THE *LEARNING SKILLS* CURRICULUM: AN EIGHT-YEAR EVALUATION OF A COMPLEX INTERVENTION

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ABSTRACT

Learning to Learn is a field of educational theory and practice that aims to help children become more effective learners. The field has grown significantly throughout the last 40 years and a number of approaches have been implemented on a large scale in the UK as well as internationally. Research into metacognition and self-regulation suggests that Learning to Learn programmes should help boost academic attainment. However, to date, large-scale evaluations of Learning to Learn initiatives have found no clear impact on academic attainment. This paper presents the findings of an eight-year case study of *Learning Skills*, a new approach to Learning to Learn that was developed at a secondary school in the south of England, and evaluated over eight years (2009 to 2017). Using an interventional 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' to arise from each component stack up and interact to yield a larger effect size overall. This evaluation found that *Learning Skills* led to significant gains in subject learning, with accelerated gains among pupils from economically disadvantaged backgrounds. Further qualitative data analyses indicate a positive causal relationship between *Learning Skills* and academic attainment. As well as evaluating the impact of a promising new approach to Learning to Learn, this study generates new knowledge about the implementation and evaluation of complex interventions in education.
Key words: Complex intervention, learning to learn, metacognition, self-regulation

INTRODUCTION

This article describes an eight-year interventional case study of the *Learning Skills* curriculum, a new approach to Learning to Learn that was developed at a secondary school in the south of England, and evaluated using data collected between

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2009 and 2017. This mixed methods study took place in a comprehensive school in the south of England school (referred to here as 'Sea View') where the author worked for eight years as a teacher of science and *Learning Skills*. In 2010, the year the *Learning Skills* programme began, the proportion of students eligible for free school meals (FSM) was described by Ofsted as "well above average".[1]

The *Learning Skills* curriculum is a timetabled programme of study that was taught initially to all students in year seven for five lessons a week, in mixed ability groups. 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 strategies were also put in place to promote the transfer of knowledge, skills, habits and attitudes from the taught course into subject areas throughout the school (Mannion, 2018).

The primary aim of the study was to follow the first *Learning Skills* cohort from year seven to 11, evaluating the impact of the programme on student attainment across the curriculum at three and five years. To examine the impact of the *Learning Skills* curriculum over time, the study also includes data relating to the second and third *Learning Skills* cohorts, as well as for the pre-*Learning Skills* cohort, which served as a historical control group (the two cohorts had very similar prior attainment at entry to the school). This evaluation found that *Learning Skills* cohort one achieved statistically significant gains in subject learning across the curriculum, compared with the pre-*Learning Skills* control cohort. In particular, there were accelerated gains among pupils from economically disadvantaged backgrounds. At the end of year 9, the Pupil Premium (PP) gap (i.e. the attainment gap between economically disadvantaged students and their peers) was 25% in the pre-*Learning Skills* control cohort; in *Learning Skills* cohort one, the PP gap was just 2% (Mannion & Mercer, 2016). At the end of year 11, again *Learning Skills* cohort one significantly outperformed the control cohort, and again the gains were more pronounced among students from disadvantaged backgrounds. In the control cohort, the PP gap at GCSE was 25.7%; in the treatment cohort, the PP gap was 8.5%, a reduction by 66.9% from one cohort to the next (Mannion, Mercer & McAllister, 2018).

In this article, I will focus on the conceptual innovation that underpins this promising new approach – namely, that the *Learning Skills* curriculum reconceptualises Learning to Learn as a *complex intervention*, an interventional design that is common in medicine and other fields but is relatively underdeveloped in education. This article will also present qualitative data analyses of the students' journal entries and student interviews, which indicate a causal relationship between

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[1] Reference withheld to preserve anonymity.

the students' participation in the *Learning Skills* curriculum and their subsequent improved attainment across the curriculum. First, it will be useful to provide a brief historical context, in order to explain how *Learning Skills* differs from previous Learning to Learn initiatives, which have met with mixed results.

The Learning to Learn paradox

Learning to Learn is a field of educational theory and practice that aims to help people get better at learning. The whole enterprise is based on the observation that some people are better at learning things than others, and on the assumption that it is possible for all people to get better at learning things, given the right conditions, instruction and support. 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, trying out different learning strategies and monitoring their own progress.

In 2011, the Sutton Trust and the Education Endowment Foundation (EEF) published a Teaching and Learning Toolkit which ranks a wide range of educational practices in terms of impact and cost with a view to helping schools decide how best to improve outcomes for students from disadvantaged backgrounds (Higgins, Kokotsaki & Coe, 2011). In the Toolkit, 'metacognition and self-regulation' appear at the top of the ranking (second only to 'feedback'), where they are described as follows:

> Metacognition and self-regulation approaches aim to help pupils think about their own learning more explicitly, often by teaching them specific strategies for planning, monitoring and evaluating their learning. Interventions are usually designed to give pupils a repertoire of strategies to choose from and the skills to select the most suitable strategy for a given learning task… Metacognition and self-regulation approaches have consistently high levels of impact, with pupils making an average of seven months' additional progress… The evidence indicates that teaching these strategies can be particularly effective for low achieving and older pupils.
>
> (EEF, 2019a)

The EEF Toolkit states that self-regulation and metacognition, which are "sometimes known as 'learning to learn'", provide "high impact for very low cost, based on extensive evidence" (EEF, 2019a). To support this judgment, they cite a number of meta-analyses and literature reviews that report significant effect sizes on academic attainment across a range of subjects (EEF, 2019b).

Over the last 40 years, there have been a number of attempts to translate such positive research findings into educational programmes with the aim of replicating these effects at scale. In particular, four Learning to Learn initiatives have been implemented and evaluated on a large scale in the UK in the last 20 years: *Learning to Learn in Schools*, *Learning How to Learn*, *Building Learning Power* and *Opening Minds*. There have also been a number of attempts to implement Learning to Learn programmes in other countries, especially in Europe (Education Council, 2006). To date however, large-scale evaluations of Learning to Learn initiatives have had mixed results; while researchers often draw attention to isolated examples of effective practice, the net finding has been that large-scale Learning to Learn initiatives have not had a clear impact on academic learning (Wall et al., 2010; James et al., 2006; Claxton et al., 2011; Aynsley et al., 2012; Moreno & Martín, 2007). It therefore appears that there is a disconnect between the research, which is primarily based on meta-analyses of small studies, and attempts to reproduce these effects at scale.

Faced with these paradoxical research findings, the education community is faced with a choice. One could take the view that Learning to Learn has been tried and tested but has fallen short of fulfilling its promise when implemented at scale, and should be disregarded as a framework for school improvement. Indeed, some commentators have already drawn this conclusion, as can be seen in the assertion of Bennett: "Learning to Learn. It isn't even a thing. We've been hoaxed…" (Bennett, 2013, p. 161). Alternatively, one can take the view that it may be possible to build on previous efforts, to develop the theory and practice of Learning to Learn further and to determine whether the positive findings reported in the literature can be reproduced at scale. 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. Before I outline the components of the *Learning Skills* curriculum, I will briefly review the literature relating to complex interventions in education and other fields.

Complex interventions in education and other fields

Complex interventions, defined simply as "interventions that contain several inter-acting 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 theory of 'marginal gains', an economic term that has gained popularity in recent years, in part through the success of the British cycling team. Put simply, the logic of 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 (Joshi, 2005).

To determine the extent to which complex interventions appear in the education literature relative to medicine, a medical search engine (PubMed Central; ncbi. nlm.nih.gov) was mined using the search term < *"complex intervention" OR "multimodal intervention" OR "multi-modal intervention"* >. This elicited 3542 results. When the same search terms were entered into an education research database (eric.ed.gov), just 131 results were revealed. There were therefore 27 times more mentions of complex interventions in the medical literature than in the education literature (Figure 1).

In fact, the disparity is even greater than this crude comparison reveals. To compare the ways 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 the date range 1995 to 2017. Of these, all 20 texts explicitly referred to complex or multi-modal interventions in the classic sense described above. In contrast, of the 131 articles elicited through the ERIC search, only five met this criterion (Mannion, 2018). It is clear that complex interventions are more prevalent in the education sector than just these five articles. For example, a review by Miranda et al. (2006) includes seven studies described as 'multiple component interventions'. Another example is *Achievement for All,* which has been described as a "complex, multi-component intervention" (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
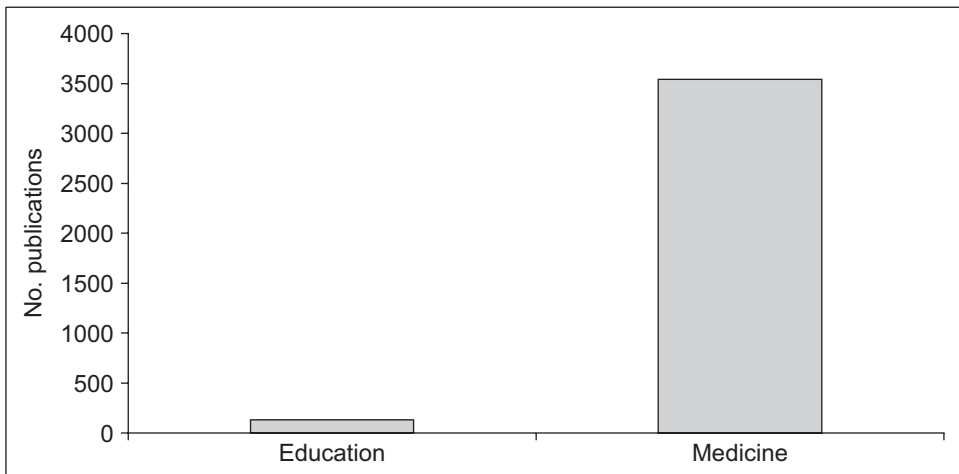
Figure 1: References to complex interventions in the educational and medical literature.

suggests that this design model is far less prevalent in education than in other fields. Whereas in medicine, the case for using complex interventions to improve patient outcomes has been made many times (e.g. Pfadenhauer, 2017), in education, the parallel case has not explicitly been made for using complex interventions to improve student outcomes. Instead, in education there is 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, a research programme that is set to spend around £0.25 billion over a 15-year period with a view to finding out "what works" in education. Almost all of the 130+ 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 include daily singing; the use of picture books; providing breakfasts; texting students; and short bursts of physical activity in between lessons (EEF, 2019c).

The *Learning Skills* curriculum: components of a complex intervention

One way in which *Learning Skills* moves the field forward is by reconceptualising Learning to Learn as a complex intervention. Table 1 summarises the key features of the *Learning Skills* programme at Sea View, with examples of supporting literature. The ways in which these principles were enacted at Sea View are described in detail elsewhere (Mannion, 2018). For the purposes of this article, it will be useful to focus on three aspects of the *Learning Skills* curriculum at Sea View that were instrumental to its success: a dedicated teaching team; a combined (taught and embedded) approach; and an explicit approach to promoting the transfer of knowledge, skills, habits and dispositions from the *Learning Skills* taught course into subject learning throughout the school.

A dedicated teaching team

The *Learning Skills* curriculum was initiated with an email from the Headteacher to all teaching staff at Sea View, inviting applications to join a team tasked with designing and teaching a year seven Learning to Learn curriculum. Following a competitive selection process, a team of five teachers was established who were highly committed to the project. Often in the past, Learning to Learn programmes have been taught by "sceptical conscripts" (Downey et al., 2013, p. 378), rather than by dedicated specialists. This establishment of a dedicated team at the outset was critical to the future success of the programme. It is well understood that metacognition and self-regulation programmes are more successful when they are implemented by the teachers who designed them (Dignath et al., 2008).

Table 1. Components of the complex *Learning Skills* intervention.

Component of the *Learning Skills* programme	Taught / embedded / teacher-based	Examples of supporting literature
Self-regulation (project-based learning)	Taught course (Y7, 8)	Dignath et al. (2008)
Metacognition (reflective learning journals, reflective plenaries, shared language of learning)	Taught course (Y7, 8 & 9) and embedded	Whitebread & Pino Pasternak (2010)
Collaboration (paired à group, familiar à unfamiliar)	Taught course (Y7, 8) and embedded	Slavin (2010)
Oracy (weekly philosophical inquiries, paired talk tasks, debates, discussion guidelines)	Taught course (Y7, 8 & 9) and embedded	Mercer & Littleton (2007)
Formative assessment (feedback used to adapt future teaching)	Taught course (Y7, 8 & 9) and embedded	Black & Wiliam (1998)
Personal effectiveness (organisational skills)	Taught course (Y8)	Harrison, James & Last (2012)
Thinking & Reasoning Skills (critical thinking, problem solving, argumentation, fallacies…)	Taught course (Y9)	Moseley et al. (2005)
Transfer (managed approach: transfer out, transfer in)	Taught course (Y7, 8 & 9) and embedded	Hipkins & Cowie (2014)
Shared language of learning (co-constructed with pupils, used to help pupils reflect on the 'how' of learning)	Taught course (Y7, 8 & 9) and embedded	Claxton et al. (2011)
Weekly CPD programme (embedding learning-centred practices throughout the school)	Teacher-based	Timperley (2011)

A combined (taught and embedded) approach

Previous Learning to Learn initiatives have tended to focus either on teaching learning skills through a discrete course, or on embedding them throughout the curriculum. In contrast, the *Learning Skills* programme at Sea View adopted a pragmatic *combined approach*, whereby Learning to Learn was taught explicitly (in years seven, eight and nine) *and* embedded in subject learning across the curriculum. This two-tiered approach was further augmented by a number of

whole-school strategies designed to promote the transfer of skills and attitudes developed through the *Learning Skills* programme into subject areas throughout the school. As far as the author is aware, the *Learning Skills* curriculum is the first example of such an explicitly combined approach to Learning to Learn to enter the literature.

Transfer

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. 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. In addition, 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. A 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 – helped provide students with a more joined-up diet of learning across the curriculum (Mannion & Mercer, 2016). There was a clear whole-school expectation, enacted through lesson planning and observation protocols, that this shared language of learning should be used to ensure that in each lesson, there was explicit metacognitive reflection regarding the *how*, as well as the *what* of learning.

METHODOLOGY: QUALITATIVE DATA ANALYSIS

This study covers a period of time from September 2009, when the pre-*Learning Skills* control cohort joined the school in year seven, through to August 2017, when the third *Learning Skills* cohort received their GCSE results. Although the study period spans eight years, it is not a longitudinal study since it does not involve repeat data collection at multiple time-points; rather, it should be viewed as an eight-year case study. The fact that *Learning Skills* is a complex intervention lends itself to case study, since the approach "exhibits a profound respect for the complexity of social phenomena" (Mabry, 2008, p. 217).

Alongside the analysis of student attainment across all subjects at three and five years, this study incorporated a further seven strands of data collection and analysis: baseline data, attitudes to learning, psychometric questionnaires, a language of learning evaluation, teacher interviews, student interviews and

students' entries in reflective learning journals. In this article, I will focus on these latter two strands as a basis for qualitatively exploring the extent to which the gains in subject learning can be attributed to the *Learning Skills* curriculum.

The student interviews and reflective learning journals (RLJs) were analysed using an inductive, bottom-up method that combines features of content analysis (CA) and thematic analysis (TA). One key distinction between the two approaches is that in CA, codes and themes are tallied, allowing the researcher to identify the relative frequency and importance of particular themes. While one should not ascribe any great significance to the frequency of codes or themes, in this paper, tables are presented detailing these frequencies. This is useful because to limit the analysis of each theme to a small number of excerpts may give an impression of equivalence which would not be representative of the data.

The approach used in this study draws on Braun & Clarke (2006), who view TA as a flexible analytic method that can be applied across a range of methodological approaches. In this study, TA was carried out according to the six stages suggested by Braun & Clark: 1) familiarisation with the data; 2) coding; 3) searching for themes; 4) reviewing themes; 5) defining and naming themes; and 6) writing up. Although there is a logical sequential order evident within these stages, this method is not to be followed in a linear way; instead, codes and themes are identified through a recursive process involving repeated cycles of 'constant comparison'.

METHODS AND FINDINGS

Student attainment

As reported previously, analysis of student attainment at three and five years found that the *Learning Skills* curriculum was associated with statistically significant gains in subject learning, with accelerated gains among students from disadvantaged backgrounds (Mannion & Mercer, 2016; Mannion, McAllister & Mercer, 2018). To contextualise this closing of the PP gap within the local cluster of schools, Figure 2 shows how the PP gap changed from 2014 to 2015 for each school in the cluster. Here, we can see that the significant decrease in PP gap at Sea View from 2014 to 2015 was the biggest decrease of any school in the cluster, in a year when the gap increased slightly across the cluster (and the country) as a whole.

In the second year of the *Learning Skills* programme, there were changes to the teaching team due to wider staffing cuts. As a consequence, half the students in year seven were taught by teachers who self-identified as 'sceptical conscripts'. The Head of *Learning Skills* at the time described the impact of these changes as
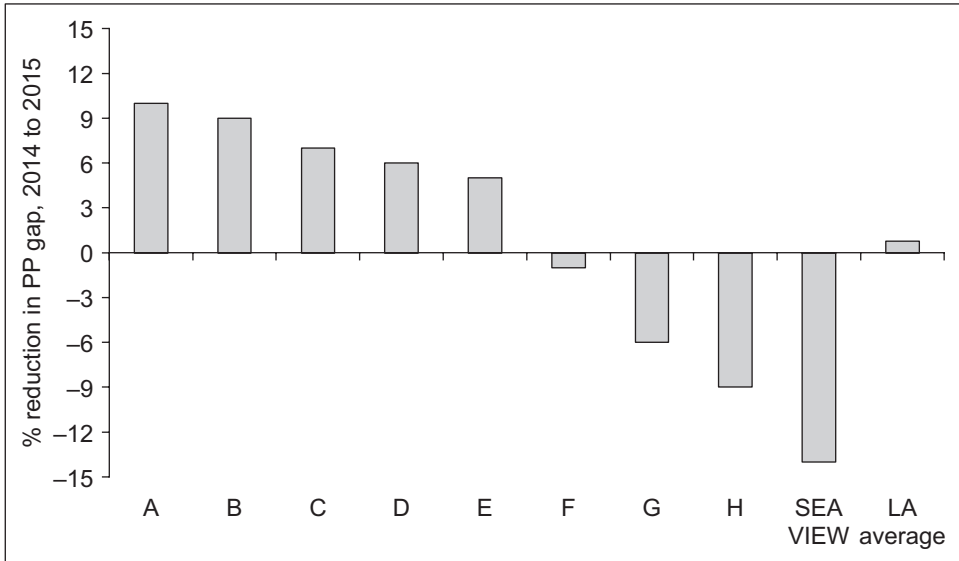
Figure 2. Change in Pupil Premium gap across the local cluster, 2014–15 (A*C EM).

"huge… they lost 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 to the quality of provision enabled a retrospective analysis of student 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 2. The way in which GCSEs are measured changed between 2016 and 2017, and so the 5A*CEM metric (the proportion of pupils who achieved an A*-C grade in 5 subjects, including English and Maths) is not available for 2017. '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).

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 for cohort two. This dip only lasted for one year; in *Learning Skills* cohort three, 70% of students achieved 9-4 in English and Maths, placing them in the top 5% of similar schools nationally. This retrospective analysis aligns with the 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; when the year

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

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

seven *Learning Skills* course returned to being taught by dedicated teachers in its third year, there was a corresponding improvement in attainment at GCSE five years later.

The question of causality – the extent to which the gains in student attainment at GCSE can be attributed to the *Learning Skills* curriculum – was also investigated qualitatively, by analysing what students wrote and said about the impact of *Learning Skills* on subject learning across the curriculum. The aim here was to explore the 'space between' the input and output variables, and to determine whether the study's hypothesis – that *Learning Skills* leads to measurable gains in academic attainment across the curriculum – would be triangulated by what students wrote and said.

Reflective learning journals

In year seven, all students had one lesson a fortnight which included 20 minutes' silent writing in a reflective learning journal (RLJ). A random sample of 30 students' RLJs was collected; from each, five entries were sampled, covering the same date range. The aim of this strand of data analysis was to determine the extent to which the students felt *Learning Skills* helped 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 attempted to complete the 'seven days challenge' for anti-bullying week, whereby they attempted to get through a week without saying anything negative about other people. As a consequence, many of the students' comments that week related to interpersonal relationships. The RLJ sample was analysed thematically using the methodology outlined above. Because it is the content rather than the style that is of interest in this study, spelling mistakes have been corrected in the excerpts presented here. To give a sense of the style of writing within RLJs, for some of the longer entries, photographs are used instead of transcribed excerpts.

A summary of the codes and themes to emerge from the students' RLJ entries can be seen in Table 3. The most frequent themes were 'interpersonal relations' and

Table 3. 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
Other subjects	46	Other subjects – favourites	19
		Other subjects – least favourites	27
Learning Skills positives	26	*Learning Skills* – confidence / helps	15
		Learning Skills – favourite lesson / enjoy	11
Transfer	24	Transfer	16
		No transfer	3
		Transfer maybe	5
General school	22	General – challenge	7
		General – strategies	7
		General – proud	8

'other subjects'. This is because the sample covered anti-bullying week and the 'seven days challenge', which naturally focused on interpersonal issues, and because students were responding to prompt questions which focused on how they were learning in different subjects as a method for promoting transfer. The next two themes to emerge – *Learning Skills* positives, and transfer – are of most interest here.

Within the '*Learning Skills* positives' theme, a common pattern to emerge was that many of the students felt that the *Learning Skills* programme helped them become more confident, or that it helped them in some other way, as can be seen in the following comments:

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.

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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.

This idea that *Learning Skills* lessons helped students gain confidence is also apparent in the excerpt in Figure 3. Here, the student writes 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 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. This provides an insight into one way in which knowledge and skills learnt in the *Learning Skills* taught
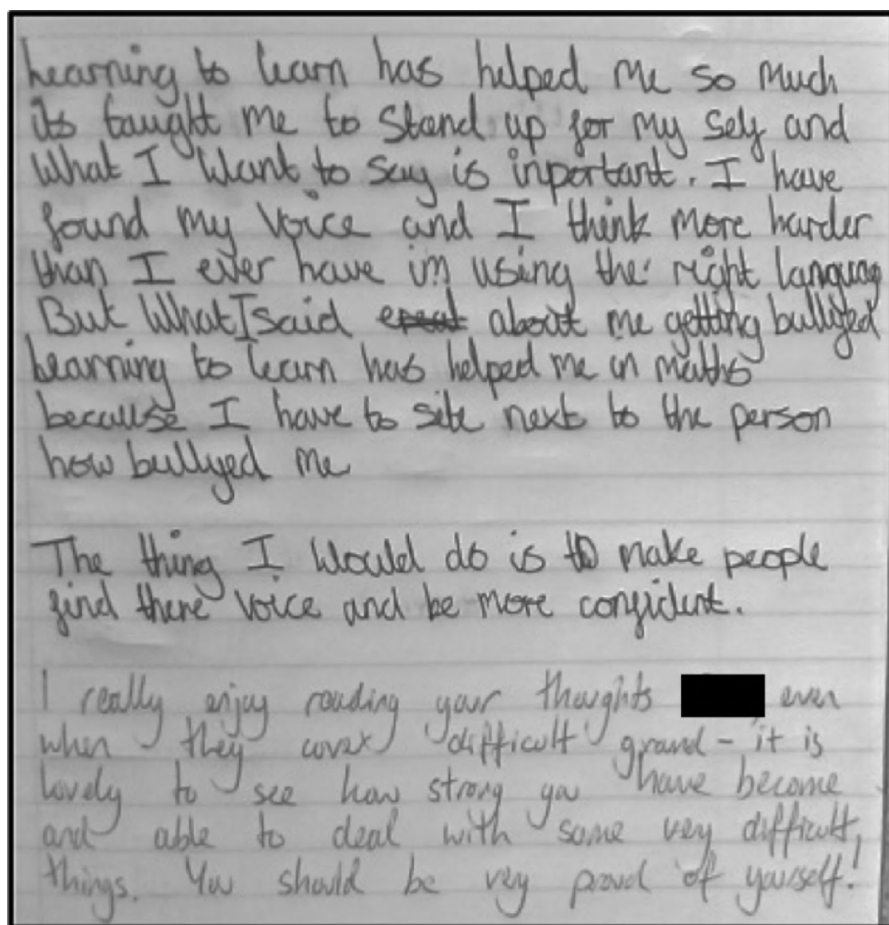

Figure 3: Reflective learning journal, excerpt 1.

course might transfer meaningfully to other lessons – by helping pupils learn to navigate the often challenging terrain of interpersonal relations within their peer group.

The theme of transfer emerged strongly within the RLJ data, although this is not a naturalistic finding, since students were prompted to write about whether they felt *Learning Skills* lessons helped them learn in other lessons in this section of their RLJ. Some of the ways in which knowledge and skills developed in *Learning Skills* lessons may have transferred to other subject areas can be seen in the following excerpts:

> *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 in the sample 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. For example, in Figure 4 we can 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.

It should be recognised that a small number of students (three in the sample) were quite clear that *Learning Skills* did not help them learn more effectively in their other subjects, writing for example that "It doesn't really help with anything" or "I think Learning Skills is fun but it hasn't helped in other lessons". However, as can be seen in Figure 5, 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
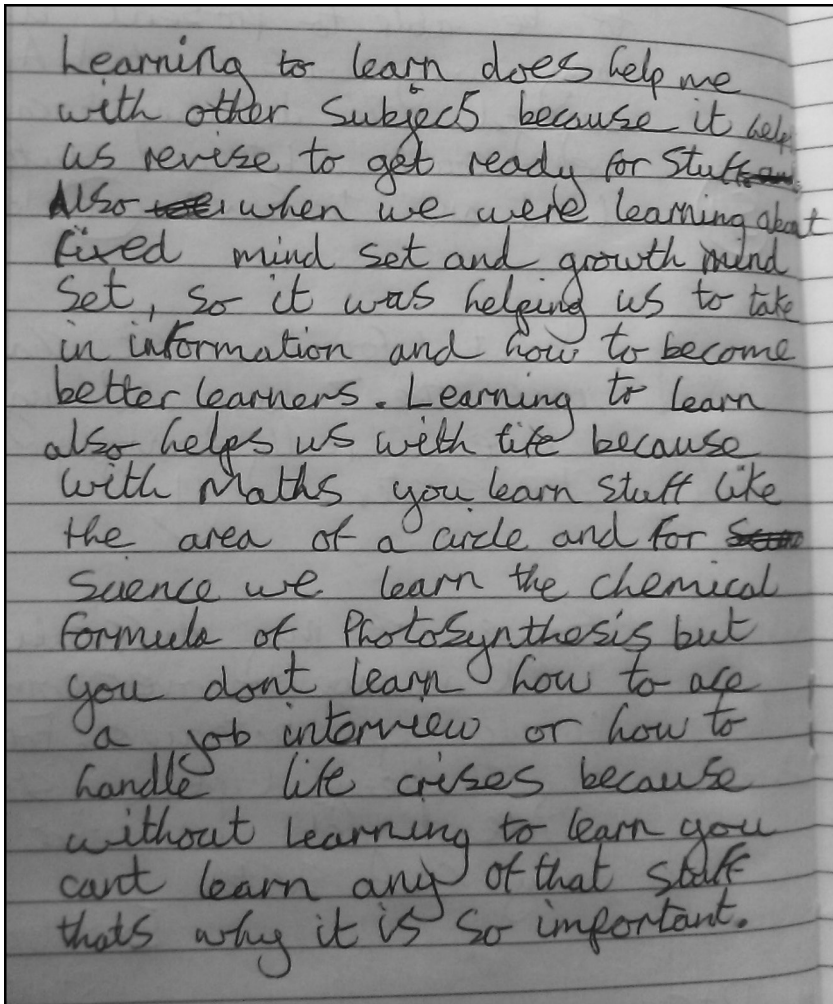
Learning to learn does help me with other subjects because it helps us revise to get ready for stuff. Also when we were learning about fixed mind set and growth mind set, so it was helping us to take in information and how to become better learners. Learning to learn also helps us with life because with Maths you learn stuff like the area of a circle and for Science we learn the chemical formula of Photosynthesis but you dont learn how to ace a job interview or how to handle life crises because without learning to learn you cant learn any of that stuff thats why it is so important.

Figure 4. Reflective learning journal, excerpt 2.

is an example of implicit transfer, which could have been made more explicit to students through improved communication between teachers of *Learning Skills* and other subjects.

Student interviews

Interviews were carried out with 31 students from *Learning Skills* cohorts one, two and three. The aims of the interviews were to find out: a) what the students thought about the *Learning Skills* taught course; b) what they about their other
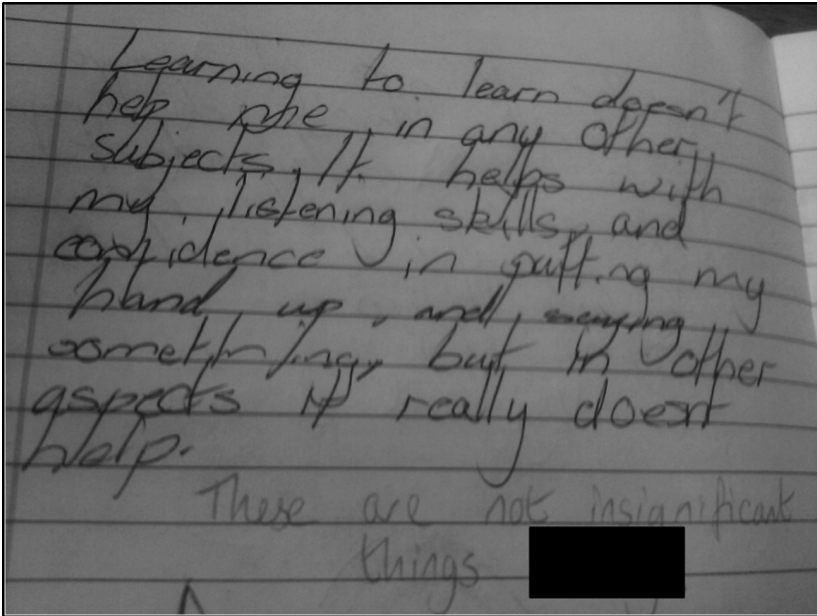
Figure 5. Reflective learning journal, excerpt 3.

subjects; c) whether they felt the *Learning Skills* taught course helped them learn more effectively in other subject areas; and d) if so, how. Students were sampled so as to represent a mixture of different demographic groups. To encourage discussion between students, interviews were conducted in groups of three or more students and ground rules were used to help ensure productive discussion.

The codes and themes to emerge from the student interview data are summarised in Table 4. The most common theme to emerge in this analysis was students saying positive things about the taught *Learning Skills* course, and the main code within this theme was students describing the lessons as enjoyable or fun. As can be seen in the following excerpts, several students spoke at length about reasons for their enjoyment of *Learning Skills* lessons:

> I found it really fun and I like that… (we were) pushed… 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

Table 4. Student interviews: codes and themes.

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

> I found the work in class so that you could read it and see what needed improving on.

> –

> 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.

Other reasons given 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; the fact that they were allowed to choose which topics to research and discuss; meditating; writing in their RLJs; a sense that there was "less pressure to perform" in *Learning Skills* than in other subjects; and the fact that "it was mixed ability (so) I felt like I could relax and not worry about my grades".

Two other codes fall 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 them learn more effectively. These codes can be seen in the following excerpts, where two of the students allude to the fact that they were set challenging tasks:

> 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.

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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 organising the school 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 group interviews, the three-year 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 that year group achieved higher grades in their subject learning across the curriculum:

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.

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Because… because [*the Learning Skills teacher*] 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!"

These interviews were conducted at the end of the third year of the *Learning Skills* programme. The previous year, an interim investigation had revealed that the transfer of knowledge and skills from *Learning Skills* into other lessons was very limited. This led to a number of changes to policy and practice. In the following excerpts from interviews conducted a year later, there was a much stronger sense among the students that *Learning Skills* lessons were helping them learn more effectively in other lessons:

The skill things, critical thinking and problem solving and stuff, we'd go over those in *Learning Skills* and… 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.

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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.

–

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.

In this final comment, we see evidence of the way in which the *Learning Skills* programme helped some students develop the kinds of tacit knowledge – "it kind of sticks with you and then it becomes part of you and your routine" – that could may have helped them learn more effectively in subjects across the curriculum.

SUMMARY AND SYNTHESIS OF FINDINGS

The strongest evidence to suggest a link between *Learning Skills* and subject learning comes from the analysis of student attainment in subject learning at three and five years, comparing the control cohort with *Learning Skills* cohort one. This analysis revealed accelerated subject learning among *Learning Skills* cohort one,

compared with the control group at three and five years. Considering that the control cohort had over 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, since it would be reasonable to expect the control cohort to have a significant advantage in subsequent measures of subject learning.

Due to the staffing changes that led to '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. These findings align with a recent study which found that the quality of teaching in reception class was "significantly related to later attainment at age 16" (Tymms, Merrell & Bailey, 2017).

As ever, it is important to be mindful that correlation does not imply causation, and to entertain the possibility that the gains in subject learning may have been driven by some other factor relating to other aspects of school improvement. However, as an insider-researcher, the author was unable to identify any other significant changes at the school that may provide a plausible explanation as to why attainment should have improved so significantly for *the* treatment cohort, and not for the control group. By far the biggest known difference between the treatment and control cohorts was that the treatment cohort took part in over 400 lessons of *Learning Skills* over a 3-year period. In the analysis of students' RLJ entries, and in the student interviews, a clear pattern is evident whereby students were able to articulate a range 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.

To recap, reasons provided by students that indicate a causal relationship between *Learning Skills* and improved attainment across the curriculum included:

- Improving interpersonal relationships between pupils and their peers, including former bullies;
- Enabling pupils to develop the confidence to find their voice and speak out, informally among their peers as well as when doing formal presentations in other lessons;

- Helping pupils become calmer and more relaxed, e.g. through meditations and also through a lack of pressure to perform, which they felt enabled them to concentrate and "do much better" in other lessons;
- Helping pupils develop strategies for improving their memory;
- Increasing pupils' emotional maturity – helping them 'tolerate anything' and 'handle life crises' without 'blowing their top' at school and at home;
- Being required to work with pupils they wouldn't otherwise work with;
- Writing in journals – reflecting on their feelings as well as their schoolwork in *Learning Skills* and other lessons;
- Debating – being required to argue against their own beliefs;
- Developing time management and resource management skills / meeting deadlines;
- Being set targets that put "a lot of weight on their shoulders" to push them out of their comfort zones;
- Being required to give reasons for their thinking;
- Learning critical thinking, reasoning and problem-solving skills;
- The explicit focus on transfer, which meant that knowledge, skills, habits and dispositions developed through the taught *Learning Skills* were able to transfer to other subjects.

Two conclusions can be drawn from this summary of findings. First, the vast majority of pupils felt that *Learning Skills* had helped pupils learn more effectively in other lessons, and were able to provide examples of the ways in which this happened. Second, there was no single reason as to how *Learning Skills* helped pupils learn in other subjects; indeed, a wide range of examples of transfer and transformation were provided. Taken together, this list provides a powerful endorsement of the decision to design the *Learning Skills* curriculum as a multifaceted 'complex intervention'. Individually, it is unlikely that any of the mechanisms of transfer listed above would have resulted in a significant difference in subject learning. Taken together, however, it is likely that over time, the 'marginal gains' arising from each of these practices stacked up and interacted such that pupils were able to get better at learning in ways that were detectable using existing indicators of learning.

These findings from the students' reflective learning journals and student interviews present a compelling account of the ways in which the *Learning Skills* curriculum had a transformative effect on whole-school teaching and learning practices in ways that are likely to have contributed to the subsequent gains in subject learning across the curriculum. However, it is important to emphasise that this is a pilot study, carried out in one school. A number of limitations should therefore be taken into account when considering the wider significance of these findings.

Limitations

One of the strengths of using the students' RLJs is therefore that they provide a relatively unobtrusive method of observation. However, 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. Therefore, it is possible that the students' RLJ entries may have been influenced by the fact that they were aware that their *Learning Skills* teacher would read their journal entries; indeed, the dialogic nature of teacher/student interactions was a key feature of the RLJs. This may have prompted the students to portray *Learning Skills* in a more positive light than they would have if they knew their teacher was not going to read and comment upon their entries.

The student interviews were primarily 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.

Recommendations for further development of the field

As discussed in the introduction, 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 on a large scale. This study presents a challenge to this view, and suggests that researchers and practitioners of Learning to Learn might fruitfully continue to develop whole-school approaches to teaching and learning rooted in metacognition and self-regulation, such that the positive findings in the research literature can be replicated when implemented at scale.

Given that a *Learning Skills* curriculum needs to be owned by the teachers designing and teaching the programme and tailored to the local school context, it is not clear whether an evaluation of this approach would lend itself to being evaluated through a large-scale randomised controlled trial (RCT). Because a key feature of the *Learning Skills* approach is to harness the enthusiasm and agency of the teaching team, it is likely that a top-down, controlled approach to implementation would undermine the efficacy of the programme. 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. It may be possible to carry out the kind of flexible RCT proposed by Craig et al. for use in evaluating complex interventions in education. 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. The fact that the EEF recently published guidance with regard to evaluating complex, whole-school interventions (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 framework for school improvement.

At this stage, since the *Learning Skills* curriculum 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, implementation is not naturalistic. In addition, it would not be necessary for schools to receive funding, since it didn't cost anything for Sea View to implement the *Learning Skills* curriculum. 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 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 *Learning Skills* handbook led to a similar widespread implementation, within a few years it would be possible to apply a set of selection criteria and carry out a large-scale, real-world evaluation. Despite the many problems associated with scaling up promising initiatives, given the possibility that widespread implementation of the *Learning Skills* curriculum might lead to accelerated learning 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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