

lesson study for
assessment
introduction and guidelines



GRADUATE SCHOOL OF EDUCATION

lesson study for
assessment
introduction and guidelines

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A defining feature of the materials is that they originate in continuing practical work in the classroom. They will be revised and republished after further 'road testing'. In the meantime, user feedback is welcome: b.norwich@ex.ac.uk



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Preface and acknowledgements

This introduction to Lesson Study for Assessment (LSfA) was developed with the financial support of the Esmée Fairbairn Foundation. The Foundation funded the initial Lesson Study project, in which two trials used Lesson Study to improve the teaching and learning of secondary pupils with moderate learning difficulties (MLD). Out of these trials came the idea and trial of LSfA with six schools (three primary and three secondary schools).

Special thanks are due to the three teachers from each of these six Lesson Study teams in the schools who first tried out LSfA. Thanks also to colleagues involved in this third trial and its evaluation: Dr Annamari Ylonen, Gill Jordan and Di Hatchet.

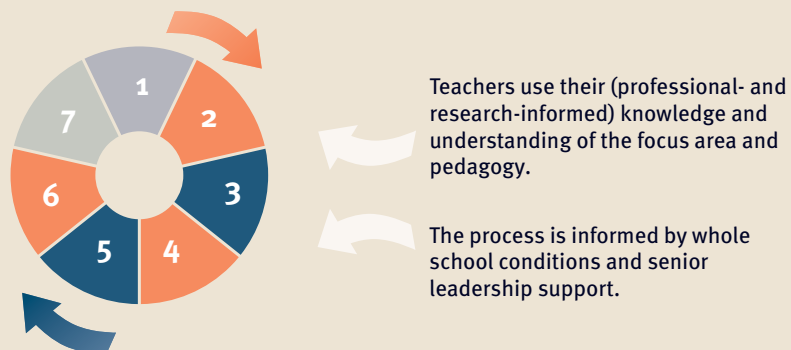
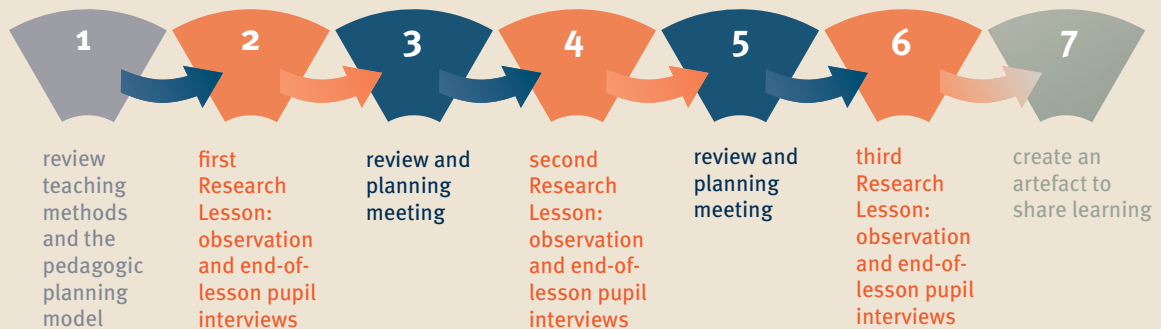
A .pdf copy of this guidance and the templates in Word format to support the LSfA process can be downloaded from:

<http://elac.ex.ac.uk/lessonstuudmld/page.php?id=171>

Introduction

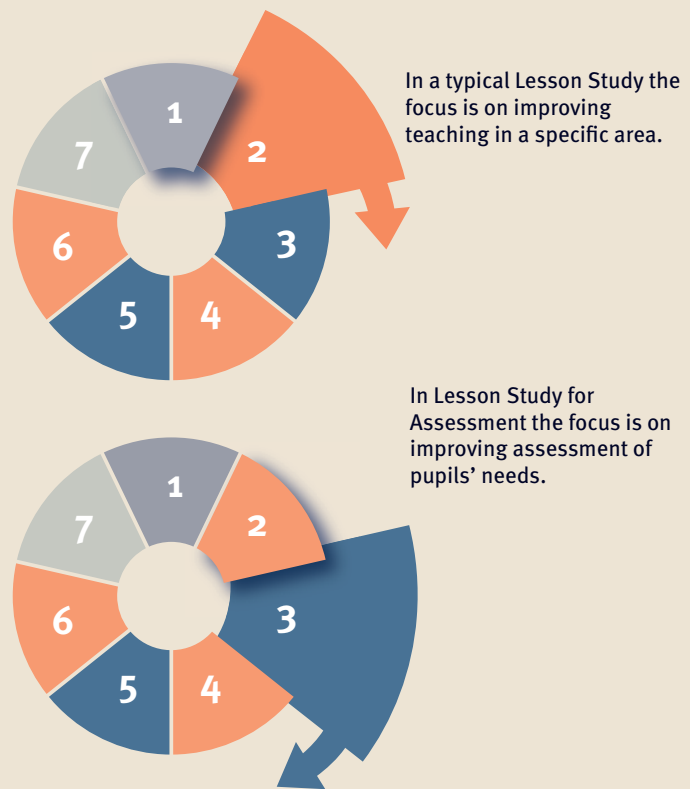
Lesson Study (LS) is an approach originally developed in Japan with over a century of use in examining the practices of teaching in order to improve teaching and learning (Takahashi and Yashida, 2004). LS is typically a form of teacher inquiry in which teachers in small groups undertake collectively a cycle of ‘plan-do-review’ activities to improve pedagogy and so pupil learning and progress. One teacher teaches a series of Research Lessons, while the other teachers in the team observe the learning of specific pupils (Case Pupils). Pupil learning in the Research Lesson is then analysed in a team meeting to inform the planning of the next Research Lesson. As Figure 1 below shows typical Lesson Studies involve a three-cycle of planning-teaching and reviewing, where the assessment of learning is used to refine teaching with the primary aim of improving teaching.

Figure 1
The Lesson Study cycle
used in the Lesson Study –
Moderate Learning
Disability project.



In a typical Lesson Study the focus is on improving teaching (Figure 2). In Lesson Study for Assessment the focus is on improving assessment (bottom of Figure 2). The diagrams show how it is possible to switch the starting point in the relationship between teaching and assessing, so that changes in teaching can be used to improve understanding of the needs of pupils. In Lesson Study for Assessment (LSfA), the primary aim becomes improved understanding of learner needs through teaching rather than the improvement of teaching through assessing learning. This guide sets out the LSfA concept and model, describes how to apply it, includes the materials required and provides background theory and research.

Figure 2



Some terms used in Lesson Study

Lesson Study

A sequence of Research Lessons preceded and followed by review and planning team meetings, usually taking place over a fixed period, eg three weeks or half a term

Research Lesson

A single Research Lesson forms part of the Lesson Study sequence. It is planned and then subsequently reviewed by the team.

Case pupils

These are the pupils who have been identified as the focus of the Lesson Study process – around whom the planning is done and whose learning is monitored and reviewed for subsequent Research Lessons. Usually one or two case pupils are identified for a Lesson Study.

Review and planning meeting

These are the meetings in which the team jointly reviews and plans the focus of the Lesson Study. It is good practice for the second and subsequent meetings to take place soon after the Research Lessons.

The potential of adapting Lesson Study for assessment purposes was indicated by the evaluation research undertaken in a development and research project that was about pupils with moderate learning difficulties (MLD) (Norwich and Jones, 2014) as well as previous UK research (Dudley 2004; Dudley 2012). A fuller account of the rationale and justification for the LSfA approach can be found in Norwich, Dudley and Ylonen (2014). This guidebook is based on a trial of LSfA conducted by three primary and three secondary school Lesson Study teams, each of which involved the SEN coordinator and two class teachers. Here are some typical comments about using LSfA by these teachers:

- *very good professional conversations/meetings with colleagues*
- *makes you reflect on the impact of your own teaching*
- *it's the most powerful way to unpick a child's learning difficulties*
- *it provides a non-judgmental opportunity for your peers to observe your lessons and help you*
- *it's about you learning how children learn*
- *this will re-ignite your love of teaching*
- *children have the opportunity to let you know what helps and hinders their learning.*

LSfA is recommended in this guidebook as a novel and systematic approach to the formative assessment of primary or secondary school pupils about whose learning and progress teachers may have concerns. It is what has come to be called a 'response to teaching' approach to assessing needs that takes place in classroom lessons, and as such is a form of dynamic assessment that is conducted by teachers. It is presented here as an approach for particular use by SEN or Inclusion coordinators as a way of collaborating with class teachers to improve their understanding of individual learning needs and so plan improved teaching programmes.

See pp 43-45 for more details

Lesson Study for Assessment – Step by Step

The seven-Step Lesson Study for Assessment cycle used in this guide is shown to the right. Depending on how much progress has been made by Step 6, there is an opportunity to repeat the cycle of teaching and review between Steps 6 and 10, as shown in the diagram on the facing page. The pages where each Step is described in more detail, as well as signposts to the relevant Templates are given below.



design and prepare
pages 10-11
complete
Template 1



Team meeting 1
page 12
complete
Templates 2, 3, 4,
5a, 5b, 5c



teach Lesson 1
page 13
complete
Templates 5d, 6

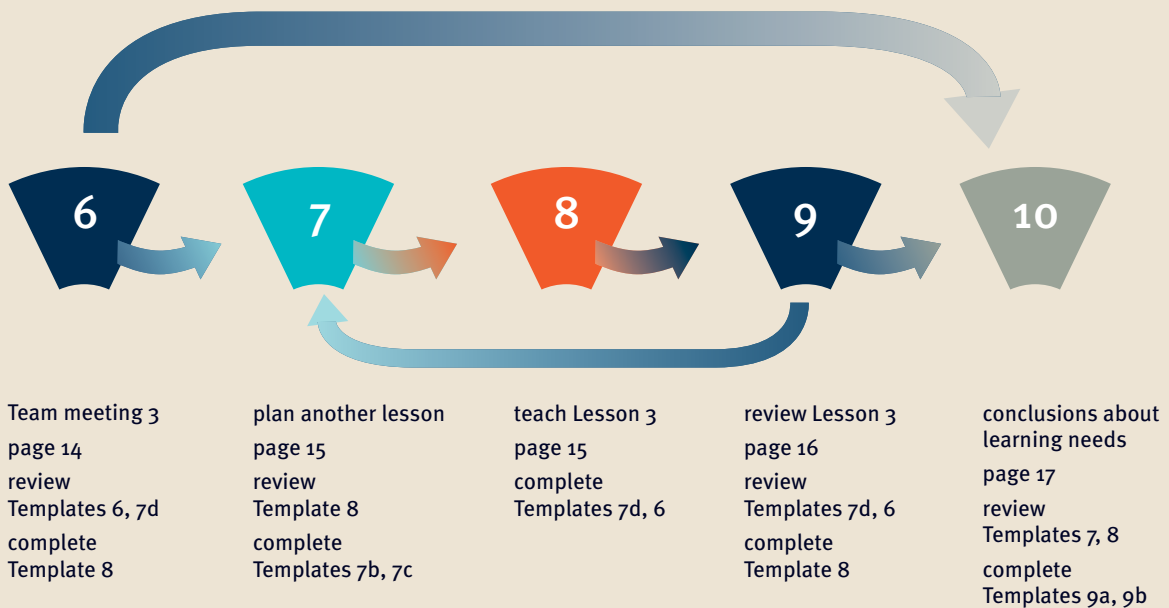
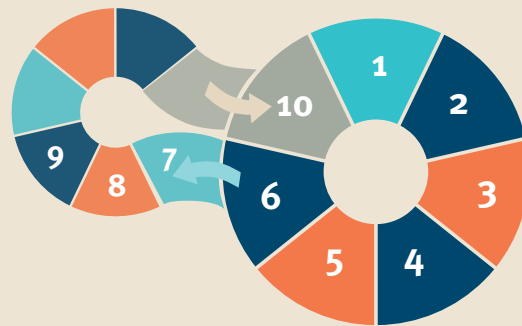


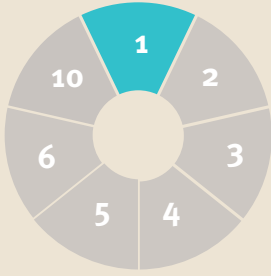
Team meeting 2
page 13
review
Templates 5d, 6
complete
Templates 7a, 7b, 7c



teach Lesson 2
page 13
complete
Templates 7d, 6

At Step 6, (see page 14) team members can decide either to complete the process and to write their conclusions about the learning needs they have uncovered, or to plan, teach and review extra lessons, as indicated by the 'detour' between Steps 7 and 9 shown below and described on pages 15 and 16.





Design decisions

At the start of the LSfA process three design decisions have to be made, depending on whether LSfA is being used in primary or secondary schools.

1 How many in the team?

- The minimum number in a team is two for this purpose, a class teacher and the SEN coordinator.
- Ideally three members would enable bringing a second teacher into the process with the added knowledge and experience that this brings, especially if the teacher comes from a different subject and/or year group.
- Outside professionals: it will be useful to find out if you can arrange for someone with particular knowledge relevant to the concern which you are examining to join this Lesson Study, e.g. a speech and language therapist, a specialist teacher or educational psychologist.

2 How many case pupils?

- This can be between 1-2 pupils about whom the class teacher has some concerns about their learning and rate of progress; this will be a pupil/s with attainments in the lowest quartile (25th centile) of their year groups for core subject learning and may or may not have been identified as having SEN.
- One teacher can observe more than one pupil if the team has only two teachers. With three teachers per team the two non-teaching teachers can focus on one pupil each.

3 How many subject areas to cover in assessment?

- This depends on the concerns you have about the pupil/s.
- If there is a specific concern about one subject area, e.g. literacy, then confine the LSfA to one subject.
- But, if the concerns go across subject areas, it is best to cover two subject areas, perhaps English/literacy and Maths/numeracy.
- If concerns are in more than one area of learning, then you may need to do a LSfA for each area of learning.



Step 1 design and prepare

Use Template 1 to record the design

Once these decisions have been made, you can start to design how the Lesson Study will operate in terms of the membership of the team, what lessons you will focus on and which pupils.

- Consultation before starting

it is good practice to consult the pupils' parents, explain what is involved and ask if they have any information relevant to the assessment. It is also important to consult the case pupils, so they can understand what is going to happen and so they can also contribute to the initial assessment. (Details about how to do this are in Step 2.)

- Timing

As the flow chart above shows, there are two Research Lessons and three team meetings (between 45-60 minutes each) as the minimum for this model of LSfA. This requires that the team be present at the three review and planning meetings and also at the two Research Lessons. With the support of senior teachers you need to arrange the timing of these steps of the LS process. Depending how the LS progresses you may want to have another one or two more Research Lessons and review meetings. Usually LS in this country involves a cycle of three Research Lessons interspersed by four team meetings.

- When to hold meetings

Review and planning meetings are best held soon after Research Lessons (immediately or at least on the same day) and this needs to be planned carefully. Some teams conduct Research Lessons within the period of three successive days, while others might space them out over a week or two. How the team is to be released from other commitments needs to be discussed and arranged with senior teachers; this is why their support and continuing interest in LS is crucial.



Use Templates 2, 3, 4 to record information about pupils and Templates 5a, b and c to start the planning for Research Lesson 1

Step 2 collect information about pupils

- Whoever is coordinating the Lesson Study process needs to collect information about the case pupils before the first team meeting. Use the templates provided – one each for each case pupil:
 - Template 2 for the class teacher
 - Template 3 for parent/s. This can be discussed when you ask if they have any information about their child relevant to the LSfA. You may choose not to use it
 - Template 4 for the case pupil/s. It can be used when consulting them about LSfA and should be completed by the teacher. The template is designed more for KS2 and 3 pupils than KS1 pupils. You may wish to change the wording and simplify it accordingly.
- Team actions
Based on the collected information, summarise the three priority areas of concern. Use Template 5a to record them.

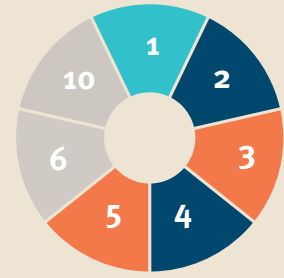
Decide what lesson to teach as Research Lesson 1. It should be one that highlights the concerns in that subject area, e.g. writing (remember that you may be doing a second LSfA cycle for another area of learning, e.g. numeracy).

Based on these priority concerns, identify and record two or three challenging but realistic personalised target/s for each pupil in selected curriculum area for the lesson. Use Template 5b to record them.

Work out some assessment questions relevant to these targets. Use Template 5C to record them. These questions will be about:

- where does the pupil start from (relevant baseline)?
- what is the pupil's learning approach/es?
- what methods and conditions could help and or hinder each pupil's progress in learning towards the targets?

Plan Research Lesson 1 for the class, incorporating personal targets for two pupils.



Step 3 teach Research Lesson 1

Use Templates 5 and 6

- The class teacher teaches Research Lesson 1.
- Other LS team members, including SENCo, observe pupils' learning (use Template 5d) and might also video record case pupils' activities and learning.
- At end of the lesson, a member of the team carries out a brief interview of pupils (about five minutes) about their learning (Template 6).

Step 4 review Research Lesson 1 plan Lesson 2:

Use Template 7

- The team meets to discuss, analyse and evaluate pupil learning and learning conditions (using completed Templates 5 and 6 from Research Lesson 1 and watching any videos).
- The team can also use assessment information collected in Step 2 (from teacher, parent and/or pupils).
- They then use the observations and pupil interviews to summarise the main points that arose from Research Lesson 1 and how to answer the initial research questions. (Use Template 7a to record the summary.)
- Depending on this analysis, the team revises the assessment questions about baseline, pupil approaches and methods/conditions. (Record the questions on Template 7b.)
- The team then identifies new personal targets for next Research Lesson 2. (Record them on Template 7c.)
- They plan a lesson for the class that incorporates the personal targets for the two case pupils to answer these questions.

Step 5 teach Research Lesson 2

Use Templates 6 and 7

- The class teacher teaches Research Lesson 2, video recording case pupils' activities and learning.
- Other LS team members, including SENCo, observe pupils' learning. (Use template 7d.)
- One member carries out the brief interview of pupils at end of lesson about learning. (Use Template 6.)



Use Template 8

Step 6 review Research Lesson 2

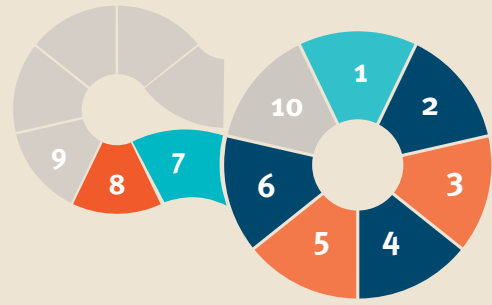
- The team meets to discuss, analyse and evaluate pupil learning and learning conditions (using completed Templates 6 and 7d from Research Lesson 2, and watching any videos).
- The team considers how observations and pupil interviews answer the research questions (recording key points on Template 8).

Has there been any progress in learning?

This is an important decision point in the procedure – has there been some evidence of pupil learning from the two previous Research Lessons? Can you draw some conclusions from the lessons about learning needs? If you are in doubt or want to check your conclusions with further Lesson Study then say **no**; otherwise say **yes**.

If **yes**, then some conclusions can be drawn about the pupils' learning needs (you might have different decisions for the two pupils). Go straight to Step 10 (page 17).

If **no**, then you should undertake one or two more cycles of Research Lessons and review meetings. Go to Step 7 (which is the second part of the Step 6 meeting).



Step 7 plan another Research Lesson

Use Template 7

- Using the review from Step 6 or whichever is the previous one, and using completed Template 8, the team revises the assessment questions (about baseline, pupil approaches and methods/conditions. (Use Template 7b to record the result.)
- Identify new personalised targets for the next Research Lesson 3. (Record them on Template 7c.)
- Plan a lesson for the class that incorporates personal targets for two pupils to answer these questions.

Step 8 teach the next Research Lesson

Use Templates 6 and 7

- The class teacher teaches another Research Lesson:(and videos of case pupils' activities and learning).
- Other team members, including SENCo, observe pupils' learning. (Use Template 10c.)
- One team member carries out a brief interview of pupils at end of the lesson. (Use Template 6 to record it.)



Use Template 8

Step 9 review Research Lesson 3

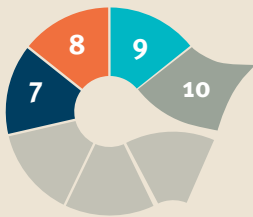
- The team meets to discuss, analyse and evaluate pupil learning and learning conditions (using completed Templates 6 and 7 from Research Lesson 3; and watching videos if used)
- The team considers how the observations / pupil interviews answer the research questions (record key points in Template 8)

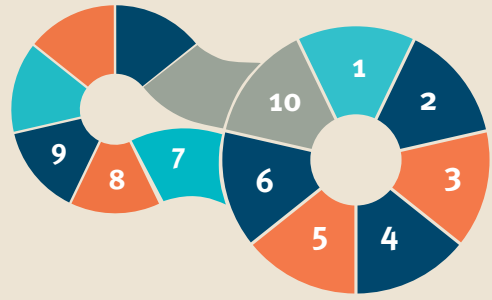
Has there been any progress in learning?

This is an important decision point in the procedure – has there been some evidence of pupil learning from the two previous Research Lessons? Can you draw some conclusions from the lessons about learning needs? If you are still in doubt or want to check your conclusions with further Lesson Study, say **no**; otherwise say **yes**:

If **yes**, then some conclusions can be drawn about the pupils' learning needs (you might have different decisions for the two pupils). Go to Step 10 on the facing page.

If **no**, and you have not done four Research Lessons, you can undertake one more cycle (a Research Lesson and review meeting). Return to Step 7 (page 15). If you have already done four Research Lessons, go to Step 10.





Step 10

Use Template 9

- Using the completed Templates 7 and 8 from the Research Lessons, the team reviews what has been learned overall about the pupil/s' needs with reference to the initial and developing assessment questions.
- Use Template 9a to summarise your team's assessment conclusions for each pupil
- Then as a team and based on this assessment, consider what changes will be made to the future teaching of the case pupil/s and how it will be undertaken.
- Use Template 9b to summarise what is agreed.

The Templates used at each Step in the Lesson Study for Assessment process

Step 1

- 1 Lesson Study for Assessment design

Step 2

- 2 Initial assessment by teacher
- 3 Initial assessment by parent
- 4 Initial perspective of pupil
- 5a-c Priority concerns, targets, assessment questions, summary observations

Step 3

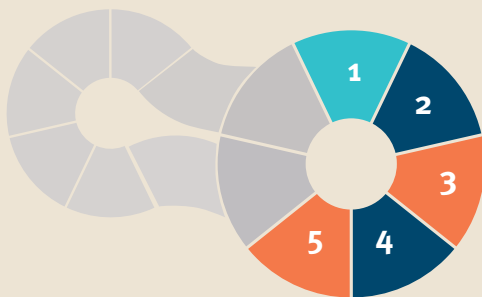
- 5d Priority concerns, targets, assessment questions, summary observations
- 6 Pupil perspectives on the Research Lesson

Step 4

- 7a-c Summary points from Research Lesson 1, targets and assessment questions for next Research Lesson

Step 5

- 7d Summary points from Research Lesson 1, targets and assessment questions for next Research Lesson
- 6 Pupil perspectives on the Research Lesson



Step 6

8 Summary points arising from Research Lesson 2

Step 7

7b-c Targets and assessment questions for next Research Lesson

Step 8

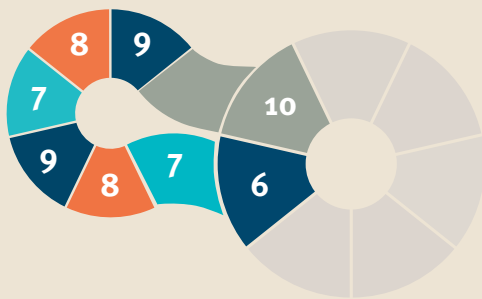
7d Targets and assessment questions for next Research Lesson
6 Pupil perspectives on the Research Lesson

Step 9

8 Summary points arising from the previous Research Lesson

Step 10

9a-b Assessment and action planning summary following the Lesson
Study cycles



1 Lesson Study for Assessment design

Pupil A name

Pupil B name

members of the team

subject areas covered

number of Research
Lessons

A large, empty grey rectangular area intended for notes or data entry.

Highlighted parts of the dial indicate the Steps in the process when each Template is used.



2 Initial assessment by class teacher (one per pupil)

Pupil name

age

current attainment levels in areas of concern

other relevant information scores or background

about what is going on in the pupil's environment

in school

curriculum – content and focus of learning

teaching methods and strategies

class management relationships and settings

at home

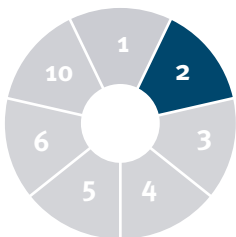
immediate family

extended family and/or community

history of schooling, changes of school etc.

what facilitates learning?

what are the barriers to learning or absent conditions that interfere?



2 Initial assessment by class teacher (one per pupil) /2

about the pupil's characteristics or functioning

sensory and motor functioning

health conditions

emotional states, self perception and self esteem

motivation and interests

approaches and styles of learning (eg memory, reasoning, meta-cognitive strategies)

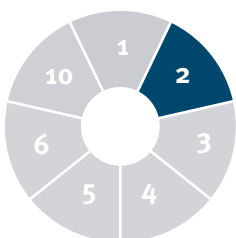
expressive and receptive communication and language competence

basic educational skills (literacy, numeracy etc.)

social skills and interaction with others (adults and peers)

strengths

difficulties/needs



3 Assessment by parents (one per pupil)

Please record information about your child that you think is relevant to the LfSA

about what is going on in your child's environment

in school

at home

about your child

hearing, seeing and/or movement; health conditions

emotions, interests; how s/he goes about learning

remembering, understanding and working things out

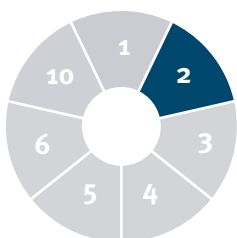
communicating and speaking

basic reading, writing and number skills

getting on with others

his/her strengths

his/her difficulties and/or needs



4 Pupil initial perspective template (one per pupil)

Please fill this in after consulting about the LSfA. These questions are more relevant to KS2 and 3; for younger children simpler questions may be needed depending on the pupil

lessons

what do you like?

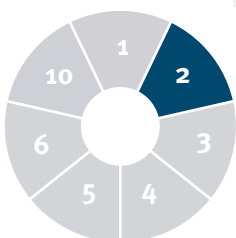
what do you dislike?

what goes on?

can / cannot do

what can you do / is easy for you?

what is hard for you to do?



5 Priority concerns, targets, assessment questions and summary observations

If you are focussing on one pupil only, please use the template accordingly.

a
Based on the collected assessment information from Templates 2, 3 and 4, identify the three key priorities for pupils

1

2

3

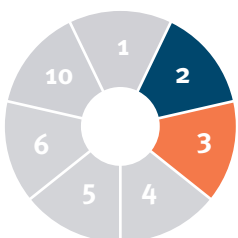
b
Based on these concerns, what will be the learning targets for the pupils in the Research Lesson? These targets are to highlight their difficulties in learning.

learning target 1

learning target 2

pupil 1

pupil 2



5 Priority concerns, targets, assessment questions and summary observations /2

If you are focussing on one pupil only, please use the template accordingly.

c

Assessment questions about pupils relevant to targets

about where the children start from (relevant baseline)

about the learning approaches the pupils use

what methods and conditions could help/hinder pupil progress towards their targets?

d

Summarise observations relevant to these assessment questions during and after the Research Lesson

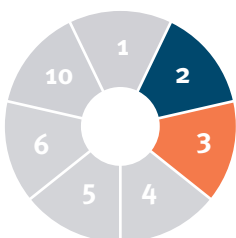
about starting points for these pupils in relation to targets

about the learning approaches used by pupils

about the teaching methods and learning conditions that enabled or prevented learning

about other observations

	pupil 1	pupil 2
1		
2		
3		



6 Pupil perspective on the Research Lesson

These questions might need to be adapted according to the pupils' age and needs

	pupil 1	pupil 2
What did you enjoy about the lesson?		
What did you learn?		
How did you learn these things?		
What part of the teaching and learning activities helped you?		
What didn't you enjoy about the lesson?		
What did you find hard to learn?		
Would you know why it was hard?		
What part of the teaching and learning activities did not help you?		
What could change to help you learn better?		



7 Main points arising from Research Lesson 1 – personalised targets and relevant assessment questions

a
Based on the review of Research Lesson 1, what are the main points relevant to the assessment of the pupils' needs?

	pupil 1	pupil 2
1		
2		
3		

b
Based on these points, what will be the learning targets for the pupils in Research Lesson 2. They might be the same or different, depending on the assessment made.

learning target 1

learning target 2

learning target 3



7 Main points arising from Research Lesson 1 – personalised targets and relevant assessment questions /2

c Assessment questions about pupils relevant to targets

where do the pupils start from (relevant baseline)?

what are the learning approaches of the pupils?

what methods and conditions could help/hinder pupil progress towards their targets?

d Summarise observations relevant to these assessment questions during and after the Research Lesson

about starting points for these pupils in relation to targets

about the learning approaches used by pupils

about the teaching methods and learning conditions that enabled or prevented learning

about other observations

pupil 1

pupil 2



8 Main points arising from the Research Lesson

Based on the review of Research Lesson 2, what are the main points relevant to the assessment of the pupils' needs?

	pupil 1	pupil 2
1		
2		
3		



9 Assessment and action planning summary following Lesson Study cycles

This is completed at the end of the process, drawing on initial assessment information (Templates 1-4 and the points arising from reviewing the Research Lessons using the relevant Templates).

a

Pupil name

subject area

date

environmental factors

wider class context

1

2

3

pedagogic approaches
and conditions

1

2

3

pupil factors

learning

approaches/motivation

1

2

3

memory and cognitive
factors

1

2

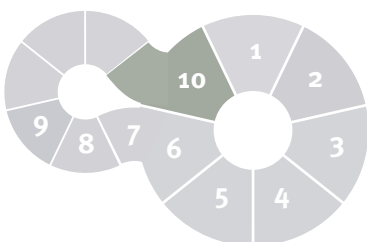
3

what helps learning?

what prevents learning or is
needed for learning?

strengths

difficulties/needs



9 Assessment and action planning summary following Lesson Study cycles /2

pupil factors /cont'd
communication/interaction
with others

1

2

3

b
**What changes will be made
to teaching based on this
assessment?**

1

2

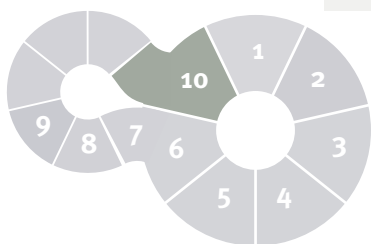
3

**How will these changes be
put into practice?**

1

2

3



Three case examples

Three examples of Lesson Study for Assessment are presented with a brief summary under these headings:

- The starting general assessment: a general overview of the pupil's learning in the subject area, in terms of personal and environmental factors relevant to their learning, based on information collected before the Lesson Study for Assessment.
- The Lesson Study details: summary of Research Lesson goals and what helps learning from LS analysis.
- The post LSfA assessment summary: this is summary of more focussed assessment of pupil's strengths/difficulties/needs and what helps/hinders learning arising from the process.
- Some key insights from LSfA: a summary of key insights arising from LSfA for this pupil.
- The Lesson Study teachers' perspectives on LSfA: some summary evaluation points from LS teachers about the process.

Case example 1 / 1

A seven-year-old girl who was seen as 'slower in learning' but had not been identified as having SEN.

1

Starting general assessment before LSfA

curriculum teaching – facilitators

- She was confident when working with a close friend or in a small group with the support of an adult.
- She worked well when supported by an adult in a group situation.

curriculum teaching – barriers

- none identified

pupil strengths

- She enjoys taking part in group activities, art and craft and small world play.
- She contributed verbally, showing a good general knowledge and being able to think and reflect (but can over-analyse).
- She shows a very good memory of facts that interest her.
- Her maths reasoning and mental skills were at a high level.
- She was very chatty, liked to engage in conversation particularly with adults, showing her verbal skills.
- She was very socially skilled, particularly with adults. She socialised well with a select group of friends, but disliked large groups.

pupil difficulties/needs

- She lacked confidence, particularly in her writing. When writing she can lose focus and can get muddled.
- She showed good mathematical thinking, but this is not always reflected in her written work.
- She found pencil control a little hard.
- She found that sitting and listening to whole class teaching sessions on the carpet very stressful. She would lose concentration very quickly; struggling to listen for sustained periods.
- She disliked working independently and repeatedly asked for help.
- She was seen to have quite low self-esteem. She tended to worry about lots of things and when one worry is solved another replaces it. For example, she worried about doors being shut after an incident where she was locked in. She sometimes worried about her stomach making any bodily noises that made others laugh.
- In this way she worried about what other people think of her. She was seen as very dependent on adult support. But, she found it hard to express her worries and concerns.

Case example 1 / 2

A seven-year-old girl who was seen as 'slower in learning' but had not been identified as having SEN.

2

Lesson Study details

Lesson Study goals

In the Research Lesson the objective was for her to find words ending in 'est'. The teaching approach involved her working with a partner to use a word list to identify kinds of birds; she then had to write sentences to use 'est' words, use speech marks, and explain why a bird would be king of birds; she used prompt cards to help ask and answer relevant questions.

what helped learning from Lesson Study analysis

- She was visibly relaxed and smiled when she knew that she was working with her friend again. She was also engaged because she was interested in the subject (she had said 'I like animals'); she was confident to have a go and share ideas with a trusted friend.
- She was keen to use her knowledge of animals to help her; felt happier to use the "king of birds" sheet when she could do it with her partner.
- It helped her to stay focussed when the teacher used her favourite bird as an example during the whole class carpet teaching session. She was happy with her partner and enjoyed being able to share ideas with her. It was also important for her to have the teacher working with her group or available to check her work was correct.

3

Post LSfA summary

what helped learning

- Working with a partner helps her confidence, but it has to be a partner with whom she feels comfortable.
- Visual prompts helped her remember previous learning and tasks.
- Having a quiet classroom environment, familiar equipment and repetition enabled success and helped embed her learning.
- Modelling and being an active participant in the modelling.
- Continuous assessment during lesson.
- Visual prompts on the interactive white board and at her table.
- One to one support

what hinders learning

- Not sitting with a 'safe' friend or being asked to work alone
- Trying to remember previous learning and what the task is
- A noisy environment and 'silly boys' at her table

pupil strengths

- She had a very good general knowledge.
- She liked to support others and in doing so she was able to reinforce her own learning.

Case example 1 / 3

A seven-year-old girl who was seen as 'slower in learning' but had not been identified as having SEN.

pupil difficulties

- She was often very anxious and outside worries could prevent her from concentrating. She was also prone to daydreaming and found it hard to stay focussed.
- She forgot previous learning very quickly and struggled to remember her next steps.
- She needed constant reassurance.

4 Key insights from LSfA

- She had a very good general knowledge and liked to support others, in doing so she was able to reinforce her own learning.
- Seating was very important and she needed to sit next to a trusted friend who is of a similar ability to her so that they can support each other.
- She needed visual prompts and equipment to help her remember and focus her attention.
- She had a very weak memory and needed lots of repetition and visual prompts to help her remember previous learning and know what to do next.

5 LS teachers' perspectives on LSfA

- They organized the post-Research Lesson discussions immediately after the lesson.
- They started the Research Lessons at about 9 o'clock with two observers who then interviewed the two children. The post-lesson discussion took place after the break.
- They saw this as one of the most important parts of the process; the dialogue, questioning and jointly seeking answers and solving problems.
- 'We'd observed things that we could discuss that perhaps would be missed in the bigger picture ... the collaborative element, the dialogue and problem solving ... you're in a very strong position as an observer ... you notice every single thing that a child does during the lesson that a class teacher can't possibly do' (excerpts from interview of LS team).

Case example 2 / 1

A 15-year-old boy who had a Statement with a diagnosis of Down Syndrome.

1

Starting general assessment before LSfA

curriculum teaching
– facilitators

- Throughout Key Stage 3 he accessed a broad and balanced curriculum. He was in mixed ability group for English and ability set for Maths.
- He required curriculum differentiation in all subject areas.
- He worked at a slower pace and was working in a year group one year behind his age group.
- He did not participate in Modern and Foreign language and had a key worker, a teaching assistant in all his lessons.

curriculum teaching
– barriers

- He was considered to need a modified curriculum for Key Stage 4.
- Some staff relied on his teaching assistant for differentiation.
- He came from a separated family, spending weekends with his father. This could result in his occasional lack of organisation.

pupil strengths

- He had good fine motor skills; he had clear and legible writing.
- His health was generally fine.
- He was happy and cheerful around the school; self esteem seemed good. He was aware that he has Down Syndrome.
- Swimming, drama and Dr Who engaged his interest.
- He responded positively to praise and a supportive environment.
- He could recall his facts in English.
- His communication abilities varied depending on his confidence and who he was relating to.
- He was polite, friendly, had good interaction with a range of people and a good sense of humour.

pupil difficulties/needs

- He had difficulties with his knee function; experienced pain when walking long distances. He had problems with his joints which could cause difficulties; he had braces and also glasses.
- He was slow to move around due to the problems with his knees.
- He could suddenly become tearful, claiming injury or illness to gain attention from unwitting peers.
- He was often tired due to out of school activities and sometimes not punctual at the start of school day.
- He relied heavily on his teaching assistant for support.
- His reasoning was poor and his ability to articulate his ideas weak.

Case example 2 / 2

A 15-year-old boy who had a Statement with a diagnosis of Down Syndrome.

pupil difficulties / needs
/cont'd

- He was reluctant to work independently or within a group situation.
- He had difficulties in retaining information between lessons and over vacation periods.
- His expressive and receptive language was poor, especially with people with whom he was unfamiliar.
- Occasionally he had to be reminded not to be over physical (hugging) with other pupils.

2
Lesson Study details
Lesson Study goals

To work independently in a group and be able to choose adjectives to match the quote he chose; to recount the story plot and answer simple open-ended questions (why?); to choose words in creative writing and say 'why?'

what helped learning from
Lesson Study analysis

- Use of rewards and tokens – staff understanding their role in relation to the rewards and reading his visual cues accurately. Looking around did not always mean he needed help, just needed encouragement.
- The use of scaffolding grid with words and sentence starters.

3
Post LSfA summary
what helped learning

- Clear expectations about the work that he was expected to try to complete by himself.
- The use of rewards, e.g. counter, given for independent work.
- To have clear explanations of the work to be done.
- The use of scaffold sheet, e.g. sentence starters to start the activity or word banks to refer to.

what hinders learning

- The teacher and teaching assistant offering to help too early and not giving him enough strategies to use that engaged him in his learning. The signals from him when he was stuck were previously misread.
- Unclear instructions or too many instructions given at the same time.
- Too much support given too early.

pupil strengths

- He responded well to counter rewards for independent work.
- He was able to explain to the teaching assistant why he chose a particular word.

pupil difficulties

- He could still forget what he had done in the previous lesson.
- When he found it hard to explain in response to why questions, how language seemed to work sometimes.

Case example 2 / 3

A 15-year-old boy who had a Statement with a diagnosis of Down Syndrome.

4 Key insights from LSfA

- He had good relationships with adults and wanted to complete tasks, to achieve and get praise.
- He continued to have low levels of literacy and numeracy.
- Rewards support his learning as did scaffolded work specifically designed for him.
- He needed a range of strategies available to him to help with independent work, e.g. counters and word banks.

5 LS teachers' perspectives on LSfA

- LSfA was a very powerful way to have a rapid and high impact on his learning.
- It helped to understand needs in depth and make changes to teaching to address these needs.
- It also had a positive impact on the whole class.
- 'Working collaboratively with colleagues focused on students is an excellent way to improve practice'.
- 'The benefits outweigh the costs'
- 'I think collaborative working with two other colleagues has been invaluable for me, especially as a newly qualified teacher.'
- 'It was really good because the sharing of knowledge with a member of senior management team with 30 years experience – she came up with really good ideas'.

Case example 3 / 1

A seven-year-old boy: no SEN identification.

1

Starting general assessment before LSfA curriculum teaching – facilitators

- He responded well to praise and clear and repeated instructions with concrete props.
- Visual aids helped his learning too.
- Attention was required to where he sat and with whom.
- He reported that using the sound chart and his number line helped him learn.

curriculum teaching – barriers

- There were attendance problems (traumatic death of uncle a year ago had affected him).
- He reported that learning was hard for him when others talked in class and distracted him.

pupil strengths

- He reported that he liked doing PE and sport at school as well as working with his friends in class.
- His teachers saw him as competitive.
- His numeracy was an area of strength.

pupil difficulties/needs

- He was easily distracted and often liked to act the ‘clown’.
- He had been seen copying other children’s work.
- His literacy and phonics were continuing issues for him (he reported this too); this was associated with difficulty in hearing.
- His memory was inconsistent / erratic (he needed some consolidation time)

2

Lesson Study details
Lesson Study goals

numeracy

- To be able to collect data and record it in a simple table independently; to be able to organise data and add up the totals; to be able to present the collected results in a simple bar graph; to be able to label a graph accurately

literacy

- To be able to construct three sentences together; to use full stops and capital letters in a sentence.
- To be able to finish off a sentence given to him by the teacher; to be able to correct a sentence using the correct punctuation.

Case example 3 / 2

A seven-year-old boy: no SEN identification.

what helped learning from
Lesson Study analysis

numeracy

- Questioning kept him engaged.
- Linking to a Dinosaur topic.
- Quick pace of lesson.
- Clear demonstration from teacher completing the graph in front of the class, Reminder to use hundred square to help with numbers.
- Labels on board for him to copy.

literacy

- Working with support helped him.
- Talking about his news first helped him to know what to write about.
- He struggled when the title was removed from the board.
- Constant reminders about where full stops go in a sentence; Answering lots of questions verbally before writing.
- Putting actions to each sentence to emphasise where full stops and capital letters go.
- Completing some examples as group before writing independently.
- Using lots of words in each sentence that he could phonetically sound out.
- It helped his confidence working in a smaller group with children of similar ability. Also using words in each sentence that he could sound out improved his understanding and ability to read independently.

3
Post LSfA summary
what helped learning

in literacy

- Being taught in a smaller focussed group, with minimal distractions.
- Praise for specific achievement to support his self esteem.
- Repetition of clear instructions and expectations.
- Being encouraged to read at home.

in numeracy

- Resources already on the table.
- Clear instructions repeated before each task so he understands what is expected and what he is to do.
- Use of praise.
- Use of writing frame made up for him when writing up conclusions.

Case example 3 / 3

A seven-year-old boy: no SEN identification.

what hindered learning

- Having to read out in front of a large group in class.
- Distractions in class (he needed to be supported to be able to ask others not to distract him).
- In numeracy: too much writing in a word problem.

pupil strengths

- Motivated by praise and being supported that he can succeed and achieve.
- Clear direction and boundaries of timescales
- There were no concerns about his cognitive functioning.
- He clearly enjoys numeracy and was quick in his mental arithmetic.
- In literacy he showed that he was keen to please the teacher.

pupil difficulties

- He became embarrassed about his writing and reading abilities if shown up in class (as a popular boy and very able at sports)
- He received some support from his peers in class, which concealed some of his difficulties in learning.
- He struggled to read in numeracy and so word problems were challenging.

5 LS teachers' perspectives on LSfA

starting level

- slow progress in both reading and writing
- struggled with phonics
- attendance issues
- Inability to grasp simple concepts

observation during LS

- very reliant on other children to complete written work or when reading instructions
- very fidgety and aware of everything going on around him
- showed a confidence in Maths but more reluctant in English; lots of avoidance tactics

steps taken

- pencil gripper to aid hand position when writing.
- direct questioning during literacy activities.
- fewer written instructions
- task/instructions repeated when leaving the carpet.

end result

- able to work with more independence.
- confidence in literacy grew and able to complete more work in given time – writing templates modified.

Principles and research

Background, rationale and principles

Lesson Study (LS) has been used successfully as a systematic professional learning approach that enhanced teachers' knowledge and their use of teaching strategies for pupils with MLD (The MLD – Lesson Study project – Ylonen and Norwich, 2012; Norwich and Ylonen, 2012). These teaching developments were also associated with positive pupil outcomes (Ylonen and Norwich, 2012a; Norwich and Ylonen, 2012; Norwich and Jones, 2014). This project involved an application of LS as a professional learning method to a novel area of teaching and learning focused on pupils with MLD. The use of LS was broadly similar to that used originally in Japan, as it has been adopted internationally in the Far East (Takahashi and Yashida 2004) in North America (Lewis, 2004) and used recently in the UK (Dudley, 2004; NCSL, 2005; Elliott, 2009).

Research in the MLD project showed that the method helped teachers to better understand the needs of pupils with MLD (Ylonen and Norwich, 2012b). Some participating teachers also concluded from this that LS could also be relevant to a 'diagnostic' assessment of pupils' learning needs. From this came the idea that, as LS procedures involve the observational assessment of learning in response to planned teaching in a classroom context, it could be adapted to act as an appropriate procedure for a 'response to teaching' or systematic formative approach to assessment.

The Lesson Study methodology that originated in Japan over 100 years ago focuses on teacher collaboration, in the form of a Lesson Study team, which examines and develops a series of lessons on a chosen topic with specific goals. It is a form of practice research in the sense that pedagogic questions are addressed through the planning and teaching of the lessons. The topic of the Lesson Study and the learning aims of the lessons are chosen by the team undertaking the Lesson Study, which, in addition to the teacher of the Research Lessons, can include other class teachers, specialist teachers such as SEN coordinators, teaching assistants and senior leaders.

In the UK Lesson Study (Dudley 2004), a Lesson Study cycle consists of three Research Lessons which are jointly planned and directly observed by the team. In this version (there are other versions too) the Lesson Study team identifies one to two pupils to focus the planning and evaluation – the case pupils, who are identified depending on the topic and aims of the Study; in the MLD LS project these were pupils with identified MLD. Pupils' views about the lessons and their learning are also an important part of the Lesson Study cycle. Lesson planning is informed by evaluation of the previous lesson as well as ideas and strategies that derive from professional knowledge, research and theory. In this way Lesson Study provides the means of bringing research, theory and practice into the planning and evaluation of specific lessons.

The LS process is seen to encourage risk-taking and learning from what works as well as does not work. The aim of the Lesson Study is not therefore

to construct a perfect lesson, but to increase participants' understanding of how pupils' learning can be improved – in other words, what works and why. This includes improving professional learning of the participants in the LS team (Dudley 2012).

How Lesson Study can be used for assessment purposes

The key features of Lesson Study (LS) that lend themselves to a novel assessment approach are:

- its collaborative model of planning, doing and reviewing a short sequence of specific lessons in terms of pupil learning (three Research Lessons make up a LS cycle)
- its focus on the learning of specific pupils (case pupils) enables a depth of observational assessment and analysis of pupil and learning environment (pupil's strengths and difficulties as well as contextual supports and barriers)
- a collaboration that can bring together and integrate different assessment perspectives and knowledge bases: from a class teacher, SEN teacher, such as a SEN coordinator, a teaching assistant as well as an outside professionals, such as specialist teachers and educational psychologist.
- the review and planning can also take account of the pupil's perspective.

In the usual LS design, the monitoring and review of learning, through formative assessment, is used to adapt teaching, with teaching knowledge and methods as the outcome. In the assessment driven use of Lesson Study, variations in teaching are used to derive ideas about the pupil's learning characteristics and needs.

It is useful to think about two dimensions of assessment to characterise this assessment by response to teaching (ART) approach:

- **Assessment context:** individual withdrawal versus class lesson
Assessments can be done in a classroom context during or at the end of a period of teaching and learning OR by the withdrawal of a pupil to an individual assessment setting.
- **Assessment method:** static (unassisted) versus dynamic (assisted)
Static assessments involve administering tasks to examine how well the pupil does on these tasks. The focus here is only on learner performance and attainments. By contrast, dynamic assessment involves monitoring how well a pupil responds to teaching a challenging task; the dual focus is on the degree of learning gain in relation to the kinds of teaching that support this gain.

Much educational assessment is of the static kind, either in a whole class-teaching context or by withdrawal to enable more intensive assessment of individual attainments. Though there has been much interest in dynamic

Two dimensions of assessment underlying the 'assessment by response to teaching' model

assessment method	context of assessment	
	individual withdrawal	class teaching
static	assessment of individual curriculum attainments, eg Neale Assessment of Reading Test	assessment of curriculum attainments in class teaching context
dynamic	'Response to teaching assessment' to non curriculum tasks, eg Feuerstein Learning Potential Assessment Device	response to teaching in class teaching context This is the LSfA kind of assessment

assessment as a way of interactively assessing learner needs in terms of pupil responses to varied teaching approaches, these approaches are not widely used. Dynamic assessment is thought to be able to provide insights into the unique nature of individual learning and so enable teachers to design individually tailored interventions (Campione and Brown, 1987).

Dynamic assessment methods are also related to what is called response to instruction (RTI) methods of assessing special educational needs (Vaughn and Fuchs, 2003). These are based on an interactive model of learning difficulties that assumes that difficulties arise from the interaction of child and contextual factors, such as the quality of teaching and learning environment. This model implies that assessment is not just about what a pupil can/cannot do, but also what s/he can/cannot do in response to varied and relevant teaching approaches, based on the Vygotskian idea of the zone of proximal development (Vygotsky, 1978).

However, current dynamic assessment methods have tended to focus on intellectual abilities and involved individual withdrawal by educational psychologists (Elliott, 2003) or speech and language therapists (Hasan and Joffe, 2007). There have not been attempts to develop such interactive assessment strategies for teachers to use in classroom contexts. Though Laughlan and Carrington (2013) have developed a classroom resource for using dynamic assessment to improve learning, this is for use by educational psychologists, not by class teachers themselves.

The model described here was developed using a Design Based research trial with six Lesson Study teams (three in primary and three in secondary schools). The booklet is the product of this trial. Details of the findings from this trial will be published in a future paper.

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