are used as a basis for implementing similar practices in new contexts. Here, it is important to recognise the difference between ‘statistical’ and ‘analytic’ generalisation (e.g. Robson, 2002; Yin, 2009). In ‘statistical generalisation’, researchers seek to apply the findings from a sample population to a wider population using statistical techniques such as random sampling, significance testing and the calculation of effect sizes. In ‘analytic generalisation’, the question is not whether the sample is representative of the population at large, but whether the study contributes to the expansion and generalisation of theory. Robson (2002, p. 183) and Yin (2009, p. 15) argue that case studies lend themselves more to analytic generalisation than statistical generalisation. Because the *Learning Skills* approach has not yet been implemented in any other schools, the question of whether these findings are representative of a wider population is moot. However, the question of whether these findings are *potentially* generalisable is worthy of consideration. The only way to determine whether the positive

findings reported in this thesis can be replicated elsewhere would be to implement the *Learning Skills* programme in a number of other schools, and then carry out a large-scale impact evaluation. If *Learning Skills* is to be trialled in other schools, it would make sense to begin by selecting schools with a similar demographic profile to Sea View – namely, a smaller than average school in an area of relatively high economic deprivation, with below average attainment at entry to the school. I will return to this point later in the chapter, when I consider how the Learning to Learn field might develop in the years to come.

Complex interventions

As we saw in chapter two, although the language of complex interventions is commonly used in other fields such as medicine, its use in education to date remains limited. Perhaps one reason for the relative lack of complex interventions reported in the education research literature relates to a fundamental difference between social science and natural science. To take just one example: in medical trials, it is possible to run tightly controlled RCTs, where treatments are not only single-blinded (i.e. where the patient does not know which treatment they are receiving, or whether they may be receiving a placebo), but double-blinded (i.e. where the treatments are coded, such that the medical staff administering the treatments also do not know which treatment they are administering). The practice of double-blinding medical trials makes it possible to eliminate the influence of extraneous variables, and therefore to detect the ‘true’ signal and attribute causality between treatment groups and outcomes. In contrast, social scientists studying what happens in schools do so within a complex, dynamic system where many factors may be in play at any one time – some of which are known, some of which are unknown, and only some of which are measured. As a consequence, for school-based researchers it is incredibly difficult to control extraneous variables such that the ‘signal’ arising from the intervention being studied is clearly detectable within the ‘noise’ arising from all the other variables in play.

To this already complex picture, the use of complex interventions in education presents both advantages and disadvantages. The rationale for combining different practices together into a complex intervention such as *Learning Skills* is that the marginal gains arising from any individual area of practice will stack up and possibly interact, to produce a larger effect size overall. Should positive outcomes be detected in a study of a complex intervention, and should the findings arising from mixed methods converge and triangulate to form a

compelling narrative of causation, it may become possible to say that “on balance, we think outcome Y was caused by complex intervention X”. However, such an ‘umbrella analysis’ does not allow researchers to identify which particular practices in the complex intervention had the most impact, or to determine the nature of any interactions between different components. Because complex thinking remains relatively rare in educational intervention design and thus in educational research, there is not much literature on the methodological implications of studying a complex intervention of this nature. However, recent developments suggest that there is growing interest in this issue. In October 2017, the EEF published a report outlining methodological and practical considerations relating to the evaluation of complex, whole-school interventions (CWSIs) in education (Anders, Brown, Ehren et al., 2017). While this report outlines several practical strategies for evaluating CWSIs, it also recognises a number of significant problems associated with conducting evaluations of this nature. For example, “to capture the full effect of an intervention, evaluations of CWSIs are likely to be longer than most of the evaluations currently funded by the EEF... Longer trials are likely to be associated with higher rates of attrition and non-compliance...” (Anders et al., 2017, p. 5). The use of pre-registered protocols is also a challenge when evaluating CWSIs, since “emergence is an important aspect of complex interventions” and emergent properties, by definition, are not apparent at the outset of a study. Nevertheless, these problems are not insurmountable, and the publication of this report suggests that the EEF may start evaluating CWSIs such as *Learning Skills* in the years to come.

Insider research

As mentioned in chapter one, as well as evaluating the impact of *Learning Skills* at Sea View, I was an active member of the team tasked with designing and delivering the programme. Being an insider-researcher carries a number of advantages as well as disadvantages. For example, as Costley, Elliott and Gibbs (2010) point out, as an insider-researcher “you are in a unique position to study a particular issue in depth and with special knowledge about that issue. Not only do you have your own insider knowledge, but you have easy access to people and information...” (p. 3). It is certainly the case that my involvement in designing, teaching and eventually leading the *Learning Skills* programme put me in a privileged position in terms of access to the students and teachers involved, as well as to a wide range of data. It is also worth noting that although I left the school in 2014, the school continued to share data with me for the purposes of this study.

However, being an insider-researcher also poses methodological problems. Primarily, these relate to “the subjective nature of researching your own practice, where there may be a lack of impartiality, a vested interest in certain results being achieved and problems concerning a fresh and objective view of data” (Costley et al., 2010, p. 6). There are two key considerations here. First, as the focus of a doctoral study, it could be argued that teachers were aware that *Learning Skills* was being scrutinised and evaluated to a level that exceeds what is usually practiced in schools. It is possible therefore that the *Learning Skills* team were more motivated to make the project a success than might typically be the case among teachers implementing Learning to Learn programmes. This is an important factor to bear in mind when considering the generalisability of findings, or planning to implement the approach in other settings. Second, when insider-researchers are investigating the impact of their own practice and that of their colleagues, it could be argued that there is a natural desire to collect and analyse data in such a way that supports the notion that one is an effective practitioner. It is therefore important that the data are collected and analysed in a transparent way, and that the researcher gives careful attention to issues of insider bias and validity, in order to mitigate any possibility of confirmation bias (Murray & Lawrence, 2000, p. 18).

The main way in which this study was designed so as to minimise any such bias is that the primary outcome measure was the students’ academic attainment across all subjects. Although teachers throughout the school were informed of the evaluation at the outset of the study period, it is extremely unlikely that they would have kept this in mind for the next seven years in such a way as to influence their behaviour when teaching the treatment cohorts, but not the control cohort. Further to this, the analysis of students’ subject learning was done using a quasi-experimental research design where the attainment of the first *Learning Skills* cohort was compared with a control group with similar prior attainment. In this way, the potential for my role as an insider-researcher to unduly influence the subject learning of students across the school was kept to a minimum.

Teacher assessments

The interim measure in this study, student attainment at the end of year nine, took the form of National Curriculum levels (as were still used at the time) based on teacher assessments. Teacher assessments are notoriously unreliable; in fact, it is incredibly difficult to even test the reliability of teacher assessments since they can be based on activities such as dance,

drama, musical or sporting ability or public speaking, none of which generate hard documents that can be cross-checked or moderated (Wiliam, 1998). Indeed, even with written assessments where there are hard copies of evidence that can be marked and moderated, there is significant variation in marking practices – especially relating to long answer questions and essay writing. While steps were taken within each department to improve the validity and reliability of teacher assessments through standard practices of moderation, these are not relevant to this study. Instead, the use of teacher assessments in the interim analysis rests on an assumption that any such issues would have affected both the treatment and control groups equally, since there are no known reasons to believe otherwise. It is also important to bear in mind that the final evaluation was based on GCSE attainment, which is not teacher assessed and is subject to more rigorous marking and standardisation procedures.

Interviews

In this study, both the student and teacher interviews included features of the semi-structured format, a method that opens up the potential for researcher bias (Opie, 2004, p. 118). For example, there was some variation in the way some of the questions were phrased from one interview to the next. While such a semi-structured approach helps maintain an element of spontaneity in the discussions, it also potentially limits the comparability of the students' responses. For example, "Is there anything you dislike about *Learning Skills*?" is a different question to "What do you most dislike about *Learning Skills* ", in that the former question opens up the option for the student to say "No", while the latter question assumes that there are a number of things that the student dislikes, and that they just have to pick one. In this study, student interviews were carried out in groups of three or more. The rationale for this was to encourage discussion between the students, rather than simply having them respond to the questions as individuals. However, it is not possible to determine the extent to which some of the students' answers were original contributions, and to what extent they were influenced by the peers they were being interviewed with. In addition, as stated above, only one non-*Learning Skills* teacher responded to the open request to be interviewed for the study. As such, there should be concern around the notion of a self-selecting sample of $n=1$, since only a teacher who has already formed strong opinions would have been likely to volunteer to share their thoughts about *Learning Skills*.

Statistical significance testing

The use of statistical significance testing in education research is controversial, with some researchers suggesting that the practice should be ceased altogether (e.g. Gorard, 2008). One potential criticism of the use of statistical testing in this study is that the allocation of students to the control and treatment groups was not randomised (S. Gorard, personal communication, February 2, 2016). However, I would defend the use of statistical significance testing in this study, with the following caveat. As discussed above, a quasi-experimental study can be considered to be valid if the allocation of subjects to the treatment and control groups *approximates* randomisation, thus allowing an assumption of equality between the two groups both for measured and unmeasured variables. However, using randomisation does not guarantee that the control and treatment groups will be comparable in the pre-intervention state. In this study, allocation to the treatment and control cohorts *approximated* randomisation (i.e. birth dates within a two-year period, with an arbitrary cut-off point), and that the two groups were well-matched in pre-intervention measures. It can therefore be argued that in this study, there is a basis for carrying out the kinds of statistical significance testing that rest on the assumption of equivalence arising from randomisation.

Thematic analysis

Braun and Clarke (2013) emphasise that in TA, coding textual data and searching for themes is an active process: “themes are not hidden in the data waiting to be discovered by the intrepid explorer, rather the researcher constructs themes” (p. 122). As Mabry (2008) points out, “The inherent subjectivity of [*methods such as TA*] leaves researchers susceptible to challenge regarding *validity* by those who equate subjectivity more with bias than sensitivity” (p. 219; original emphasis). To guard against such criticisms, and to minimise the potential for researcher bias to influence the selection of codes and identification of themes, Braun and Clarke (2013) emphasise the need for researchers to reflect upon and acknowledge their assumptions, values and experiences before using the approach (p. 122). As discussed in chapter four, the TA of the Habits of Mind interviews, the student interviews and RLJs revealed a number of instances where students made negative comments about the *Learning Skills* programme. As stated above, part of the motivation for carrying out this study was not only to summatively evaluate the impact of the *Learning Skills* programme, but also to formatively influence the future planning and delivery of the programme. Thus, while this

study was conducted from a position of involvement in and enthusiasm for the approach, the data were collected and analysed in such a way as to remain open to the possibility that *Learning Skills* would not result in the kinds of academic gains that were hoped for. This was done in a spirit of professional inquiry, and with the intention to use any negative findings diagnostically, to improve the future planning and implementation of the programme.

CAUSALITY AND GENERALISABILITY

In this study, *Learning Skills* cohort one achieved significantly higher grades than the control cohort in both the interim (year 9) and final (GCSE) analyses. However, in order to determine whether these gains can be attributed to the *Learning Skills* programme, we must consider alternative interpretations. There are three main considerations here. First is the fact that the study period began at a time when the school's exam results had been in a period of decline: in August 2009, just 26% of students achieved 5A*CEM, around half the national average. In August 2010 – the month before the *Learning Skills* programme began – this figure increased to 36%. It could therefore be argued that the school's results were already on an upward trajectory, and that the subsequent improved attainment in *Learning Skills* cohort one was simply an extension of this. Second, the improved attainment could be an example of 'regression to the mean'. In common parlance: when you're at the top, the only way is down; and when you're at the bottom, the inverse is true. Third, Sea View was in special measures during the first two years of the study period. Since the *Learning Skills* programme was not the only change to teaching and learning practices to take place during this period, it could be argued that the improved attainment may have been driven by other factors – increased marking scrutinies, for example – rather than the *Learning Skills* programme.

In order to argue that these improvements were due to a natural upward trend, regression to the mean or extraneous variables, one would have to make the case through triangulation of findings. If, for example, the results increased but the majority of students and teachers said that *Learning Skills* did not help them learn better in other subjects, then it would be sensible to conclude that the improvements were probably due to some other reason. However, as discussed at the start of this chapter, in this study there was a significant degree of alignment between the different strands of the study. It is worth reflecting on the fact that when the control cohort reached year 11, they got the best results the school had ever achieved (52.3% 5A*CEM). One year later, *Learning Skills* cohort one achieved 63.2% 5A*CEM, a raw

improvement of 10.9% and a relative improvement of 21%. To determine whether this improvement was the result of an upward trajectory, regression to the mean or extraneous variables, one must ask: *why* did the treatment cohort achieve significantly higher GCSE grades than the control cohort? The best way to answer this question is to look at known differences between the two cohorts. This can be done at the input level and the output level. On the output level, setting aside the 10.9% increase in 5A*CEM, we can look at the closing of the PP gap. If the improved results achieved by *Learning Skills* cohort one were simply an extension of an upward trajectory, why did the gap close so significantly between the control and treatment cohorts? Here, we might ask: what was the biggest difference in input? Clearly, the biggest input difference between the two cohorts is that the treatment cohort had more than 400 lessons of *Learning Skills* throughout KS3, as part of an evidence-informed CWSI that was designed to help that cohort of students in particular become more effective at learning across a range of contexts. It can therefore be argued that alternative interpretations of this study's findings are not as compelling as the conclusion that the differences were due, at least in part, to the *Learning Skills* programme. That said, it should be emphasised that this was a relatively small pilot study, carried out in a single school. The only way to determine whether the *Learning Skills* CWSI reliably leads to improved academic attainment, especially for young people from economically disadvantaged backgrounds, would be to scale up the approach and subject it to a rigorous, large-scale evaluation.

Generalisability of findings

To summarise the central claim of this evaluation, the combination of findings from multiple strands of quantitative and qualitative data collection and analysis suggest that the *Learning Skills* programme contributed to significantly improved attainment in subject learning across the curriculum, and a significant closing of the attainment gap between PP students and their peers. Given the recent national focus on closing the disadvantage gap from the bottom up, these findings are encouraging and provide an imperative for considering whether and how the *Learning Skills* approach might be scaled up for use in other settings. However, there are a number of ways to think about the generalisability of findings from a study of this nature.

At the start of the study period, the attainment of students in both the treatment and control cohorts was some way below the national average. The question of whether these promising findings can be replicated in schools with different demographic profiles – or even in other

schools with similar intakes – remains to be seen. As mentioned in the introduction, this intervention was implemented by a dedicated group of teachers who had been involved in the design of the *Learning Skills* programme. In a very real sense, these teachers ‘owned’ the intervention. It would thus probably be unrealistic to expect the kinds of results reported here to be obtained in other schools through the top-down implementation of an identical programme. Nevertheless, the findings of this pilot study provide a basis for extending this approach to schools if a similar whole-school staff commitment and involvement could be achieved.

Should the *Learning Skills* approach be implemented in enough schools to warrant a larger-scale evaluation, based on this pilot study (as well as previous large-scale evaluations of Learning to Learn initiatives) it would make sense to apply strict criteria for inclusion in the study. As a minimum, secondary schools ⁸ involved in any larger-scale evaluation of *Learning Skills* in future should meet the following criteria:

- Implementation of Learning to Learn based on the *Learning Skills* CSWI model, but also owned and amended by the *Learning Skills* team and SLT to take account of the local school context
- A taught course at KS3 (starting in year seven, with timetabled lessons extending in to years eight and nine), designed and delivered by a specialist team of teachers who are appointed to the team through a competitive selection process
- Learning-centred practices embedded throughout all subject areas (e.g. an explicit focus on the ‘how’ of learning in all lessons)
- CPD to help teachers develop practices around metacognition, self-regulation and oracy within each subject area, supported by ongoing practitioner inquiry
- A shared, whole-school language of learning, co-constructed by students and teachers, displayed in all classrooms, reviewed and referred to regularly in all lessons as a tool for metacognitive reflection
- A coherent, whole-school strategy for promoting transfer from the taught course into subject areas, supported by ongoing monitoring and evaluation
- Strong, consistent support for the programme from the Headteacher and senior team

Should enough schools meet these criteria, it would be possible to carry out a rigorous evaluation of the approach, either using the pre-*Learning Skills* cohort as a control group as in this study, or through a large-scale RCT type study with a similar number of comparable schools in the control condition.

⁸ Available research suggests it may be possible to successfully implement similar practices in other settings such as primary schools and special schools, as well as in further and higher education. However, in the short term, it makes sense to focus first on extending the approach for use in secondary schools with a similar demographic profile to Sea View.

Unfortunately, the Learning to Learn field is not currently in a position where such a large-scale evaluation would be feasible. Anecdotally, having worked in the field for the last 8 years, I am aware that since the four large-scale evaluations reviewed in chapter two were published (i.e., since 2011), the number of Learning to Learn taught courses in UK schools has significantly diminished. However, should it be possible to influence enough schools to implement *Learning Skills*, either as part of a funded project or by publishing a handbook for schools, to carry out such a large-scale evaluation would be interesting and worthwhile.

CONTRIBUTIONS TO KNOWLEDGE

This study contributes to knowledge and understanding about Learning to Learn in two key ways. As discussed in chapter two, four recent large-scale evaluations of UK-based initiatives found that Learning to Learn did not consistently impact, either positively or negatively, on student attainment (Higgins et al., 2007a; Wall et al., 2010; James et al., 2006; Claxton et al., 2011; Aynsley, Brown & Sebba, 2012). First then, at the most basic level, this thesis presents an evaluation of a new approach to Learning to Learn that shows promise in achieving what large-scale initiatives have, to date, failed to achieve: to improve academic attainment in subject learning, especially among young people from disadvantaged backgrounds. This provides a basis for the further development of the field, by scaling up the *Learning Skills* approach to determine whether these positive findings can be replicated in other schools. Second, and related to the first, *Learning Skills* reconceptualises Learning to Learn as a CWSI that combines a number of evidence-informed practices (as outlined in Table 2.5), centred around three key concepts: metacognition, self-regulation and oracy.

As the authors of the EEF report into evaluating CWSIs noted, “emergence is an important aspect of complex interventions” (Anders et al., 2017, p. 5), and it is likely that the benefits accrued from the *Learning Skills* programme emerged from a combination of factors. Evidence from the student interviews, teacher interviews and from the students’ RLJs suggests that the reason *Learning Skills* students were able to achieve higher grades than students in the control cohort was that the focus on metacognition helped them become more reflective; that the focus on project-based learning enabled them to appropriate and internalise the habits and skills of self-regulation; and that the focus on oracy helped them develop the confidence to find their voice and to express themselves more clearly. In combination with clear, whole-school strategies for promoting transfer, these three key concepts form a

compelling narrative as to how *Learning Skills* helped students achieve higher grades in subject learning throughout the school.

RECOMMENDATIONS FOR FURTHER DEVELOPMENT OF THE FIELD

As discussed in chapter one, the lack of evidence as to the efficacy of large-scale Learning to Learn initiatives to date has led some commentators to conclude that Learning to Learn is a busted flush – a promising avenue of theory and practice that turned out to be impracticable. This study presents a challenge to this view, and suggests that researchers and practitioners of Learning to Learn should continue to develop whole-school approaches to teaching and learning centered around metacognition, self-regulation and oracy, such that the positive findings in the research literature can be replicated when implemented at scale.

As mentioned above, the *Learning Skills* programme was designed and taught by a dedicated group of teachers who applied to be a part of the team. It has previously been observed that metacognitive educational interventions typically have strongest effects when they are implemented by their designers (Dignath et al., 2008). Here, the emerging field of implementation science plays an important role in highlighting to school leaders the importance of personnel when seeking to replicate and improve upon evidence from the research literature. In the words of the editor of the *Handbook of Implementation Science*: “The intervention is the person!” (Kelly, 2014).

Given that the *Learning Skills* programme needs to be tailored to the local school context through the buy-in of the teachers designing and teaching the programme, it is not clear whether an evaluation of this approach would lend itself to being evaluated through a large-scale RCT. Craig et al. (2008) have suggested that complex interventions can lend themselves to large-scale RCTs in medicine, if greater flexibility is allowed than is traditional in RCTs. The fact that the EEF recently published guidance with regard to evaluating CWSIs (Anders et al., 2017) suggests that similar, more flexible approaches to evaluation may be embraced by education researchers in the coming years. As the field of implementation science develops – and as methods for evaluating CWSIs become more refined in the coming years – there is reason to believe that Learning to Learn might yet fulfil its promise as a complex, whole-school approach to school improvement.

Improving the *Learning Skills* programme

Through carrying out this evaluation, some literature has come to light that the *Learning Skills* team was not aware of when designing and teaching the programme. In addition, the *Learning Skills* team learned a number of important lessons throughout the study period, in part as a result of this evaluation. There is therefore reason to believe that the findings presented here could be improved upon, should the *Learning Skills* intervention be repeated or trialled in other schools. For example, a review of learning skills interventions by Higgins et al. (2007b) identified a number of features of best practice with regard to helping students get better at learning. The key findings of this review are summarised in Table 5.1.

Table 5.1. Features of effective Learning Skills interventions.

<p>“Effective approaches teachers can use to develop pupils’ learning capabilities”</p>	<ul style="list-style-type: none"> • Structured tasks that focus on specific metacognitive strategies in the context of the lesson / subject • Capacity in lessons for more explicit transactions between the learner and the teacher concerning the purpose of the activity • Small group interactions promoting the articulation of the use of strategies during teaching • Mechanisms built into the task to promote the checking of mutual understanding of the goals by peers and with the teacher • Enhanced opportunities for the learner to receive diagnostic feedback linked directly to the task
<p>“Key components identified from the in-depth review” (i.e. successfully implemented in at least 3 schools)</p>	<ul style="list-style-type: none"> • Clear understanding of the features of the relevant learning processes to achieve success in a particular context • The design of concrete tasks to scaffold the development of the awareness of the processes and their importance for success • Opportunities for feedback during the task to enable teacher intervention with provision for this to become gradually internalised as self-regulation • Explicit emphasis on developing capability through effort and the possibility of improving performance by responding to feedback and adaptation
<p>Further “necessary conditions”</p>	<ul style="list-style-type: none"> • Teachers have an alignment of a good understanding of learning, in terms of the subject and the context • The teacher has access to concrete tools and strategies to guide the learner and enhance opportunities for feedback • Both teachers and learners should have an orientation towards learning characterised by a willingness to engage in dialogue and negotiation regarding the intent and purpose of a particular teaching and learning episode • The focus should be on how to succeed in terms of the selection of appropriate strategies and making the right effort, rather than on ability

Adapted from Higgins et al. (2007b)

Although a number of these practices did feature in the *Learning Skills* programme at Sea View, this was more evident in the KS3 taught course than was embedded in the whole-school culture. In particular, this relates to the four bullets arising from the “in-depth review” in the middle row of Table 5.1, and the two final bullets in the “necessary conditions” row about teachers and students having a willingness to engage in dialogue, and promoting effort over ability. It is therefore possible that had whole-school teaching and learning practices at Sea View been aligned around these key principles from the outset, the *Learning Skills* programme would have been even more successful. It is also worth noting that some features of the *Learning Skills* programme do not feature in Table 5.1, although they were informed by the wider literature review – especially the need for a shared language of learning and the use of explicit strategies for promoting the transfer of knowledge, skills, habits and attitudes from *Learning Skills* lessons to subject areas throughout the school.

There are a number of other ways in which the *Learning Skills* programme could be improved in future. In recent years, cognitive scientists have started to develop resources to help students and teachers understand what we know about how learning happens, and how to teach and learn in ways that capitalise on these insights. For example, an organisation run by “cognitive psychological scientists interested in research on education” (learningscientists.org) highlights six techniques students and teachers can use to promote learning: spaced practice, retrieval practice, elaboration, interleaving, concrete examples and dual coding. If all teachers at Sea View had been trained in these methods, and planned and taught their lessons with these principles in mind – and if students had been explicitly taught how to use these techniques, and given time to develop and embed their use in *Learning Skills* lessons – there is good reason to believe that this would have been a valuable addition to the *programme*, both in the taught course and as a focus for teachers’ ongoing professional development.

To give another example of how the *Learning Skills* programme could be improved, recent research carried out by Sam Wineburg and colleagues at Stanford University has focused on how well students evaluate online sources (McGrew et al., 2018; Wineburg & McGrew, 2017). The researchers found that students are often too trusting of what they read on the internet, assuming that the first search result is the most reliable source. The research team have developed a curriculum of strategies that students can be taught, to help them identify more reliable sources. These include ‘reading laterally’ (i.e., judging the credibility of a

website from other sources); showing ‘click restraint’ (i.e., scanning a range of search results before choosing one); and referring to the ‘talk’ page on Wikipedia, which often includes meta-discussions of controversial or contested topics. When these strategies are taught to students, they “arrive at more warranted conclusions in a fraction of the time” (Wineburg & McGrew, 2017, p. 1). Writing about this study, the cognitive psychologist Daniel Willingham commented:

I've been very skeptical of 21st century skills... My skepticism grew out what I perceived as a neglect of domain knowledge among the proponents of 21st century skills and (to a lesser extent) a sense that the truly new part of "21st century" is a relatively small part of what students need to learn: most of students' time should be devoted to math, science, reading, civics, history, etc., much the way it the looked in the 20th century. Sam Wineburg's recent research shows that I was wrong... I think my assessment of 21st century skills as a small part of what students need to know was inaccurate, because evaluating sources on the internet is such a substantial part of student work today.

(Willingham, 2017)

As Willingham points out here, given how dependent students are on accessing information online, teaching students strategies for fact checking and evaluating online sources is a good example of a generic skill that a) can be reliably taught, and b) would be likely to contribute significantly to a young person’s educational attainment over the course of their school career.

Future evaluations of *Learning Skills*

In the review of learning skills interventions summarised in Table 5.1, Higgins et al. (2007b) used the following question as a criterion for the in-depth review: “Which teaching approaches that explicitly aim to develop pupils’ learning capabilities *and which have been used in at least three schools* show evidence of improved learning of pupils?” (p. 1; emphasis added). Clearly therefore, the next step in evaluating the efficacy of *Learning Skills* will be to trial it in more schools, to determine whether these results can be replicated or improved upon.

In theory, the most comprehensive way to evaluate a CWSI such as *Learning Skills* would be through a funded research project involving a large number of schools, where sub-groups of schools implement slightly different versions of the programme. For example, one group of

schools could run the programme as it was implemented at Sea View, incorporating the suggestions for improvement outlined above; another group of schools could run the programme but not have a language of learning; another group of schools could run the programme but not have a focus on project-based learning, and so on. In this way, it would theoretically be possible to determine the extent to which each component of the programme impacts on student outcomes, and the extent to which different components interact. It would also be beneficial to carry out much more extensive data collection – for example, interviewing PP and non-PP students throughout the study period, to explore how the students’ attitudes toward *Learning Skills* changed over time and how tallies with their attainment in subject learning across the curriculum. However, because a key feature of the *Learning Skills* approach is to harness the enthusiasm and agency of the teaching team, it is possible that such a top-down, controlled approach to implementation would undermine an important component of the programme.

It would also be possible to carry out the kind of flexible RCT proposed by Craig et al. (2008) for use in evaluating complex interventions in medicine. In this model, schools would be required to adhere to a number of key principles (e.g. to have a taught course, a shared language of learning and strategies for transfer), but would be free to adapt certain features of the approach to suit the local school context. However, this approach to evaluation is also problematic, due to the limitations associated with using RCTs in education research as outlined in the discussion of “what works” in chapter two.

At this stage, since *Learning Skills* has only been subject to a single pilot study in a single school, the next step is likely to be a feasibility study involving implementation in a small number of other schools. Doing this through a funded research project would be likely to be problematic, since in funded projects the implementation is not naturalistic. In addition, it should be noted that it didn’t cost Sea View anything to run the *Learning Skills* programme. As such, evaluating the approach through a funded project may not be necessary. An alternative would be to publish a handbook that schools can use to adopt *Learning Skills* as a framework for school improvement. This approach has a precedent; following the publication of *Building Learning Power* (2002), “thousands of schools and classrooms around the planet... experimented with BLP” (Claxton et al., 2011, p. 4). If publishing a handbook led to a similar widespread implementation of *Learning Skills*, it would be possible to apply a set of stringent selection criteria (as listed in the ‘generalisability of findings’ section above) and

carry out a large-scale, real-world evaluation without the need for schools to receive funding. Given the possibility that widespread implementation of *Learning Skills* might lead to accelerated academic attainment for young people, especially those from disadvantaged backgrounds, there is a strong moral imperative to continue developing and evaluating the approach in the years to come.

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APPENDIX 1

The Learning Skills taught course: lesson breakdown

The *Learning Skills* taught course: lesson breakdown

Year 1 (2010-11)

- Whole of year 7
 - 5 classes (mixed ability)
 - 5 lessons a week:
 - 3 x project-based learning (see Table 2.7 for examples of projects)
 - 1 x philosophical inquiry
 - 0.5 x reflective learning journals
 - 0.5 x oracy (exploratory talk tasks in pairs / small groups)

Year 2 (2011-12)

- Whole of year 7
 - 6 classes (mixed ability)
 - 4 lessons a week:
 - 2 x project-based learning (see Table 2.7 for examples of projects)
 - 1 x philosophical inquiry
 - 0.5 x reflective learning journals
 - 0.5 x oracy (exploratory talk tasks in pairs / small groups)
- Whole of year 8
 - 5 classes (mixed ability)
 - 3 lessons a week:
 - 2.5 x project-based learning (see Table 2.7 for examples of projects)
 - 0.5 x metacognitive reflection – target setting, reviewing progress, peer / self / teacher evaluation, completing portfolio

Year 3 (2012-13)

- Whole of year 7
 - 7 classes (mixed ability)
 - 4 lessons a week:
 - 2 x project-based learning (see Table 2.7 for examples of projects)
 - 1 x philosophical inquiry
 - 0.5 x reflective learning journals
 - 0.5 x oracy (exploratory talk tasks in pairs / small groups)
- Whole of year 8
 - 6 classes (mixed ability)
 - 3 lessons a week:
 - 2.5 x project-based learning (see Table 2.7 for examples of projects)
 - 0.5 x metacognitive reflection – target setting, reviewing progress, peer / self / teacher evaluation, completing portfolio
- Whole of year 9
 - 5 classes (set by ability, as backed against English on the timetable)
 - 3 lessons a week of Thinking and Reasoning Skills (OCR Level 2 course)

APPENDIX 2

The Personal Learning and Thinking Skills (PLTS) framework

Independent enquirers

Focus:

Young people process and evaluate information in their investigations, planning what to do and how to go about it. They take informed and well-reasoned decisions, recognising that others have different beliefs and attitudes.

Young people:

- identify questions to answer and problems to resolve
- plan and carry out research, appreciating the consequences of decisions
- explore issues, events or problems from different perspectives
- analyse and evaluate information, judging its relevance and value
- consider the influence of circumstances, beliefs and feelings on decisions and events
- support conclusions, using reasoned arguments and evidence.

Creative thinkers

Focus:

Young people think creatively by generating and exploring ideas, making original connections. They try different ways to tackle a problem, working with others to find imaginative solutions and outcomes that are of value.

Young people:

- generate ideas and explore possibilities
- ask questions to extend their thinking
- connect their own and others' ideas and experiences in inventive ways
- question their own and others' assumptions
- try out alternatives or new solutions and follow ideas through
- adapt ideas as circumstances change.

Reflective learners

Focus:

Young people evaluate their strengths and limitations, setting themselves realistic goals with criteria for success. They monitor their own performance and progress, inviting feedback from others and making changes to further their learning.

Young people:

- assess themselves and others, identifying opportunities and achievements
- set goals with success criteria for their development and work
- review progress, acting on the outcomes
- invite feedback and deal positively with praise, setbacks and criticism
- evaluate experiences and learning to inform future progress
- communicate their learning in relevant ways for different audiences.

Team workers

Focus:

Young people work confidently with others, adapting to different contexts and taking responsibility for their own part. They listen to and take account of different views. They form collaborative relationships, resolving issues to reach agreed outcomes.

Young people:

- collaborate with others to work towards common goals
- reach agreements, managing discussions to achieve results
- adapt behaviour to suit different roles and situations, including leadership roles
- show fairness and consideration to others
- take responsibility, showing confidence in themselves and their contribution
- provide constructive support and feedback to others.

Self-managers

Focus:

Young people organise themselves, showing personal responsibility, initiative, creativity and enterprise with a commitment to learning and self-improvement. They actively embrace change, responding positively to new priorities, coping with challenges and looking for opportunities.

Young people:

- seek out challenges or new responsibilities and show flexibility when priorities change
- work towards goals, showing initiative, commitment and perseverance
- organise time and resources, prioritising actions
- anticipate, take and manage risks
- deal with competing pressures, including personal and work-related demands
- respond positively to change, seeking advice and support when needed
- manage their emotions, and build and maintain relationships.

Effective participants

Focus:

Young people actively engage with issues that affect them and those around them. They play a full part in the life of their school, college, workplace or wider community by taking responsible action to bring improvements for others as well as themselves.

Young people:

- discuss issues of concern, seeking resolution where needed
- present a persuasive case for action
- propose practical ways forward, breaking these down into manageable steps
- identify improvements that would benefit others as well as themselves
- try to influence others, negotiating and balancing diverse views to reach workable solutions
- act as an advocate for views and beliefs that may differ from their own.

APPENDIX 3

Examples of subject-specific Habits of Mind policies

Habits of Mind Department Policy

Department

English

How will you use the Habits of Mind language of learning in your department?
(e.g planning, teaching, rewards, displays, target setting.)

<i>Creative</i>	Encourage students to ask questions? To use “I am” Learning Objectives – alongside skills being taught
<i>Being</i>	Organised “Ask 3 before me” – check in tutor time also
<i>Displays</i>	Team Player Creative Reflective thinker
<i>Rewards P2</i>	Linked to Habits of Mind Use this language at Parent’s Eve
<i>Key Word</i>	Used as teacher resources
<i>Habits displays</i>	I am independent – use dictionaries / mobile phones / internet to check spellings

Habits of Mind Department Policy

Department

ICT

How will you use the Habits of Mind language of learning in your department?
(e.g planning, teaching, rewards, displays, target setting.)

Planning

- Build in opportunities to allow for flexible thinking.
- Set ambitious goals and outcomes.
- Sharing ideas and meeting regularly.
- Ask for help.

Teaching

- Adapt teaching methods to suit a range of students.
- Observing alternative strategies.

Rewards

- Ensure consistency and fairness.
- Recognise all achievements, no matter how small.

Displays

- Regular updating of displays – relevance and current.

Target Setting

- Set ambitious goals and outcomes.

Habits of Mind Department Policy

Department

HSS Social Sciences

How will you use the Habits of Mind language of learning in your department?
(e.g planning, teaching, rewards, displays, target setting.)

Planning

- Why do some lessons go well and others less well
- Use language in sciences of work and lesson planning.

Teaching

- Students to think of questions which help provide more structure starter, and main activities using Habits of Mind criteria.

Rewards

- Existing reward system, already in place – contains aspects of Habits of Mind.

Displays

- Strategies to make sure nobody disrupts my learning.

Target Setting

- Bring in Habits of Mind..... to learning conversations and target setting day.

APPENDIX 4

Ethics checklist

RESEARCH ETHICS REVIEW CHECKLIST FOR FACULTY OF EDUCATION

The Faculty's Three Stages of Ethical Clearance

Stage 1 involves you in completion of this Ethics Review Checklist. This is the first stage of three. It will help you (and others) decide to what extent you need to become involved in the second and third stages. When you have completed it you (and the Faculty) will be in a position to make this judgement.

Stage 2 will involve you in discussing any ethical dimensions of your research in some depth with your another 'knowledgeable person of standing'; this is a very likely outcome of completing the checklist. Further details are provided in Section C.

Stage 3 will involve you in obtaining formal 'ethical clearance' through the Faculty of Education's procedures; some projects will need to proceed to this stage. Further details are provided in Section C .

Most of the questions on this checklist deliberately offer you just two answers ('yes' or 'no'). You will probably find that you can answer many of the questions unequivocally one way or the other. However, sometimes you may wish there was an 'it depends' response category. If you find yourself in this position, please give the answer which suggests that, at this preliminary stage, there might be an ethical issue requiring more discussion at Stage 2.

RESEARCH ETHICS REVIEW CHECKLIST FOR FACULTY OF EDUCATION

Section A: Details of the Project

Student Name	James Mannion
Email	jwm43@cam.ac.uk
Supervisor	Neil Mercer
Supervisor email	nmm31@cam.ac.uk
Registration Report Title	Metacognition, self-regulation, oracy: A mixed methods case study of a complex, whole-school Learning to Learn intervention

Section B: Checklist

Code of Practice relating to Educational Research		
1a	Have you read the <i>Revised Ethical Guidelines for Educational Research</i> (2011) of the British Educational Research Association (BERA)? (if you have not read it, the latest version is available at http://www.bera.ac.uk/researchers-resources/publications/bera-ethical-guidelines-for-educational-research-2011)	Yes
1b	Is this Code relevant to the conduct of your research? If you have answered 'no', please briefly explain why:	Yes
1c	Do you agree to subscribe to the Code in carrying out your own research?	Yes
2	Are there any aspects of your proposed research which, in the context of BERA's Code of Practice, might give rise to concern amongst other educational researchers?	No
If you have answered 'yes', please briefly list possible causes for concern below:		
a		
b		
c		
3a	Will you be analysing an existing data set that has already been collected by someone else?	No

3b	If you answered YES: can you confirm that the data you will be using is <i>either</i> Already available in the public domain for anyone to analyse Or You have been given permission by the owner of the data set to undertake your own analysis and results ⁹	N/A
4	Will you be collecting your own research data for the study (through such techniques as interviewing people, observing situations, issuing questionnaires etc)? <i>nb. If you have answered NO to this question, you may proceed to Section C and need not answer any further questions in this section.</i>	Yes
Obtaining 'Informed Consent'		
5	Are you familiar with the concept of 'informed consent'? (if you are not familiar with this concept you should first consult the following source: page 5 of the BERA guidelines above).	Yes
6	Does your research involve securing participation from children, young people or adults where the concept of 'informed consent' might apply? <i>Permission is likely to be needed to report any information about people or institutions that is not in the public domain, and which you have been able to obtain due to your privileged access to the research site(s) in whatever capacity¹⁰</i>	Yes
If you have answered 'yes' to Question 6 above, please answer the following questions.		
7a	Do you believe that you are adopting suitable safeguards with respect to obtaining 'informed consent' from participants in your research in line with the Code of Practice?	Yes
7b	Will all the information about individuals and institutions be treated on an 'in confidence' basis at all stages of your research including writing up and publication?	Yes

⁹ this permission should only be given if the owner of the data can make it available for secondary analysis on the basis of the informed consent they obtained from their original participants

¹⁰ Professional work (such as teaching) can involve the collection of evidence to better understand problems/issues and to evaluate innovative practice - leaving practitioners with the question of when these activities become formal research requiring informed consent. This comment is meant to highlight how the collection of data for public reporting beyond the institution (e.g. in a thesis) should be considered as a key criterion for deciding when informed consent is required.

7c(i)	Will all the information collected about the institution(s) where research is based be presented in ways that guarantee the institution(s) cannot be identified from information provided in the report? <i>Note: in a thesis written by a researcher about a research context where they have a publicly acknowledged role, it is difficult to disguise the identity of the institution whilst also providing the expected detail of the researcher's relationship with the research context.¹¹</i>	Yes
7c(ii)	If not, has the appropriate responsible person given approval for the research on the understanding that the identity of the institution cannot be protected in the report of the research?	N/A
7c(iii)	Will all the information collected about individuals be presented in ways that guarantee their anonymity? <i>Note: a person with a named role, or having a specific set of reported characteristics that is unique in the research context, cannot be assured of the anonymity when the identity of the research site cannot be protected.</i>	Yes
7c(iv)	If not, have these issues been explained to the relevant participants (and appropriate gatekeepers in the case of children or other vulnerable participants)?	N/A
The Involvement of Adults in the Research		
8a	Will your research involve adults?	Yes
If you have answered 'yes' to Question 8a above, please answer the following questions; otherwise move to Question 9.		
8b	Will these adults be provided with sufficient information <i>prior</i> to agreeing to participate in your research to enable them to exercise 'informed consent'?	Yes
8c	Will the adults involved in your research be in a position to give 'informed consent' themselves with respect to their participation?	Yes

¹¹ At present the implicit assumption is that anonymity is always desirable*, and is always achievable. In many studies these assumptions are sound. However, a practitioner (e.g. teacher) reporting research into their own practice/institution in a thesis would normally need to be explicit about their professional relationship to the research context to give an authentic account of their research. As the staff lists of many educational institutions are in the public domain and often readily found by a web search, a thesis by a named member of staff allows the institution to be readily identified from the name of the thesis author. Given that an institution can readily be identified, this also has consequences for the degree of anonymity that can be promised to participants - for example those with named roles such as Head of Year 11, Student Voice Coordinator, Head Prefect, etc, or those identifiable from detailed reported characteristics.
* Some institutions or participants may welcome being acknowledged by name in a thesis, and their views should be taken into account and balanced against other considerations.

8d	Will these adults be able to opt out of your research in its entirety if they wish to do so by, for example, declining to be interviewed or refusing to answer a questionnaire?	Yes
8e	Will these adults be able to opt out of parts of your research by, for example, declining to participate in certain activities or answer particular questions?	Yes
The Involvement of Children, Young People and other potentially Vulnerable Persons in the Research		
9a	Will your research involve children, young people or other potentially vulnerable persons (such as those with learning disabilities or your own students).	Yes
<p>If you have answered 'yes' to Question 9a above, please answer the following questions; otherwise move to Question 10.</p> <p>In educational and social research 'informed consent' regarding access is often given by a 'gatekeeper' on behalf of a wider group of persons (e.g. a head or class teacher with respect to their pupils, a youth worker working with young people, another person in an 'authority' position).</p>		
9b	<p>Who will act as the 'gatekeeper(s)' in your research? Please list their position(s) briefly below and, where this is not self-evident, describe the nature of their relationship with those on whose behalves they are giving 'informed consent'. The researcher cannot act as the gatekeeper (see 9g below)</p>	
i	The Headteacher of the study school at the time the study began	
ii	Any future Headteachers during the study period	
iii		
9c	Will you be briefing your 'gatekeeper(s)' about the nature of the questions or activities you will be undertaking with the children, young people or other potentially vulnerable persons involved in your research?	Yes
9d	If another person (such as a teacher or parent of a child in your study) expressed concerns about any of the questions or activities involved in your research, would your 'gatekeeper(s)' have sufficient information to provide a brief justification for having given 'informed consent'?	Yes
9e	If unforeseen problems were to arise during the course of the research, would your 'gatekeeper(s)' be able to contact you at relatively short notice to seek advice, if they needed to do so?	Yes
9f	Could your 'gatekeeper(s)' withdraw consent during the research if, for whatever reason, they felt this to be necessary?	Yes
9g(i)	<p>Are you undertaking research into your own professional context/institution (e.g. with students in a school where you work)?</p> <p>If you answered 'Yes' then you should identify (in 9b above) a suitable senior person who has agreed to act as an independent point of contact for participants to act as the gatekeeper, and answer the following two questions:</p>	Yes

9g(ii)	Will you ensure that other people in the research context are aware of the identity of the gatekeeper?	Yes
9g(iii)	Will you take reasonable precautions to ensure that research participants (and where appropriate their parents/guardians) know that they should contact the gatekeeper (and not you) if they have any concerns about the research?	Yes
Other Ethical Aspects of the Research		
10	Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (eg covert observation of people in public places)	No
11	Will the research involve the discussion of topics which some people may deem to be 'sensitive'? (e.g. sexual activity, drug use, certain matters relating to political attitudes or religious beliefs)	No
12	Does the research involve any questions or activities which might be considered inappropriate in an educational setting?	No
13	Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind? <i>If you have ticked 'Yes' it is vital to refer the matter to the Faculty Research Office for onward reference to the University Insurance Section.</i>	No
14	Will blood, tissue or other samples be taken from the bodies of participants?	No
15	Is pain or more than mild discomfort likely to result from the study?	No
16	Could the research involve psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?	No
17	Are there any other aspects of the research which could be interpreted as infringing the norms and expectations of behaviour prevailing in educational settings?	No
18	Are there any other aspects of the research which could be to the participants' detriment?	No
19	Will the study involve prolonged or repetitive testing?	No
20	Will financial inducements (other than reasonable expenses or compensation for time) be offered to participants?	No

SECTION C: Interpretation of Results

If any of your answers coincide with the response options having a coloured background, then you should assume that further discussion involving Stage 2 procedures is required because some aspect of your proposed research is likely to be 'ethically sensitive'. In practice, many issues can be resolved at this stage. In practice, many issues can be resolved at this stage.

Members of staff should be especially careful about research involving their own students (question 9g).

If you have ticked 'yes' in response to one or more of questions 10 to 20, both Stage 2 and Stage 3 clearance will definitely be required.

Stage 2 Clearance

Any 'ethically sensitive' responses identified above should be discussed with a 'knowledgeable person of standing'. In the case of students within the Faculty, this person will, in almost every case, be the person supervising your research.

On completion of the discussion, the 'knowledgeable person of standing' is asked to choose one of the following three responses, to delete the other two and to affirm their views by adding their signature.

a	I have discussed the ethical dimensions of this research and, as outlined to me, I do not foresee any ethical issues arising which require further clearance.
b	There may be some ethical issues arising from this research. I think it would be prudent for the researcher to seek further advice and, possibly, Stage 3 clearance.
c	Ethical issues arise in this research which require further discussion; my advice is that Stage 3 ethical clearance should be sought.

Supervisor Name/ Signature	Neil Mercer 
Date	09.02.17

APPENDIX 5

Headteacher's consent letter

[Redacted]



Tel: [Redacted]
Email: [Redacted]
Web: [Redacted]
Principal: [Redacted]

Mr J Mannion
[Redacted]
[Redacted]
[Redacted]

25th November 2016

Dear Mr Mannion,

Thank you for your letter received yesterday outlining your Learning to Learn research, and including your project abstract, which makes for very interesting reading.

I write to confirm that I am happy to give my consent for you to complete the PhD as planned, and I wish you all the best for the future.

Yours sincerely,

[Redacted signature]

[Redacted name]
Principal

APPENDIX 6

Psychometric questionnaires

Identity questionnaire

Write your student number here: _____

These items describe different aspects of identity. Read each item carefully and consider how it applies to you. Please be as honest as possible – there are no right or wrong answers. Answer according to the scale below:

	Not important to my sense of who I am	Slightly important to my sense of who I am	Somewhat important to my sense of who I am	Very important to my sense of who I am	Extremely important to my sense of who I am
1		✓	✓✓	✓✓✓	✓✓✓✓
2					
3					
4					
5					

1. _____ The things I own, my possessions
2. _____ My personal values – knowing right from wrong
3. _____ How popular I am with other people
4. _____ Being a part of the many generations of my family
5. _____ My dreams and imagination
6. _____ How other people react to what I say and do
7. _____ My race or ethnic background
8. _____ My personal goals and hopes for the future
9. _____ My physical appearance – my height, my weight, the shape of my body
10. _____ My religion

1. Identity

Identity questionnaire (continued)

Write your student number here _____

These items describe different aspects of identity. Read each item carefully and consider how important that thing is to you. Please be as honest as possible – there are no right or wrong answers. Answer according to the scale below:

	Not important to my sense of who I am	Slightly important to my sense of who I am	Somewhat important to my sense of who I am	Very important to my sense of who I am	Extremely important to my sense of who I am
-		✓	✓✓	✓✓✓	✓✓✓✓
1		2	3	4	5

11. ___ My emotions – how I feel about things
12. ___ My reputation – what other people think about me
13. ___ The place where I live, or where I am from
14. ___ My appearance – how attractive I am to other people
15. ___ My age – belonging to my age group or being part of my generation
16. ___ How I deal with my fears and worries
17. ___ My gender – being a boy or a girl
18. ___ My sense of being unique – being different from everyone else
19. ___ My social class – the economic group I belong to, whether working class, middle class, or upper class.
20. ___ Knowing that I will always be the same on the inside, even though life involves many changes

Identity questionnaire (continued)

Write your student number here _____

These items describe different aspects of identity. Read each item carefully and consider how it applies to you. Please be as honest as possible – there are no right or wrong answers. Answer according to the scale below:

	Not important to my sense of who I am	Slightly important to my sense of who I am	Somewhat important to my sense of who I am	Very important to my sense of who I am	Extremely important to my sense of who I am
1	✓		✓✓	✓✓✓	✓✓✓✓
2					
3					
4					
5					

21. _____ My feeling of belonging to my community
22. _____ Knowing myself – understanding what kind of person I really am
23. _____ My behaviour – the way I act when meeting people, or in lessons
24. _____ My sense of pride in my country
25. _____ My physical abilities – being coordinated and good at sports
26. _____ My own opinion of myself – what I think about myself
27. _____ Being a sports fan, supporting a certain team
28. _____ My ideas about politics
29. _____ My academic ability and performance – the grades I get, and the feedback I get from teachers
30. _____ My language, such as my regional accent or dialect or a second language that I know

2. Meaning in life

Meaning in Life Questionnaire

Write your student number here: _____

Take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can. Remember – there are no right or wrong answers. Answer according to the scale below:

	1	2	3	4	5	6	7
Absolutely untrue		Mostly untrue	A little untrue	Can't say true or false	A little true	Mostly true	Absolutely true
1.	_____		I understand my life's meaning.				
2.	_____		I am looking for something to make my life feel meaningful.				
3.	_____		I am always looking to find my life's purpose.				
4.	_____		My life has a clear sense of purpose.				
5.	_____		I have a good sense of what makes my life meaningful.				
6.	_____		I have discovered a satisfying life purpose.				
7.	_____		I am always searching for something that makes my life feel significant.				
8.	_____		I am seeking a purpose or mission for my life.				
9.	_____		My life has no clear purpose.				
10.	_____		I am searching for meaning in my life.				

3. Mindfulness

Below is a collection of statements about your everyday experience. Using the scale below, indicate how frequently or infrequently you have each experience. Please answer according to what is really true, rather than what you think it should be.

1	2	3	4	5	6
Almost Always	Very frequently	Somewhat frequently	Somewhat infrequently	Very infrequently	Almost never

1. ___ I could be experiencing some emotion and not be conscious of it until some time later.
2. ___ I break or spill things because of carelessness, not paying attention, or thinking of something else.
3. ___ I find it difficult to stay focused on what's happening in the present.
4. ___ I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
5. ___ I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
6. ___ I forget a person's name almost as soon as I've been told it for the first time.
7. ___ It seems I am "running on automatic," without much awareness of what I'm doing.
8. ___ I rush through activities without being really attentive to them.
9. ___ I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.
10. ___ I do jobs or tasks automatically, without being aware of what I'm doing.
11. ___ I find myself listening to people with one ear, doing something else at the same time.
12. ___ I go places on 'automatic pilot' and then wonder why I went there.
13. ___ I find myself preoccupied with the future or the past.
14. ___ I find myself doing things without paying attention.
15. ___ I snack without being aware that I'm eating.

4. Self-esteem

Self esteem questionnaire

Write your student number here: _____

This questionnaire is about how you feel about yourself. Put a circle around the answer that shows how much you agree or disagree with each statement. Please be as honest as you can – there are no right or wrong answers.



Strongly disagree Disagree Agree Strongly agree

On the whole, I am satisfied with myself.

1 2 3 4

At times I think I am no good at all.

1 2 3 4

I feel that I have a number of good qualities.

1 2 3 4

I am able to do things as well as most other people.

1 2 3 4

I feel I do not have much to be proud of.

1 2 3 4

I certainly feel useless at times.

1 2 3 4

I feel that I'm a person of worth, at least on an equal plane with others.

1 2 3 4

I wish I could have more respect for myself.

1 2 3 4

All in all, I am inclined to feel that I am a failure.

1 2 3 4

I take a positive attitude toward myself.

1 2 3 4

Personal growth questionnaire

Write your student number here: _____

Using the scale below, answer with the number that best describes the extent to which you agree or disagree with each statement. Please be as honest as possible – there are no right or wrong answers. Answer according to the scale below:

1	2	3	4	5	6
Definitely Disagree	Mostly disagree	Somewhat disagree	Somewhat agree	Mostly agree	Definitely agree

1. _____ I know how to change specific things that I want to change in my life.
2. _____ I have a good sense of where I am headed in my life.
3. _____ If I want to change something in my life, I initiate the transition process.
4. _____ I can choose the role that I want to have in a group.
5. _____ I know what I need to do to get started toward reaching my goals.
6. _____ I have a specific action plan to help me reach my goals.
7. _____ I take charge of my life.
8. _____ I know what my unique contribution to the world might be.
9. _____ I have a plan for making my life more balanced.

5. Personal growth

6. Curiosity and exploration

Curiosity and Exploration Questionnaire Write your student number here: _____

Circle the numbers below to show how accurately each statement describes the way you generally feel and behave. Do not rate what you think you should do, or wish you do, or things you no longer do. Please be as honest as possible – there are no right or wrong answers. Answer according to the scale below:

	1	2	3	4	5
	Not at all or very slightly	A little	Moderately	Quite a bit	Extremely
1.	_____				
					I actively seek as much information as I can in new situations.
2.	_____				
					I am the type of person who really enjoys the uncertainty of everyday life.
3.	_____				
					I am at my best when doing something that is complex or challenging.
4.	_____				
					Everywhere I go, I am out looking for new things or experiences.
5.	_____				
					I view challenging situations as an opportunity to grow and learn.
6.	_____				
					I like to do things that are a little frightening.
7.	_____				
					I am always looking for experiences that challenge how I think about myself and the world.
8.	_____				
					I prefer jobs that are excitingly unpredictable.
9.	_____				
					I frequently seek out opportunities to challenge myself and grow as a person.
10.	_____				
					I am the kind of person who embraces unfamiliar people, events, and places.

7. Life satisfaction

Life satisfaction questionnaire

This questionnaire is about how you feel about yourself and your life. Put a circle around the answer that shows how much you agree or disagree with each statement. Please be as honest as you can – there are no right or wrong answers.



Disagree
a lot



Disagree
a little



Agree
a little



Agree
a lot

My life is going well	1	2	3	4
I would like to change things in my life	1	2	3	4
I wish I had a different kind of life	1	2	3	4
I have a good life	1	2	3	4
My life is better than it is for most children	1	2	3	4
In the last month, I have felt happy very often	1	2	3	4
In the last month, I have felt sad very often	1	2	3	4

APPENDIX 7

The Habits of Mind framework

THE SEA VIEW HABITS OF MIND

THINKING

Creative

- I can think of questions which help produce more ideas.
- I can work on a problem in a number of ways and be flexible in my thinking.
- I can unlock my potential by dreaming big, setting myself goals and making them happen.

Reflective

- I can work out why some things go well and other things are difficult, and use this to plan for the future.
- I can notice when I use Habits of Mind in other lessons and outside of school.
- I can give and receive helpful feedback in a number of ways to improve results for myself and others.

Critical thinker

- I can use thinking tools to organise information and ideas.
- I can think about big ideas from different perspectives and provide reasons for my thinking.
- I can think together with others to understand things better than I could by myself.

BEING

Independent

- I can make up my own mind about things and I am not afraid to stand out from the crowd.
- I can use a range of methods to find information quickly in books and online media.
- I can identify the best information to help complete a task and put it into my own words.

Organised

- I can organise my equipment and time effectively.
- I can adapt my behaviour to suit a range of situations.
- I can use a range of strategies before asking for help.

Resilient

- I can persevere with any task and remain focused until it is completed.
- I can accept defeat with good grace and appreciate the value of getting things wrong.
- I can use a range of strategies to make sure nobody disrupts my learning.

DOING

Team player

- I can work well in a group, listening attentively and taking on different roles when needed.
- I can negotiate and follow ground rules, to ensure fairness and cooperation when working with others.
- I can manage my emotions and establish a positive working relationship with anyone.

Engaged in the community

- I can clearly communicate thoughts, ideas and feelings in a number of ways.
- I can take on extra responsibilities to help those around me, inside and outside of school.
- I can draw inspiration from outside school to bring passion and positivity to my work.

Agent of change

- I can take calculated risks to help bring about change.
- I can take part in democratic processes to ensure my views and those of others are expressed fairly.
- I can speak out against injustice and stand up for what is right.

APPENDIX 8

Habits of Mind interview schedule

Habits of Mind evaluation: student interview schedule

1. What do you think about the Habits of Mind?
2. Do you notice when you're using them in lessons?
3. Does your teacher ever talk about them in *Learning Skills* lessons?
 - If so, can you give any examples?
4. Do you enjoy *Learning Skills* lessons?
 - If so, why? If not, why not?
5. Do your teachers ever talk about Habits of Mind in your other lessons?
 - If so, can you give any examples?
6. Which subjects do you think you use them more in?
 - Why do you think this?
7. Which subjects do you use them least in?
 - Why is this, do you think?
8. What about outside of school, do you think you use them there?
 - If so, why? If not, why not?
9. If you were teaching *Learning Skills*, what would you do differently?
10. Do you prefer to work individually, or in groups?
11. Which Habits of Mind do you think reflect your personality?
12. Is there anything else you want to say about the Habits of Mind?
13. Lastly – what are the Habits of Mind?

APPENDIX 9

Student interview schedule

Student interview schedule

1. Thinking about this year – what’s your favourite subject?
2. How much do you enjoy it on a scale of 1 to 10?
3. Why did you give it that number? (If not 10 – Why is it not a 10?)
4. What’s your least favourite subject this year?
5. How much do you enjoy it on a scale of 1 to 10?
6. Why did you give it that number? (If not 1 – Why is it not a 1?)
7. Thinking now about *Learning Skills* – how much do you enjoy *Learning Skills* lessons, on a scale of 1 to 10?
8. Why did you give it that number?
9. What do you remember about our *Learning Skills* lessons?
10. What did you enjoy most about *Learning Skills* lessons?
11. What did you enjoy least / find most challenging about *Learning Skills* lessons?
12. Do you think *Learning Skills* helped you learn better in your other subject areas – or more generally, or outside of school?
13. If so, why? If not, why not?
14. I would now like to share with you a few findings about *Learning Skills*.
When we looked at the exam results across the school, we found that the year groups that did *Learning Skills* did much better than the groups that didn’t.
Why do you think that might be?
15. Do you have anything else to add about *Learning Skills*?

APPENDIX 10

Teacher interview guide

Teacher interview guide

- How did you come to be involved in the *Learning Skills* programme?
- What are your thoughts on how the *Learning Skills* team was put together?
- What do you think about the fact that there was a competitive selection process?
- What do you remember about the early meetings / planning sessions?
- What do you remember about the lessons?
- When did you first hear about Learning to Learn as a field of study that is wider than what we were doing at Sea View?
- Thinking about *Learning Skills* generally, what went well?
- Can you share any examples of *Learning Skills* lessons that you think worked particularly well, or that were effective?
- Can you share any examples of *Learning Skills* lessons that you think did not work particularly well, or that were ineffective?
- What do you think we should do differently if we did it again?
- What impact, if any, do you think the *Learning Skills* programme has had on students in Key Stage 3?
 - In your lessons
 - Around the school
- Did teaching *Learning Skills* have any impact on the way you teach your subject? If so, how? If not, why not?
- What do you think about the fact that the *Learning Skills* cohort achieved better exam results than the control cohort?
- Why do you think the gap closed between disadvantaged students and their peers?