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Appendices for

Pedagogies of Engagement:

Teachers' engagement practices in English and Mathematics at Key Stage Two of the primary school

By Lucy M Davies

Contents

Appendix 1: Teachers' Pedagogies and Strategies Article 6
1.a Engagement article 6
Abstract 7
Introduction 8
Study 1: Eliciting some teachers' notions of engagement Method 10
Results 11
Study 2: A broad survey of teachers' notions of engagement Method 12
Results 12
Study 3: Engagement in practice 14
Method 14
Results 15
1.2 Category 1: Fun and exciting 15
1.3 Category 2: Problem Solving 15
1.4 Category 3: Rewards System 15
1.5 Category 4: Practical, hands-on 16
1.6 Category 5: Independent, child-led 16
Discussion 16
1.7 *Pedagogies of engagement* 16
Conclusion 18
References 18
About the authors 20
Address 20

Appendix 2: Overview of Pertinent Studies.....21
Appendix 3: Documents relating to Stage One: Interviews 24
3.a Document: Ethical Approval for Interviews:.....24
3.b Participant Information Sheet for teachers.....25
3.c Example of field notes from Interview:.....26
Appendix 4: Documents relating to Stage Two: Online Questionnaire.....27
4.a Ethical Approval for Questionnaire.....27
4.b Questionnaire as it appeared on Survey Money: 28
4.c Survey Monkey results raw data.....36
Appendix 5: Documents relating to Lesson Observations 48
5.a Ethical approval for lesson observations 48
5.b Participant Information Sheet 49
5.c Declaration of Informed Consent.....50
5.d Vignettes from observed English and Mathematics Lessons 51
5.e Measuring tools completed by ten observed teachers 70
Teacher Type 1 (a) measuring tool 70
Teacher Type 1 (b) Measuring Tool 70
Teacher Type 2 (a) Measuring Tool.....71
Teacher Type 2(b) Measuring Tool 71
Teacher Type 3 (a) Measuring Tool.....72
Teacher Type 3 (b) Measuring Tool 72
Teacher Type 4 (a) Measuring Tool.....73
Teacher Type 4 (b) Measuring Tool 73
Teacher Type 5 (a) Measuring Tool.....74
Teacher Type 5(b) Measuring Tool 74
4.d Completed researcher Measuring tools for each observed lesson 75
Completed researcher Measuring Tool for Teacher Type 1 (a) English.....75
Completed researcher Measuring Tool for Teacher Type 1 (a) Mathematics.....76
Completed researcher Measuring Tool for Teacher Type 1 (b) English 77
Completed researcher Measuring Tool for Teacher Type 1 (b) Mathematics 78
Completed researcher Measuring Tool for Teacher Type 2(a) English 79
Completed researcher Measuring Tool for Teacher Type 2 (a) Mathematics.....80
Completed researcher Measuring Tool for Teacher Type 2 (b) English 81
Completed researcher Measuring Tool for Teacher Type 2 (b) Mathematics 82
Completed researcher Measuring Tool for Teacher Type 3 (a) English.....83
Completed researcher Measuring Tool for Teacher Type 3 (a) Mathematics.....84

Completed researcher Measuring Tool for Teacher Type 3 (b) English 85
Completed researcher Measuring Tool for Teacher Type 3 (b) Mathematics 86
Completed researcher Measuring Tool for Teacher Type 4 (a) English 87
Completed researcher Measuring Tool for Teacher Type 4 (a) Mathematics 88
Completed researcher Measuring Tool for Teacher Type 4 (b) English 89
Completed researcher Measuring Tool for Teacher Type 4 (b) Mathematics 90
Completed researcher Measuring Tool for Teacher Type 5 (a) English 91
Completed researcher Measuring Tool for Teacher Type 5 (a) Mathematics 92
Completed researcher Measuring Tool for Teacher Type 5 (b) English 93
Completed researcher Measuring Tool for Teacher Type 5 (b) Mathematics 94
5.e Correlations between Average Researcher score for LA (green) and Teachers' Whole Class scores (red) in English lessons 95
5.f Correlations between Average Researcher score for MA (green) and Teachers' Whole Class scores (red) in English lessons 96
5.g Correlations between Average Researcher score for HA (green) and Teachers' Whole Class scores (red) in English lessons 97
5.h Correlations between Average Researcher score for LA (green) and Teachers' Whole Class scores (red) 97
5.i Mathematics Correlations between Average Researcher score for MA (green) and Teachers' Whole Class scores (red) 98
4.j Mathematics Correlations between Average Researcher score for HA (green) and Teachers' Whole Class scores (red) 98
Appendix 6: 99
Engaging Lessons CPD Package 99
Towards a Continuing Professional Development Engagement Package 100
Introduction 100
Planning engaging lessons in primary school 100
Ready to use resources for planning and delivery 101
The lesson versus the plan 102
Study One 104
Method 104
Results of Study One 105
Study Two 107
Method 107
Results of Study Two 108
Discussion 111
Conclusion 112

Summary 112
Trialling a Continuing Professional Development package 114
Introduction 114
The Design process and Content of an Engagement Continuing Professional Development Package 114
About the Engaging Lessons PowerPoint Presentation 115
About the Engaging Lessons Brochure 116
Method 119
School Selection 119
Ethical Approval and Anonymity 120
Delivery of the CPD Session 120
Results 121
Survey 121
Responses to Question 1 – Engagement Pedagogy Type 121
Teachers' responses to Question 2.My understanding of engagement has increased due to this session. 122
Teachers' responses to Question 3.The session has led to me to consider making changes to the way I teach. 123
Teachers' responses to Question 4. How likely are you to use the measuring tool to measure engagement in your class? 124
Teachers' responses to Question 5. How likely are you to use the measuring tool to help you when planning lessons? 125
Figure (j) Teachers' responses to Question 5. How likely are you to use the measuring tool to help you when planning lessons? 125
Teachers' responses to Question 6.Please describe briefly what, if anything, you will take away from this session: 125
Teachers' responses Question 7. Is there anything you feel would improve the session? 126
Teachers' responses to Question 8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish) 126
Additional Feedback 127
Reflections on Teachers' Feedback 128
Initial reflections on the package effects 128
Effectiveness of the package 128
Effectiveness of the Practical Classroom Tool 130
Effectiveness of the Learning Objective Inspiration for Engaging Lessons leaflet 131
Areas to be enhanced 131
Further observations 132
Discussion 133

Can teachers' pedagogies of engagement be developed in terms of adapting pedagogies/ widening skills? 134

Can teachers' pedagogies of engagement be developed in terms of judging/ gauging engagement (various types) 134

6.a Ethical Approval to conduct *Engaging Lessons* CPD package 135

6.b Document 2: Letter to Head teacher 136

6.c Document Three: Participant Information Sheet 137

6.d What is Engagement? Flyer 139

6.e Completed teacher surveys 140

Appendix 1: Teachers' Pedagogies and Strategies Article

1.a Engagement article

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Teachers' Pedagogies and Strategies of Engagement

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Abstract

Engagement of students in their learning is a positive approach to enhance their educational experience. Engagement is, however, a broad term with a variety of meanings. When attempting to engage students in order to raise their academic attainment it is likely that teachers' beliefs about engagement will influence pedagogical practices. A review of 720 articles, published since 2000, found six kinds of engagement, with cognitive and emotional engagement being most strongly linked to academic attainment. The review found that studies often focused on older learners, while elementary students were under-represented. This prompted a mixed methods study involving interviews, an online survey of 600 teachers, and lesson observations exploring teachers' beliefs and practices regarding engagement, focusing on those teaching children of 8-11 years. The study identified five categories of teacher, each favouring a particular pedagogy of engagement. Many teachers also believed that no special effort to engage higher ability children is needed. Without recognition that all need to be supported to engage in their learning, some teachers risk failing to provide for more able students. We recommend that there should be theory-guided training to help teachers identify indicators of emotional and intellectual engagement, to help them vary their strategy, and which points to the need to consider all students, including those of high ability.

Keywords: Engagement in the elementary school; beliefs about engagement; engagement practices; ability; creativity.

Introduction

Student engagement generally refers to the extent to which students join in their education, mentally and physically (Axelson & Flick, 2011). It seems self-evident that engagement can produce desirable changes in learning and attainment. Its counterpart, disengagement, not only fails to produce such changes, but can lead to undesirable behaviours. Accordingly, engagement in the classroom is seen as something to be assisted. Recently, there has been significant interest in student engagement, insofar as this is indicated by the number of articles about it in the last decade. Most interest is directed at the older student; much less is on primary/elementary school children. The object of study varies from a macroscopic engagement in school more broadly to a more microscopic engagement in particular activities in a learning event. The context also varies. For instance, it might be a formal lesson in a classroom, or instruction delivered online (Beer, Clark & Jones, 2010). The multifaceted nature of engagement has been noted by, for example, Jimerson, Campos and Greif (2003), and our inspection of some 720 recent articles, published since 2000, illustrated the manifold nature of the notion of engagement. It can relate to the intellectual, physical, cultural, behavioural, emotional and social aspects of education (Table 1). There are also various combinations of these (Davies, 2018). Social and emotional engagement accounted for most interest, closely followed by intellectual engagement. Kandel (2006) argued that constructing understandings needs a lot of mental concentration, which is helped by strong intellectual or emotional engagement. Interest in engagement in certain curriculum areas also varies. For instance, a popular area is engagement in learning science. Engagement in other areas, such as literacy and mathematics, has consistently attracted much less attention.

Here, we take engagement to be an act or state of involvement in an activity (mental or physical), which can vary in intensity from negligible involvement to engrossed flow (Csikszentmihalyi, 1992). The more absorbing states have more potential to support classroom learning and attainment (e.g., Axelson & Flick, 2011; Beer, Clark & Jones, 2010). A willing engagement is commonly assumed to be better than coerced engagement, as it is more likely to be more engrossing. At the same time, working with willing participants can be less stressful for teachers. For such reasons, teachers may use practices, approaches and strategies they believe will attract students and induce their willing engagement. These could come from, for instance, their training, other teachers, trial and error, experience (both of students and as students themselves), and teaching resources. Their beliefs, conscious and unconscious, could amount to a coherent theory of engagement, or a more limited and fragmented understanding of what engages students. Such beliefs underpin personal pedagogies of engagement (Mestre, 2005). For example, a pedagogy could be based on a belief that learners are inherently reluctant to engage, and have to be coerced by unpleasant consequences for not engaging.

More formal theories of cognitive and emotional engagement focus on psychological need satisfaction (e.g., Ryan & Deci, 2000) and goal achievement (e.g., Anderman & Patrick, 2012), with some overlap when the goal is to satisfy a need. For practical purposes, these can be subsumed under an umbrella notion of personal relevance theory (Newton, 1988). In this, motivation to engage stems from the perceived relevance of an act (mental or physical) to satisfy some personal need or advance a goal. There may be a need, for instance, for novelty, competence, an understanding of the self, affiliation, autonomy, or to promote some long-term aspiration. An action which appears to offer one or more of these tends to attract a willing engagement from predisposed students. For example, opportunities to be creative can offer some autonomy, and so can be engaging (Cremin et al., 2006). Motivation and engagement, however, are not synonymous: engagement is the act and state of involvement, motivation is the stimulus for that involvement. Some educators may not distinguish

between motivation and engagement, but there can be practical value in separating antecedents and their consequences (Reschly & Christenson, 2012).

Table 1: Categories of engagements: descriptors & definitions.

Category of engagement	Description:	Example from the research literature:
Intellectual	Intellectual engagement is sometimes also referred to as 'cognitive' or 'academic' engagement, related to a student's absorption with intellectual tasks.	'A serious emotional and cognitive investment in learning, using higher order thinking skills (such as analysis and evaluation) to increase understanding, solve complex problems, or construct new knowledge' (Willms, Friesen and Milton, 2009, p.6)
Physical	Physical engagement has been described in terms of a student's active physical participation in lessons due to the teacher planning activities which involve motion or engagement in physical activities.	This can be a student's participation in 'hands on activities with physical movement' (Wiesner-Groff, 2012) or defined as a student's engagement in Physical Education lessons where, 'engaged students persist in active and effortful attempts to master the knowledge and skills they encounter and exhibit a preference for and enjoyment of physical activity' (Bevans et al., 2010).
Cultural	Cultural engagement is often defined as whether students of all cultures feel accepted and welcomed in the learning environment (Hess, Lanig & Vaughan, 2007).	Harper and Quaye (2009) argue that cultural engagement involves both students and the educational institution, 'students should not be chiefly responsible for engaging themselves ... but instead administrators and educators must foster the conditions that enable diverse populations of students to be engaged (Harper & Quaye, 2009, cited in Trowler, V., 2010 p. 5)
Behavioural	Behavioural engagement has been defined as: a. participation in school-centred activities, such as extracurricular activities (e.g., Fullarton, 2002);	Fredricks et al. (2004, p.62) noted that, 'In general, these definitions do not make distinctions among various types of behaviour, such as participation in academic and non-academic school activities'.
	b. school attendance (e.g Willms, 2003); c. involvement in learning and academic tasks (e.g., Fredricks et al., 2004).	
Emotional	Emotional engagement related to how a student feels during a particular activity, lesson or more generally with their education as a whole.	This has been described as a student's 'emotional response characterized by feelings of involvement in school as a place and a [provider] of activities worth pursuing' (e.g., Finn & Zimmer, 2012 p. 103).

Social	Social Engagement can be defined as the extent to which a student follows written and unwritten rules of behaviour, for example, coming to class on time, interacting appropriately with teachers and peers, and not exhibiting anti-social behaviours, such as withdrawing from participation in learning activities or disrupting the work of other students (Finn & Zimmer, 2012).	Positive social engagement relates to relationships and interactions; 'relations represent more of a quality of attachment, inclusion, integration, unity, connectedness, or empowerment' (Lamborn et al., 1992. p.16). Social engagement is often described as the opposite of disengagement, and shapes most of the literature relating to this category of engagement.

As less attention has been given to engaging younger children in classroom learning, we were curious about their teachers' notions of engagement, with a view to informing our understanding of these teachers' pedagogies of engagement, and how they relate to their students' abilities. To that end, three studies were carried out, each informing the next. We describe each in turn, and then discuss them together.

Study 1: Eliciting some teachers' notions of engagement Method

Marton's phenomenographic method for eliciting people's conceptions and beliefs about some aspect the world was used (Marton, 1981; Larsson & Holstrom, 2007). This involves interviewing between twelve and twenty participants. Here, 16 teachers were interviewed (individually, face-to-face, 5 male and 11 female, reflecting the gender balance in the elementary school). These varied in age from 25 to 58 years, and all taught children aged between 8 and 11 years. They were asked open-ended questions about classroom engagement in learning. For example:

- I'm interested in student engagement. What does it mean to you? What engages students?
- Can you give me an example of a lesson or activity when the class has been engaged? How do you know they are engaged?
- Does engagement 'look different' in mathematics, English, and science lessons?
- In your experience, do children have to be engaged to learn?

Responses could be explored further to clarify and delineate meaning (Punch & Oancea, 2015). The interviews lasted about 30 minutes. Notes were taken and transcribed to provide a data pool of 'utterances'. The data pool was sorted into groups or (to use Marton's term) 'categories of description' representing dissimilar notions of what engages children in learning in the classroom. As the sort progressed, new groups evolved, and earlier groups were re-sorted to produce self-consistent categories. Each group was given a descriptive label, its attributes listed, and the group exemplified to form a category of description. Each category describes a conception or notion of engagement.

A study of this kind is intended to collect notions of a construct, but it can never be said with certainty that all notions have been found. The appearance of new categories tends to decline as the number of participants increases, but it is always possible that additional participants might add another category. At the same time, the prevalence of a particular notion amongst teachers in general may not be the same as its prevalence in the sample interviewed. Nevertheless, the collection of categories can usefully inform discussion about teachers' beliefs, and also prepare the way for the next stage of the study.

Results

Five groups of teachers' conceptions of engagement evolved from the iterative sort of the data pool. They are listed in Table 2.

Table 2: Categories of teachers' conceptions of engagement.

Category:	Description:	Example from data pool
1. Fun and exciting	Teachers in this category claimed to use fun and exciting lessons to engage their pupils.	Teachers in this category talked of using 'fun (approaches) so the children's imagination runs wild', and mainly saw the onus of responsibility for engagement as being on the teacher, e.g., 'You have to work hard to think of fun activities for them to do or there's no point'.
2. Problem solving	Teachers in this category claimed to use 'problem solving' activities to engage children.	These teachers described how lessons involving 'problem solving' induced the most engagement: 'I start with a problem or misconception and they have to try to unpick it'. There was a general feeling that children were engaged when activities were challenging, e.g.,: 'Problems that stretch them engage them'.
3. Using rewards	These teachers claimed to engage children through the use of rewards.	Teachers spoke of how rewards induced children to engage in learning: 'With the super star award-reward system they all seem to be fairly motivated'. These teachers talked of how children were motivated to engage due to the particular reward system they used, e.g.,: 'they're desperate to be at the top of the leader board so they will stay on task and get it done'.
4. Practical, hands-on activity	Teachers in this category claimed to engage children through practical or 'hands-on' activities.	Teachers seemed confident that this approach engaged the whole class: 'anything that is practical and hands-on they are more likely to take an interest in', and 'anything that's got practical things [engages]'. These teachers felt practical activities were more interesting and interactive, e.g.,: 'More hands-on activities, especially with very young children, they need something sensory or you can talk at them all you want but they will be less engaged'.
5. Independent or child-led activities or topics	These teachers described lessons where the children worked in self-directed ways and with minimal support from the teachers as being the most engaging.	One teacher recounted an activity where, 'the children were really independent and focused on their design', and talked of how a lesson had to be, 'something they were interested in' in order to be fully engaged. Choice regarding the activity or topic was felt to boost engagement, e.g.,: 'If they pick their own topic, it motivates even the ones that are less motivated'.

All these teachers implicitly or explicitly acknowledged the needs of the learners, yet there are variations in their responses in terms of where and with whom the onus of responsibility lay in meeting these needs. Some teachers appeared to focus more on cognitive needs, while others spoke more about emotional needs. Comments regarding cognitive engagement could be grouped into two broad categories, reflecting the importance of:

1. An appropriate level of challenge for all children; and, 2.
The ability of topics/activities to stimulate further enquiry.

Regarding emotional engagement, teachers' comments formed three categories reflecting the perceived importance of:

1. The general emotional wellbeing of children as influenced by home life;
2. Transient emotions of the children influenced by physical factors, such as hunger, illness and fatigue; and,
3. Transient emotions of the children triggered by events in school.

Responses to: 'Do children have to be engaged to attain?' revealed that a significant proportion of teachers felt that highly able students did not need to be fully engaged in order to learn. Responses included:

- 'Yes I think so. Only the very bright children seem to be able to pull it out of the bag and do well when they haven't really totally engaged, but I think they can only do that for so long, so even if they can do it in my class it would be rare for them to do really well ... without fully engaging in the lessons'.
- 'No. If they are really capable ... some can be disengaged but have enough fluency to just pick it up when they need to.'
- '95% of the time, the exceptions are the ones who are super high ability and regardless of what happens in the classrooms they'll do it, they know it already'.

Study 2: A broad survey of teachers' notions of engagement Method

The first study identified some notions of engagement, but did not indicate their prevalence amongst teachers more generally. They were used to construct a questionnaire aimed at gauging their prevalence, and at relating the notions to personal attributes and circumstances. This questionnaire was presented online throughout England to teachers like those interviewed in Study 1 using Google's Survey Monkey. As well as being available to teachers independently, it was posted on various teacher group sites on Facebook (these groups being aimed at teachers of children between 8 and 11 years in England), and was open for seven days and terminated when 600 teachers had responded. Online surveys can supply a large number of respondents, but can risk inappropriate participation. We found no indication of this. Seventy-eight left their details to be considered for the next stage of the study. Survey Monkey provides some descriptive statistics, but we also looked for patterns in the data.

Results

The survey found that the teachers were distributed amongst the five categories as in Figure 1. An open question was available for teachers to respond to: *Do you have any other comments on your views about pupil engagement?* Fifteen of the 600 respondents left a comment, but none suggested other categories, and only five comments, less than 1%, could be taken to imply that strategies might vary with context. Clearly, the most common was the first category, *Fun/Exciting*, while the least was associated with using *Rewards* to attract engagement.

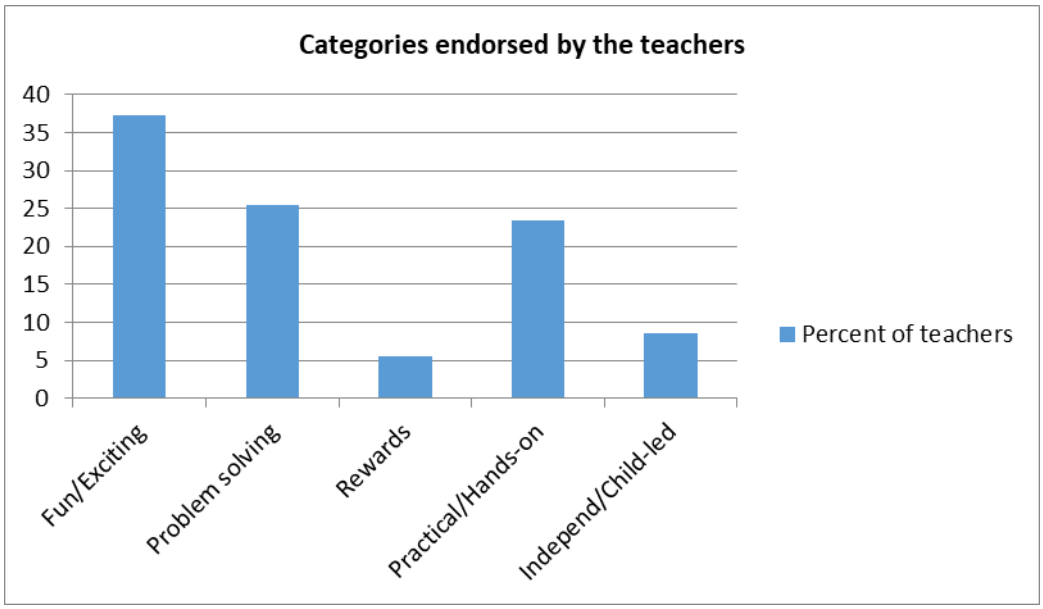

Figure 1: Engagement categories endorsed by the teachers.

Most teachers felt their knowledge of engagement originated from their 'on the job' experience. However, the survey indicated that their preferred category depended on both job satisfaction and teaching experience. For example, Rewards teachers were characterised by lower levels of teaching experience and job satisfaction (71% having taught for ten years or less, compared with the overall average of 58%, and 26% expressing low job satisfaction compared with 17 % overall). Teachers in all categories were generally of the view that the teacher's demeanour was relevant, often seeing 'seriousness' as not being conducive to children's engagement in learning. They also tended to agree that children have to be engaged to achieve, but felt that this was less so for high ability children (see Table 3). The survey data, however, indicated some bi-polarisation of views: while the majority agreed with the statement, a significant minority did not. This was particularly noticeable with Types 1, 3 and 4 teachers, many of whom presumably saw generating engagement via fun/excitement, rewards, and hands-on activity as unnecessary stimuli for those of high ability. On the other hand, Types 2 and 5 teachers, favouring problem solving and independent activity, were more in agreement about the need for engagement, regardless of ability[1]. The latter approaches, of course, depend on the intrinsic attributes of the learning activity to prompt engagement, while the former approaches largely rely on the attachment of external attributes.

Table 3: Relationship between engagement and attainment: Teacher Type 1 = Fun/Exciting; Type 2 = Problem solving; Type 3 = Rewards; Type 4 = Practical/Hands-on; Type 5 = Independent/Child-led. The higher the mean score, the more the teachers agreed with the statement (on a scale of 1-5).

Teacher Type	**1**	**2**	**3**	**4**	**5**
Statement	**Children have to be engaged to achieve**				
Mean score	3.93	3.83	3.88	3.71	3.62
Statement	**Higher ability children have to be engaged to achieve**				
Mean score	3.34	3.54	3.43	3.28	3.55

[1] The frequency patterns of responses of Types 1, 3, and 4 teachers and those of Types 2 and 5 teachers were, in statistical terms, significantly different ($p<0.01$, χ^2 test).

Study 3: Engagement in practice

Broadly speaking, teachers' beliefs influence how they teach (see e.g., Richardson et al., 1991; Stipek et al., 2001), but they must also respond to the expectations of school managers and parents, and are constrained by for, instance, resources. As far as the planning and delivery of a lesson is concerned in the UK, the content is generally prescribed, but there is some freedom in how it is taught[2]. Given that student engagement is commonly seen as promoting learning and attainment, teachers' beliefs about it could be reflected in their practices. We felt it would be worthwhile to observe lessons of a sample of teachers who had volunteered in the online survey for further involvement. The aim was to judge the extent to which these teachers taught in ways that reflected their beliefs about engagement.

Method

English and mathematics are 'core' subjects in the English National Curriculum for young children. One teacher for each category of beliefs, from diverse locations in England, was observed teaching an English and a mathematics lesson to children in the age range 8 to 10 years. Observations took place during mornings as English and mathematics are generally taught then. Notes were taken and lessons were recorded on an iPad™ using the application, VEO™ (Video Enhanced Observation), which enabled events to be studied later. Observation of student-student and studentteacher interaction was from the back of the room to reduce the likelihood that observer activity would distract the children (see Reiss, 2000).

Judgments of the children's engagement in learning were facilitated by a schedule of ten indicators, five for students' emotional engagement and five for their intellectual engagement:

Emotional engagement

1. They enjoyed today's lesson
2. They respected the teacher
3. They worked well with peers
4. They found the lesson exciting
5. The interaction between the teacher and child was positive

Intellectual engagement

6. They asked relevant questions
7. They found the lesson interesting
8. They checked their work for mistakes
9. They achieved the learning objective
10. They tried their hardest (within the context of the lesson)

These indicators were adapted from a variety of established engagement measures (Fredricks & McColskey, 2012). Each was rated on a Likert scale of 1-5 by the observer (one of the authors). This 1-5 scale acknowledges that engagement can occur at different levels and is not simply present or absent. Twelve children were selected for observation by each teacher. They comprised four the

[2] Freedom is not always complete. For instance, in England, a government education inspection agency may expect to see reading taught with an emphasis on phonics, and mathematics taught with an emphasis on 'mastery'. Such expectations tend to change over time.

teacher judged as, ‘less academically able’, four as ‘average’, and four as ‘highly able’. Two boys and two girls were in each ability group.

The reliability of an observational tool is often described as its ability to be used by different observers, and yield similar results (e.g., Coolican, 2004). Therefore, one of the teachers was simultaneously observed by a teacher with over 20 years experience teaching similar children. The reliability coefficient (indicating the level of agreement between the two observers) was 0.86 which is generally considered to be satisfactory (Coolican, 2004). Validity can be defined as an instrument’s ability to measure what it is intended to measure (Coolican, 2004). The indicators used here had already been robustly tested for their validity (Fredricks & McColskey, 2012). Nevertheless, the samples are small, and the lessons, teachers and schools are different, so caution is needed when interpreting the results.

Results

Brief outlines of the lessons follow, with a comment on the children’s engagement.

1.2 Category 1: Fun and exciting

The English lesson had children consider persuasive forms of writing to produce an advertising poster for an object likely to attract children’s interest. The mathematics lesson had groups of children explore multiplication using a game-like activity.

The emotional engagement was one of fun and excitement in both lessons (both scoring 4.6 out of 5, on average). For example, ‘They enjoyed today’s lesson’, and, ‘They found the lesson exciting’, were scored at 4.8 and 4.0, respectively. The intellectual engagement was rated as 4.0 and 3.9 for the English and mathematics lessons, respectively.

1.3 Category 2: Problem Solving

In the English lesson, groups of children were set the task of creating and performing a dramatic scene about street life during the Great Fire of London, some four centuries ago. In the mathematics lesson, pairs of children had the task of showing how multiplication algorithms function.

Both lessons involved problem solving in that the children had to find their own ways of doing the tasks and finding their own solutions. The emotional engagement (4.6 and 4.5, on average) was similar in both lessons, while the intellectual engagement was, on average, 3.9 (English) and 4.3 (mathematics).

1.4 Category 3: Rewards System

The English lesson used a story board activity in which children wrote sentences with adjectives under pictures. The mathematics lesson had individual children plot points on a grid to reveal a shape. The teacher referred to the reward system regularly throughout the lessons. Rewards (stickers attached to a display board) were given to those who remained on track.

The average emotional engagement was rated as 3.8 (English) and 4.2 (mathematics). The average intellectual engagement was rated as 3.5 (English) and 3.9 (mathematics). Interestingly, the higher ability children did not ask for stickers, but the lower ability children often did so, and they clearly valued the rewards and engaged with the task in order to obtain them. For the higher ability children, 'They found the lesson interesting', was rated much lower than for the other children (e.g., English, higher ability: 3.4; others: 4.3). They were, however, quietly compliant, and the teacher could safely give them less attention than the rest of the class.

1.5 Category 4: Practical, hands-on

Offering some form of hands-on activity was a key strategy of this teacher. The English lesson had a starter activity using Kung Fu Punctuation in which children use martial arts-inspired movements. In the mathematics lesson, children explored the notion of symmetry by making shapes with their bodies to be photographed by a partner. Lines of symmetry were then drawn on the photographs.

On average, engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 3.9 (English) and 4.0 (mathematics). There were times when the higher ability group seemed to be bored and inclined to find interest off-task. (Hands-on or practical activities were also used by other teachers, but they were incidental to the approach, not central to it.)

1.6 Category 5: Independent, child-led

The English lesson provided an opportunity for independent, child-led activity. The children researched an author of their choice in order to produce a biography. In the mathematics lesson, the children practised adding fractions. Both offered some autonomy in ways of working.

Engagement levels were rated as: emotional, 4.3 (English) and 4.5 (mathematics); intellectual, 4.2 (English) and 4.7 (mathematics). Generally, higher ability children responded well to this approach with uniform scores of 5.0.

Discussion

We cannot say that we have identified all the notions of engagement in learning that teachers have, but the phenomenographic study gave a picture of at least some of them, and the survey pointed to their prevalence. An online survey, however, is only open to those who are digital-media competent, and who take part in surveys, but the background data did suggest that the sample of teachers was diverse. The lessons observed, although few, did show that the teachers' conceptions of engagement were not detached from action, but were reflected in their practices. There may, however, be teachers who have multiple notions of engagement. There were only slight indications of this; less than 1% indicated that strategies might change with context: one of these wrote that, 'it depends on the cohort', and two pointed out that children vary in how they respond to a strategy. When there is a strategy, we are likely to have detected the predominant one the teacher tends to use, at least when teaching English and mathematics. With these limitations in mind, we offer some thoughts on the findings, and, drawing on Bassey's (2001) notion of relatability, suggest that teachers and teacher trainers will be able to relate them to their own experience.

1.7 *Pedagogies of engagement*

We have distinguished between notions of engagement, and ways of inducing it. These teachers tended to reveal the former through the latter. Here, engagement generally referred to children's

behaviour that was on-task in such a way that it enabled mental resources to be committed to learning. It was noted that some teachers may not distinguish sharply between antecedents (motivation) and consequences (engagement), perhaps reflected in the views of those who believe engagement is not necessary for achievement. How they thought engagement might be achieved varied. We identified five beliefs, which are, in order of prevalence:

1. Generating fun and excitement;
2. Challenging children with problems;
3. Providing practical activity and hands-on experience; 4. Providing autonomy; and,
5. Rewarding engagement.

Importantly, the observations of teachers' lessons, although small in number, showed that these beliefs can be reflected in practice – that is, they can be seen as pedagogies of engagement. But, are these pedagogies well-founded?

Each of the pedagogies could be seen as guiding teachers in making activities relevant to children's needs and goals. *Fun and excitement*, for instance, offers pleasurable mental stimulation; successful *problem solving* offers the satisfaction of competence; *hands-on experience* may satisfy a need for novel, direct experience of the world, or for competence in it (Piaget & Inhelder, 1973); *child-led* action offers satisfaction of the need for self-determination (Ryan & Deci, 2000); and *rewards* could satisfy a need for achievement, or enhance self and public images. To the extent that a given child sees these as personally relevant (and that is not always the case, as when the able children were not interested in collecting rewards), an activity adjusted accordingly could motivate engagement. The observations suggest that these pedagogies can be effective, but more for some children than others. At the same time, some areas of the curriculum and some kinds of learning may not lend themselves readily to these strategies. For instance, hands-on experience is not always feasible, and generating excitement can hinder analytical thought (Newton, 2014). It might also be argued that an over-reliance on material or token rewards risks encouraging inclinations that are activated only by extrinsic stimuli. A lack of variety in approach may also lead to satiation and boredom, and misses the opportunity to engage more children more of the time. Providing some autonomy in learning, however, can satisfy a fairly wide range of needs and goals, but less than 10% of the teachers in the survey favoured it. Where the curriculum is tightly prescribed, teachers may be less likely to use such an approach. Particular pedagogies (1, 3, and 5) tended to include a belief that high ability students did not need to be 'engaged' in order to achieve. It was particularly evident in the 'rewarding engagement' pedagogy where the strategy was less attractive to such children. Oakley *et al*. (2002) pointed out that such learners can be quietly disengaged and in need of mental stimulation. Two-thirds of the teachers in the survey believed that their beliefs came from 'on-the-job experience' (which may include personal experience as a student). This could explain the narrow preferences: a more or less successful approach has evolved from experience, and the teacher continually applies it. But learners are different, and while there may be some generalities, there is a need to allow for that variety.

Astin (1984, p. 519) argues that 'the quantity and quality of physical and psychological energy that students invest' produces learning in direct proportion to that involvement. In short, engagement is central to learning and achievement. The lesson observations, however, suggested that popular strategies can induce greater emotional engagement than intellectual engagement. (In the extreme, children may have fun yet learn little.) The optimum balance is unclear, but teachers need to be aware of the distinction. Only about 10% of the teachers in the survey thought that their knowledge of engagement came from teacher training, and only 4% thought it came from on-the-job training.

Usefully, there is evidence, although indirect, that teachers' engagement strategies can be enhanced through training (e.g., Devlin, 2005). There is clearly a need for programmes which include this crucial aspect of a teacher's work. We suggest that these focus on:

1. What engagement and associated terms, like motivation, pedagogy of engagement, emotional and intellectual engagement, mean.
2. What can attract engagement in learning; personal relevance, need satisfaction and goal achievement, creative activity, and the role of teacher enthusiasm.
3. A recognition that perceived relevance can change with student, age, ability, and curriculum context, and that these need to be allowed for.
4. A range of strategies that exploit these attractions, and an avoidance of over-use of any one.
5. Understanding that some pedagogies are extrinsic (i.e. the attraction is attached to the topic, e.g., 'Fun', 'Rewards'); others are intrinsic (i.e., the attraction is within the approach, e.g., 'Problemsolving', 'Practical/hands-on', 'Independent' activity), and that they are not mutually exclusive.
6. Practice in selecting, developing, differentiating and applying strategies aimed at inducing engagement.

Conclusion

Engagement in education is seen as central to success, but the concept is a complex one. As far as engagement in the elementary classroom is concerned, teachers vary in what they believe will induce it, but each has a preferred strategy. This varies from formulating a potentially mundane activity in a way that makes it fun, offers activity and direct experience, or a challenge, to allowing some autonomy. Each of these can offer the student some satisfaction of a psychological need. There seems to be a tendency to rely on one need, ignoring individual differences in students and the likelihood of need satiation and consequent boredom. An important instance of this is the response of children of different abilities to a strategy. Those of high ability, for example, are at risk of neglect, and fail to engage in learning in ways that recognise their ability and maximise their learning.

These teachers claimed that their notions of engagement came largely from experience, and not training. We recommend that teacher trainers give the matter their attention, developing notions of engagement in learning, of sources of motivation, and of strategies for inducing engagement in diverse groups of students. One of the more effective approaches observed was to give children some autonomy in learning, and therein lies the potential for encompassing creative activities which need and reward it.

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About the authors

Lucy Davies MA (Education) is a sessional lecturer in primary education in the School of Education at Durham University. Her research interests are in engagement in learning and in creative thinking, interests she shares with the other authors. Some of that interest was the basis of her presentation at the Paris ICIE Conference in the summer of 2018, and, her findings broadly underpin much of this study. Like her co-authors, she also works on the Durham Commission on Creativity, a crosscurricular project in the University.

Douglas P. Newton, *Ph.D. DSc*, teaches and researches in the School of Education of Durham University, UK. His interest is in supporting purposeful thought in education, such as understanding and creative thinking, and he is a member of the Durham Commission on Creativity. He has also described how moods and emotions interact with cognition in ways that direct and shape such thought. His very successful book, *Teaching for Understanding*, is now in its second edition (Routledge, 2012), and his highly praised book, *Thinking with Feeling* (Routledge, 2014) has also been well-received.

Lynn D. Newton, *Ph.D.*, is Head of the School of Education at Durham University in the UK. One of her interest is in strategies for supporting thinking and learning, such as questioning (see, for instance, *Teaching for Productive Thought* (ICIE, 2013) and *Making Purposeful Thought Productive* (ICIE, 2018). She has a major role in the Durham Commission, a project which aims to ascertain the quantity and quality of provision for creative thought in education and in the workplace. Its recommendations will be disseminated soon. Her successful book, *Creativity for a New Curriculum* (Routledge, 2012), describes creative thinking in the context of the disciplines commonly taught in schools.

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Appendix Two:

Overview of Pertinent Studies

Theme	**Article details**
Engagement as a multidimensional construct	Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of school psychology*, *44*(5), 427-445. Ciric, M., & Jovanovic, D. (2016). Student engagement as a multidimensional concept. In *Multidimensional Concept. WLC 2016: World LUMEN Congress. Logos Universality Mentality Education Novelty 2016. LUMEN* (pp. 187-194). Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: potential of the concept state of the evidence, 74 (1), 59-109. Maguire, R., Egan, A., Hyland, P., & Maguire, P. (2017). Engaging students emotionally: The role of emotional intelligence in predicting cognitive and affective engagement in higher education. *Higher Education Research & Development*, *36*(2), 343-357. Reeve, J. (2012). A self-determination theory perspective on student engagement. In *Handbook of research on student engagement* (pp. 149-172). Springer, Boston, MA. Reeve, J., & Tseng, C. M. (2011). Agency as a fourth aspect of students' engagement during learning activities. *Contemporary Educational Psychology*, *36*(4), 257-267. Trowler, V. (2010). Student engagement literature review. *The higher education academy*, *11*(1), 1-15. Lancaster University.
Intellectual (or cognitive) engagement	Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: potential of the concept state of the evidence, 74 (1), 59-109. Goff, M., & Ackerman, P. L. (1992). Personality-intelligence relations: Assessment of typical intellectual engagement. *Journal of Educational Psychology*, *84*(4), 537. Pasque, P. A., & Murphy, R. (2005). The intersections of living-learning programs and social identity as factors of academic achievement and intellectual engagement. *Journal of College Student Development*, *46*(4), 429-441. Willms, J. D., Friesen, S., & Milton, P. (2009). *What Did You Do in School Today? Transforming Classrooms through Social, Academic, and Intellectual Engagement.(First National Report)*.
Engagement and motivation	Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: potential of the concept state of the evidence, 74 (1), 59-109.

	Pintrich, P. R., & Schunk, D. H. (2002). The role of goals and goal orientation. *Motivation in education: Theory, research, and applications*, *2*, 190-242. Russell, V. J., Ainley, M., & Frydenberg, E. (2005). Student motivation and engagement. *Schooling issues digest*, *2*, 1-11. Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, *55*(1), 68. Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic?. *Journal of educational psychology*, *100*(4), 765. Skinner, E. A., Kindermann, T. A., & Furrer, C. J. (2009). A motivational perspective on engagement and disaffection: Conceptualization and assessment of children's behavioral and emotional participation in academic activities in the classroom. *Educational and psychological measurement*, *69*(3), 493-525.
Engagement in school curriculum disciplines	Ainley, M. (2012). Students' interest and engagement in classroom activities. In *Handbook of research on student engagement* (pp. 283-302). Springer, Boston, MA. Attard, C. (2012). Engagement with Mathematics: What Does It Mean and What Does It Look Like?. *Australian Primary Mathematics Classroom*, *17*(1), 9-13. De Castella, K., & Byrne, D. (2015). My intelligence may be more malleable than yours: The revised implicit theories of intelligence (self-theory) scale is a better predictor of achievement, motivation, and student disengagement. *European Journal of Psychology of Education*, *30*(3), 245-267. Hawthorne, S. (2008). Students' beliefs about barriers to engagement with writing in secondary school English: A focus group study. *Australian Journal Of Language & Literacy*, *31*(1). Kirsch, I., De Jong, J., Lafontaine, D., McQueen, J., Mendelovits, J., & Monseur, C. (2003). Reading for change: Performance and engagement across countries: Results of PISA 2000. Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American educational research journal*, *37*(1), 153-184. Nystrand, M., & Gamoran, A. (1991). Instructional discourse, student engagement, and literature achievement. *Research in the Teaching of English*, 261-290. Pierce, R., Stacey, K., & Barkatsas, A. (2007). A scale for monitoring students' attitudes to learning mathematics with technology. *Computers & Education*, *48*(2), 285-300.

	Smagorinsky, P., Wright, L., Augustine, S. M., O'Donnell-Allen, C., & Konopak, B. (2007). Student engagement in the teaching and learning of grammar: A case study of an early-career secondary school English teacher. *Journal of Teacher Education*, *58*(1), 76-90.
Engagement and attainment	Appleton, J. J. (2012). Systems consultation: Developing the assessment-to-intervention link with the Student Engagement Instrument. In *Handbook of research on student engagement* (pp. 725-741). Springer, Boston, MA. Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter?. In *Handbook of research on student engagement* (pp. 97-131). Springer, Boston, MA. Hattie, J. (2009). The contributions from teaching approaches-part 1. *J. Hattie.(Eds.), Visible learning: A synthesis of over*, *800*, 161-199. Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change: The Magazine of Higher Learning*, *35*(2), 24-32

Appendix 3: Documents relating to Stage One: Interviews

3.a Document: Ethical Approval for Interviews:

Durham University
School of Education

Shaped by the past, creating the future

02/11/2017

Lucy Davies
l.m.davies3@durham.ac.uk

Dear Lucy,

Student engagement in the primary core curriculum (2851)

I am pleased to inform you that your ethics application for the above research project has been approved by the School of Education Ethics Committee.

May we take this opportunity to wish you good luck with your research.

Yours sincerely,

Nadin Beckmann

Dr Nadin Beckmann
School of Education Ethics Committee Chair

Leazes Road
Durham, DH1 1TA
Telephone: +44 (0)191 334 2000 Fax +44 (0)191 334 8311
www.durham.ac.uk/education

3.b Participant Information Sheet for teachers

Durham University
School of Education

APPENDIX B

[DATE]

Participant Information Sheet

Title [redacted]

You are invited to take part in a research study exploring pupil engagement. Please read this form carefully and ask any questions you may have before agreeing to be in the study.

The study is conducted by Lucy M. Davies as part of her Doctoral Research project Student Engagment in the Primary Core Curriculum at Durham University.

* This research project is supervised by Prof. Lynn D. Newton (l.d.newton@durham.ac.uk) and Prof. Douglas P. Newton (d.p.newton@durham.ac.uk) from the School of Education at Durham University.

The purpose of this study is explore how teachers view pupil engagement in their lessons.

If you agree to be in this study, you will be asked to answer questions and discuss you experiences of pupil engagement in a face to face interview with myself (Lucy M. Davies). This interview will be recorded on a voice recorder. You identity will remain completely anonymous in the writing up of results.

Your participation in this study will take approximately 30-45 minutes.

You are free to decide whether or not to participate. If you decide to participate, you are free to withdraw at any time without any negative consequences for you.

All responses you give or other data collected will be kept confidential. The records of this study will be kept secure and private. All files containing any information you give are password protected. In any research report that may be published, no information will be included that will make it possible to identify you individually. There will be no way to connect your name to your responses at any time during or after the study.

* FUNDING This project is self-funded by the researcher.

If you have any questions, requests or concerns regarding this research, please contact me via email at l.m.davies3@durham.ac.uk or by telephone at 07539260466.

This study has been reviewed and approved by the School of Education Ethics Sub-Committee at Durham University (date of approval: DD/MM/YY)

Lucy M. Davies

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Durham City, DH1 1TA

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www.durham.ac.uk
Durham University is the trading name of the University of Durham

3.c Example of field notes from Interview:

Interview Crib Sheet

Date: 12.11.17 **Interview no:** 2 **Year Group:** 1 **Experience:** 3 years **Class size:** 23 **Location:** London **School Type:** State

I'm interested in student engagement. What does it mean to you?

I would say it's adapting your teaching style to suit children to what they can do, their interests and things really.

What engages students?

I would say the topics that we choose are quite good (at engaging the children) because we were focusing quite a bit on boys writing and we were doing quite a bit on Space that's worked a lot because that's kind of tailored to them. Obviously not to make it sexist, the girls seem to be more engaged with story writing.

Experiment as well, gives them kind of like a Wow lesson and then that kind of pulls them in.

Things like stories as well like if you start off a topic with a story, that always helps because then they can relate to that story or in maths I've got this thing about a number robber. They like that sort of thing where it's like a bit of mystery what is going on to draw them in to be more interested I the topic (goes on to explain number robber).

Can you give me an example of a lesson or activity when the class has been engaged?

Number robber is when teacher has taken down some of the numbers down and the children were intrigued and I got my imagination working and we came up with this idea that there was a number robber and then it's evolved that the number robber is bear! So it's sort of fitted different bits of the curriculum into one thing. Because now we have this classroom bear and sometimes he will trash the classroom and stuff like that, they just love it really being able to relate to something.

Planetarium visit

Is there an emotional aspect to that?

(Thinks) I think it's more a kind of fun imagination, their imagination runs wild and then they like to investigate

How do you know they are engaged?

I know when they're not listening, because they're sitting fidgeting or staring into space and I know when they're engaged when they're answering questions. So I will try and motivate them keeping them alert by you know stickers, golden tickets but that's a bit different to engagement really isn't it? Because that's choice and all kids are going to want a golden ticket so…

What do you think it is then that moves them from say being motivated by the golden ticket to actually being engaged?

Appendix 4: Documents relating to Stage Two: Online Questionnaire

4.a Ethical Approval for Questionnaire

Durham University
School of Education

Shaped by the past, creating the future

14/03/2018

Lucy Davies
l.m.davies3@durham.ac.uk

Dear Lucy,

Pedagogies of engagement - Teachers' implicit theories of engagement and their effect on pupils attainment within a variable primary school context (working title)
Reference: 3025

I am pleased to inform you that your ethics application for the above research project has been approved by the School of Education Ethics Committee.

May we take this opportunity to wish you good luck with your research.

Yours sincerely,

Nadin Beckmann

Dr Nadin Beckmann
School of Education Ethics Committee Chair

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4.b Questionnaire as it appeared on Survey Money:

Welcome to My Survey

You are invited to take part in a research study exploring pupil engagement. Please read this form carefully and ask any questions you may have before agreeing to be in the study.

The study is conducted by Lucy M. Davies as part of her Doctoral Research project Student Engagement in the Primary Core Curriculum at Durham University.

* This research project is supervised by Prof. Lynn D. Newton (l.d.newton@durham.ac.uk) and Prof. Douglas P. Newton (d.p.newton@durham.ac.uk) from the School of Education at Durham University.

The purpose of this study is explore how teachers view pupil engagement in their lessons.

If you agree to be in this study, you will be asked to answer questions on Survey Monkey (Lucy M. Davies). Only I can view your responses and they will remain completely anonymous in the writing up of results.

Your participation in this study will take approximately 10 minutes. You are free to decide whether or not to participate. You may withdraw your participation during the questionnaire, however once you have submitted the questionnaire the results will be anonymised meaning you will be unable to withdraw.

All responses you give or other data collected will be kept confidential. The records of this study will be kept secure and private. All files containing any information you give are password protected. In any research report that may be published, no information will be included that will make it possible to identify you individually. There will be no way to connect your name to your responses at any time during or after the study.

* FUNDING This project is self-funded by the researcher.

If you have any questions, requests or concerns regarding this research, please contact me via email at l.m.davies3@durham.ac.uk or by telephone at 07539260466.

This study has been reviewed and approved by the School of Education Ethics Sub-Committee at Durham University (date of approval: 14/03/18)

Lucy M. Davies

Consent Form

Declaration of Informed Consent

- I agree to participate in this study, the purpose of which is to explore student engagement in the primary core curriculum.
- I have read the participant information sheet and understand the information provided.
- I have been informed that I may decline to answer any questions or withdraw from the study without penalty of any kind.
- I have been informed that all of my responses will be kept confidential and secure, and that I will not be identified in any report or other publication resulting from this research.
- I have been informed that the investigator will answer any questions regarding the study and its procedures. Lucy M. Davies, School of Education, Durham University can be contacted via email: l.m.davies3@durham.ac.uk or telephone:07539260466.
- I will be provided with a copy of this form for my records.

Any concerns about this study should be addressed to the School of Education Ethics Sub-Committee, Durham University via email to ed.ethics@durham.ac.uk.

* 1. I give my consent

☐ Yes

Biographical Information

2. Please select your gender:

- Male
- Female
- Prefer not to say

3. Please select the year group which most closely represently the yeargroup you currently teach:

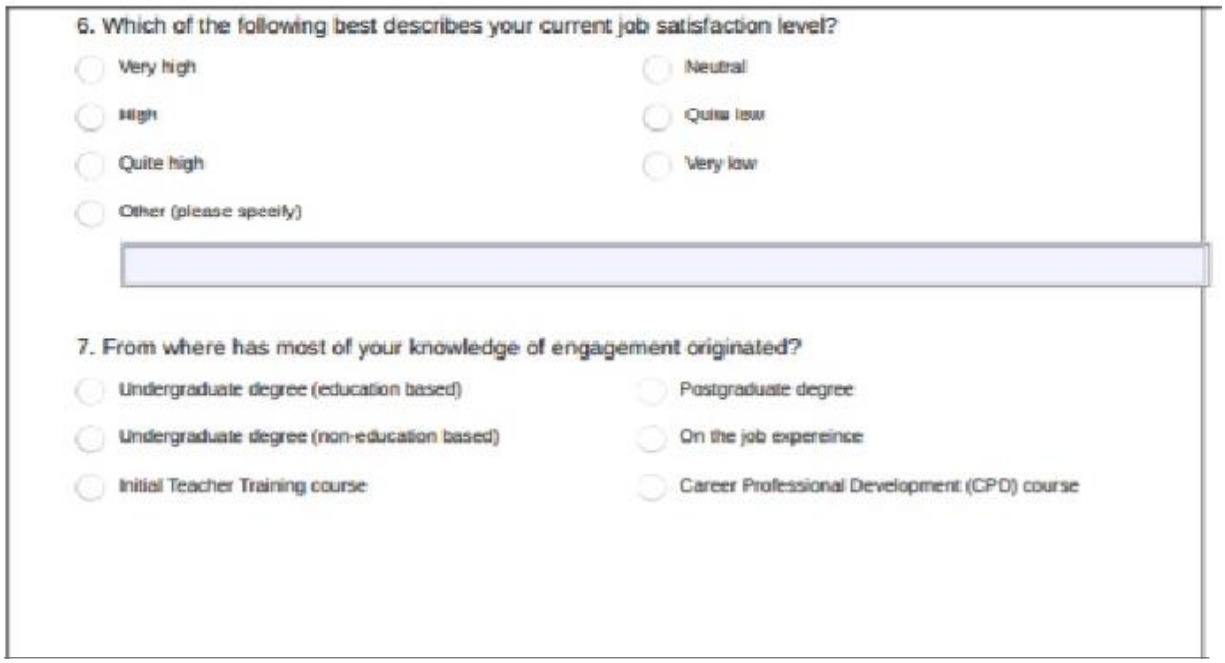
- Year 3
- Year 4
- Year 5
- Year 6
- Mixed Year 3/Year 4
- Mixed Year 4/Year 5
- Mixed Year 5/Year 6

4. How many years teaching experience do you have?

- Less than 1 year (currently working towards Qualified Teacher Status)
- Less than 2 years (NQT)
- 2-5 years
- 6-10 years
- 11-20 years
- 21-30 years
- 31-40 + years

5. Select the subject area most closely related to your undergraduate degree:

- Education Studies
- Art
- English
- History
- Geography
- Other (please specify)
- Mathematics
- Psychology
- Science
- Sport


6. Which of the following best describes your current job satisfaction level?

- Very high
- High
- Quite high
- Other (please speeify)
- Neutral
- Quite low
- Very low

7. From where has most of your knowledge of engagement originated?

- Undergraduate degree (education based)
- Undergraduate degree (non-education based)
- Initial Teacher Training course
- Postgraduate degree
- On the job expereince
- Career Professional Development (CPD) course

Engaging Pupils

8. The following description most closely matches me in terms of how I engage children in learning (choose only one):

- ○ Mainly through fun and exciting lessons.
- ○ Mainly through lesons which use practical, hands on activities.
- ○ Mainly through problem solving/ thinking skills activities.
- ○ Mainly through child-led independent tasks/topics.
- ○ Mainly through a rewards system.

9. To what extent do you agree or disagree with the follow statement:
ACTIVITIES HAVE TO BE FUN TO ENGAGE CHILDREN

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

10. To what extent do you agree or disagree with the following statement:
ACTIVITIES HAVE TO BE EXCITING TO ENGAGE CHILDREN

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

11. To what extent do you agree with the following statement:
ENGAGEMENT ONLY HAPPENS WHEN CHILDREN ARE BEING SERIOUS

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

12. To what extenet do you agree with the following statement:
CHILDREN HAVE TO BE ENGAGED TO ATTAIN

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

13. To what extenet do you agree wit the following statement:
HIGHER ABILITY CHILDREN HAVE TO BE ENGAGED TO ATTAIN

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

14. To what extent do you agree with the following statement:
CHILDREN WHO HAVE A CLOSE GROUP OF FRIENDS ARE MORE ENGAGED

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
☆	☆	☆	☆	☆

15. To what extent do you agree with the following statement:
CHILDREN ARE MORE ENGAGED WHEN WORKING ALONE

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly Agree
☆	☆	☆	☆	☆

Assessing pupils' engagement and curriculum

How do you assess whether or not children are engaged?

16. I ASSESS PUPIL ENGAGEMENT THROUGH THEIR BODY LANGUAGE

Strongly disagree	Disagree	Neither	Agree	Strongly agree
★	★	★	★	★

17. I ASSESS PUPIL ENGAGEMENT THROUGH THE WORK THEY PRODUCE

Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
★	★	★	★	★

18. I ASSESS PUPIL ENGAGEMENT BY THEIR ABILITY TO RETAIN KNOWLEDGE

Strongly disagree	Disagree	Neither agree of disagree	Agree	Disagree
★	★	★	★	★

How does lesson planning link to pupil engagement?

19. When my lesson is interesting al children are engaged.

- ○ Always
- ○ Usually
- ○ Sometimes
- ○ Rarely
- ○ Never

20. When my lesson is fun all children are engaged

- ○ Always
- ○ Usually
- ○ Sometimes
- ○ Rarely
- ○ Never

21. When my lesson is 'hands on' all children are engaged.

- ○ Always
- ○ Usually
- ○ Sometimes
- ○ Rarely
- ○ Never

How does the curriculum focus link to engagment?

22. I believe the following National Curriculum subjects ares ones children find most engaging (list three).

1.
2.
3.

23. I believe the following National Curriculum subjects ares ones children find least engaging (list three).

1.
2.
3.

24. Do you have any other comments on your views about pupil ENGAGEMENT?

- No
- YES- please enter comments...

25. Would you be willing to participate in the next phases of this study i.e. observations and interview. Answers to this survey will remain anonymous should you say 'yes'

- NO
- YES. Please Contact me at l.m.davies3@durham.ac.uk or leave your email address...

4.c Survey Monkey results raw data

Q1: I give my consent

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	100.00%	600
Total Respondents: 600		

Powered by SurveyMonkey

Q2: Please select your gender:

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Male	10.66%	64
Female	89.33%	536
Prefer not to say	0.69%	4
TOTAL		600

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Q3: Please select the year group which most closely represents the yeargroup you currently teach:

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Year 3	18.16%	109
Year 4	16.33%	98
Year 5	20.83%	125
Year 6	29.33%	176
Mixed Year 3/Year 4	5.51%	32
Mixed Year 4/Year 5	1.55%	9
Mixed Year 5/Year 6	8.78%	51
TOTAL		581

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Q4: How many years teaching experience do you have?

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Less than 1 year (currently working towards Qualified Teacher Status)	3.99%	24
Less than 2 years (NQT)	5.66%	34
2-5 years	28.45%	171
6-10 years	21.13%	127
11-20 years	29.45%	176
21-30 years	9.82%	59
31-40 + years	1.50%	9
TOTAL		600

Powered by SurveyMonkey

Q5: Select the subject area most closely related to your undergraduate degree:

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Education Studies	28.17%	169
Art	2.67%	16
English	14.50%	87
History	6.83%	41
Geography	3.33%	20
Mathematics	4.50%	27
Psychology	8.17%	49
Science	6.67%	40
Sport	4.17%	25
Other (please specify)	21.00%	126
TOTAL		600

Powered by SurveyMonkey

Q6: Which of the following best describes your current job satisfaction level?

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Very high	7.32%	44
High	25.62%	154
Quite high	33.78%	202
Neutral	16.14%	97
Quite low	13.14%	79
Very low	3.83%	23
Other (please specify)	0.17%	1
TOTAL		600

Powered by SurveyMonkey

Q7: From where has most of your knowledge of engagement originated?

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Undergraduate degree (education based)	9.82%	59
Undergraduate degree (non-education based)	0.83%	5
Initial Teacher Training course	10.65%	64
Postgraduate degree	7.65%	46
On the job expereince	67.39%	404
Career Professional Development (CPD) course	3.66%	22
TOTAL		600

Powered by SurveyMonkey

Q8: The following description most closely matches me in terms of how I engage children in learning (choose only one):

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Mainly through fun and exciting lessons. (1)	36.78%	212
Mainly through problem solving/ thinking skills activities. (2)	25.59%	153
Mainly through a rewards system. (3)	5.93%	35
Mainly through lesons which use practical, hands on activities. (4)	23.05%	138
Mainly through child-led independent tasks/topics. (5)	8.64%	52
TOTAL		600

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Q9: To what extent do you agree or disagree with the follow statement:ACTIVITIES HAVE TO BE FUN TO ENGAGE CHILDREN

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	2.18% 13	31.43% 187	24.71% 147	36.66% 220	5.55% 33

Powered by SurveyMonkey

Q10: To what extent do you agree or disagree with the following statement:ACTIVITIES HAVE TO BE EXCITING TO ENGAGE CHILDREN

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	2.35% 14	28.36% 169	28.69% 171	37.16% 223	3.86% 23

Powered by SurveyMonkey

Q11: To what extent do you agree with the following statement: ENGAGEMENT ONLY HAPPENS WHEN CHILDREN ARE BEING SERIOUS

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	22.50% 135	64.50% 387	9.88% 59	2.85% 17	0.17% 1

Powered by SurveyMonkey

Q12: To what extenet do you agree with the following statement:CHILDREN HAVE TO BE ENGAGED TO ATTAIN

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	1.34% 8	10.07% 60	11.41% 68	56.50% 339	20.97% 125

Powered by SurveyMonkey

Q13: To what extenet do you agree wit the following statement:HIGHER ABILITY CHILDREN HAVE TO BE ENGAGED TO ATTAIN

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	1.84% 11	23.41% 140	17.22% 103	44.66% 268	13.04% 78

Powered by SurveyMonkey

Q14: To what extent do you agree with the following statement:CHILDREN WHO HAVE A CLOSE GROUP OF FRIENDS ARE MORE ENGAGED

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	4.17% 25	33.56% 201	48.33% 290	13.69% 82	0.50% 3

Powered by SurveyMonkey

Q15: To what extent do you agree with the following statement:CHILDREN ARE MORE ENGAGED WHEN WORKING ALONE

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	4.83% 29	46.33% 278	44.93% 270	3.16% 19	0.67% 4

Powered by SurveyMonkey

Q16: I ASSESS PUPIL ENGAGEMENT THROUGH THEIR BODY LANGUAGE

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER	AGREE	STRONGLY AGREE
☆	0.67% 4	4.52% 27	7.53% 45	77.66% 466	9.70% 58

Powered by SurveyMonkey

Q17: I ASSESS PUPIL ENGAGEMENT THROUGH THE WORK THEY PRODUCE

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OR DISAGREE	AGREE	STRONGLY AGREE
☆	0.17% 1	3.01% 18	4.84% 29	78.66% 472	13.52% 81

Powered by SurveyMonkey

Q18: I ASSESS PUPIL ENGAGEMENT BY THEIR ABILITY TO RETAIN KNOWLEDGE

Answered: 600 Skipped: 0

	STRONGLY DISAGREE	DISAGREE	NEITHER AGREE OF DISAGREE	AGREE	DISAGREE
☆	2.17% 13	16.36% 98	16.69% 100	63.83% 383	1.00% 6

Powered by SurveyMonkey

Q19: When my lesson is interesting al children are engaged.

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Always	7.35%	44
Usually	75.29%	452
Sometimes	17.03%	102
Rarely	0.33%	2
Never	0.00%	0
TOTAL		600

Powered by SurveyMonkey

Q20: When my lesson is fun all children are engaged

Answered: 600 Skipped: 1

ANSWER CHOICES	RESPONSES	
Always	7.67%	46
Usually	70.17%	421
Sometimes	21.67%	130
Rarely	0.50%	3
Never	0.00%	0
TOTAL		600

Powered by SurveyMonkey

Q21: When my lesson is 'hands on' all children are engaged.

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
Always	12.81%	77
Usually	63.89%	384
Sometimes	22.83%	137
Rarely	0.67%	4
Never	0.00%	0
TOTAL		600

Powered by SurveyMonkey

Q24: Do you have any other comments on your views about pupil ENGAGEMENT?

Answered: 600 Skipped: 0

ANSWER CHOICES	RESPONSES	
No	78.16%	469
YES- please enter comments...	21.83%	131
TOTAL		600

Powered by SurveyMonkey

Q25: Would you be willing to participate in the next phases of this study i.e. observations and interview. Answers to this survey will remain anonymous should you say 'yes'

Answered: 598 Skipped: 2

ANSWER CHOICES	RESPONSES	
NO	86.96%	520
YES. Please Contact me at l.m.davies3@durham.ac.uk or leave your email address...	13.04%	78
TOTAL		598

Powered by SurveyMonkey

Appendix 5: Documents relating to Lesson Observations

5.a Ethical approval for lesson observations

Durham University
School of Education

Shaped by the past, creating the future

31/05/18

Lucy Marie Davies
l.m.davies3@Durham.ac.uk

Dear Lucy,

Primary teachers' implicit theories of engagement

Reference: 3145

I am pleased to inform you that your ethics application for the above research project has been approved by the School of Education Ethics Committee.

May we take this opportunity to wish you good luck with your research.

Yours sincerely,

Nadin Beckmann

Dr Nadin Beckmann
School of Education Ethics Committee Chair

Leazes Road
Durham, DH1 1TA
Telephone: +44 (0)191 334 2000 Fax +44 (0)191 334 8311
www.durham.ac.uk/education

5.b Participant Information Sheet

Participant Information Sheet

Title:

You are invited to take part in a research study exploring pupil engagement. Please read this form carefully and ask any questions you may have before agreeing to be in the study.

The study is conducted by Lucy M. Davies as part of her Doctoral Research project Student Engagement in the Primary Core Curriculum at Durham University.

* This research project is supervised by Prof. Lynn D. Newton (l.d.newton@durham.ac.uk) and Prof. Douglas P. Newton (d.p.newton@durham.ac.uk) from the School of Education at Durham University.

The purpose of this study is explore how teachers view pupil engagement in their lessons.

If you agree to be in this study, you will be observed teaching one Mathematics and one English lesson on the same day. I will take notes during these lessons and also record the lesson using an iPad app called VEO which is password protected. This app blurs everyone in the recordings and recordings are stored on a password protected iPad which only I am know. At the end of both lessons you will be required to complete a checklist asking you about the class engagement levels (this will take a maximum of 5 minutes).

You are free to decide whether or not to participate and you can withdraw at any point prior to or during the observations.

All responses you give or other data collected will be kept confidential. The records of this study will be kept secure and private. All files containing any information you give are password protected. At the end of the project the video footage will be deleted from the VEO app. In any research report that may be published, no information will be included that will make it possible to identify you individually. There will be no way to connect your name to your responses at any time during or after the study.

* FUNDING: This project is self-funded by the researcher.

If you have any questions, requests or concerns regarding this research, please contact me via email at l.m.davies3@durham.ac.uk or by telephone at 07539260466.

This study has been reviewed and approved by the School of Education Ethics Sub-Committee at Durham University (date of approval: DD/MM/YY)

Lucy M. Davies

Leazes, Road, Durham City, DH1 1TA

Telephone +44 (0)191 334 2000 Fax +44 (0)191 334 8311
www.durham.ac.uk
Durham University is the trading name of the University of Durham

5.c Declaration of Informed Consent

Shaped by the past, creating the future

Declaration of Informed Consent

- I agree to participate in this study, the purpose of which is to explore student engagement in the primary core curriculum.
- I have read the participant information sheet and understand the information provided.
- I have been informed that I may decline to answer any questions or withdraw from the study without penalty of any kind.
- I have been informed that all of my responses will be kept confidential and secure, and that I will not be identified in any report or other publication resulting from this research.
- I have been informed that the investigator will answer any questions regarding the study and its procedures. Lucy M. Davies, School of Education, Durham University can be contacted via email: l.m.davies3@durham.ac.uk or telephone:07539260466.
- I will be provided with a copy of this form for my records.

Any concerns about this study should be addressed to the School of Education Ethics Sub-Committee, Durham University via email to ed.ethics@durham.ac.uk.

Date Participant Name (please print) Participant Signature

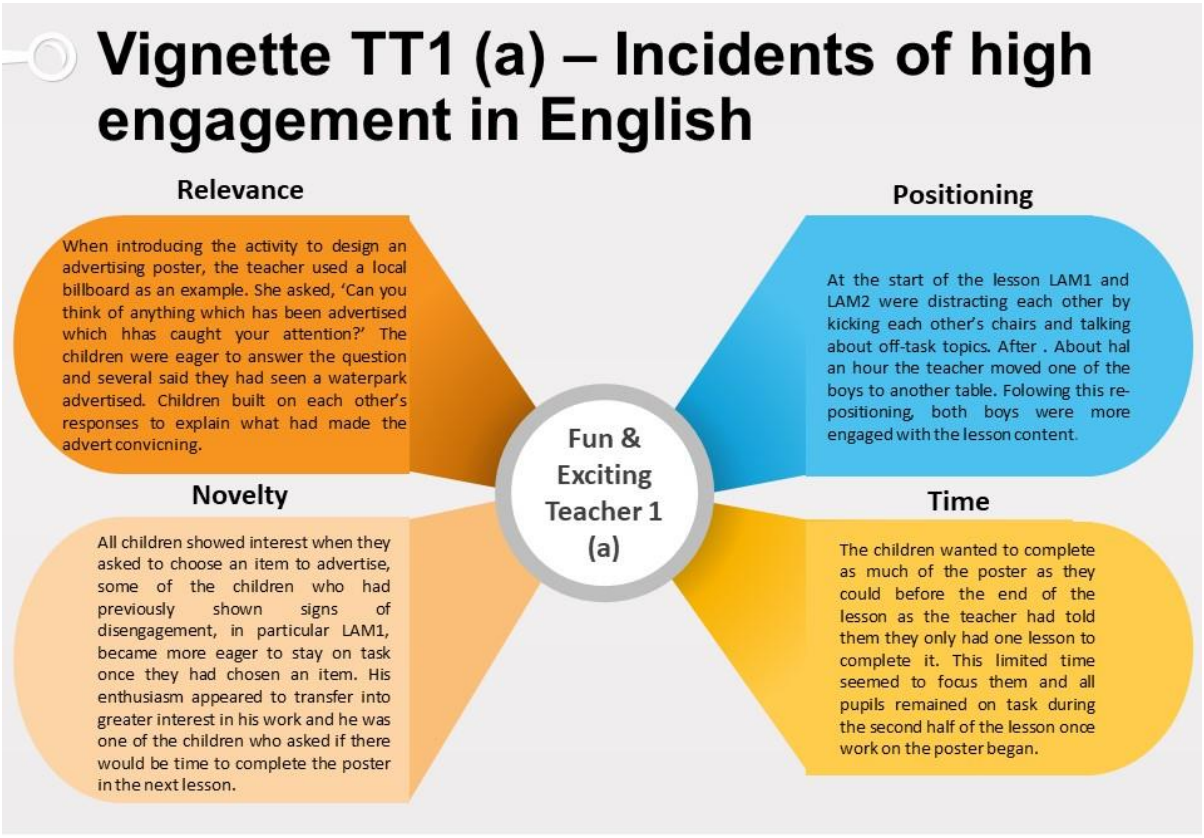
I certify that I have presented the above information to the participant and secured his or her consent.

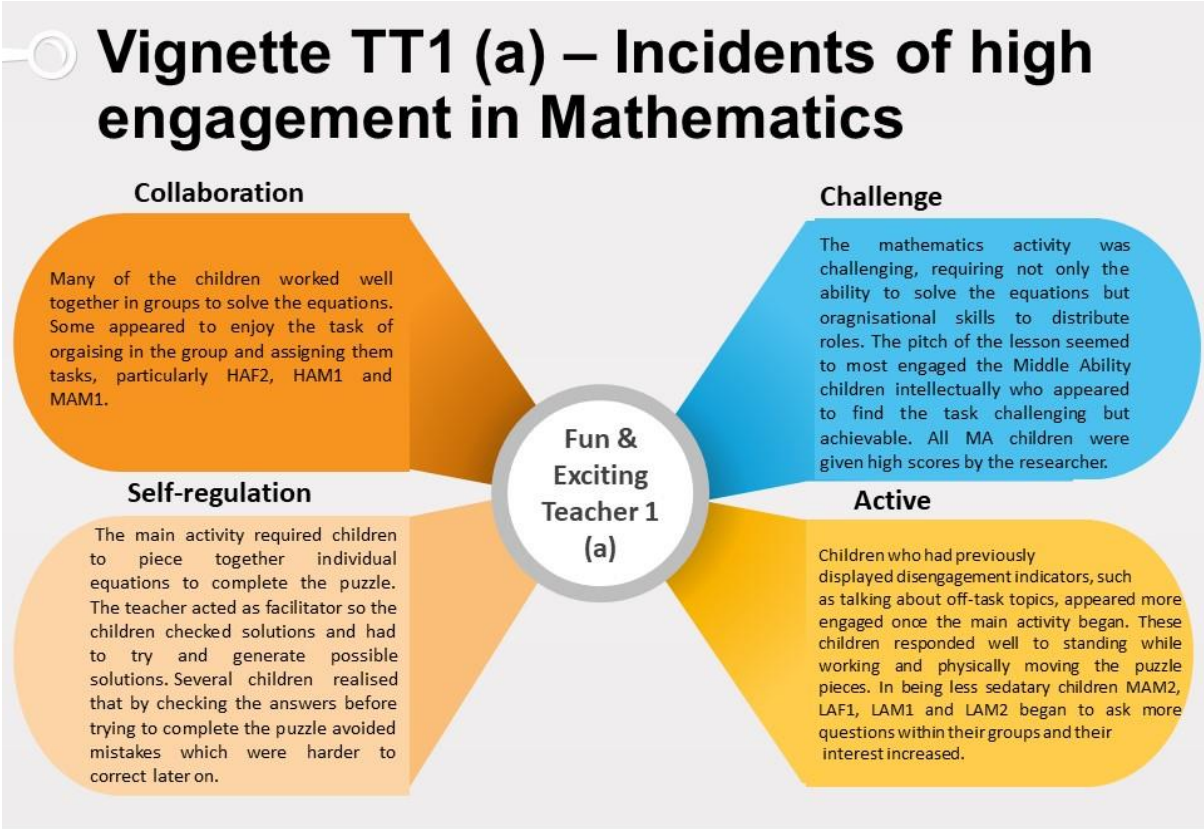
Date Signature of Investigator

Leazes Road
Durham City, DH1 1TA

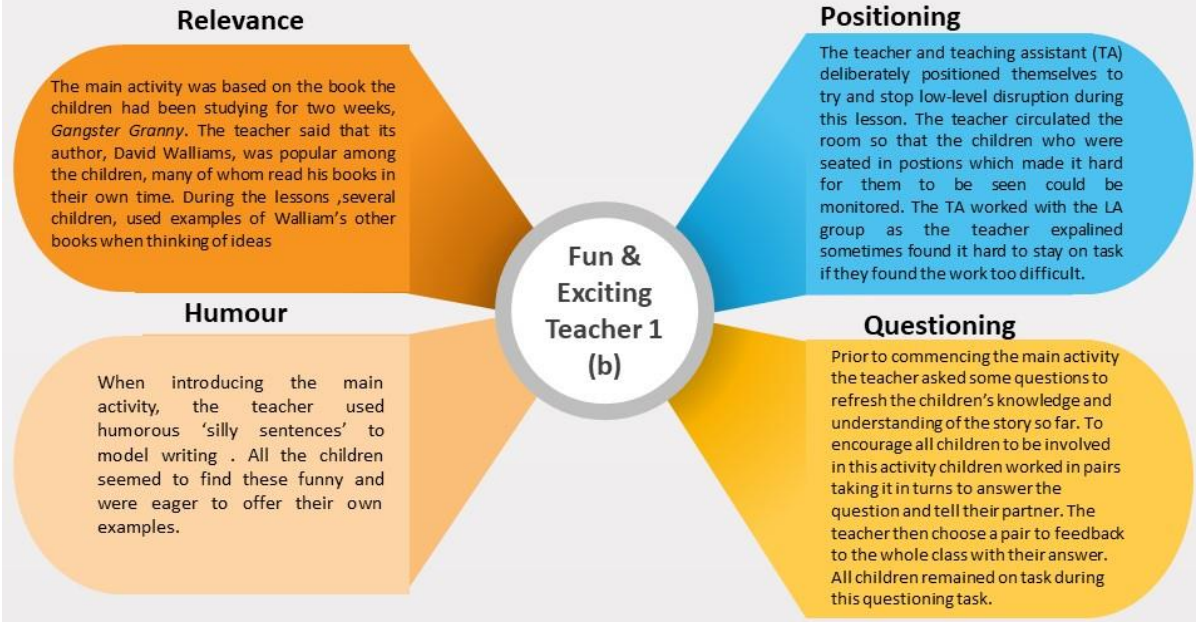
Telephone +44 (0)191 334 2000 Fax +44 (0)191 334 8311
www.durham.ac.uk
Durham University is the trading name of the University of Durham

5.d Vignettes from observed English and Mathematics Lessons

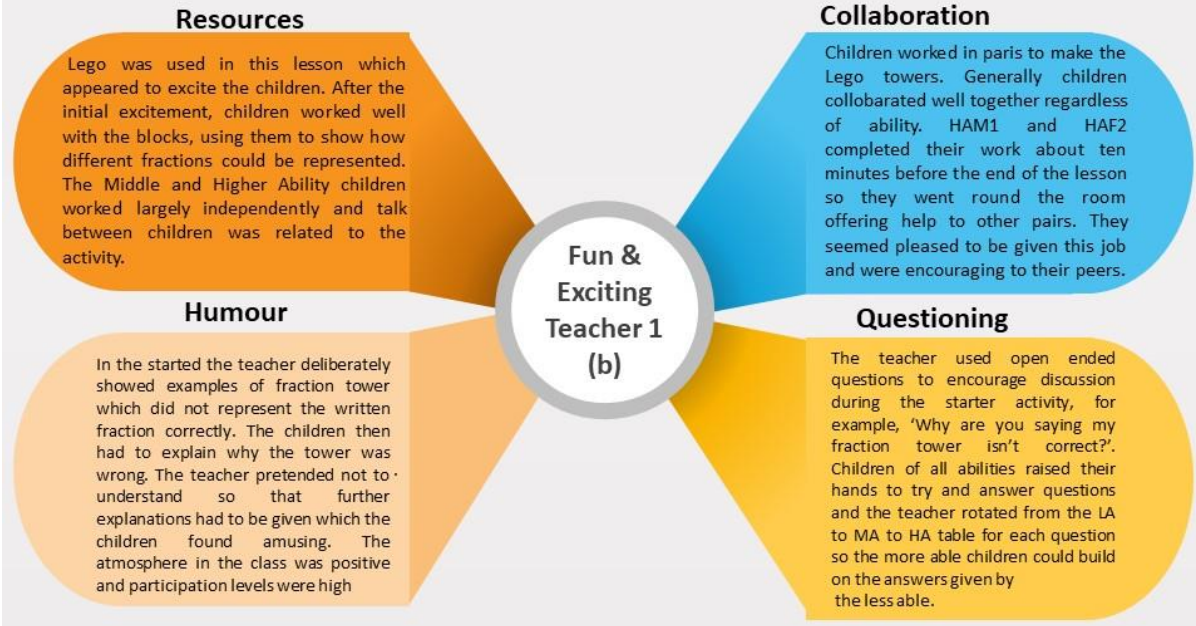




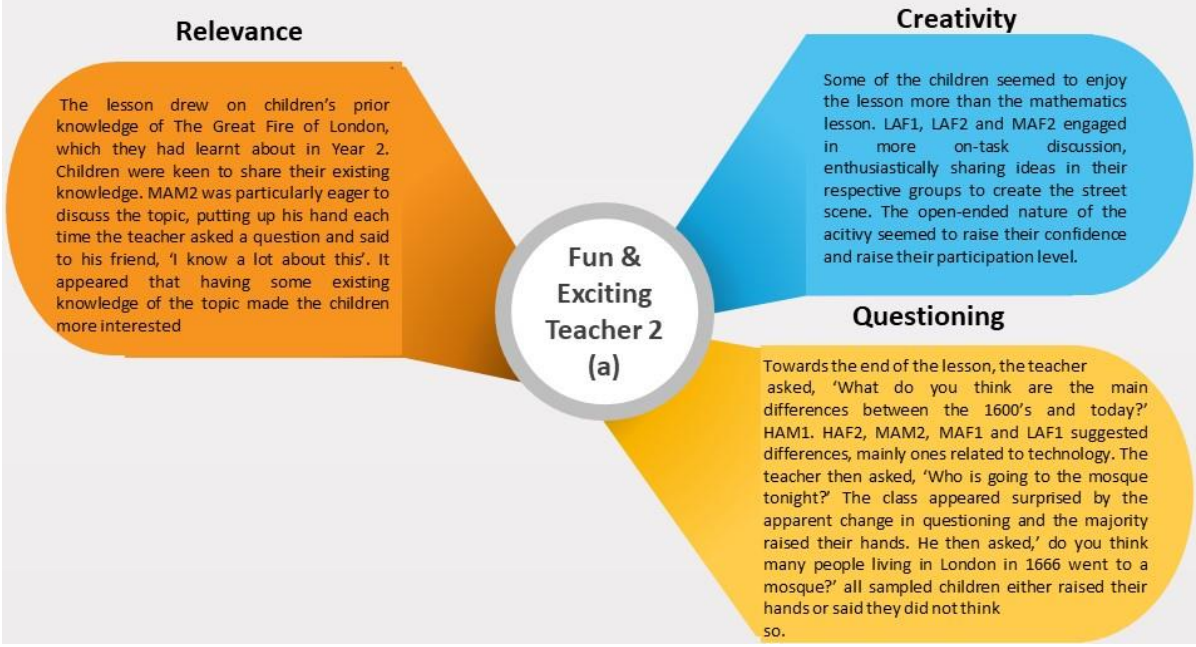
Vignette TT1 (b) – Incidents of high engagement in English



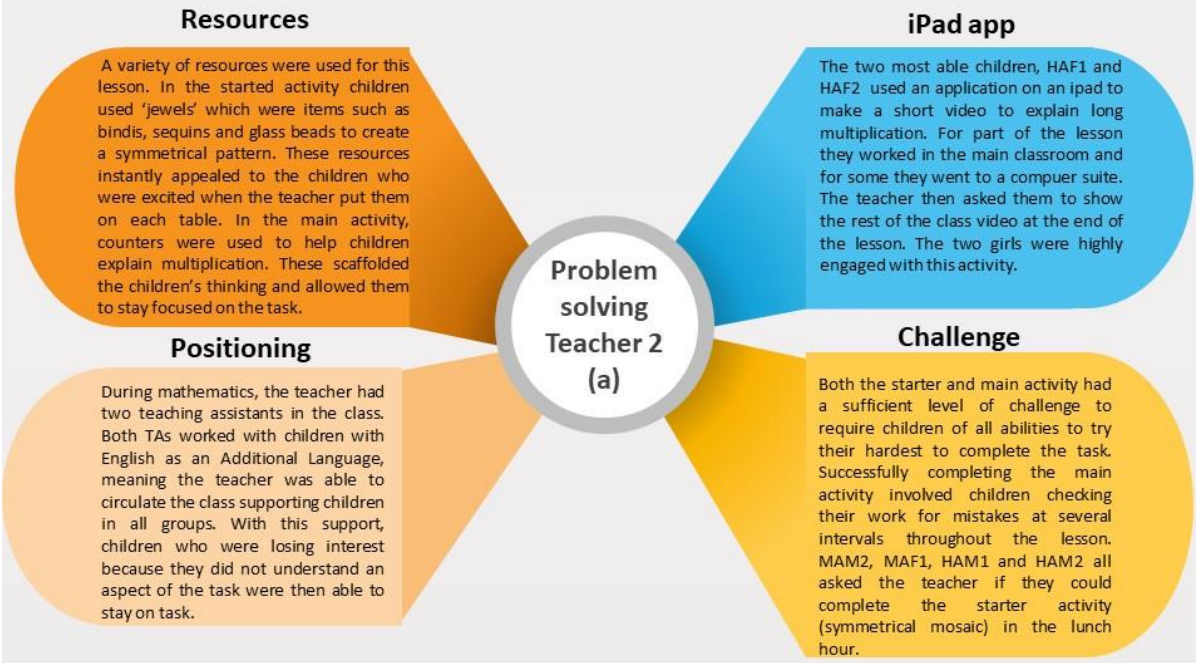
Vignette TT1 (b) – Incidents of high engagement in Mathematics



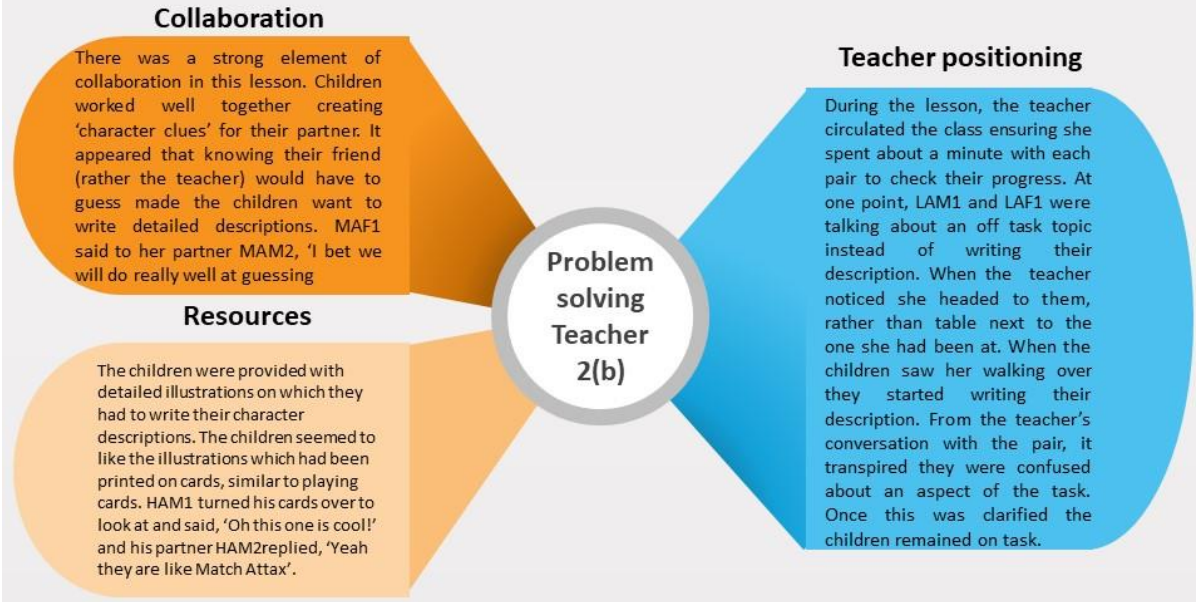
Vignette TT2 (a) – Incidents of high engagement in English



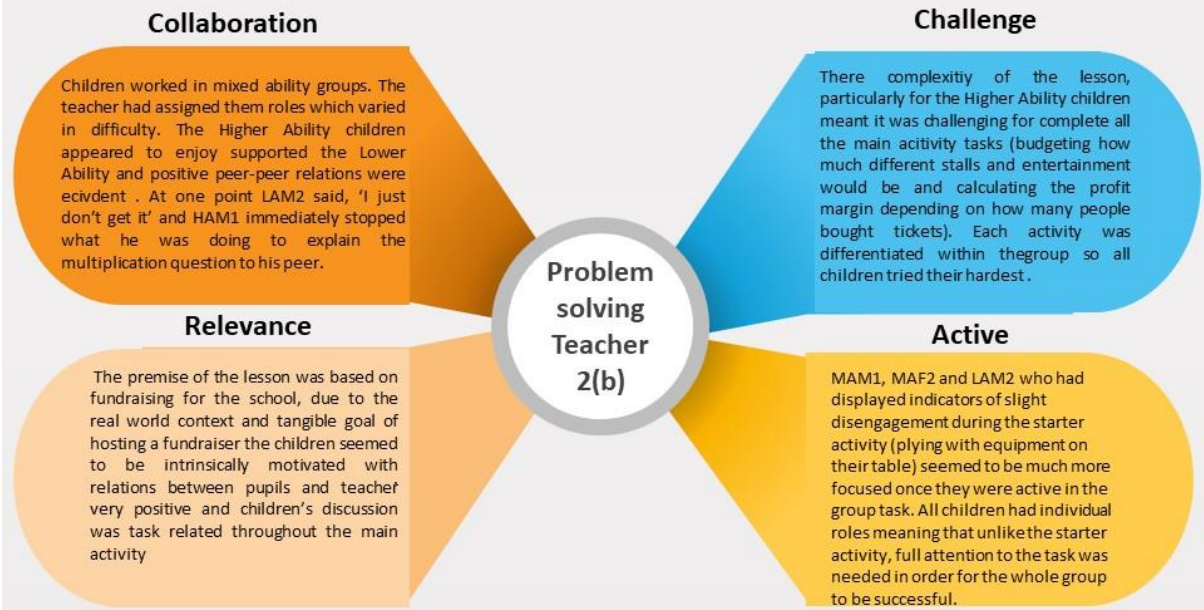
Vignette TT2 (a) – Incidents of high engagement in Mathematics



Vignette TT2 (b) – Incidents of high engagement in English

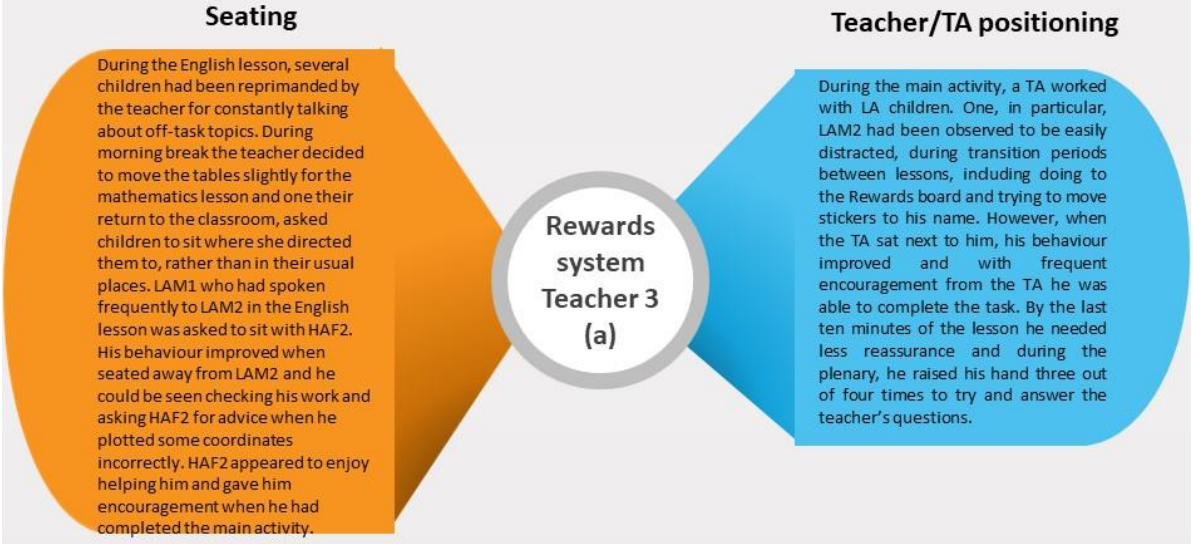


Vignette TT2 (b) – Incidents of high engagement in Mathematics

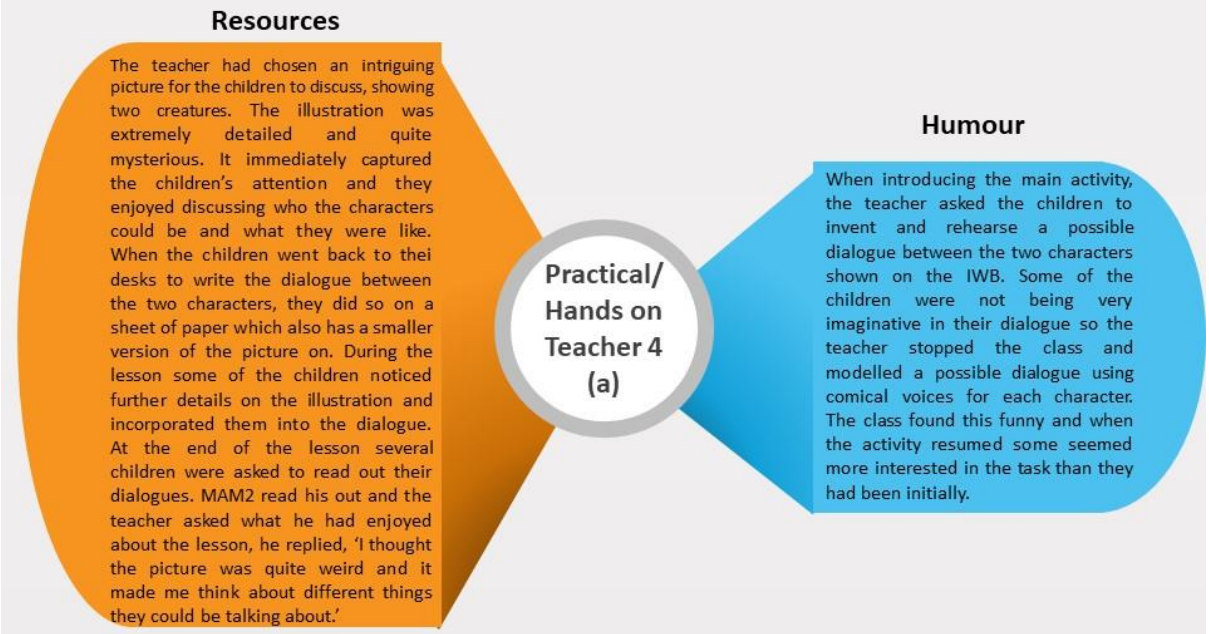


Vignette TT3 (a) – Incidents of high engagement in English

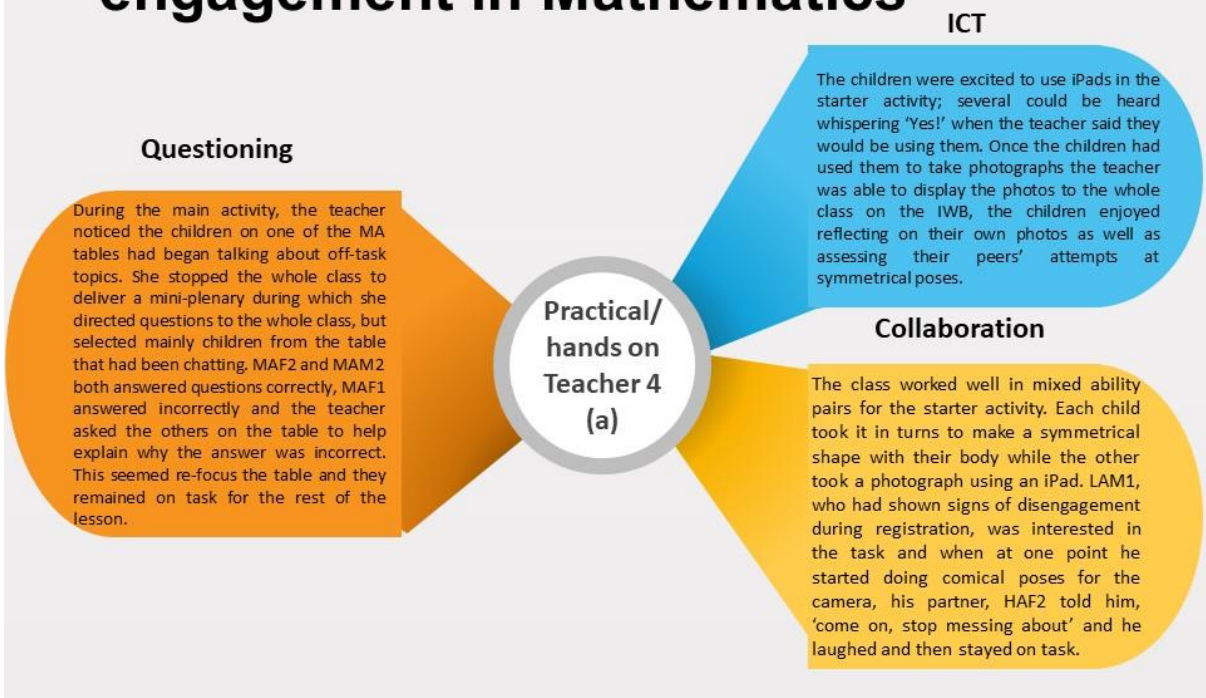
Vignette TT3 (a) – Incidents of high engagement in Mathematics



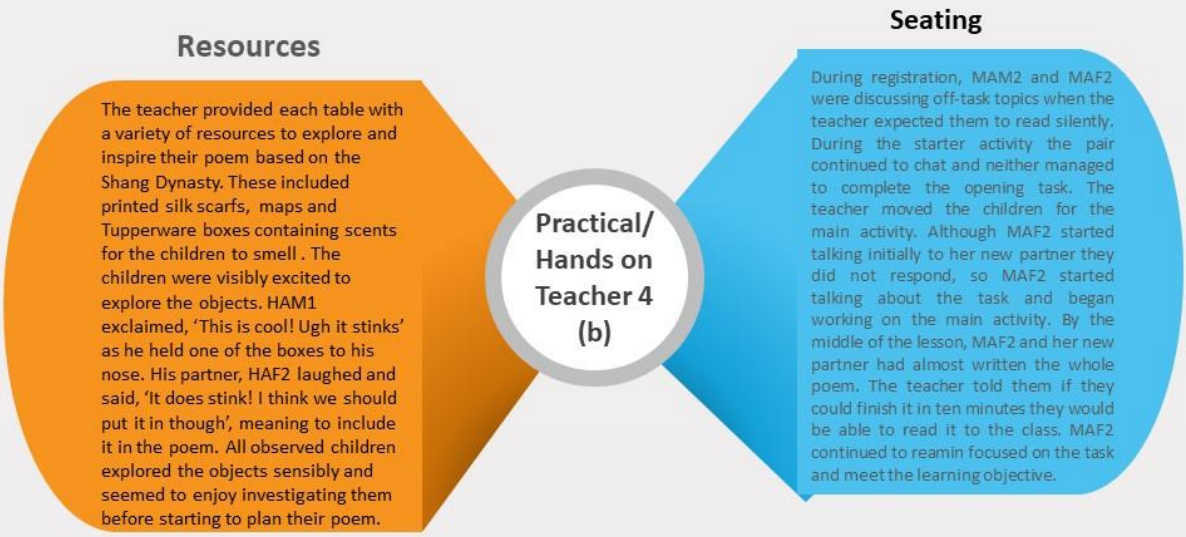
Vignette TT4 (a) – Incidents of high engagement in English



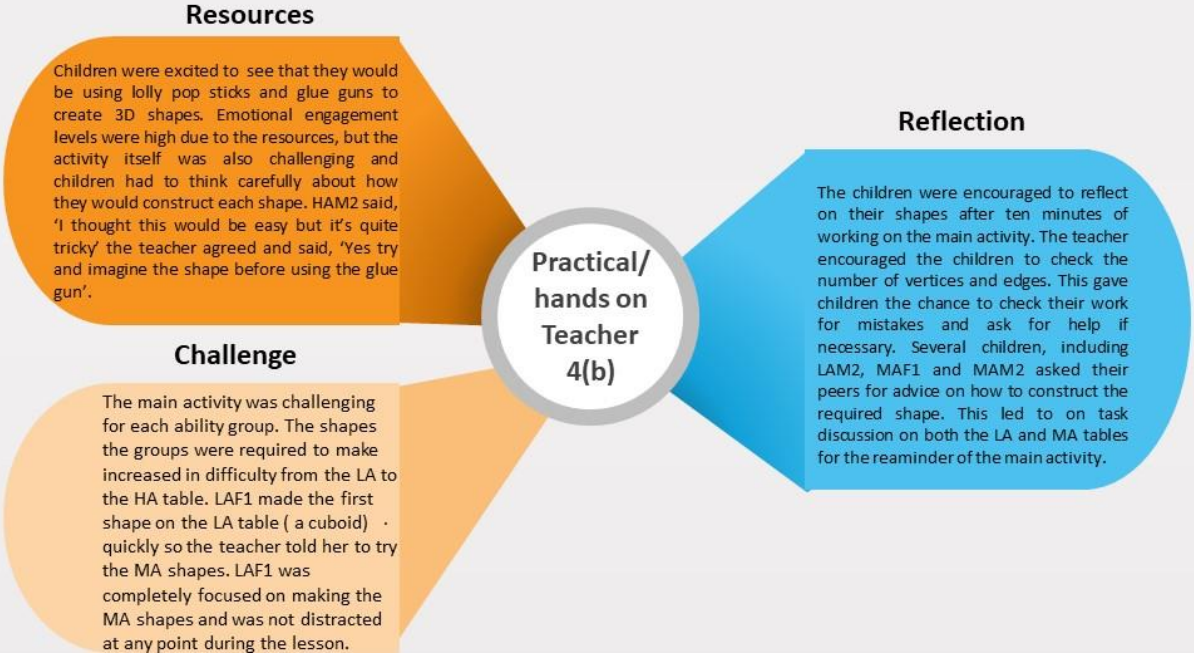
Vignette TT4 (a) – Incidents of high engagement in Mathematics



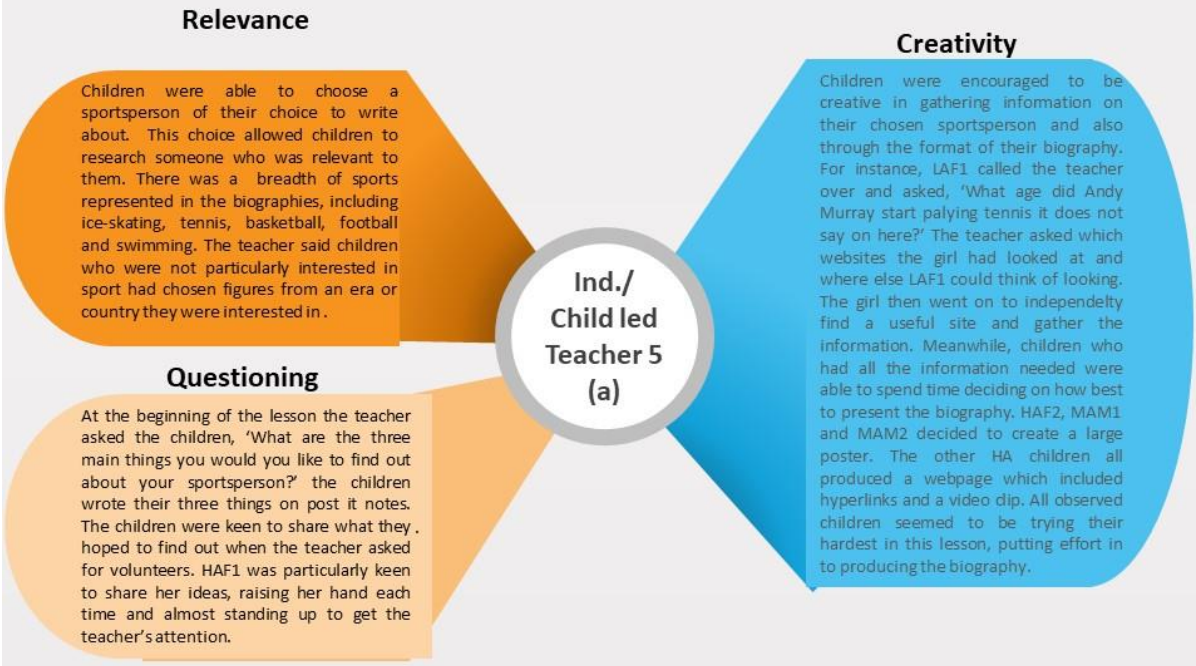
Vignette TT4 (b) – Incidents of high engagement in English



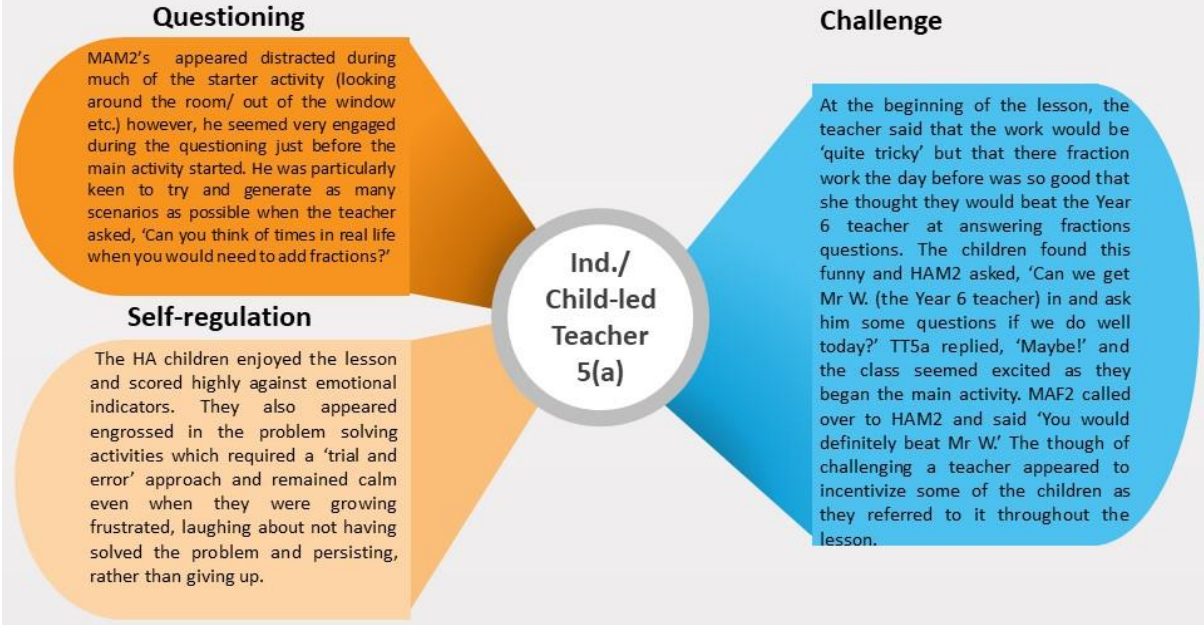
Vignette TT4 (b) – Incidents of high engagement in Mathematics



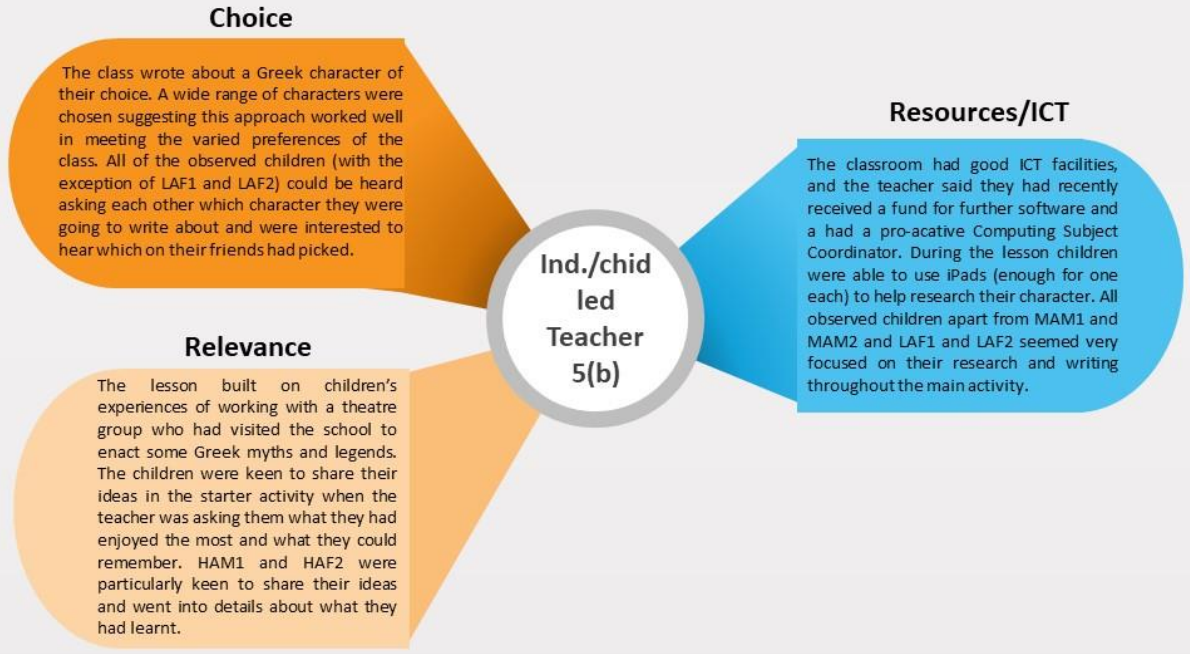
Vignette TT5 (a) – Incidents of high engagement in English



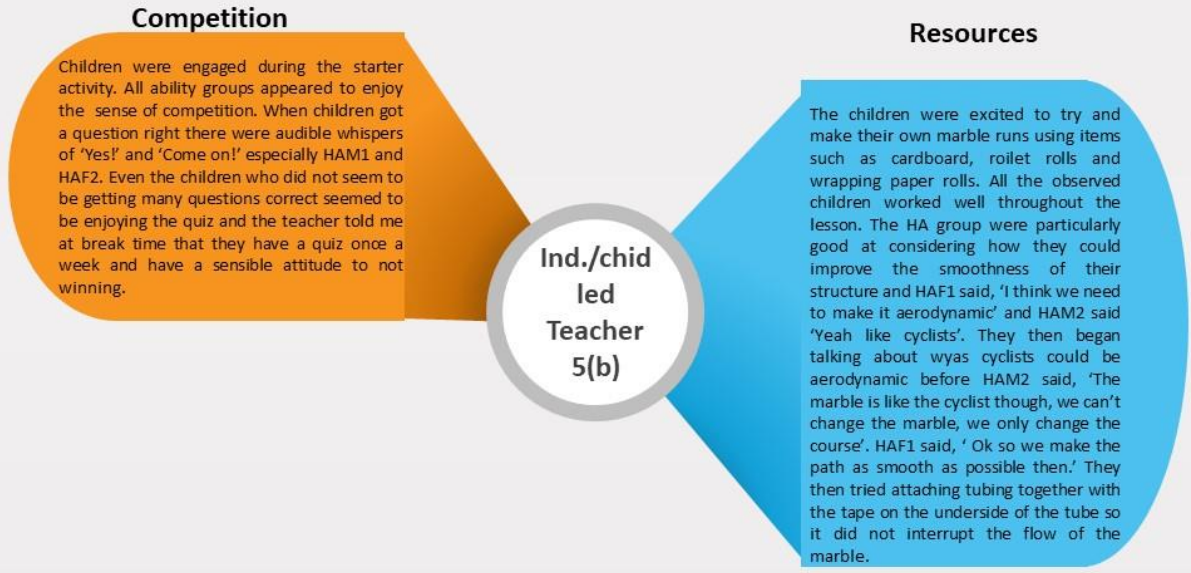
Vignette TT5 (a) – Incidents of high engagement in Mathematics



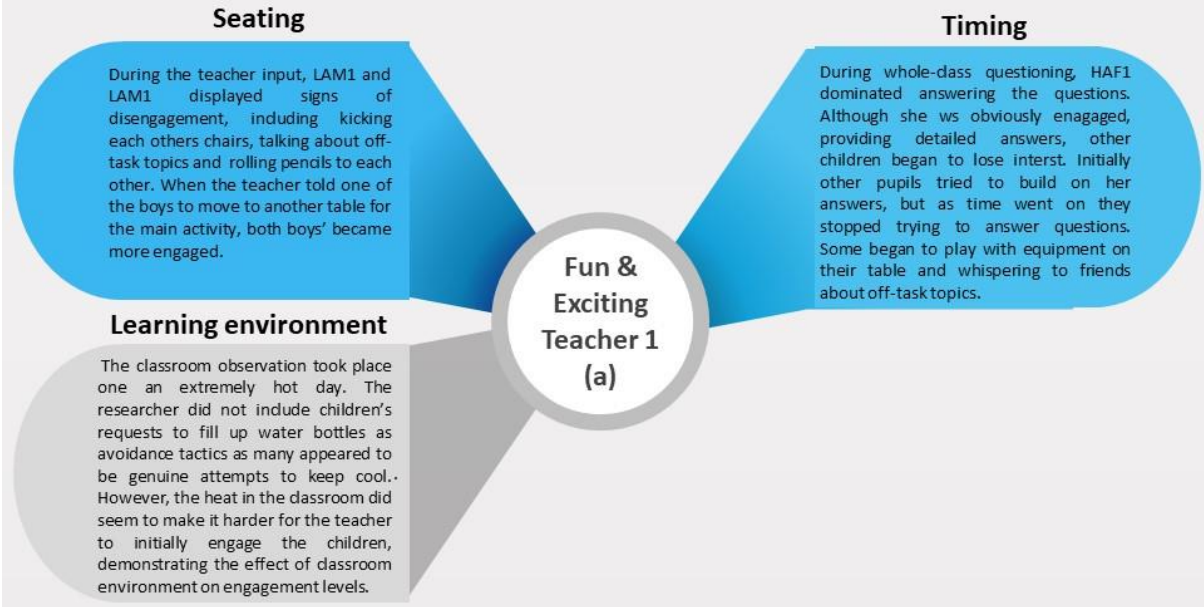
Vignette TT5 (b) – Incidents of high engagement in English



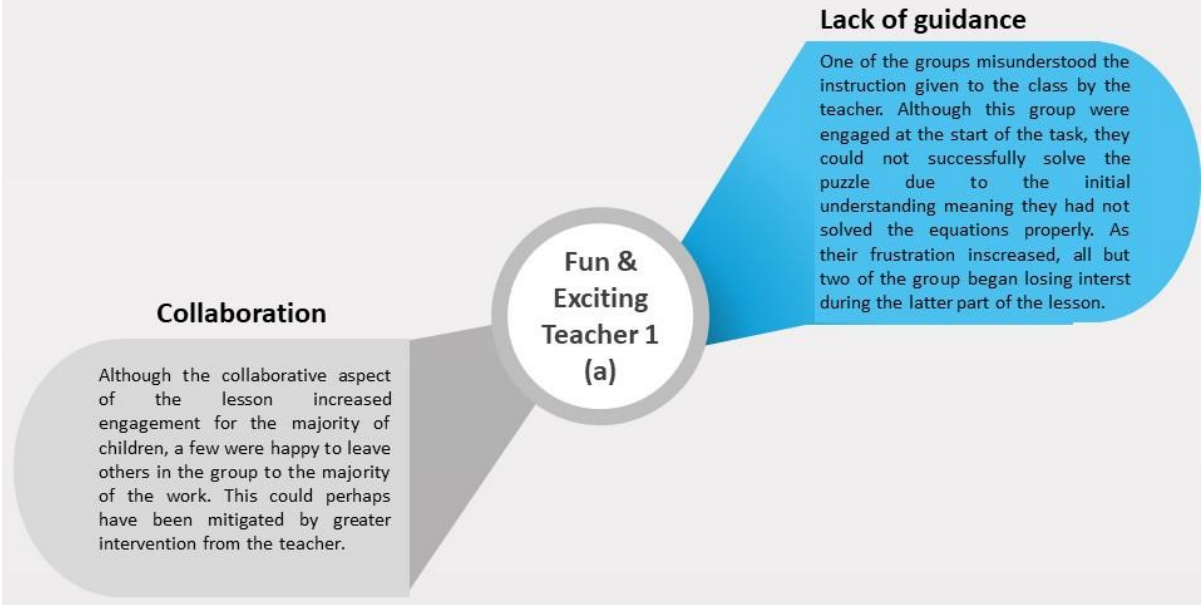
Vignette TT5 (b) – Incidents of high engagement in Mathematics



Vignette TT1 (a) – Incidents of low engagement in English



Vignette TT1 (a) – Incidents of low engagement in Mathematics



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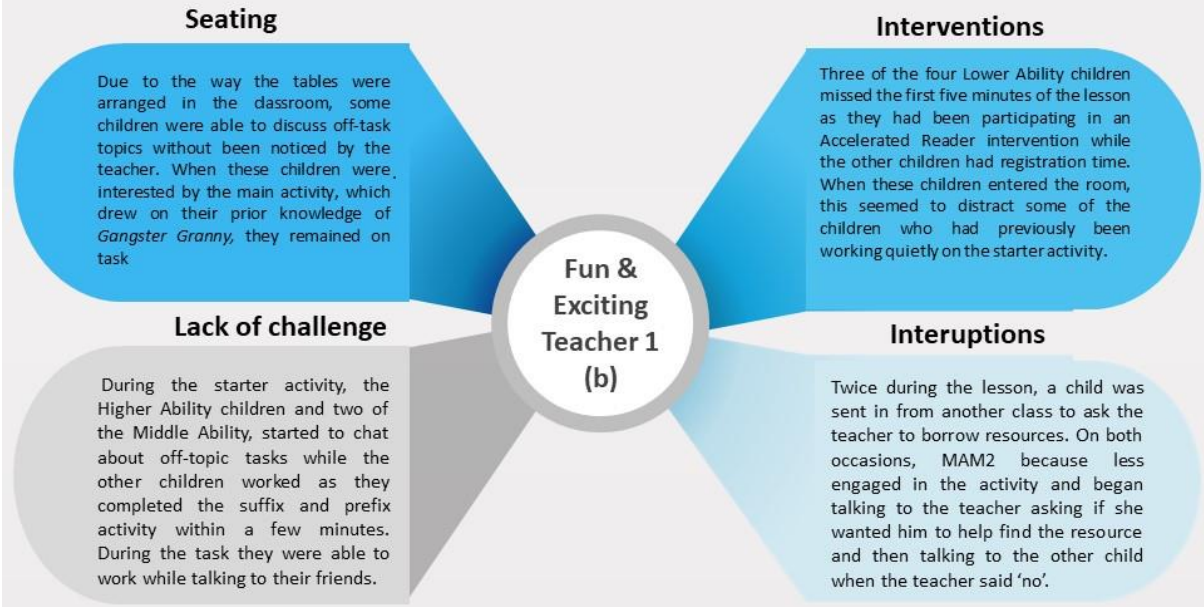
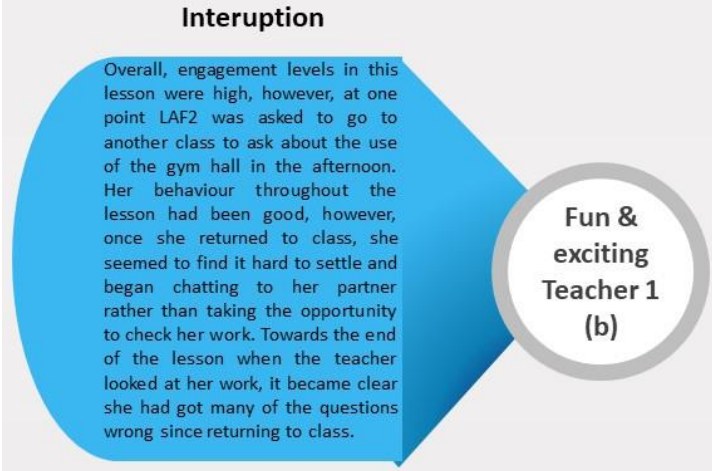
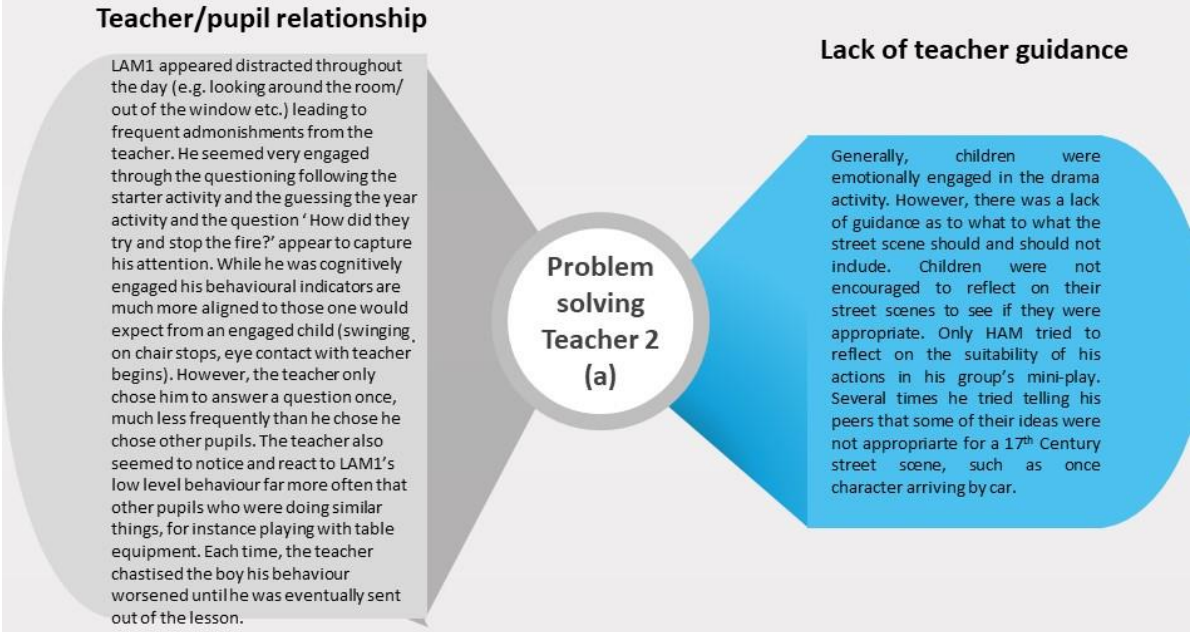


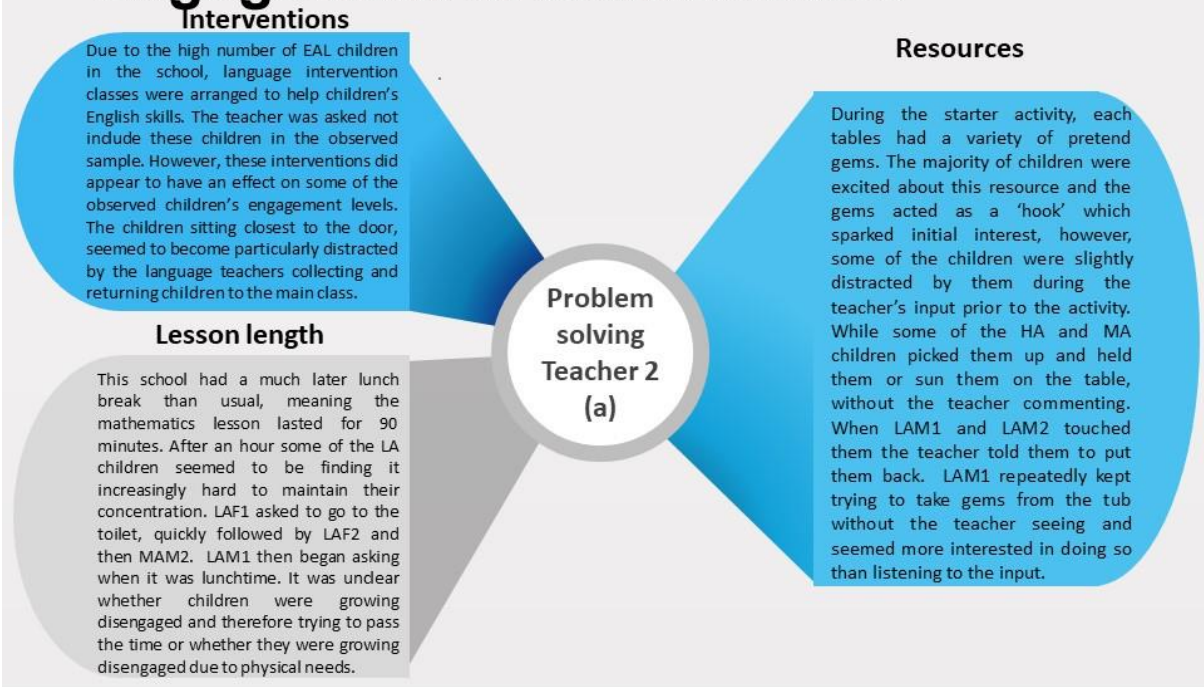
Vignette TT1 (b) – Incident of low engagement in Mathematics



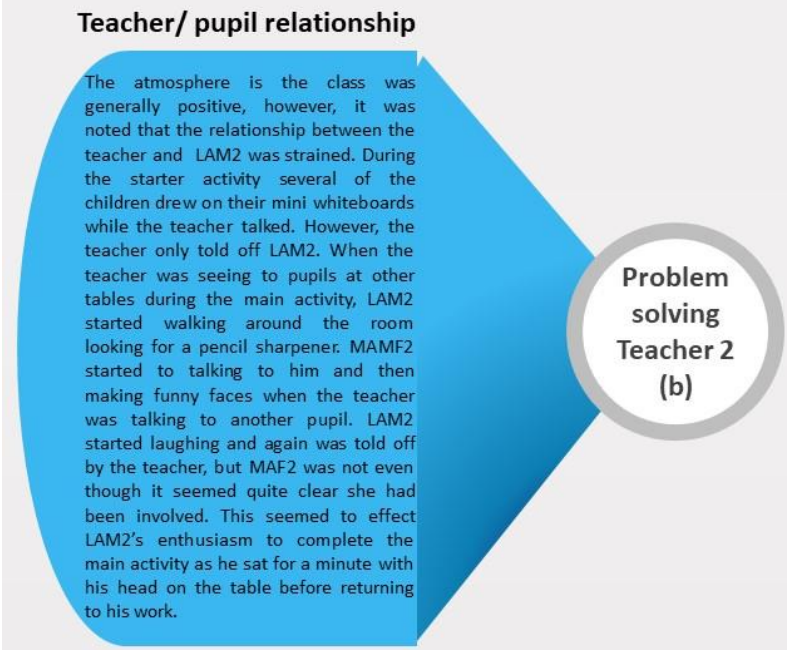
Vignette TT2 (a) – Incidents of low engagement in English



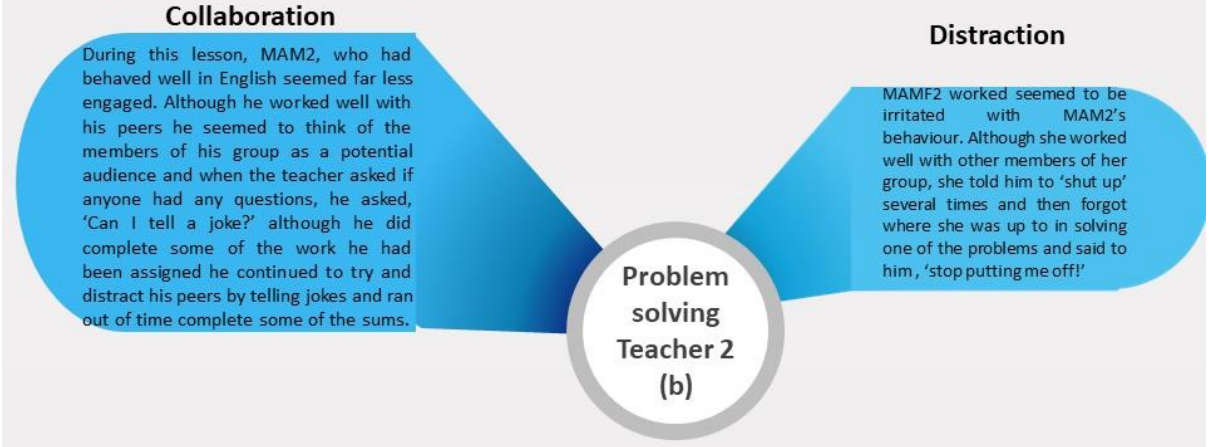
Vignette TT2 (a) – Incidents of low engagement in Mathematics



Vignette TT2 (b) – Incident of low engagement in English

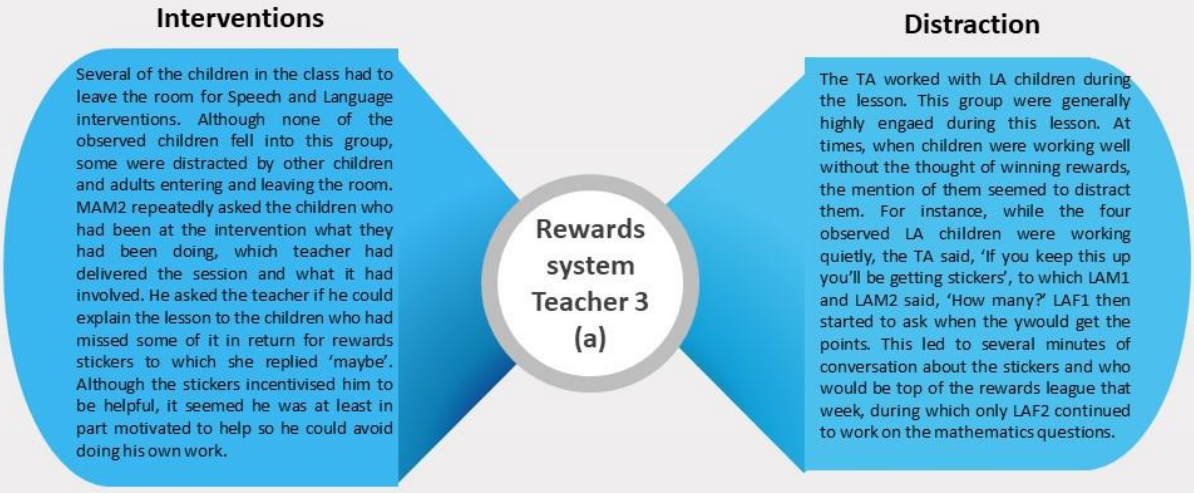


Vignette TT2 (b) – Incidents of low engagement in Mathematics

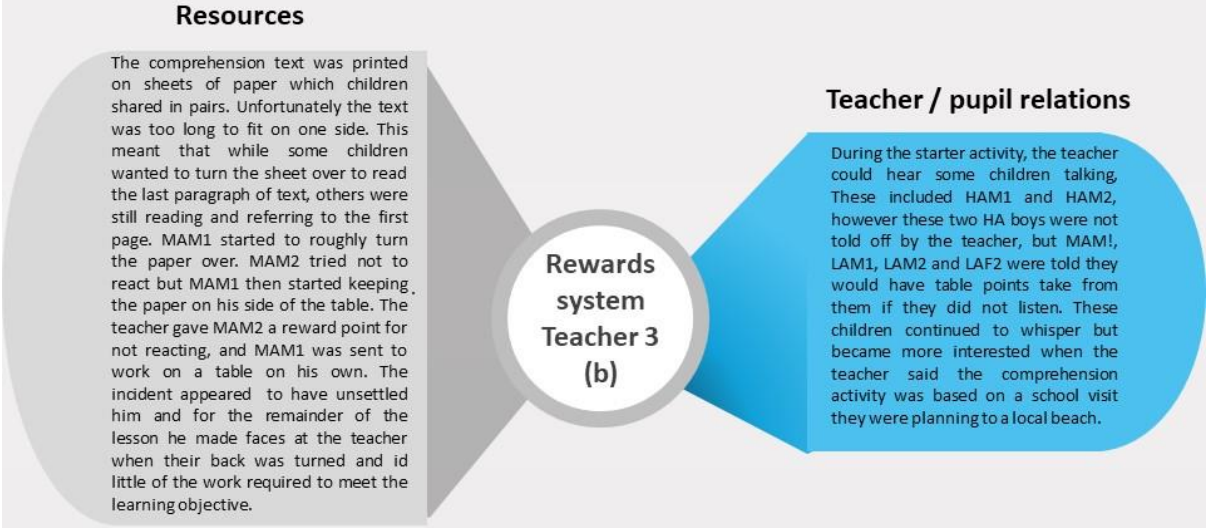


Vignette TT3 (a) – Incidents of low engagement in English

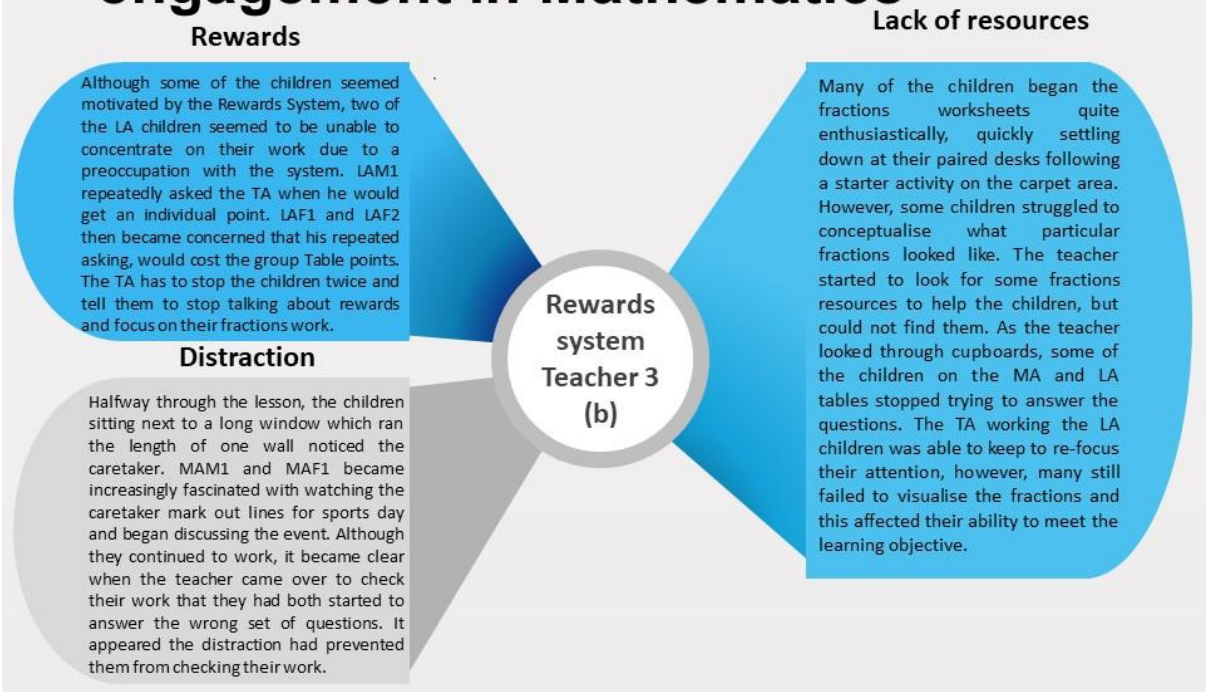
Vignette TT3 (a) – Incidents of low engagement in Mathematics



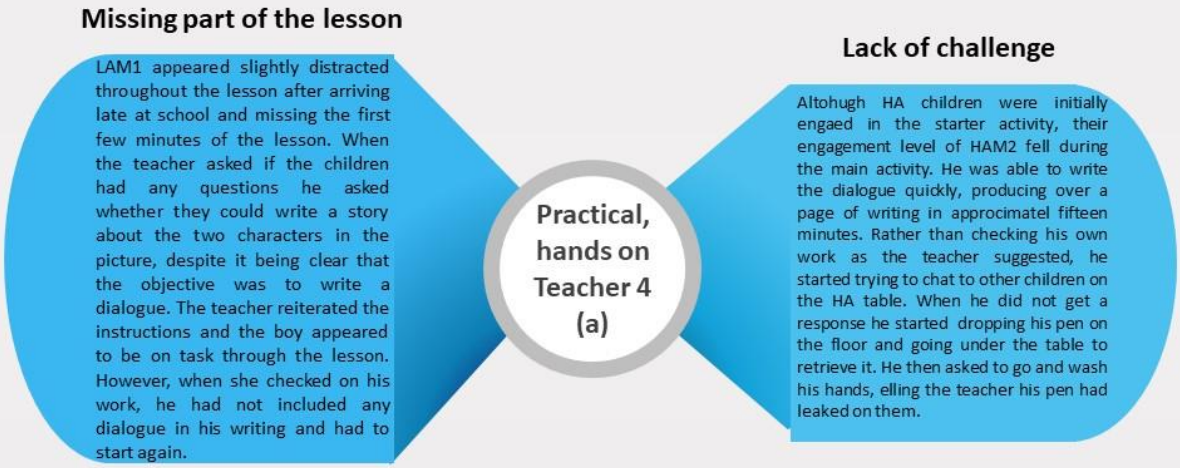
Vignette TT3 (b) – Incidents of low engagement in English



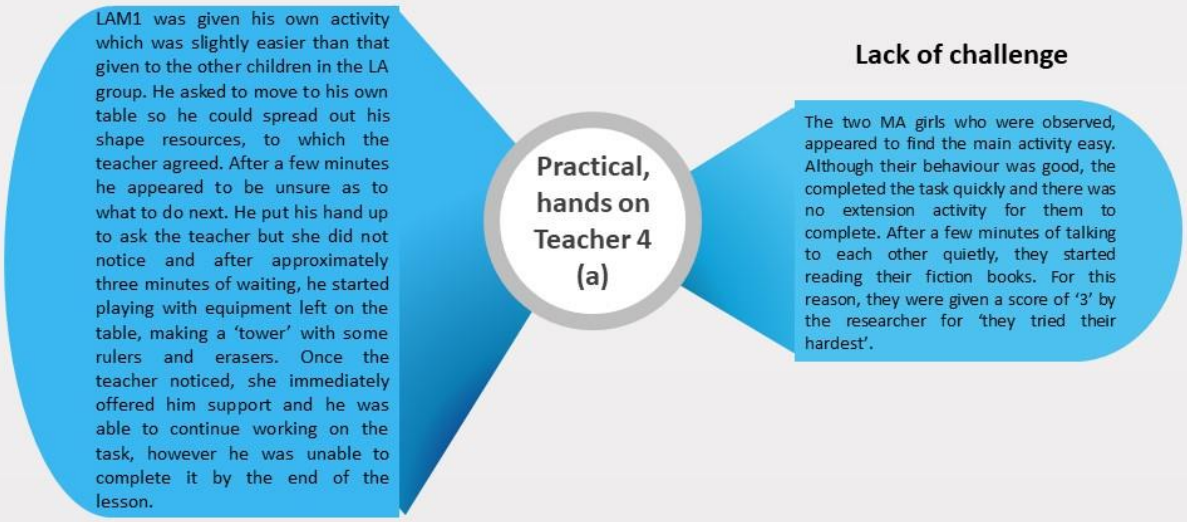
Vignette TT3 (b) – Incidents of low engagement in Mathematics



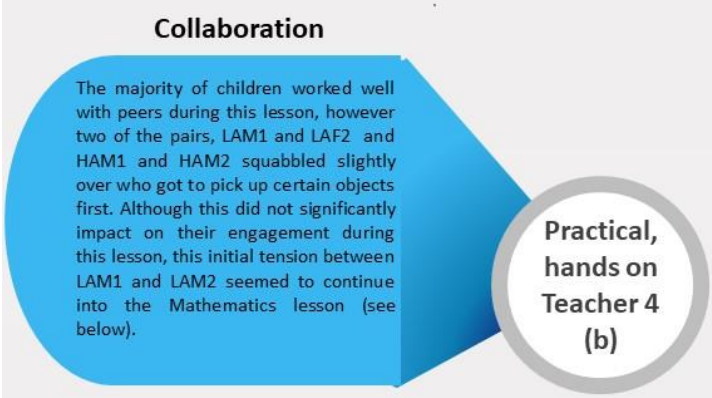
Vignette TT4 (a) – Incidents of low engagement in English



Vignette TT4 (a) – Incidents of low engagement in Mathematics



Vignette TT4 (b) – Incident of low engagement in English



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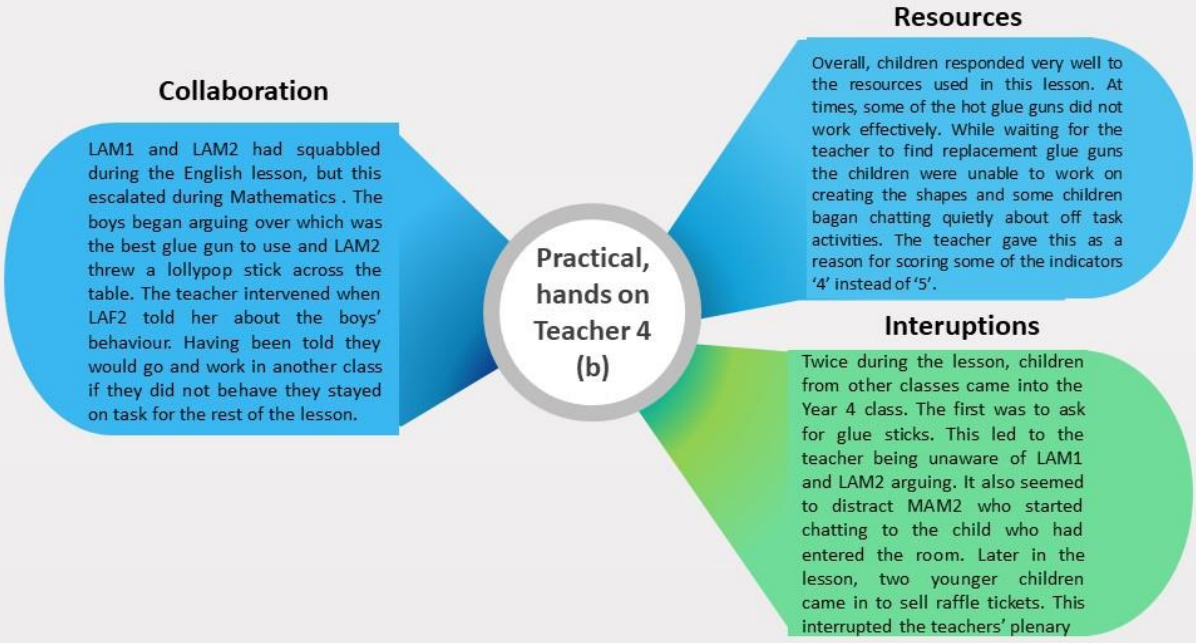
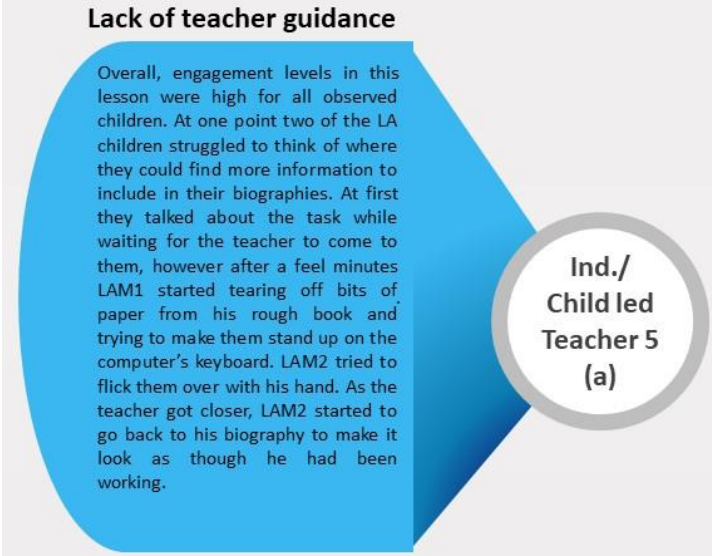
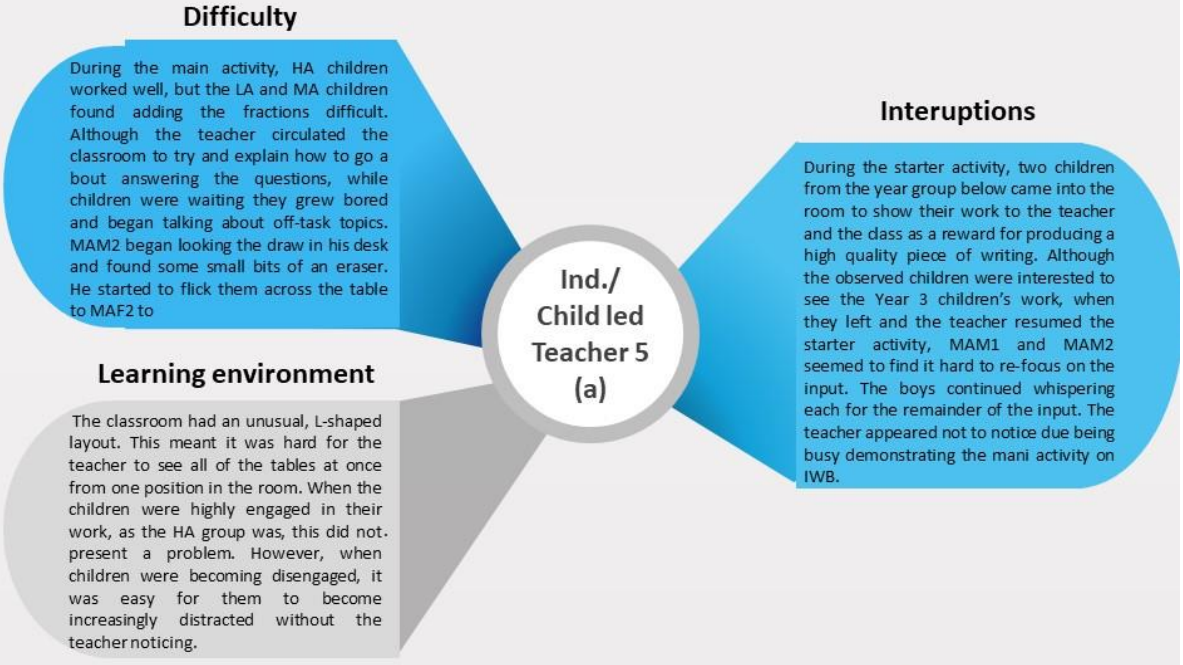
Vignette TT4 (b) – Incidents of low engagement in Mathematics



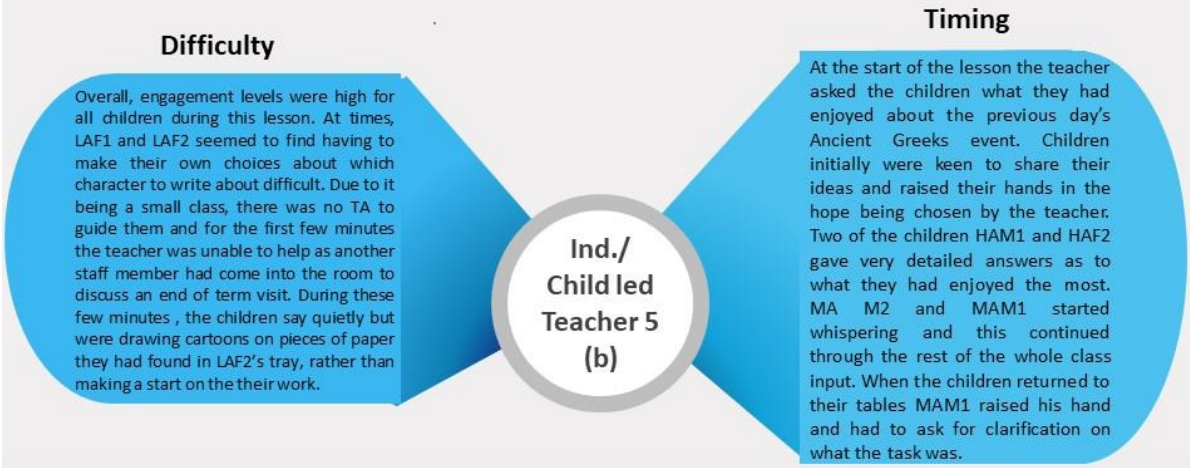
Vignette TT5 (a) – Incidents of low engagement in English



Vignette TT5 (a) – Incidents of low engagement in Mathematics



Vignette TT5 (b) – Incidents of low engagement in English



5.e Measuring tools completed by ten observed teachers

Teacher Type 1 (a) measuring tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	5	4	4	3	5	4	4	4	3	4
English	4	4	4	4	5	4	4	3	4	4

Teacher Type 1 (b) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	2	3	4	3	4	4	3	4	3
English	5	4	4	4	4	5	5	4	4	5

Teacher Type 2 (a) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	3	3	4	4	4	3	4	4	4
English	5	4	4	4	4	3	0	4	4	3

Teacher Type 2(b) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	3	4	4	3	4	4	4	4	4
English	5	4	4	4	4	5	4	4	4	4

Teacher Type 3 (a) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	2	2	3	3	4	3	3	4	3
English	4	2	3	3	3	4	4	3	4	3

Teacher Type 3 (b) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	4	4	4	4	4	4	3	4	4
English	4	4	4	3	3	4	4	4	4	3

Teacher Type 4 (a) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	3	4	4	3	4	4	4	3	4	3
English	4	4	4	4	5	4	4	4	4	4

Teacher Type 4 (b) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	5	4	3	5	4	5	5	4	4	4
English	5	4	4	4	4	4	4	4	4	4

Teacher Type 5 (a) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	4	4	4	5	4	5	5	4	5
English	4	2	3	4	4	4	4	4	4	4

Teacher Type 5(b) Measuring Tool

	1. They enjoyed today's lesson	2. They respected me	3. they worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. asked relevant questions	7. they found the lesson interesting	8. they checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
Mathematics	4	4	4	4	5	5	4	4	4	4
English	4	4	4	4	5	4	4	4	5	5

5.f Completed researcher Measuring tools for each observed lesson

Completed researcher Measuring Tool for Teacher Type 1 (a) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	4	3	4	4	4	4	4	3	4	3
LA2M	4	3	3	4	3	4	4	3	4	4
LA1F	4	4	4	4	5	4	4	4	4	5
LA2F	4	3	4	4	5	4	4	3	4	4
MA1M	4	3	3	4	3	4	3	3	3	3
MA2M	4	4	4	4	3	4	4	4	4	4
MA1F	4	4	4	5	4	4	4	5	4	5
MA2F	4	5	4	4	5	4	4	4	4	4
HA1M	4	4	5	5	5	5	5	5	5	4
HA2M	4	4	4	5	5	5	4	4	4	4
HA1F	5	4	4	4	5	5	4	5	4	3
HA2F	5	4	4	4	5	4	4	4	4	3

Completed researcher Measuring Tool for Teacher Type 1 (a) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	4	4	4	4	4	4	4	3	2	4
LA2M	4	4	4	4	4	4	4	3	4	4
LA1F	4	4	4	4	5	4	4	4	4	5
LA2F	4	4	4	4	5	4	4	4	2	4
MA1M	4	4	4	4	4	4	3	3	3	4
MA2M	4	4	4	4	4	4	4	4	4	4
MA1F	4	4	5	5	4	4	4	4	4	5
MA2F	4	5	5	4	5	4	4	4	4	4
HA1M	5	5	5	5	5	5	5	5	5	4
HA2M	3	4	4	5	5	5	4	4	2	5
HA1F	5	5	5	5	5	5	4	5	4	3
HA2F	5	4	5	5	5	4	4	4	4	5

Completed researcher Measuring Tool for Teacher Type 1 (b) English

	Emotional Climate					Cognition				
	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	5	5	4	5	4	3	4
LA2M	5	4	5	5	5	4	5	4	4	4
LA1F	5	5	4	5	5	4	5	4	3	5
LA2F	4	4	4	4	5	4	5	4	3	4
MA1M	5	4	5	4	4	5	4	4	4	4
MA2M	5	4	4	5	5	5	4	5	4	4
MA1F	5	4	5	4	5	4	4	4	5	5
MA2F	5	4	5	5	5	4	4	4	4	5
HA1M	5	4	5	5	5	5	5	5	5	5
HA2M	5	4	4	4	5	5	4	5	5	5
HA1F	5	4	5	4	5	4	5	4	5	5
HA2F	5	4	5	5	5	5	5	5	5	5

Completed researcher Measuring Tool for Teacher Type 1 (b) Mathematics

	Emotional Climate					Cognition				
	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	4	5	5	4	5	4	4	5
LA2M	5	4	4	5	4	4	5	3	4	4
LA1F	4	4	4	5	5	4	5	4	4	5
LA2F	4	4	4	4	5	4	5	2	2	4
MA1M	5	4	4	4	4	4	3	4	4	4
MA2M	5	4	4	5	5	4	4	5	4	4
MA1F	5	4	5	5	5	4	4	4	5	5
MA2F	4	5	5	5	5	4	4	4	4	5
HA1M	5	5	5	5	5	4	5	5	5	4
HA2M	5	4	4	4	5	4	4	5	5	4
HA1F	5	5	5	4	5	4	4	5	5	4
HA2F	5	4	5	4	5	5	4	5	5	4

Completed researcher Measuring Tool for Teacher Type 2(a) English

	Emotional Climate					Cognition				
	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	1	4	1	1	1	1	1		1	1
LA2M	3	5	5	5	5	4	5		5	5
LA1F	5	5	5	5	5	4	5		5	5
LA2F	5	5	5	5	5	4	5		5	5
MA1M	5	5	5	5	5	4	5		5	5
MA2M	4	5	5	5	5	4	5		5	5
MA1F	5	5	5	5	5	4	5		5	5
MA2F	5	5	5	5	5	4	5		5	5
HA1M	3	5	5	5	5	4	5		5	3
HA2M	5	5	5	5	5	4	5		5	5
HA1F	5	5	5	5	5	4	5		5	3
HA2F	5	5	5	5	5	4	5		5	3

Completed researcher Measuring Tool for Teacher Type 2 (a) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	3	3	4	4	2	2	4	3	3	2
LA2M	5	5	4	5	5	4	4	5	4	5
LA1F	5	5	4	5	5	4	4	5	4	5
LA2F	5	5	4	5	5	5	4	5	2	5
MA1M	5	3	4	5	3	4	4	4	3	5
MA2M	5	3	4	4	3	5	4	5	4	4
MA1F	5	5	5	5	5	5	5	5	4	5
MA2F	5	5	5	4	5	4	4	5	4	4
HA1M	5	5	5	5	5	5	5	5	5	5
HA2M	5	5	4	4	5	5	5	4	2	5
HA1F	5	3	5	5	5	5	5	5	4	5
HA2F	5	5	5	5	5	5	5	4	4	5

Completed researcher Measuring Tool for Teacher Type 2 (b) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	4	5	4	4	4	4	4
LA2M	3	4	3	4	3	4	4	4	4	3
LA1F	5	4	5	5	5	5	4	4	4	5
LA2F	4	5	5	4	5	4	5	4	4	5
MA1M	4	4	4	3	4	3	4	4	4	4
MA2M	4	4	4	4	3	3	4	4	4	4
MA1F	4	4	4	4	4	4	4	4	5	4
MA2F	5	3	4	4	4	5	5	4	4	4
HA1M	4	5	5	4	5	4	4	5	5	4
HA2M	5	5	4	4	5	5	4	5	5	5
HA1F	4	5	4	4	5	5	4	5	5	4
HA2F	4	5	5	4	5	5	4	5	5	4

Completed researcher Measuring Tool for Teacher Type 2 (b) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	4	5	4	5	4	5	4	5	5
LA2M	5	4	5	5	5	4	5	5	4	5
LA1F	5	4	5	5	5	4	4	4	5	5
LA2F	5	5	5	4	5	5	5	5	4	5
MA1M	4	4	4	3	4	4	4	4	4	4
MA2M	4	4	4	4	3	3	4	4	3	2
MA1F	4	4	4	4	4	4	4	3	4	5
MA2F	4	4	3	4	4	4	4	4	3	3
HA1M	5	5	5	4	5	5	5	5	4	5
HA2M	5	5	4	4	5	5	5	5	5	5
HA1F	5	5	4	4	5	5	5	5	5	4
HA2F	5	5	5	4	5	5	5	5	4	5

Completed researcher Measuring Tool for Teacher Type 3 (a) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	3	2	2	2	2	1	2	2	2	1
LA2M	3	3	2	2	2	1	2	3	2	3
LA1F	4	5	5	3	4	3	4	3	3	5
LA2F	3	3	2	4	5	3	3	4	3	4
MA1M	4	5	4	3	4	3	3	4	4	4
MA2M	4	5	4	4	5	3	4	4	5	4
MA1F	4	5	4	4	5	4	4	4	5	4
MA2F	4	4	5	4	5	3	5	4	4	4
HA1M	4	4	5	4	5	4	4	4	5	3
HA2M	4	4	5	4	5	3	4	4	5	4
HA1F	4	4	5	4	5	3	4	4	5	3
HA2F	4	5	5	4	5	4	5	4	5	4

Completed researcher Measuring Tool for Teacher Type 3 (a) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	3	2	2	4	2	3	2	2	2	3
LA2M	4	3	3	4	3	3	2	2	4	4
LA1F	4	5	5	4	4	3	3	3	4	4
LA2F	4	3	4	4	5	4	3	3	4	4
MA1M	4	5	4	4	4	3	4	4	4	4
MA2M	5	5	4	4	5	4	4	4	5	4
MA1F	5	5	4	4	5	4	4	4	4	4
MA2F	4	4	5	5	5	5	4	4	4	4
HA1M	5	4	5	4	5	4	4	4	5	4
HA2M	4	4	5	4	5	4	5	5	5	4
HA1F	5	4	5	4	5	4	4	4	4	4
HA2F	5	5	5	4	5	4	4	4	4	4

Completed researcher Measuring Tool for Teacher Type 3 (b) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	3	4	4	4	3	4	4	4	3
LA2M	5	3	3	4	4	4	4	3	4	4
LA1F	5	4	4	4	5	4	4	3	3	4
LA2F	5	3	4	4	5	4	4	4	4	4
MA1M	3	2	2	3	2	2	3	2	2	2
MA2M	4	4	4	4	3	4	4	4	4	4
MA1F	5	4	4	4	3	4	4	4	5	5
MA2F	4	5	4	4	5	4	4	4	4	5
HA1M	5	4	5	4	5	4	5	5	5	4
HA2M	4	4	5	4	5	5	4	5	5	4
HA1F	4	5	5	4	4	4	4	5	5	4
HA2F	5	5	5	4	4	5	4	5	5	4

Completed researcher Measuring Tool for Teacher Type 3 (b) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	3	4	4	4	3	4	4	4	2
LA2M	5	3	3	4	4	3	4	3	4	3
LA1F	4	4	4	4	5	4	4	3	3	4
LA2F	4	3	4	4	5	4	4	4	4	4
MA1M	3	2	4	4	5	4	4	3	4	4
MA2M	4	4	4	4	3	4	4	4	4	4
MA1F	4	4	4	4	3	4	4	4	5	4
MA2F	4	5	4	4	5	4	4	4	4	4
HA1M	4	4	5	4	5	3	5	5	5	3
HA2M	4	4	5	4	5	4	4	5	5	4
HA1F	4	4	5	4	4	4	4	5	5	3
HA2F	4	5	5	4	4	3	4	5	5	3

Completed researcher Measuring Tool for Teacher Type 4 (a) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	3	5	5	4	5	3	4	3	3	4
LA2M	4	5	5	4	5	4	4	3	4	4
LA1F	4	5	5	4	5	4	4	4	3	4
LA2F	4	5	5	4	5	4	4	4	4	4
MA1M	4	5	5	4	5	4	4	3	3	4
MA2M	4	4	5	4	5	4	4	3	4	4
MA1F	4	4	5	4	5	4	4	4	3	4
MA2F	4	5	5	4	5	4	4	4	3	3
HA1M	4	5	5	4	5	4	4	5	5	5
HA2M	4	4	5	4	5	4	4	3	3	2
HA1F	5	5	5	5	5	5	4	5	5	5
HA2F	4	5	5	4	5	4	4	5	5	5

Completed researcher Measuring Tool for Teacher Type 4 (a) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	3	5	5	3	5	4	3	3	3	4
LA2M	4	5	5	4	5	4	4	3	4	4
LA1F	4	5	5	4	5	4	4	4	3	4
LA2F	4	5	5	4	5	4	4	4	4	4
MA1M	4	5	5	4	5	4	4	4	4	4
MA2M	4	4	5	4	5	4	4	4	4	4
MA1F	4	3	3	3	5	4	3	4	4	3
MA2F	4	4	4	4	5	4	4	4	4	3
HA1M	4	5	5	4	5	4	4	5	5	4
HA2M	4	4	5	4	5	4	4	3	5	4
HA1F	5	5	5	5	5	5	5	5	5	5
HA2F	4	5	5	4	5	4	3	5	5	5

Completed researcher Measuring Tool for Teacher Type 4 (b) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	4	5	5	5	5	3	4	4	4	4
LA2M	3	3	3	4	3	4	4	3	4	2
LA1F	4	5	5	5	5	3	4	4	3	4
LA2F	4	5	5	4	5	4	4	4	4	4
MA1M	5	5	5	4	5	4	4	3	3	5
MA2M	4	4	5	5	5	5	4	4	4	4
MA1F	4	4	5	5	5	4	4	4	4	4
MA2F	4	5	5	4	5	4	4	4	4	4
HA1M	5	5	5	4	5	5	4	5	5	5
HA2M	5	4	5	5	5	4	4	3	4	4
HA1F	5	5	5	5	5	5	4	5	5	5
HA2F	4	5	5	4	5	5	4	5	5	5

Completed researcher Measuring Tool for Teacher Type 4 (b) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	4	5	4	4	4	3	4	4	4	4
LA2M	4	4	4	4	4	3	4	3	4	4
LA1F	4	5	5	5	5	3	4	3	3	4
LA2F	4	5	5	5	5	4	4	4	4	4
MA1M	5	5	5	5	5	4	4	3	2	4
MA2M	4	4	3	5	3	5	4	4	4	4
MA1F	4	4	3	5	3	4	4	4	2	4
MA2F	4	5	5	5	5	4	4	4	4	4
HA1M	5	5	5	4	5	5	5	5	5	5
HA2M	5	5	5	4	5	5	5	5	4	4
HA1F	5	5	5	4	4	5	5	5	5	5
HA2F	4	5	5	4	4	5	5	5	5	5

Completed researcher Measuring Tool for Teacher Type 5 (a) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	5	5	5	5	4	5	5
LA2M	5	5	5	5	5	4	5	3	4	3
LA1F	5	5	5	5	5	3	4	2	3	4
LA2F	5	5	5	5	5	4	5	4	5	5
MA1M	5	4	4	4	5	3	4	5	3	4
MA2M	5	5	5	5	5	5	5	5	5	5
MA1F	5	5	5	5	5	4	5	4	4	5
MA2F	5	5	5	4	5	4	5	4	4	5
HA1M	5	4	4	4	4	5	5	5	5	5
HA2M	5	5	5	5	5	5	5	5	4	5
HA1F	5	5	5	5	5	5	5	5	5	5
HA2F	5	5	5	5	5	5	5	5	5	5

Completed researcher Measuring Tool for Teacher Type 5 (a) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	5	5	4	5	4	3	5
LA2M	5	5	5	5	5	4	5	4	3	5
LA1F	5	5	5	5	5	4	5	4	3	5
LA2F	5	5	5	5	5	4	5	4	3	5
MA1M	4	4	4	4	5	4	4	4	3	4
MA2M	4	5	5	4	5	4	4	4	4	5
MA1F	4	5	4	5	5	4	4	4	3	5
MA2F	4	5	5	4	5	5	4	4	4	5
HA1M	5	4	4	4	5	5	5	5	4	5
HA2M	5	5	5	5	5	5	5	5	4	5
HA1F	5	5	5	5	5	5	5	5	5	5
HA2F	5	5	5	5	5	5	5	5	5	5

Completed researcher Measuring Tool for Teacher Type 5 (b) English

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between teacher & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	5	5	4	5	4	4	5
LA2M	4	5	5	5	5	4	5	4	4	5
LA1F	3	3	3	3	4	3	3	3	3	3
LA2F	3	3	3	3	4	3	3	3	3	3
MA1M	4	3	3	5	5	5	3	5	4	4
MA2M	4	3	3	5	5	5	3	4	4	4
MA1F	5	5	5	5	5	5	5	5	5	5
MA2F	5	5	5	5	5	5	5	5	5	5
HA1M	5	5	5	5	5	5	5	5	5	5
HA2M	5	5	5	5	5	5	5	5	5	5
HA1F	5	5	5	5	5	5	5	5	5	5
HA2F	5	5	5	5	5	5	5	5	5	5

Completed researcher Measuring Tool for Teacher Type 5 (b) Mathematics

	1. They enjoyed today's lesson	2. They respected me/ the teacher	3. They worked well with peers/	4. They found the lesson exciting	5. The interaction between myself & the child was positive	6. They asked relevant questions	7. They found the lesson interesting	8. They checked their work for mistakes	9. They achieved the learning objective	10. They tried their hardest
LA1M	5	5	5	5	4	5	5	4	5	5
LA2M	5	5	5	5	5	5	5	5	5	5
LA1F	5	5	5	5	5	5	5	5	5	5
LA2F	5	5	5	5	5	5	5	5	5	5
MA1M	5	4	4	5	4	5	5	5	5	4
MA2M	5	4	4	5	4	5	5	5	5	4
MA1F	5	5	5	5	5	5	5	5	5	5
MA2F	5	5	5	5	5	5	5	5	5	5
HA1M	5	5	5	5	5	5	5	5	5	5
HA2M	5	5	5	5	5	5	5	5	5	5
HA1F	5	5	5	5	5	5	5	5	5	5
HA2F	5	5	5	5	5	5	5	5	5	5

5.g Correlations between Average Researcher score for LA (green) and Teachers' Whole Class scores (red) in English lessons[3]

		Type of Approach (Teach Type)																				
		TT1a. Fun and Exciting		**TT1b**. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4	4	4.75	5	4.25	5	4.25	5	3.25	4	5	4	3.75	4	3.75	5	5	4	4	4	0.07
	They respected the teacher	3.25	4	4.5	4	3	4	4.5	4	3.25	2	3.25	4	5	4	4.5	4	5	2	3.75	4	0.08
	They worked well with peers	3.75	4	4.5	4	2.5	4	4.5	4	2.75	3	3.75	4	5	4	4.5	4	5	3	3.75	4	0.08
	They found the lesson exciting	4	4	4.75	4	3.75	4	4.25	4	2.75	3	4	3	4	4	4.5	4	5	4	4	4	0.62
	The interaction between child & teacher was positive	4.25	5	5	4	3.5	4	4.5	4	3.25	3	4.5	3	5	5	4.5	4	5	4	3.75	4	0.39
Cognitive Engagement Indicators	They asked relevant questions	4	4	4	5	2.5	3	4.25	5	2	3	3.75	4	3.75	4	3.5	4	4	4	4	5	0.85
	They found the lesson interesting	4	4	5	5	3.75	4	4.25	4	2.75	4	4	4	4	4	4	4	4.75	4	3.75	4	0.56
	They checked their work for mistakes	3.25	3	4	4	2	0	4	4	2.75	4	3.5	4	3.5	4	3.75	4	3.25	4	3.5	4	0.8
	They achieved the learning objective	4	4	3.25	4	3	4	4	4	2.5	4	3.75	4	3.5	4	3.75	4	4.25	4	3	4	0.61
	They tried their hardest	4	4	4.25	5	3.25	3	4.25	4	3.25	3	3.75	3	4	4	3.5	4	4.25	4	3.75	5	0.61
Correlation		0.7		0.16		0.74		-0.02		-0.2		-0.22		0.49		-0.22		-3.7		0.26		

[3] Given the nature of the data (e.g. sample size), consideration of the statistical significance of these figures would not be appropriate. The coefficients serve simply as pointers to the extent of agreement between researcher and teacher. No other weight should be attached.

5.h Correlations between Average Researcher score for MA (green) and Teachers' Whole Class scores (red) in English lessons

		Type of Approach (Teach Type)																		
		TT1a. Fun and Exciting		TT1b. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4	4	5	5	4.75	5	5	5	4	4	4	4	4	4	4.75	5	5	4	4	4	0.76
	They respected the teacher	4	4	4	4	5	4	4	4	4	2	3.75	4	4.5	4	4.5	4	4.75	2	4.25	4	-0.13
	They worked well with peers	3.75	4	4.75	4	5	4	4.5	4	3.75	3	3.5	4	5	4	5	4	4.75	3	4	4	0.13
	They found the lesson exciting	4.25	4	4.5	4	5	4	4.5	4	3.75	3	3.75	3	4	4	4.5	4	4.5	4	4.25	4	0.75
	The interaction between child & teacher was positive	3.75	5	4.75	4	5	4	4	4	3.75	3	3.25	3	5	5	5	4	5	4	4	4	0.44
Cognitive Engagement Indicators	They asked relevant questions	4	4	4.5	5	4	3	4.5	5	3.75	3	3.5	4	4	4	4	4	4	4	4.75	5	0.76
	They found the lesson interesting	3.75	4	4	5	5	4	4.25	4	4	4	2.75	4	4	4	4	4	4.75	4	4.25	4	-0.04
	They checked their work for mistakes	4	3	4.25	4	2	0	4.75	4	3.75	4	3.5	4	3.5	4	3.75	4	4.5	4	4	4	0.81
	They achieved the learning objective	3.75	4	4.25	4	5	4	3.75	4	3.5	4	3.5	4	3.25	4	3.75	4	4	4	4	4	0.09
	They tried their hardest	4	4	4.5	5	4	3	4.5	4	3.5	3	4	3	3.75	4	4.25	4	4.75	4	4.25	5	0.56
	Correlation	-0.35		0.13		0.95		0.52		-0.07		-0.05		0.55		0.3		0.21		0.72		

5.i Correlations between Average Researcher score for HA (green) and Teachers' Whole Class scores (red) in English lessons

		Type of Approach (Teach Type)																				
		TT1a. Fun and Exciting		**TT1b**. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4.5	4	5	5	4.5	5	4.25	5	4	4	4.5	4	4.25	4	4.75	5	5	4	4	4	0.36
	They respected the teacher	4	4	4	4	5	4	5	4	4.25	2	4.5	4	4.75	4	4.75	4	4.75	2	4.25	4	0.03
	They worked well with peers	4.25	4	4.75	4	5	4	4.5	4	5	3	5	4	5	4	5	4	4.75	3	4.5	4	-0.19
	They found the lesson exciting	4.5	4	4.5	4	5	4	4	4	4	3	4	3	4.25	4	4.5	4	4.75	4	4.5	4	0.62
	The interaction between child & teacher was positive	5	5	5	4	5	4	5	4	5	3	4.5	3	5	5	5	4	4.75	4	5	4	0.49
Cognitive Engagement Indicators	They asked relevant questions	4.75	4	4.75	5	4	3	4.75	5	3.5	3	4.5	4	4.25	4	4.75	4	5	4	4.75	5	0.74
	They found the lesson interesting	4.25	4	4.75	5	5	4	4	4	4.25	4	4.25	4	4	4	4	4	5	4	4.5	4	0.31
	They checked their work for mistakes	4.5	3	4.75	4	3	0	5	4	4	4	5	4	4.5	4	4.5	4	5	4	4.5	4	0.85
	They achieved the learning objective	4.25	4	5	4	5	4	5	4	5	4	5	4	4.5	4	4.75	4	4.75	4	5	4	0.23
	They tried their hardest	3.5	4	5	5	3.5	3	4.25	4	3.5	3	4	3	4.25	4	4.75	4	5	4	4.75	5	0.74
Correlation		0.29		0.35		0.86		-0.09		0.07		0.65		0.56		0.09		0.49		0.29		

5.j Correlations between Average Researcher score for LA (green) and Teachers' Whole Class scores (red)

		Type of Approach (Teach Type)																				
		TT1a. Fun and Exciting		**TT1b**. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4	5	4.5	4	4.5	4	5	4	3.75	4	4.5	4	3.75	3	4	5	5	4	4	4	-0.02
	They respected the teacher	4	4	4.25	2	4.5	3	4.25	3	3.24	2	3.25	4	5	4	4.75	4	5	4	3.75	4	0.27
	They worked well with peers	4	4	4.75	3	4	3	5	4	3.5	2	3.75	4	5	4	4.5	3	5	4	4	4	0.42
	They found the lesson exciting	4	3	4.75	4	4.5	4	4.5	4	4	3	4	4	3.75	3	4.5	5	5	4	4.25	4	0.63
	The interaction between child & teacher was positive	4.5	5	4.75	3	4.25	4	5	3	3.5	3	4.5	4	5	4	4.5	4	5	5	4.75	5	0.23
Cognitive Engagement Indicators	They asked relevant questions	4	4	4	4	3.75	4	4.25	4	3.25	4	3.5	4	4	4	3.25	5	4	4	4.5	5	0.03
	They found the lesson interesting	4	4	5	4	4	3	4.75	4	3.25	3	4	4	3.75	4	4	5	5	5	4.5	4	0.51
	They checked their work for mistakes	3.5	4	3.25	3	4.5	4	4.5	4	2.5	3	3.5	3	3.5	3	3.5	4	4	5	4	4	0.62
	They achieved the learning objective	3	3	3.5	4	3.25	4	4.5	4	3.75	4	3.75	4	3.5	4	3.75	4	3	4	4	4	0.46
	They tried their hardest	4.25	4	4.5	3	4.25	4	5	4	3.75	3	3.25	4	4	3	4	4	5	5	4.25	4	0.31
Correlation		0.61		0.05		-0.03		0.08		0.2		0.23		0.52		-0.33		0.18		0.73		

5.k Mathematics Correlations between Average Researcher score for MA (green) and Teachers' Whole Class scores (red)

		Type of Approach (Teach Type)																				
		TT1a. Fun and Exciting		**TT1b**. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4	5	4.75	4	5	4	4	4	4.5	4	3	4	4	3	4.25	5	4	4	4.5	4	0.02
	They respected the teacher	4.25	4	4.25	2	4	3	4	3	4.75	2	3.75	4	4	4	4.5	4	5	4	4.5	4	-0.07
	They worked well with peers	4.25	4	4.5	3	4.5	3	3.75	4	4.75	2	4	4	4.25	4	4	3	4.5	4	4	4	-0.63
	They found the lesson exciting	4.25	3	4.75	4	4.5	4	3.75	4	4.75	3	4	4	3.75	3	5	5	4.25	4	4	4	0.34
	The interaction between child & teacher was positive	4.25	5	4.75	3	4	4	3.75	3	4.75	3	4	4	5	4	4	4	5	5	5	5	0.27
Cognitive Engagement Indicators	They asked relevant questions	4	4	4	4	4.5	4	3.75	4	4	4	4	4	4	4	4.25	5	4.25	4	4.75	5	0.63
	They found the lesson interesting	3.75	4	3.75	4	4.25	3	4	4	4.25	3	4	4	3.75	4	4	5	4	5	4.25	4	-0.41
	They checked their work for mistakes	3.75	4	4.75	3	4.75	4	3.75	4	4	3	3.75	3	4	3	3.75	4	4	5	4	4	-0.15
	They achieved the learning objective	3.75	3	4.25	4	3.75	4	3.5	4	4.25	4	4.25	4	4	4	3	4	3.5	4	4	4	0.04
	They tried their hardest	4.25	4	4.5	3	4.5	4	3.5	4	4	3	4	4	3.5	3	4	4	4.75	5	4.5	4	0.43
	Correlation	0.18		-0.2		0.23		-0.29		-0.51		0.13		0.46		0.41		0.2		0.77		

5.l Mathematics Correlations between Average Researcher score for HA (green) and Teachers' Whole Class scores (red)

		Type of Approach (Teach Type)																				
		TT1a. Fun and Exciting		**TT1b**. Fun and Exciting		**TT2a**. Problem Solving		**TT2b**. Problem solving		**TT3a**. Rewards system		**TT3b**. Rewards System		**TT4a**. Practical/ hands on		**TT4b**.Practical hands on		**TT5 a**. Independent/child led		**TT5b**. Independent child led		
Emotional Engagement Indicators	They enjoyed today's lesson	4.5	5	5	4	5	4	5	4	4.75	4	4	4	4.25	3	4.75	5	5	4	4.5	4	0.18
	They respected the teacher	4.5	4	4.5	2	4.5	3	5	3	4.25	2	4.25	4	4.75	4	5	4	5	4	4.75	4	0.4
	They worked well with peers	4.75	4	4.75	3	4.75	3	4.5	4	5	2	5	4	5	4	5	3	4.75	4	4.25	4	0.12
	They found the lesson exciting	5	3	4.25	4	4.75	4	4	4	4	3	4	4	4.25	3	4	5	4.75	4	4.5	4	-0.26
	The interaction between child & teacher was positive	5	5	5	3	5	4	5	3	5	3	4.5	4	5	4	4.5	4	5	5	5	5	0
Cognitive Engagement Indicators	They asked relevant questions	4.75	4	4.75	4	5	4	5	4	4.25	4	3.5	4	4.25	4	5	5	5	4	4.75	5	0.05
	They found the lesson interesting	4.25	4	4.75	4	5	3	5	4	4	3	4.25	4	4	4	5	5	5	5	4.75	4	0.34
	They checked their work for mistakes	4.5	4	5	3	4.5	4	5	4	4.25	3	5	3	4.5	3	5	4	5	5	4.75	4	0.26
	They achieved the learning objective	3.75	3	5	4	3.75	4	4.5	4	4.5	4	5	4	5	4	4.75	4	4.75	4	4.75	4	0.61
	They tried their hardest	4.25	4	4	3	5	4	4.75	4	4	3	3.25	4	4.5	3	4.75	4	5	5	4.75	4	0.1
	Correlation	0.34		0.2		-0.04		-0.35		-0.06		-0.41		0.41		-0.29		0.53		0.51		

Appendix 6:
Engaging Lessons CPD Package

This Appendix consists of two sections detailing some additional research which was carried out as part of the main study. The research focuses on the development and trialling of a Continuing Professional Development (CPD) package which could be used to support teachers' engagement notions and strategies. Documents relating to the initial trailing of this package are also included.

Rationale:

Studies of this nature, exploring notions of a complex construct like engagement, may have little practical value if these notions cannot be developed, changed or improved. For this reason, a CPD package was constructed and trialled with a small group of teachers in order to test the feasibility of changing or expanding notions of engagement. The purpose of the study was to give the overall project some practical value and to serve as a resource that could be developed for continuing professional development in schools and on initial teacher training courses. This is not to say that this package is the only one which might be constructed or is necessarily fully developed. Here, it would be sufficient if it demonstrates that useful widening of notions of engagement is possible. It is my belief that much research on classroom beliefs and practices stops short of translation into practice and leaves the theory-practice gap unfilled. Educational research is often criticised for this gap. I have attempted to fill it with this study. As will be seen, the construction of the study is evidence-based and research-informed so has a firm foundation

Section A: Towards a Continuing Professional Development Engagement Package

Introduction

Having gathered teachers' notions of engagement and observed their practices, it was found that they often had rather limited views as to what engagement was and therefore relied on narrow strategies. Although interesting, it would be of little practical value if teachers cannot learn to widen their repertoire to form a more diverse pedagogy of engagement, and deploy it appropriately. This section explores some of the resources currently available to teachers to support teachers' planning and delivery of engaging English and mathematics lessons. It includes a description of the collection and analysis of learning objectives from online resources (Study One), before collecting learning objectives from individual teachers (Study Two). There is then a description of how a planning document was devised which may support teachers as part of a wider Continuing Professional Development (CPD) programme.

Planning engaging lessons in primary school

Lesson planning resources are readily available for teachers, particularly those on online platforms. Lesson plans are a tangible, available indicator of teacher's aims. Indeed, part of meeting the Teachers' Standards to gain Qualified Teacher Status in England, is to provide evidence that a novice can 'plan and teach well-structured lessons' (DfE, 2011), implying that plans are at least some of the evidence of successful teaching.

There are three main types of planning in the primary school; long, medium and short term. Medium term and long term planning can be used to inform lessons and topics from a half term (approximately six weeks) to several years. Often, especially with long term planning, staff other than those delivering the lessons have designed the overall plan, however individual lesson plans are usually planned by the class teacher. Short term planning, either weekly or daily, contains the desired learning outcome or objective of the lesson and an overview of the activities and tasks that will be undertaken to meet this learning objective. Teachers' plans are often subject to Senior Leadership scrutiny. The submission of weekly plans consisting of approximately five lessons each for mathematics and English is considered to be a way of assessing the quality of the teacher's work and the quality of teaching and learning within each class. The underlying assumption, therefore, is that children's engagement can in some way be gauged by examining the lesson plan.

Relatively recently, the Department for Education has carried out research to determine how teacher work load can be reduced, results of which are published in the document, *Eliminating unnecessary workload around planning and teaching resources* (2016). A key finding of this report was:

> "*Teachers spend an undue amount of time planning and resourcing lessons, and there are clear measures that should be taken by Government, Ofsted, schools, and teachers to lessen this burden."*
>
> (DfE, 2016, p. 4)

To alleviate the pressures of planning, many teachers turn to websites to download ready-made lesson plans. However, the quality of such resources has gone largely unquestioned. Here, their ability to support the planning of engaging is explored.

Ready to use resources for planning and delivery

There are a number of schemes of work available to help teachers plan series of lesson which primary schools to buy, for instance, Shanghai Maths and White Rose, and the Hamilton

Trust. Due to the cost and design of such schemes[4] they are not readily available to all teachers. For this reason they are not included in this section's analysis. Numerous websites with lesson plans for delivering the National Curriculum are available for individual teachers to access. Among the most popular are Twinkl and TES. As of 2015, when Twinkl only provided resources for primary teachers it claimed to have one million users, this figure is now approximately four million (https://www.twinkl.co.uk/about-us/our-story)[6]. TES is also widely used, its websites states it contains '900,000 teacher-made resources to help teachers succeed in the classroom' (TES.com).

The availability of internet access in schools has led to numerous websites providing online resources for use during the delivery lessons. These include games and virtual activities which can be played on classrooms' interactive whiteboards. Observations of lessons in Stage Three found several activities which used such resources. Type 4 (a) teacher for instance, used the website Kung-Fu Punctuation to guide the children in making gestures which helped them remember particular punctuation marks. Other sites, such as Literacy Shed and Pobble365 provide teachers with pictures or short videos clips to use, often as a writing stimulus. An example of such an online resource in observed lessons was seen when the Type 2 (a) teacher used a video simulation of 17th century London before getting the children to re-enact a street scene from that period. This lesson highlighted a limitation to using online resources, as the internet connection failed several times meaning the video had to be refreshed several times, during which some children's engagement level fell (see Appendix 5 Vignette TT2 (a)). Generally, online resources can be used to add interest through varying resources and adding a sense of novelty during lessons which can lead to raised levels of engagement. However, although online resources may support teachers in delivering a more interactive or varied lesson, they are only a small element of a lesson.

The lesson versus the plan

[4] These schemes are designed to be used by all teachers in a school for uniformity of approach.
[5] Since 2016 Twinkl has also provided lesson plans and resources for secondary school teachers so the current number of primary teachers using the site is included in the 4 million figure.

The classroom environment is composed of routines, schedules, and its physical arrangement, some of which *may* be included in lesson plans, teacher-student relationships also play a critical role in shaping learning dynamics (Cooper & Scott, 2017). Lesson plans do not demonstrate the teacher-student relationships which were found to have a significant role in engagement levels during lesson observations (Chapter Six). A plan may be useful in providing guidance to the teacher and support staff in terms of the agenda or sequence of the lesson, resources, and how tasks and questions may be differentiated. Similarly, the plan may be of use for individuals observing the lesson, such as a head teacher or Ofsted inspectors, as it provides a framework for the progress that learners should make through the lesson and how the teacher plans to ensure this progress. The lesson plans alone do not, however, demonstrate how engaging a lesson is and rarely mentions, even obliquely, steps that will be taken to ensure engagement.

There is also considerable variation in plans' detail. Guidance from Ofsted is not prescriptive:

> *"**1. Lesson planning***
>
> *Ofsted does not require schools to provide individual lesson plans to inspectors. Equally, Ofsted does not require schools to provide previous lesson plans.*
>
> *Ofsted does not specify how planning should be set out, the length of time it should take or the amount of detail it should contain. Inspectors are interested in the effectiveness of planning rather than the form it takes."*
>
> (Ofsted, 2018 p.1)

There does not appear to be a general consensus on the depth of planning required across all state maintained primary schools in order for it to be 'effective'. Assessing the ability of readily available online plans to support engagement is therefore problematic. The only consistent factor in lesson plans is that each one has learning objectives, which ensure teachers meet Ofsted's requirement for teachers plan effectively, using clear objectives that children understand (Ofsted, 2018). An analysis of learning objectives would not allow for potentially successful engagement strategies such as the use of humour and teacher and/or teaching assistant positioning to be detected. However, exploring the main goal of lessons, may provide insight into predominant type of thinking the lesson will generate. For instance, the observed

lessons which tended to generate the highest level of engagement were often those which involved tasks that required higher order thinking, such as problem solving or independent researching.

To explore how effective ready-made, downloadable plans are in providing the basis for an engaging lesson, it was decided to analyse English and mathematics lesson plans by gathering a large quantity of freely available plans. The method used is described below.

Study One

Method

A total 600 lesson plans written for Key Stage Two pupils were downloaded over a period of one month from November to December 2018 from the tes.co.uk website; 300 were English lesson plans and 300 were mathematics lesson plans. The website claims to have over 700,000 resources 'made by teachers for teachers' (TES.co.uk) ranging from those suitable for teachers in Early Years settings to those working in secondary schools. The TES website claims to have over 900,000 resources made by teachers for teachers[7]. The sample was taken from the lesson plans which are available for free. For the purpose of this study, the Primary resource 'hub' was used to search for lesson plans uploaded to the mathematics section and to the English section. Within subject areas, it is possible to filter the results by Key Stage, allowing lessons suitable for Key Stage Two to be found and downloaded. The verbs within learning objectives were then extracted from each plan, with the assumption that the occurrence of verbs associated with higher-order thinking may lead to greater engagement, if the objectives were realised in the classroom.

It is unlikely that the same teacher will have uploaded lessons plans using different usernames, but there is no way to establish for certain that each lesson plan has been written by a different individual. However, it is unlikely that a teacher would have more than one username for the website as there is no incentive to have more than one account (access to

[7] It is acknowledged that TES is unable to determine whether everyone who uploads a lesson plan is a qualified teacher.

resources are not capped to a certain number, for example one account holder can download as many free resources as they wish). Although there may be cases of teachers forgetting their username and therefore creating a second account, it seems highly unlikely that many of the teachers who had uploaded lessons plans had done so using different accounts. Meanwhile, just as account users can download unlimited resources, they can also upload as many resources as they wish to share.

Results of Study One

Two lists of learning objective verbs were compiled (one for English and one for mathematics) from which word clouds were created to show the predominance of particular verbs.

The word cloud showing the verbs taken from learning objectives used in English lessons can be seen in Figure (a), and the word cloud showing the verbs taken from learning objectives used in mathematics lessons can be seen in Figure (b).

Figure (a) Word cloud generated from 300 Key Stage Two English learning objectives.

Figure (b): Word cloud generated from 300 Key Stage Two mathematics learning objectives

Discussion of Study One

Isolating the learning objectives' verbs revealed that a large proportion of online lessons focused on learners 'knowing', 'comprehending' or 'applying'. This is demonstrated in both the English and mathematics word clouds; through the dominance of verbs such as 'use', 'write', 'tell', show' and 'apply. Such activities can be associated with lower order thinking, and have been catergorised as such in Bloom's Taxonomy (Bloom, 1956) and more recently in Anderson and Krathwohl's revised version (Anderson & Krathwohl, 2001).

It is, therefore, unlikely that generating particular types of thought is at the forefront of teachers' minds whilst planning lessons. Yet, incidents of deep engagement, such as pupils feeling a sense of flow of ''flow'' have been linked to productive thought and action (Byrne, MacDonald, and Carlton 2003; Csikszentmihalyi 1996 in Newton & Newton, 2004, p.584).

Series of lessons are planned in order to ensure children meet the expected end of year standards for that particular year group, with each lesson often planned with an objective which relates to a specific strand of the National Curriculum as previously discussed. For instance, a lesson with the learning objective: 'To write…' would be part of the learning needed to meet the various strands of the English curriculum that relate to writing. However, in meeting the demand of the Curriculum to 'write', it may be that certain verbs could be more effective than others in stimulating productive thought as part of the process involved in meeting the curriculum outcome, such as 'generate (a story)'.

Conclusions

Study One was useful in demonstrating that few online lessons appeared to have goals associated with higher order thinking which are often linked to fostering engagement, particularly cognitive engagement. However, without being able to compare the objectives from ready to use plans with those designed by teachers for personal use, it was not possible to determine whether online plans offered opportunities that were any more engaging than those teachers planned themselves.

Online plans also made it impossible to examine whether teachers who used words associated with higher order thinking, such as 'analyse' or 'evaluate' in an English lesson, were also using learning objectives in mathematics which stimulated productive thought, such as 'investigate'. Without being able to determine whether certain teachers choose learning objectives that stimulate high order thinking more frequently than other teachers, conclusions cannot be drawn as to whether types of thought are being considered when planning lessons (consciously or unconsciously). A second study was devised to gather learning objectives from personal use lesson plans to allow for a comparison between online and personal lesson plans and also as an opportunity to explore whether teachers planned for more higher-order thinking opportunities in mathematics rather than English or vice-versa. Study Two is described below.

Study Two

Method

A total of 155 Teachers provided the verbs they used in their mathematics and English lessons on the same day on social media. The day was chosen to capture a snap shot of Year 4 lessons being taught early in the summer. This time of year was chosen for two reasons. Firstly,

it was the time of year during which the lesson observations discussed in Chapter Six, were carried out, providing a consistency between different types of data gathered. Secondly, it was a time of year when teachers already knew their class (assuming they had been the class teacher since September), and at a time when lessons are not disrupted by events such as Christmas play rehearsals and Sports Day, thus providing a representative snapshot of a 'normal' day of lessons. The rationale of choosing a period of the academic year where teachers know these pupils and have already begun the year's syllabus was that, by this point in the academic year, teachers may have moved beyond lessons which concentrated on imparting knowledge and understanding.

A simple table was constructed to compile the verbs used by each teacher for both their mathematics lesson and their English lesson. This table then allowed each verb to be counted and the occurrence of particular verbs used in both subjects to be noted.

Results of Study Two

Many of the verbs collected from teachers lessons plans were the same as those used as exemplars by Anderson and Krathwohl (1982), or were words used to describe a tier, for instance 'understand' (Tier 2). Some verbs collected from the learning objectives were not those used in the revised taxonomy. However, the researcher has suggested more verbs relating to each tier allowing for almost every verb collected to be readily matched to each tier. The only verbs which could not be found in the literature were 'brain storm' (used by only one teacher), and some operational activities such as 'multiply', 'add' and 'divide'. Brainstorm was matched to Tier 4 - *Analyse* as it has a similar meaning to the word 'plan' in the context, which Heick has assigned to Tier 4 (Heick, 2020). Meanwhile, because multiplication, addition and division are operational and demonstrate application of knowledge and understanding they were matched to Tier 3- *Apply*.

Once the verbs had been mapped onto the revised Taxonomy they were given a numerical ranking. Verbs relating to the bottom category - *Remember*, were coded 1; verbs at the second tier from bottom - *Understand* were coded 2; verbs in the third tier- *Apply*, were coded 3; verbs in the fourth tier - *Analyse* were coded 4; verbs in the fifth tier- *Evaluate*, were coded 5 and verbs in the sixth from bottom (top tier) - *Create* were coded 6. Once each verb had been assigned a code, they were able to be easily matched to the corresponding Tier of the

revised Taxonomy. Each number of verbs per Tier for each subject was then calculated and then the combined number of verbs (mathematics and English) were all calculated (see Table (a)).

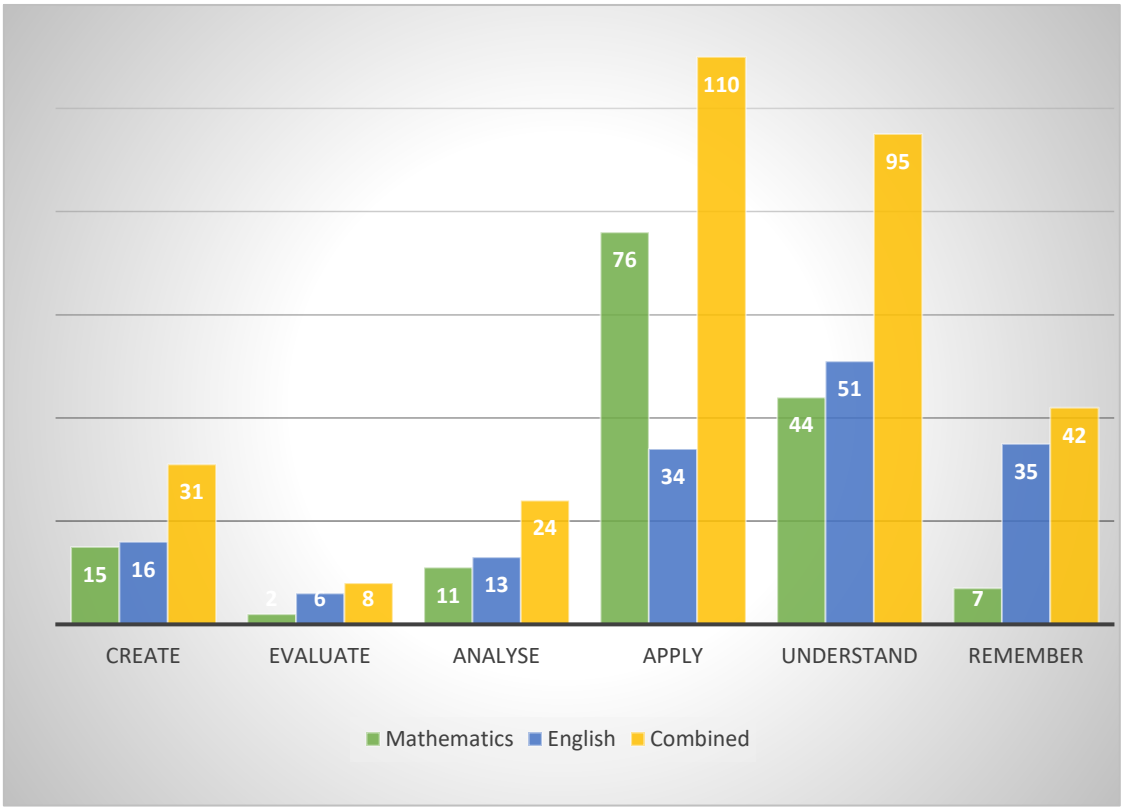
Table (a) Table showing all collected verbs and the tier of Bloom's revised Taxonomy to which they match (See Anderson & Krathwhol, 1982)

Type of learning as stipulated in revised Taxonomy	Number assigned	Verbs from lesson plans	No. of verbs found in mathematics LO's	No. of verbs found in English LO's	No. in both subjects.
Create	6	Investigate, create, design, generate, produce, explore, make	**15**	**16**	**31**
Evaluate	5	Justify, persuade, prove, reason, predict	**2**	**6**	**8**
Analyse	4	Brainstorm, order, plan, compare, estimate, improve, interview, draft, sequence	**11**	**13**	**24**
Apply	3	Divide, simplify, read, use, calculate, solve, multiply, interpret, add, edit, add, plot, measure, finish, punctuate, round, conclude, convert	**76**	**34**	**110**
Understand	2	Identify, describe, explain, understand, evidence, discuss, collect, choose, answer, consolidate, respond	**44**	**51**	**95**
Remember	1	Memorise, know, show, learn, write, record, rehearse, revise, tell, listen, say, recall	**7**	**35**	**42**

Having compiled the table of verbs found in the collected learning objectives, it was possible to construct a bar chart to allow for the differences between the types of learning being planned to be readily compared. The chart displays the number of lessons for both mathematics

(green) and English (blue) and both subjects combined (yellow) for which each type of verb was used (see below, Figure (c)).

Figure (c) Number of verbs from each category used in lessons



Overall, when combining the verbs form both the mathematics and English lessons, learning outcomes aimed at developing children's application skills (Tier 3) were most heavily represented, accounting for 35.5% of all learning objectives. The next most common verbs of both subjects combined were those relating to developing children's understanding, Tier 2, with verbs in this category accounting for 36.64 % when subjects were combined. Therefore, objectives focusing on Understanding and Application accounted for 72.14%. Although there were fewer verbs focusing on children Remembering (Tier 1), combined there were still more verbs in this Tier than in any of the top three Tiers. Again, when lessons were combined, learning objectives focusing on outcomes aimed at either Memorisation, Understanding or Application accounted for 79.68% of lessons.

Discussion

Interestingly, although there was a similar percentage of verbs of in Tiers 1, 2 and 3 collectively between the subjects there was a noticeable difference between mathematics and English learning objectives falling into Tier 1 and Tier 3[8]. Of the 42 verbs assigned to Tier 1 – Remember, 35 were used in English lessons, compared with just 7 in mathematics lessons, meaning out of all the lessons focusing on children memorizing facts, 83.33% were in English lessons. At first this may seem surprising given the widely held notion that mathematics is a subject that relies more heavily on memorization of rules and algorithms, however, the current English curriculum has a significant proportion devoted to learning SPAG rules and exceptions (DfE, 2012). There was also a notable difference between the two subjects when considering the use of learning objectives relating to the application of knowledge (Tier 3)[9]. Of the 110 lessons with learning objectives focusing on application, 76 were used in mathematics lessons, compared to only 34 in English lessons. Interestingly, the number of lessons with learning objectives focusing on higher order thinking were more evenly balanced between the two subjects; of the 63 lessons matched to the top three tiers of the revised Taxonomy, 28 were mathematics lessons and 35 were English lessons. The number of lessons in Tier 4 – Analyse were mathematics and were English; of the lessons in Tier 6 – Create, were mathematics lessons and were English lessons. There was more of an imbalance in the lessons in Tier 5 – Evaluate, where there were only two mathematics lessons and six English lessons.

Unlike the verbs yielded by online lesson plans uploaded from unknown teachers to create the word clouds, the verbs from known individual teachers allowed exploration of whether some may be more inclined to use learning objectives that foster higher order thinking skills more than others. For instance, do teachers who use verbs from the higher tiers of the pyramid, coded 5 or 6 in their mathematics lesson also use higher-level verbs from their English lessons? An analysis of results by teacher showed that the majority of teachers did not have the same verb level for each subject, indeed only 40 out of the 155 teachers sampled used verbs from the same tier of the taxonomy for both subjects. However, many teachers' verbs varied by only one category e.g. if their verb for one subject was in Tier 2, their verb for the other subject was in Tier 1 or 3. None of the sampled teachers had a Tier 6 verb for one subject and

[8] Chi-square test of observed and expected scores, Chi-square = 9.05, 1df, $p<0.01$.
[9] Chi-square rest of observed and expected scores, Chi-square = 7.93, 1df, $p<0.01$.

a Tier 1 verb for anther subject. Of course, the verbs provided by each teacher only demonstrate the verbs they have used in a single day. They do not enable this study to conclude with certainty that all teachers with low score always use verbs from the bottom tiers of the pyramid. However, the fact that many of the teachers choose verbs only a tier apart in two very different subjects, suggests teachers may be working towards generating a certain type of learning regularly.

Conclusion

Study Two revealed that individual teachers seemed to be planning lesson with a similar emphasis on learning goals associated with the lower tiers of Anderson and Krathwohl's revised Taxonomy (Anderson & Krathwohl, 1982). Table (a) demonstrates that a variety of verbs were used in each tier. There was a greater variety of verbs in Tier 2- *Understand,* and Tier 3- *Apply*, yet because the number of times these types of verbs were used was also greater than the other tiers, it is somewhat surprising that there were not more verbs in these sections. Meanwhile, many of the verbs, particularly in the higher tiers were only used once. This may indicate that teachers are using their own ideas for higher order thinking learning objectives rather than being influenced by online resources or other teachers i.e. teachers who are planning activities with learning goals more readily associated with engagement are the exception to the norm.

Summary

Although ready-made lesson plans, may help alleviate teacher workload, those available through websites do not appear to offer anything more engaging than those designed by individual teachers for personal use. Online resources such as video clips and interactive games may add to a teacher's repertoire, but could be used more successfully by teachers consciously aware of engagement strategies.

Considering the limited (and potentially limiting) nature of the learning objectives which were gathered online, a need to support teachers in planning and delivering lessons was identified. It was hypothesised that developing teachers' range of use of learning objectives

would increase lesson activities fostering higher order thinking, which is commonly understood to promote student engagement through encouraging application, analysis, synthesis and evaluation activities in processing information (Zohar, 1999). Currently, only limited guidance surrounding learning objectives is provided in the National Curriculum (DfE, 2012). Lack of guidance as to what constitutes an effective learning objective may explain why few teachers used verbs associated with higher order thinking. Given this, it was decided to produce some guidance for teachers to broaden their range of learning objectives, in order to incorporate it in a wider CPD engagement package.

Section B: Trialing a Continuing Professional Development package.

Introduction

Knowing a deficit exists in teachers' pedagogies is only the beginning. To make a difference, that knowledge has to be taken into practice. As discussed in the thesis, a need to enhance teachers' understanding of engagement and associated practices was identified. Stage Two of the study found that teachers' existing understandings of engagement was not a product of their pre-service or in-service training. The previous section also demonstrated that readily available lesson plans were unlikely to satisfy the need. Previous studies have demonstrated that CPD can play a crucial role in helping to support and develop teachers (Cordingley *et al.*, 2015). In view of this, the aim of this section was to construct and test a CPD package to enhance teachers' understanding and engagement practices. It would help if teachers were able to judge the engagement of a class of children if they are to adjust what they do to enhance or widen engagement.

The Design process and Content of an Engagement Continuing Professional Development Package

A CPD package entitled, *Engaging Lessons*, was designed to incorporate various elements of the findings from data collection (as reported in Chapters Four, Five and Six). A table showing the different elements of the package can be seen below (Table b). The design of the package can be viewed in the spirit of the 'synthetic research' model. Synthetic research has been distinguished from analytical research as attempting to gain knowledge about

manufactured objects and phenomena designed for a purpose as opposed to examining a body of knowledge about objects or phenomena in the world (Simon, 2019). In this case, the manufactured object is the CPD Package itself, designed to address a problem which has been identified; namely teachers' lack of understanding of engagement resulting in engagement levels in the classroom frequently not being as high as they could be. As with other examples of synthetic research, the CPD package was produced and delivered in a way which is aimed at devising and testing a strategy with the understanding that the strategy may need second and possible subsequent iterations. Previous studies indicate that to achieve successful results, teacher CPD research should be iterative (Timperley *et al*., 2007) with cycles of learning theory, applying the theory to actual teaching practice, reflection and embedding of the theory and modifying the new practices so that an effective product evolves over time. Without these iterations and the time for them, CPD is unlikely to result in changes to teaching practices that have a positive impact, and that are sustainable (Whitehouse, 2011, p.7). The questionnaire, included in the CPD *Engaging Lessons* Brochure (see Appendix 5), was therefore designed to include questions which would support future iterations of the package and maximize its effectiveness as well as evaluate the first iteration. . In this study, future iterations should be shaped by adaptations to make the package suitable for specific contexts. The variation in school contexts is such that one size is unlikely to fit all situations.

The package was also designed to incorporate aspects of six characteristics which research has found to increase the effectiveness of the CPD. It should be: driven by identified learning needs; sustained; subject specific; based in the classroom and classroom practice; collaborative, so that reflective practice is encouraged; and, make use of external expertise (Whitehouse, 2011).

About the Engaging Lessons PowerPoint Presentation

A PowerPoint (PPT) was used to support a 50 minute presentation, during which opportunities were given for group discussions between the teachers to allow them to reflect upon their own notions of engagement and classroom strategies (the PPT slides can be seen in Appendix 5) and a brief content overview is shown in Table (b).. Taking into consideration the relatively limited time allotted for CPD sessions, the presentation was aimed at particular

'target areas' focusing on key findings from the literature review as well as Stages One and Two and lesson observations (as detailed in Chapters Four-Six).

Table (b) Overview of Engaging Lessons CPD Package Content

2	Engaging Lessons PowerPoint presentation	3	A presentation based findings from interviews, the online survey and lesson observations
4	Engaging Lessons Brochure	5	Participant Information sheet
		6	Participant event and questionnaire consent form
		7	*Engaging Lessons* Overview sheet
		8	Practical classroom tool – engagement measure
9	Survey for participants	10	CPD event Questionnaire

During the presentation, participants were also introduced to the documents in the brochure and made aware that the participant consent sheet and questionnaire were to be handed it at the end of the session (should they choose to complete them). The rest of the brochure could be taken away for future reference.

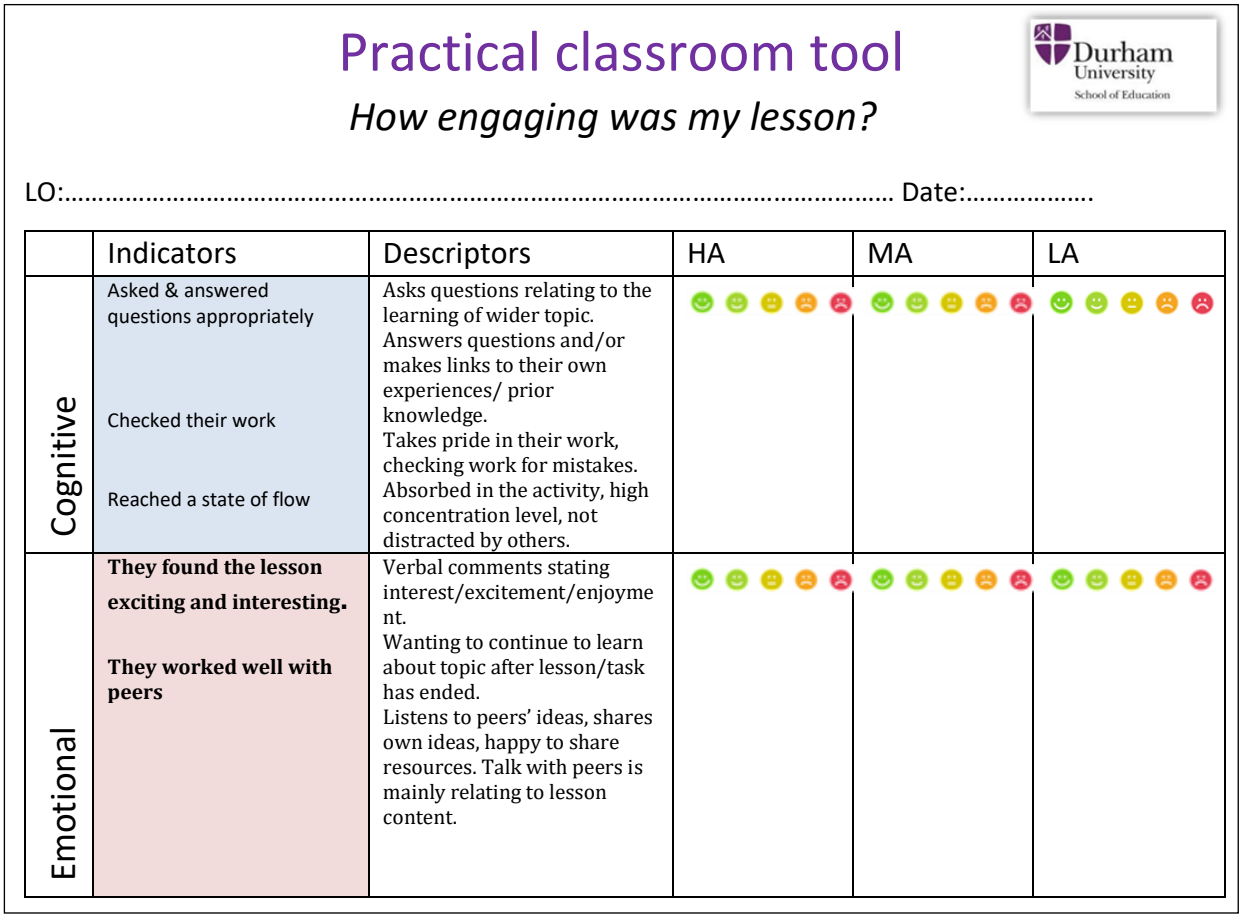
About the Engaging Lessons Brochure

As demonstrated in Table (b), the *Engaging Lessons* CPD Brochure included several different documents. Two documents were designed to ensure that all potential participants were fully aware of what participation entailed and that they consented to participate (the CPD Participant Information sheet and the CPD Consent form appear in Appendix 5). An overview sheet, setting out the rationale behind the CPD Package and giving a brief overview of the session (see Appendix 5).

Two further documents in the brochure were designed with the aim of providing teachers with practical resources which they could keep and refer to. The first of these documents was an engagement measuring tool, called, '*Practical classroom tool'* (see Figure (d)). This

measurement tool is a modified version of the measuring tool that was used in lesson observations. Whereas the original measuring tool used in the lesson observations described in Chapter Six, had ten indicators of engagement, five for cognitive engagement and five for emotional engagement, the modified version had five engagement indicators in total, three of which were cognitive and two emotional. Simplifying the measuring tool was for two reasons: firstly teachers said that they found it hard to remember the children's engagement levels for all ten indicators and secondly because the correlation between the researcher's average scores and the teachers' whole class scores was stronger for certain indicators than others (as discussed previously in Chapter Six). In addition to halving the number of indicators, descriptors for each indicator were also included in the modified measuring tool, to make the tool easier to use and to help provide consistency between teachers, should teachers in the same school wish to compare engagement levels. Rather than teachers providing a score for the whole class, the modified tool divides the class in to Higher, Middle and Lower Ability groups. This change was based on reflections prompted by Stage Three results analysis (see Chapter Six) and was expected to provide more accurate measurements. The final modification was changing the 1-5 score teachers used to grade engagement levels to a smiley to sad spectrum, giving results more visual clarity and avoiding potential confusion caused by some teachers thinking 1 was the highest engagement level and 5 the lowest. Although the original measuring tool used in Chapter Six did have a Key showing that 1 was the lowest engagement level and 5 was the highest, some teachers had initially used the wrong end of the scale, marking the lowest level of engagement as 5 and the highest level as 1 (see Chapter Six).

Figure (d) Practical Classroom Tool



Practical classroom tool

How engaging was my lesson?

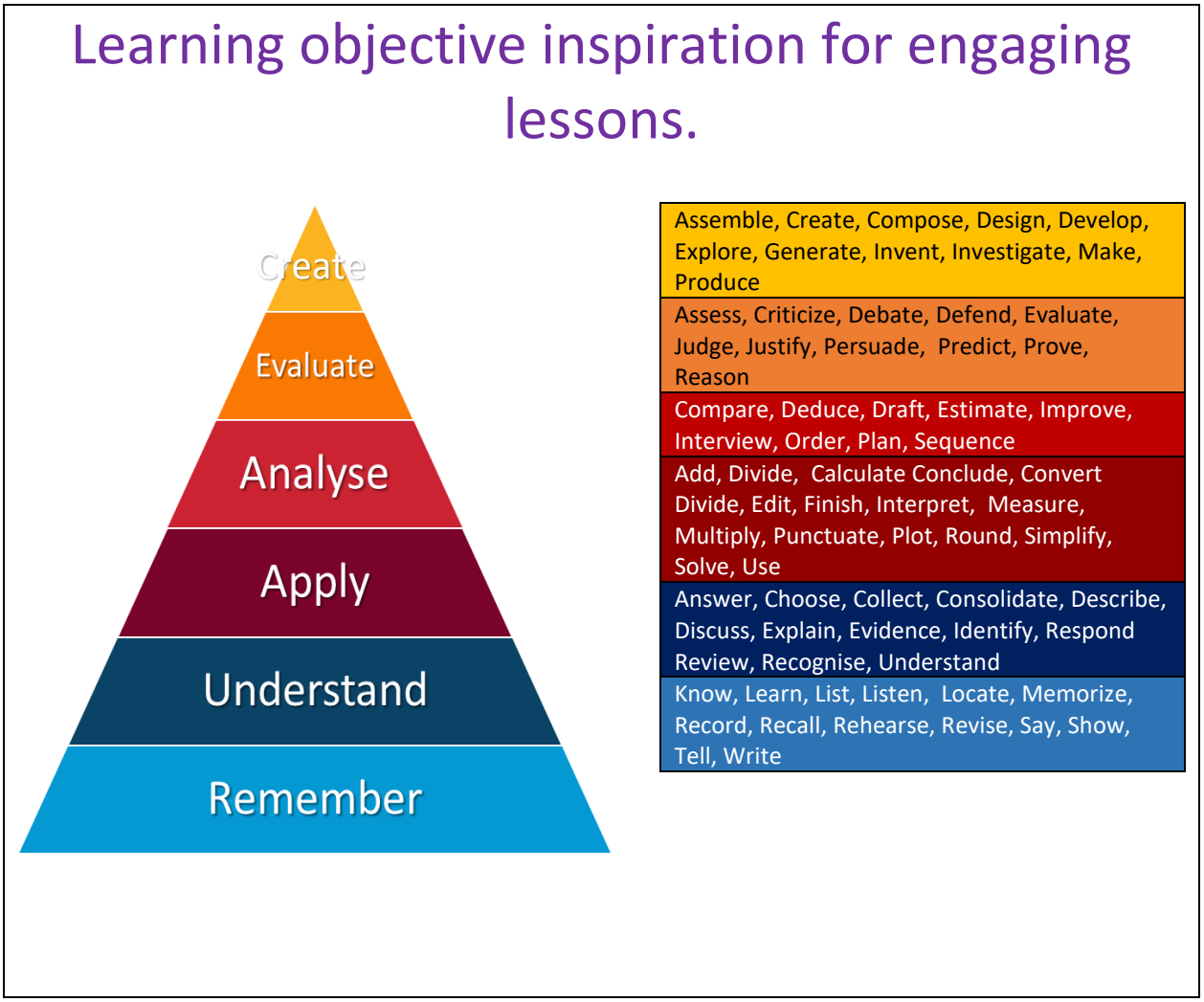
Durham University School of Education

LO:…… Date:…….

	Indicators	Descriptors	HA	MA	LA
Cognitive	Asked & answered questions appropriately Checked their work Reached a state of flow	Asks questions relating to the learning of wider topic. Answers questions and/or makes links to their own experiences/ prior knowledge. Takes pride in their work, checking work for mistakes. Absorbed in the activity, high concentration level, not distracted by others.			
Emotional	**They found the lesson exciting and interesting.** **They worked well with peers**	Verbal comments stating interest/excitement/enjoyment. Wanting to continue to learn about topic after lesson/task has ended. Listens to peers' ideas, shares own ideas, happy to share resources. Talk with peers is mainly relating to lesson content.			

In addition to the *Practical classroom tool*, a further resource was included in the brochure, based on findings discussed previously which highlighted the overuse of particular verbs in Learning Objectives and underuse of verbs associated with Creating, Evaluating and Analysing. Therefore, a document/ leaflet was designed to inspire teachers to use a greater variety of Learning Objectives, entitled *Learning objective inspiration for engaging lessons* (see Figure (e))

Figure (e) Learning objective inspiration for engaging lessons.



The final document in the brochure was a brief questionnaire designed for teachers to evaluate the CPD session itself, but also provide further insight into teachers' notions of engagement through their feedback on the package. The surveys can be found in full later in this Appendix, however, each question is also shown and discussed here.

Method

School Selection

The *Engaging Lessons* CPD Package was designed primarily for Key Stage Two teachers. As there are only four Key Stage year groups (Year 3, Year 4, Year 5 and Year 6) it was decided that the school would either need to be a three form entry school or for several

primary schools belonging to the same school partnership in order to be considered, as at least ten teachers were needed to provide an adequate amount of feedback. A state maintained multi-school academy trust in the North of England was found which had over a dozen Key Stage teachers. This school followed the National Curriculum and was therefore representative of the majority of schools in England in terms of lesson content and end of year expected outcomes for leaners.

Ethical Approval and Anonymity

Before contacting the Head Teacher of the selected school to offer the CPD package, ethical approval was granted by Durham University's School of Education Ethics Committee (see Appendix 5.a). The anonymity of the school and its staff was made clear in both the initial letter to the Head Teacher and participation letters which were given to all teachers who took in the CPD session. All teachers who were approached to take part by the Head Teacher had the right not to participate and, those who did participate, had the right to withdraw from the session at any point. Teachers who agreed to take part in the CPD were invited to answer a survey at the end of the even. This was completed anonymously and was voluntary. Nevertheless, all 13 teachers who took part in the CPD session completed the questionnaire and signed participation forms.

Delivery of the CPD Session

The CPD session was delivered after the school day in July 2019 and lasted for one hour, as planned. That the session was at the teachers' place of work made their attendance convenient and was also to make them feel at ease in the setting, participate readily in group activities, and share ideas and feedback. The teachers attending the session all taught in Key Stage Two and the Head Teacher also attended the event. Teachers were asked to read the CPD Package Participant sheet before any content was delivered and were then asked to sign the participation consent form. Once they had done this, all were asked to complete the first question, which asked teachers to select one option to complete the statement, '*I engage children mainly through....*' The options included all five Teacher Types identified and discussed in previous Chapters and also an 'other' option with space for them to describe their

approach if they choose this option. Teachers were asked to respond to the statement before the session began so their response was not influenced by the session content allowing their responses to be as a true a reflection of how they viewed their teaching style. There were three reasons for including this question: firstly it was an opportunity to ensure that teachers did not feel their own teaching style to engage was not represented by the previously identified Teacher Types. The second reason for including this question was to see if the teachers attending the CPD reflected those who had answered the Survey Monkey questionnaire. All other survey questions were completed at the end of the session.

Results

Survey

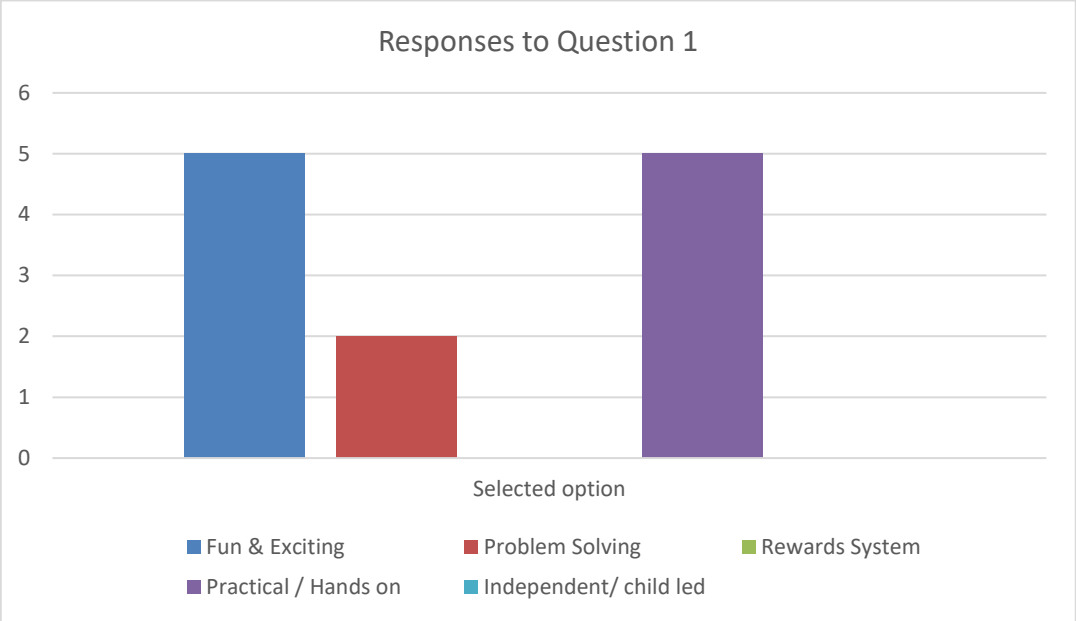
At the end of the 50 minute presentation teachers were invited to complete the survey, having already answered Question 1. The time allowed for completion was ten minutes. Results of the survey are displayed below before being discussed (see Reflections on Teachers' Feedback).

Responses to Question 1 – Engagement Pedagogy Type

The chart below illustrates the number of responses per option (see Figure (f) Teachers' responses to Question 1).

Only one teacher did not answer this question as they felt as they felt they used all five approaches depending on the lesson/class. Of the 12 teachers who answered the question, 5 selected Fun and Exciting; 2 selected Problem Solving and five selected Practical/ Hands on. None of the teachers chose Rewards System, Independent/ Child-led or selected the 'Other' option. Allowing for the small size of the sample, this reflected what was obtained in the earlier survey.

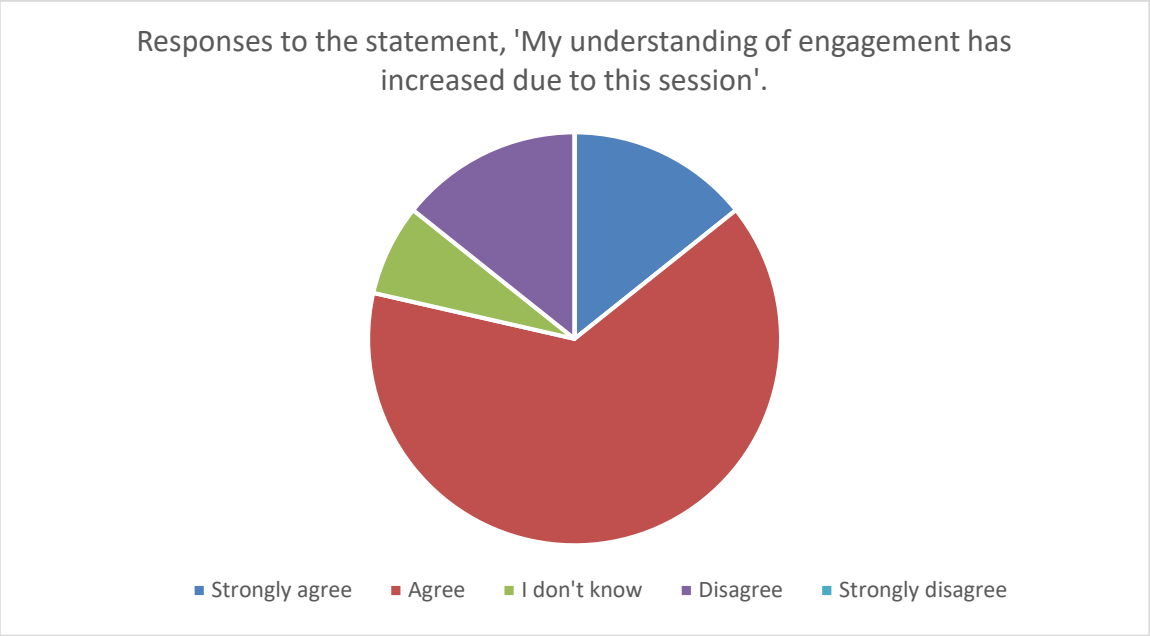
Figure (f) – Teachers' responses to Question 1



Teachers' responses to Question 2.My understanding of engagement has increased due to this session.

All participants answered Question 2. As the chart below (Figure (g)) illustrates, the majority of teachers either strongly agreed or agreed that their understanding of engagement had improved due to the session, with these options accounting for 78% of the answers.

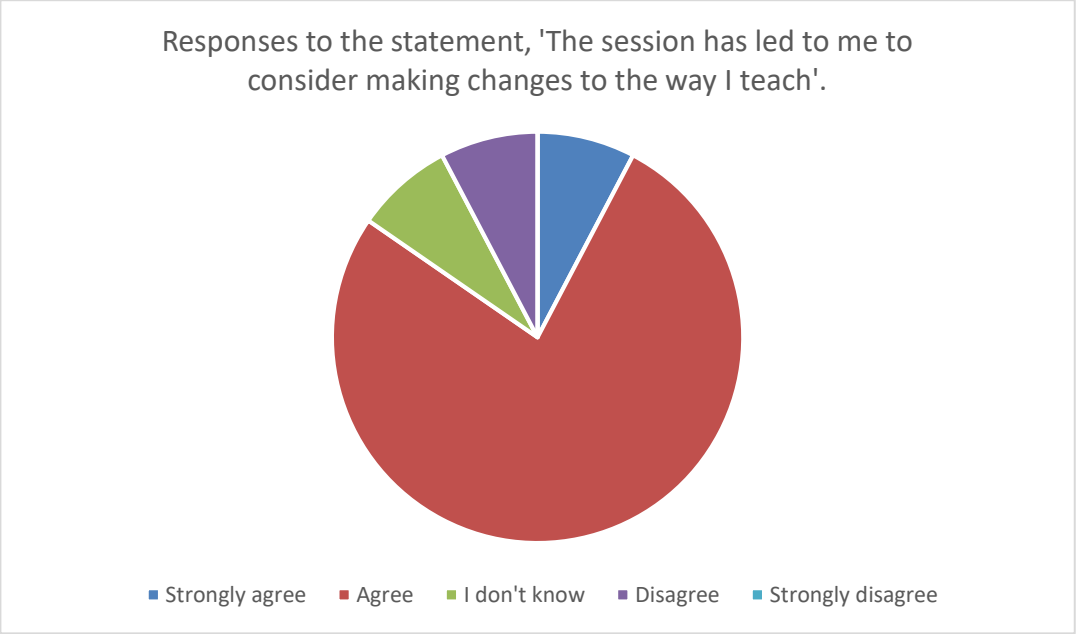
Figure (g) Teachers' responses to Question 2. My understanding of engagement has increased due to this session.



Teachers' responses to Question 3.The session has led to me to consider making changes to the way I teach.

All participants answered Question 3. As the chart below (Figure (h)) illustrates, the majority of teachers either strongly agreed or agreed that the session had led to them considering changing the way they teach, with these options accounting for 85% of the answers. None of the teachers strongly disagreed that they would consider making changing and only 8% disagreed that they would consider making changing to the way they teach due to the session.

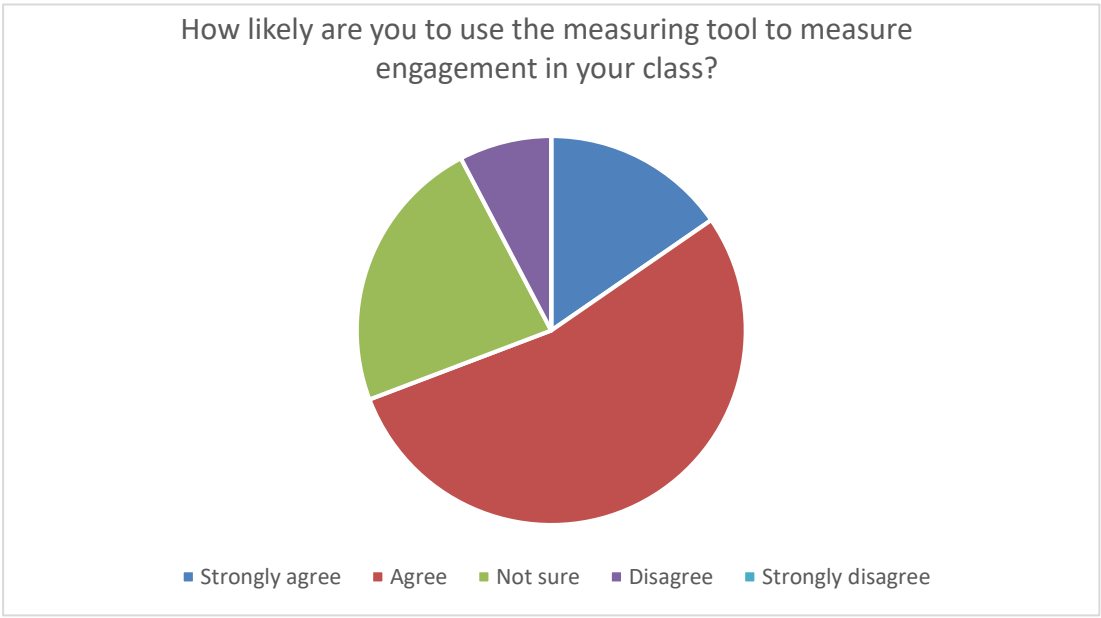
Figure (h) Teachers' responses to Question 3. The session has led to me to consider making changes to the way I teach.



Teachers' responses to Question 4. How likely are you to use the measuring tool to measure engagement in your class?

All participants answered Question 4. As shown in Figure (i), the general response to the measuring tool was positive with 69% of teachers either strongly agree or agree that they were likely to use the Practical Classroom Tool to measure engagement in their class.

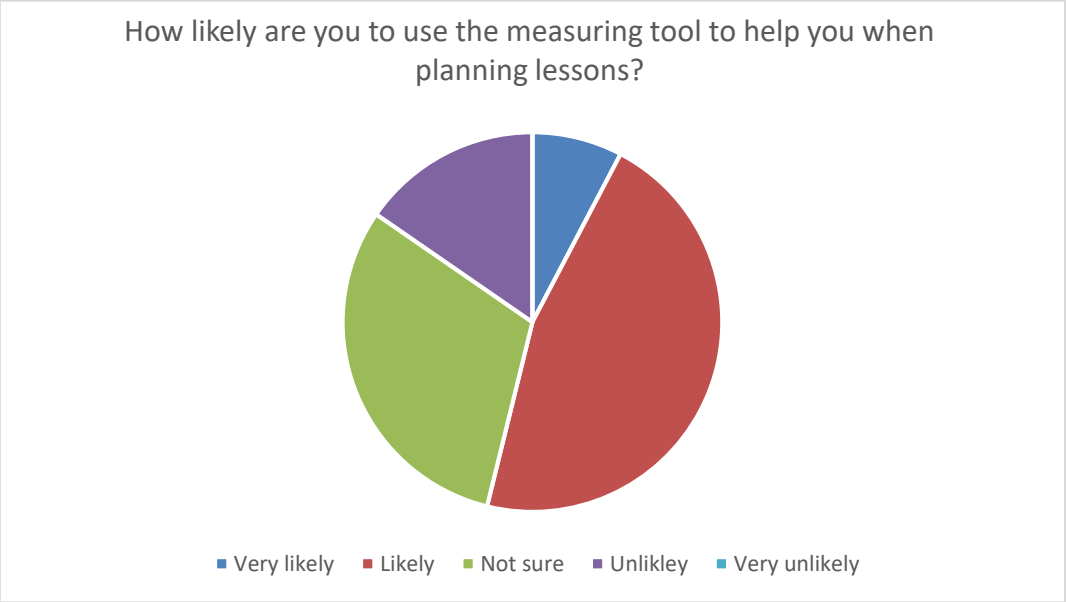
Figure (i) Teachers' responses to Question 4. How likely are you to use the measuring tool to measure engagement in your class?



Teachers' responses to Question 5. How likely are you to use the measuring tool to help you when planning lessons?

Teachers were less likely to use the Practical classroom tool when planning lessons than they were for measuring engagement. This had been expected as the tool was primarily designed to measure engagement levels. However, over half the teachers either strongly agreed or agreed they would use it to plan lessons. A relatively large percentage, 31% of teachers were unsure as to whether they would use it.

Figure (j) Teachers' responses to Question 5. How likely are you to use the measuring tool to help you when planning lessons?



Teachers' responses to Question 6.Please describe briefly what, if anything, you will take away from this session:

Out of 13 participating teachers, 11 completed the open text box to make comments regarding what, if anything, they would take away from the session.

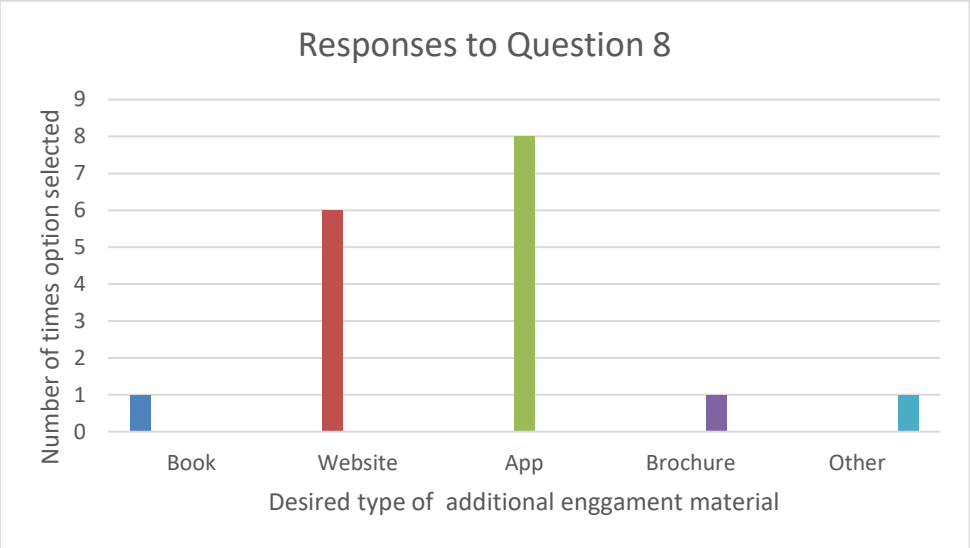
Teachers' responses Question 7. Is there anything you feel would improve the session?

As this session was the first iteration of the *Engaging Lessons* CPD Package to be delivered, feedback, including what could be considered negative feedback, was welcomed from participants. All teachers were invited to give their honest opinion on how the session could be improved. Out of the 13 participants 11 made suggestions. Three said they would like to see some examples of engaging lessons, five said they would like some further activities to participate in during the session and one found it hard to view some of the information on the PPT slides. All feedback is discussed later in this section under the heading, Future Enhancements in the Reflections on teacher feedback.

Teachers' responses to Question 8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

In order to strengthen the CPD package by potentially offering additional supplementary materials, teachers were able to select options they felt would be useful. The sum of all answers is therefore greater than 13, and results are shown in the chart below, *Figure (k) - Chart showing responses to Question 8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful?* As the chart illustrates, teachers welcomed supplementary resources, in particular web-based resources, such as a website or an app.

Figure (k) – Teachers' responses to Question 8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful?



Additional Feedback

As well as feedback being gathered in the form of completed surveys, verbal feedback was also given by teachers. Some of these comments were made during the intervals in the PPT presentation when teachers participated in group activities which were designed to generate discussion between teachers and then were shared back to the whole group. The three Activity discussion prompts are shown below in Table (c) Group activities to prompt discussion.

Table (c) Group Activities to prompt discussion

Activity 1	Discuss in groups what you think engagement is?
Activity 2	To discuss in groups the following: ■ Where do our theories of engagement come from? ■ What seems to influence our strategies? ■ Do you think some children need to be more engaged than others?
Activity 3	'In many lessons it was the Lower and Higher Ability children that displayed indicators of boredom but the Lower Ability children were more likely to descend down the disengagement spiral – why?' Task: discuss in pairs/ groups why you think this 11 happens?

Additional verbal comments were made at other points during the PPT presentation and predominantly at the end of the session. Teachers were asked if their verbal comments could be used anonymously and they agreed.

Reflections on *Engaging Lessons* are discussed below were also explored in Chapter Seven (7.5 Teacher Development).

Reflections on Teachers' Feedback

Teachers' responses to the survey completed at the end of the session strongly indicated that CPD package was successful in enhancing both the teachers' understanding of engagement and also in prompting them to consider the way they teach. Verbal comments made during the session suggested that many teachers' notion of engagement shifted from focusing on behavioural engagement to considering the important of emotional and cognitive engagement. The Head teacher said she felt that having a 'school-wide' notion of engagement would support colleagues in planning and delivering lessons as well as helping providing a framework for senior staff observing lessons.

Teachers' feedback suggested that several elements of an effective CPD package, as stipulated by Whitehouse (2011), had been met: addressing a learning need; encouraging collaboration and reflective practice; and, making use of external expertise. Teachers' responses also indicated that the effect of the session would have an ongoing effect on their pedagogy, based on their enhanced notion of engagement. Although additional visits to the school would be needed to verify whether effects of the session were long-lasting, initial feedback tentatively points to the package also having a sustained effect, meeting another of Whitehouse's elements.

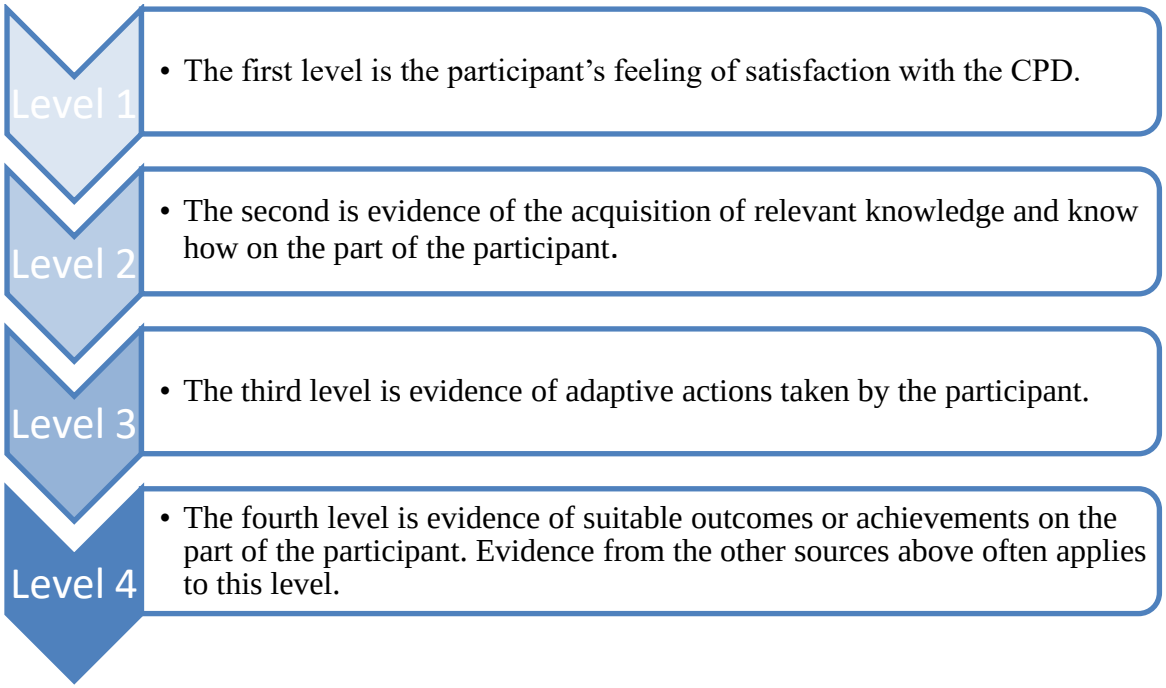
Initial reflections on the package effects

Effectiveness of the package

The effectiveness of the session can be assessed using Kirkpatrick's hierarchy, a well-known model used to evaluate training (Clement, 1982). This hierarchy was designed to move

beyond superficial assessments of the effectiveness of training and consists of four levels, with the first level being the lowest level of the hierarchy and Level 4 being the top of the hierarchy. The different levels of the hierarchy are illustrated below in Figure (l) Kirkpartick's hierarchy – Levels and description. Within the limits of this study, it was hoped that the initial CPD session would reach Levels 1 and 2, with teachers' responses showing that they intended to move to Levels 3 and 4.

Figure (1) Kirkpartick's hierarchy – Levels and description



Questions 2 and 3 were specifically aimed at evaluating the effectiveness of the session as a whole, with the PPT presentation, including opportunities for group discussion, being the focus area. Responses to Question 2, *My understanding of engagement has increased due to this session* indicated that Level 2 of Kirkpatrick's hierarchy had been reached with the majority of teachers, 78% either strongly agreeing or agreeing with the statement. Answers to the next question, Question 3, '*The session has led to me to consider making changes to the way I teach* suggested that teachers were intending to move into Level 3, with 85% either strongly agreeing or agreeing with the statement. Additional responses, supplied in the open text box of Question 6 and in verbal comments during the session meanwhile allowed greater insight into *how* their understanding of engagement had increased (Question 3) and which strategies they may change in their teaching. In terms of increased understanding of

engagement, it appeared that knowledge of the different categories of engagement had been gained by teachers with one comment, '*I never thought about engagement as having different categories, but it makes sense'* and another '*I can see now that there are definitely different types of engagement happening in my own lessons'*. In a group discussion initiated by teachers feeding back what they had discussed as part of Activity 2, they felt that if teachers and senior leaders and/or OFSTED had a different category of engagement in mind to themselves when observing their lessons this could cause issues. For instance, if an observer was judging how engaged a class was and considered engagement to be behavioural they may not grade a lesson as Good or Outstanding if the class were talkative, even if the talk was related to the task.

The package appeared to be most effective in two main areas, as indicated by the open text responses to Question 6, *Please describe briefly what, if anything, you will take away from this session'*. The first of these areas was increasing teachers' knowledge of the concept of engagement by making them aware of the different categories of engagement as discussed. The second area was the relationship between ability level and engagement. Responses to Question 6 included comments which pointed to teachers thinking about such as: (I will take away…) '*how to stretch HA children*' and another teacher wrote, '*thinking about HA much more. Are they actually engaged or just doing what is asked?'.*

Effectiveness of the Practical Classroom Tool

The effectiveness of the Practical Classroom Tool was primarily measured by answers to Question 3 which showed the Tool had yielded positive feedback from teachers with 76% intending to use it in the classroom to measure engagement in future lessons. Four teachers also commented on the classroom tool in response to *Question 6. Please describe briefly what, if anything, you will take away from this session.* A teacher wrote, "I will definitely be using the measuring sheet to which of my lessons appeal to more the children." All this looks very promising. Nevertheless, Kirkpatrick's hierarchy requires evidence of trainees taking adaptive actions to reach Level 3. This evidence, should there be any, needed to be gathered at some point after the delivery of *Engaging Lessons*. This is discussed in Chapter Seven: Conclusions and Recommendations.

Effectiveness of the Learning Objective Inspiration for Engaging Lessons leaflet

The effectiveness of the leaflet was evaluated by examining comments teachers wrote in the open text box (*Question 6*) and verbal comments that were made. Of the 13 teachers six wrote comments specifically mentioning the *Learning objective inspiration for engaging lessons* leaflet. One teacher commented, that they would take away from the session 'the need to use different learning objectives' whilst another wrote, 'I will 100% use different verbs in LOs' strongly indicating they would move into Level 3 of Kirkpatrick's Hierarchy. During the presentation one teacher commented they had never considered how verb choice may influence how they planned the lesson and in turn affect engagement levels, whilst other teachers agreed and one commented, 'I am definitely stuck in a rut of using the same few verbs in my learning objective'.

Areas to be enhanced

It was envisaged that several aspects of the package may need to be changed or enhanced, as this was the first iteration of Engaging Lessons, the opportunity to enhance the session was created with the inclusion of *Question 7: Is there anything you feel would improve the session*. Teachers' responses, indicated that only minor enhancements were needed with almost half commenting that they felt the session could not be improved upon, writing words such as 'no' or 'none', and two leaving even more encouraging feedback, 'More!' and another writing, ' No it was a very interesting session presented with enthusiasm. The session had good pace and had a good mix of listening and discussion, lovely resources'. Two teachers commented that some of the text on the PPT slides were hard to see, although both added the information had been well explained. It was therefore decided that in future iterations, a print out of the PPT Presentation would be provided along with later versions of the charts to make data clearer. Five teachers felt the session would have benefited from more opportunities for 'delegate interaction' with one comments including, 'Perhaps more activities?'

The package was designed using the synthetic research model, as discussed, but, due to the time restrictions it was anticipated that not only may the initial CPD session be enhanced

in future iterations by acting upon teachers' feedback, it may also need to be supplemented with additional materials providing ongoing support for teachers. For this reason it was decided to include a question on the types of supplementary material teachers feel could be helpful. Meanwhile previous studies have shown that a characteristic of many effective CPD programs is that they last for a year (Timperley *et al*., 2007) as time was needed to challenge teachers' theories of practice, to apply new practices in their classrooms and to measure the effects (if any) of the new teaching practice. With this in mind the options provided for teachers in Question 8, *If supplementary resources were to be produced based on this event, what type do you feel would be most useful?* were materials which were likely to be used long term. Answers to *Question 8* demonstrated that the teacher participants felt they would benefit from supplementary material with 12 out of the 13 choosing at least one option in response to *Question 8.* It is clear to see from *Teachers' responses to Question 8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful?* that although a range of supplementary materials were chosen, an app was the most popular choice amongst the CPD participants, with a website also being popular. As previously mentioned, answers to Question 7, indicated that teachers felt they would benefit from being given examples of engaging lessons and some commented they would like to be shown examples of engaging activities. Whilst future iterations of the CPD session could be designed to last longer than an hour, in order to provide comprehensive examples and explanations the most practical way to enhance the package would be provide supplementary materials that teachers could use following the session in a way that would exceed the parameters of even a half day CPD session. Designing a follow-up session with a workshop format could be useful in demonstrating example activities, although a vast range of examples would not be possible. However, an app would allow for the interaction offered by a workshop, but on a far wider scale. Such a material would therefore incorporate long-term support with participant interaction.

Further observations

Including a preliminary question at the start of the CPD session (as discussed earlier) helped establish whether the CPD participants were representative of the wider population of Key Stage Two. It also allowed for potential analysis of whether participants who subscribed

to a particular Type were more receptive to the package than others. Due to the small sample size and that two teacher types were not represented amongst the participants it was not possible to draw any conclusions as to whether the CPD package was more effective for certain Teacher Types than others or was received any more or less positively by some Teacher Types than others. However, the inclusion of this question did enable the researcher to determine whether the participants were representative of the much larger sampled group of teachers who completed the online survey. As mentioned earlier, allowing for the relatively small number of teachers involved in the training session, the distribution of Types was as expected. Although Types 3 and 5 were not represented amongst the CPD participants these two pedagogies were the least chosen by the teachers who took part in the survey with only 5.93% and 8.64% respectively. Therefore, it was expected that in a much small group, there may be no Type 3 or Type 5 teachers present.

Discussion

Can teachers' pedagogies of engagement be developed in terms of notions?

Responses to the questionnaire distributed at the end of the CPD session and discussed above, strongly indicated that teachers' notions of engagement can be developed through training. The notion that engagement was multidimensional was new to the participants and some expressed that viewing engagement as such made it easier to reflect on pupils' responses to past lessons. Some of the teachers felt that having participated in the CPD they had been planning for, and delivering, lessons that were aimed at only one particular type of engagement. Some teachers said they felt some of their lessons had been too heavily focused on behavioural engagement. Meanwhile, the notion that engagement was necessary for all learners, including High Ability children, was one many of the participating teachers said they had not previously considered.

Can teachers' pedagogies of engagement be developed in terms of adapting pedagogies/ widening skills?

This iteration of the *Engaging Lessons* suggests that teachers' pedagogies of engagement can be developed in terms of adapting pedagogies and widening skills. As a result of developing teachers' notions of engagement, responses to the CPD session suggested that teachers' planned to adapt their pedagogies. These adaptations included using a wider range of learning objectives which are associated with purposeful thought and more likely to generate intellectual engagement. Secondly, teachers said their enhanced notions of engagement would lead them to gauge engagement levels differently.

Can teachers' pedagogies of engagement be developed in terms of judging/ gauging engagement (various types)

Teachers responded positively to the Practical Classroom Tool (PCT) with over half saying they would use it to measure engagement in their classrooms. This indicated that teachers would move from Level 2 to Level 3, using Kirkpatrick's Hierarchy. However, observations of these teachers would need to take place to determine whether teachers who said they would use the tool, did indeed use it. However, the overall response to the CPD session, and the progression of participants' notions of what engagement can mean suggests that even without the PCT they would be able to more accurately gauge incidents of emotional and intellectual engagement.

There is evidence that this iteration of the CPD package was effective and it could be used again with only minor changes. Should others wish to develop the package further and try another iteration, the teachers' suggestions may prove fruitful, and are certainly worthy of consideration.

6.a Ethical Approval to conduct *Engaging Lessons* CPD package

From: Ethics <no-reply@sharepointonline.com>
Sent: Friday, February 22, 2019 12:30:07 PM
To: DAVIES, LUCY M. <l.m.davies3@durham.ac.uk>
Cc: ED-ETHICS E.D. <ed.ethics@durham.ac.uk>; NEWTON, LYNN D. <l.d.newton@durham.ac.uk>
Subject: Ethical Approval: EDU-2019-02-03T10:37:36-szxv62

Please do not reply to this email.

Dear Lucy,

The following project has received ethical approval:

Project Title: *Teachers' pedagogies and strategies of engagement;*
Start Date: *11 March 2019*;
End Date: *12 July 2019;*
Reference: *EDU-2019-02-03T10:37:36-szxv62*
Date of ethical approval: *22 February 2019*.

Dear Lucy,

Your ethics application has been approved. The reviewer has made some comments about your application but you do NOT need to resubmit or amend your ethics application.

Please be aware that if you make any significant changes to the design, duration or delivery of your project, you should contact ed.ethics@durham.ac.uk for advice, as further consideration and approval may then be required.

If you have any queries regarding this approval or need anything further, please contact ed.ethics@durham.ac.uk

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If you have any queries relating to the ethical review process, please contact your supervisor (where applicable) or departmental ethics representative in the first instance. If you have any queries relating to the online system, please contact research.policy@durham.ac.uk

6.b Document 2: Letter to Head teacher

School of Education

Durham University

Leazes Road

Durham

Dear [redacted]

Thank you accepting the invitation on behalf of your teaching staff to participate in the CPD event at your school premises, at a date which is to be confirmed.

This event is based on research carried out as part of my Doctoral Studies exploring teachers' notions and strategies regarding pupil engagement, supervised by Professor Lynn D Newton and Professor Douglas P Newton (l.d.newton@durham.ac.uk and d.p.newton@durham.ac.uk)

The CPD event will last for approximately one hour, during which teachers will receive training on strategies to engage pupils. Following the event all teachers will be invited to complete a short questionnaire comprising of x questions on Survey Monkey completely anonymously to appraise the event. All participants have the right to withdraw from the CPD event and the questionnaire at any point (consent may also be withdrawn after the completion of the questionnaire in which instance their responses will be deleted up until the PhD thesis is completed). Please do not hesitate to contact me if you have any questions.

Once again thank you for agreeing to participate,

Lucy Davies, MA (Educ.) (l.m.davies@durham.ac.uk)

6.c Document Three: Participant Information Sheet

Participant Information Sheet (Date to be inserted)

Project title: Engaging learners- a CPD package

Researcher(s): Lucy M Davies

Department: School of Education
Contact details: l.m.davies3@durham.ac.uk

Supervisor name: Prof. Lynn Newon and Prof Douglas Newton

Supervisor contact details: l.d.newton@durham.ac.uk d.p.newton@durham.ac.uk

You are invited to take part in a study that I am conducting as part of my PhD at Durham University.

This study has received ethical approval from the School of Education ethics committee of Durham University. The CPD event and questionnaire have been designed by Lucy Davies, an experienced researcher and qualified Primary school teacher under the supervision of Professor Lynn Newton, Head of the School of Education, Durham University and Professor Douglas Newton, Lecturer at the School of Education, Durham University.

Before you decide whether to agree to take part it is important for you to understand the purpose of the research and what is involved as a participant. Please read the following information carefully. Please get in contact if there is anything that is not clear or if you would like more information.

The rights and responsibilities of anyone taking part in Durham University research are set out in our 'Participants Charter':

https://www.dur.ac.uk/research.innovation/governance/ethics/considerations/people/charter/

What is the purpose of the study?

The aim of this study is to…

- Discuss findings from already completed research as part of a CPD event
- Gather an appraisal of the CPD event through completion of an online (or hard copy) questionnaire following the CPD event and potential focus group activity

Why have I been invited to take part?

You have been invited because …

- You teach at a primary school in England **Do I have to take part?**

Your participation is voluntary and you do not have to agree to take part. If you do agree to take part, you can withdraw at any time, without giving a reason.

What will happen to me if I take part?

If you agree to take part in the study, you will…

- You will be asked to attend the CPD Event on strategies to engage pupils at your school. This event will take approximately one hour on a date and time to be confirmed by your Head Teacher. At the end of the event you will be asked to complete an anonymous Survey Monkey questionnaire online.
- The half term following the CPD event you will be invited to take part in a one hour focus group (this is voluntary) and al participant will remain anonymous.
- Please note that when completing the questionnaire you can omit any questions you do not wish to answer.

Are there any potential risks involved?

- No potential risks have been identified indeed it is expected there will be possible benefits of taking part, namely enhancing your knowledge of strategies to engage pupils. **Will my data be kept confidential?**

- No personal data is collected, and all information is collected completely anonymously (e.g. via questionnaire or online with no signed consent):
- The data you provide is fully anonymous and we will not collect or ask you to provide any personal data. We will have no way of linking responses back to an individual.
- It is not possible to connect data to the IP address from which the survey was completed.

What will happen to the results of the project?

- It is expected that results will be published in 2020.
- References to the results may be included in a website, conference presentations and other publications and will form part of my PhD thesis.
- No personal data will be shared, however anonymised (i.e. not identifiable) data may be used in publications, reports, presentations, web pages and other research outputs. At the end of the project, anonymised data may be archived and shared with others for legitimate research purposes.

All research data and records needed to validate the research findings will be stored for 10 years after the end of the project.

Durham University is committed to sharing the results of its world-class research for public benefit. As part of this commitment the University has established an online repository for all Durham University Higher Degree theses which provides access to the full text of freely available theses. The study in which you are invited to participate will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

Who do I contact if I have any questions or concerns about this study? If you have any further questions or concerns about this study, please speak to the researcher or their supervisor. If you remain unhappy or wish to make a formal complaint, please submit a complaint via the University's Complaints Process.

Thank you for reading this information and considering taking part in this study.

Lucy Davies

6.d What is Engagement? Flyer

What is Engagement?

High levels of engagement have been strongly linked to academic attainment, but what do we mean by engagement? This package aims to clarify the concept of engagement and offer practical steps that can be taken to raise classroom engagement levels.

Types of Engagement

There are several different types of engagement; behavioural, social, cultural, physical, intellectual and emotional. There is often overlap between these types, but research has shown that intellectual and emotional engagement are the types that most linked to pupil attainment.

Can engagement be measured?

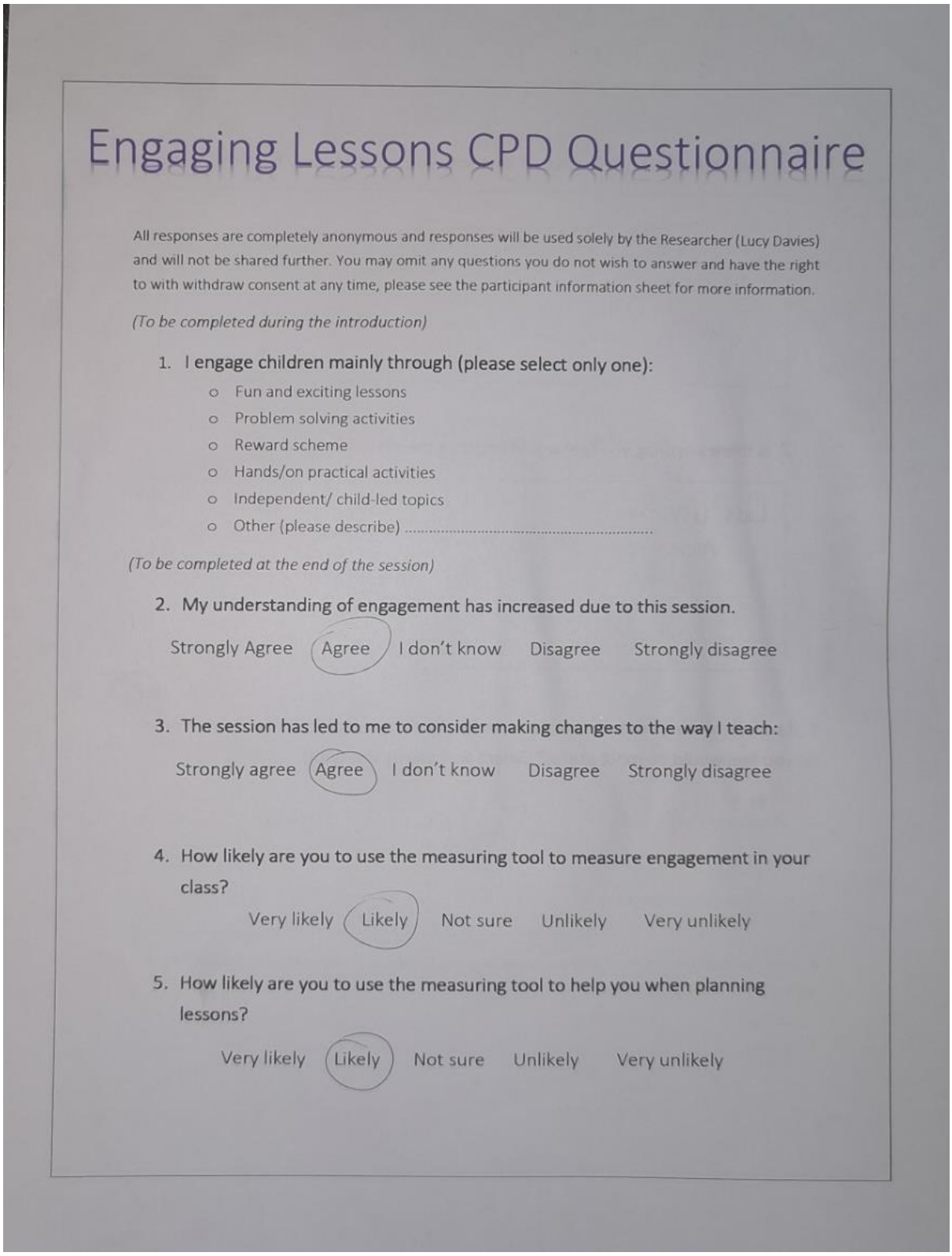
We have designed a tool to measure pupils' engagement, based on extensive research. Indicators relate to pupils' emotional engagement and intellectual engagement. You may want to try using these to help you plan lessons as well as to measure engagement during or after lessons. Subject leaders may wish to use them when observes lessons to inform next steps.

Engaging Lessons

This training package has been designed to help you promote engagement in your class. It has been developed over the last two years at the School of Education, Durham University and is specifically aimed at raising intellectual and emotional engagement levels of primary school pupils.

Durham University
School of Education

6.e Completed teacher surveys



Engaging Lessons CPD Questionnaire

All responses are completely anonymous and responses will be used solely by the Researcher (Lucy Davies) and will not be shared further. You may omit any questions you do not wish to answer and have the right to with withdraw consent at any time, please see the participant information sheet for more information.

(To be completed during the introduction)

1. I engage children mainly through (please select only one):
   - Fun and exciting lessons
   - Problem solving activities
   - Reward scheme
   - Hands/on practical activities
   - Independent/ child-led topics
   - Other (please describe) .....

(To be completed at the end of the session)

2. My understanding of engagement has increased due to this session.

   Strongly Agree (Agree) I don't know Disagree Strongly disagree

3. The session has led to me to consider making changes to the way I teach:

   Strongly agree (Agree) I don't know Disagree Strongly disagree

4. How likely are you to use the measuring tool to measure engagement in your class?

   Very likely (Likely) Not sure Unlikely Very unlikely

5. How likely are you to use the measuring tool to help you when planning lessons?

   Very likely (Likely) Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

Using the taxonomy approach in any order.

7. Is there anything you feel would improve the session?

Less listening
more focussed discussion.

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ✓ Website - with real resources for real classroom situations.
- ○ App
- ○ Brochure
- ○ Other (please describe)

demonstrations by a professional in class

Engaging Lessons CPD Questionnaire

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   - o Other (please describe) .....

(To be completed at the end of the session)

2. My understanding of engagement has increased due to this session.

   Strongly Agree Agree ✓ I don't know Disagree Strongly disagree

3. The session has led to me to consider making changes to the way I teach:

   Strongly agree Agree ✓ I don't know Disagree Strongly disagree

4. How likely are you to use the measuring tool to measure engagement in your class?

   Very likely ✓ Likely Not sure Unlikely Very unlikely

5. How likely are you to use the measuring tool to help you when planning lessons?

   Very likely Likely Not sure Unlikely Very unlikely n/a.

6. Please describe briefly what, if anything, you will take away from this session:

I like the classroom tool - and will use it when observing lessons.
The impact of children entering lessons & leaving the classroom ie for interventions.

7. Is there anything you feel would improve the session?

No - it was a very interesting session presented with enthusiasm - The session had good pace and had a good mix of listening and discussion Lovely resources.

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ○ Website
- ○ App
- ✓ Brochure
- ○ Other (please describe)

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(To be completed at the end of the session)

2. **My understanding of engagement has increased due to this session.**

   Strongly Agree (Agree) I don't know Disagree Strongly disagree

3. **The session has led to me to consider making changes to the way I teach:**

   Strongly agree Agree (I don't know YCT) Disagree Strongly disagree

4. **How likely are you to use the measuring tool to measure engagement in your class?**

   Very likely (Likely) Not sure Unlikely Very unlikely

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   Very likely (Likely) Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

THINK ABOUT DIFF STRATEGIES TO EXTEND CERTAIN GROUPS.

7. Is there anything you feel would improve the session?

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ✓ Website
- ✓ App
- ○ Brochure
- ○ Other (please describe)

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   Strongly Agree (Agree) I don't know Disagree Strongly disagree

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   Strongly agree (Agree) I don't know Disagree Strongly disagree

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   Very likely Likely (Not sure) Unlikely Very unlikely

5. How likely are you to use the measuring tool to help you when planning lessons?

   Very likely (Likely) Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

understanding of engagement strategies – revision

Thinking about what type of teacher I am in different lessons.

7. Is there anything you feel would improve the session?

none

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ✓ Website
- ○ App
- ○ Brochure
- ○ Other (please describe)

Engaging Lessons CPD Questionnaire

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   Very likely Likely Not sure Unlikely Very unlikely

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   Very likely Likely Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

I will 100% use different verbs in LOs → And also think about starting with a 'creative' lesson + follow with understanding/application.
using mini-plenaries more often.
Thinking about HA much more → Are they actually engaged or just doing what is asked.
More independent learning esp for HA.

7. Is there anything you feel would improve the session?

More!

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ✓ Website
- ✓ App
- ○ Brochure
- ○ Other (please describe)

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   Strongly agree Agree I don't know Disagree Strongly disagree

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   Very likely Likely Not sure Unlikely Very unlikely

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   Very likely Likely Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

The need to use different verbs for learning objectives.

7. Is there anything you feel would improve the session?

Looking at results on the board - difficult to see questions, but well explained

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ◎ Website
- ◎ App
- ○ Brochure
- ○ Other (please describe)

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   Very likely Likely (Not sure) Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

① how to stretch HA. children.
② minimise number of interruptions for LA.

7. Is there anything you feel would improve the session?

? possibly video clips to analyse?

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ○ Website
- ✓ App
- ○ Brochure
- ○ Other (please describe)

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5. How likely are you to use the measuring tool to help you when planning lessons?

   (Very likely) Likely Not sure Unlikely Very unlikely

6. Please describe briefly what, if anything, you will take away from this session:

The different types of engagement observed in different ability groups.

7. Is there anything you feel would improve the session?

Lucy was very confident and engaging. Perhaps some more activities?

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ○ Book
- ○ Website
- ✓ App
- ○ Brochure
- ○ Other (please describe)

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   Very likely Likely Not sure Unlikely Very unlikely

5. **How likely are you to use the measuring tool to help you when planning lessons?**

   Very likely Likely Not sure Unlikely Very unlikely

H

6. Please describe briefly what, if anything, you will take away from this session:

Engagement meaning (Types of engagement).
- different types of engagement.

7. Is there anything you feel would improve the session?

NA.

8. If supplementary resources were to be produced based on this event, what type do you feel would be most useful? (Select as many as you wish)

- ✓ Book
- ✓ Website
- ○ App
- ○ Brochure
- ○ Other (please describe)