

How the use of starters affects the level of pupil engagement in secondary schools

	Target	What I have done in this assignment.
Target 1	Use larger number of texts	I have referenced from a wide range of resources – government websites, books, journals and the internet. I have also used recommended reading texts provided from the university.
Target 2	Support arguments through reading	I have synthesised my writing to reflect my reading throughout the assignment.

This research project is looking at the level of engagement from the use of starter activities, in a secondary school setting. My research partner and I chose this research activity as we wanted to ensure students were engaged as much as possible in lessons. During my time at PTE1 it became apparent that engagement levels were not as high as they could be.

The reason regarding the focus on engagement is due to the fact that my PTE1 school is in an area of low-income households. Estyn (2016) reports 23.3% of pupils are eligible for free school meals which is above the average of 17.4%. In addition to this 41% of the pupils live in the 20% most deprived areas of Wales. Dillon and Maguire (2011) express that statistics indicate young people from poorer economic backgrounds (and those on free school meals) achieve lower academic results than those from more affluent backgrounds.

In my taught lessons, my structure had always been a starter, main task and then a plenary. Occasionally, due to lesson topics running into two, three or maybe even four lessons, a starter didn't always seem necessary as we'd just be continuing with the previous lessons content.

I discussed this with my research partner, and he mentioned that due to the structure of his subject of science, a starter was always a good opener for his students. So collaboratively we chose the ideas of starters as a topic. Then we discussed what measurement from the starters we wanted to look at. After some discussion for the use of starters and their benefits, we decided on focusing our research towards the effects on the level of pupil engagement

with the use of starters. The class my research partner observed me in was a year 7 computer science lesson. I subsequently observed his year 7 physics lesson the same day. We had merged my experiences of the lack of engagement levels in the school and the use of starters together, to attain our research title: How the use of starters affects the level of pupil engagement in secondary schools.

I looked further into this topic by researching relevant literature. Brown (2009) says that the first few minutes of a lesson are hugely important. In the five to ten minutes at the start of a lesson, students can be either 'switched on' and hooked into the lesson or glazed over and 'zone out'. She continues by saying students can get a clear idea of what to expect from the lesson and the teacher, otherwise they could start the main activity confused. Building on this, the Department for Education and Skills (2004) states 'effective teachers make good use of starters and plenaries in the context of interactive whole-class teaching' and therefore engage the pupils into constructive deep learning. This idea complements the research project nicely. It continues to state that successful starters tend to be most effective when they engage all pupils, establish pace and provide challenge (2004). In addition to this Mortimore et al. (1988) concluded that the key classroom factors contributing to effective outcomes were structured sessions, intellectually challenging teaching, a work-orientated environment, communication between teacher and pupils and a focus within the sessions. This is essentially what a starter aims to achieve.

The research topic focuses on pupil engagement and the Department for Education and Skills (2004) declares there are several factors that affect engagement from starter activities. Some of these are that the activity should not outlast the concentration span of the pupils. It should also be accessible to all or most pupils which can 'hook' their interest in the topic or subject. One way that this could be incorporated is adding an element of mystery, curiosity or novelty into the starter activity. This of course only happens when the teachers are fully committed to teaching their subject. As such, Hattie (2009:22) states 'the biggest effects on student learning occur when teachers become learners of their own teaching.'

Rosenshine (2012, p.12) has mentioned ten principles of instruction for teachers. The first 3 are:

1. Begin a lesson with a short review of previous learning.
2. Present new material in small steps with student practice after each step.
3. Ask a large number of questions and check the responses of all students.

As such Rosenshine (2012) has outlined what a starter should encompass. The first point is relevant to the research study, where he continues by saying 'review can help us strengthen the connections among the material we have learnt', which can then engage the pupil in the lesson. In addition to this, Wallace and Kirkman (2012) mention that using your starter as a

recap is common sense, as it can target the forgetful ones who may need reminding of the concepts covered already or even those who were not 100% at the end of the previous lesson.

The Welsh Government (2010) have also accepted that activating prior skills, knowledge and understanding to be able to link and reflect on previous knowledge is vital. They call this 'dynamic topic starters' where learners are asked in advance to find out one thing relevant to the topic to share with the class. Ideas are then placed on a display, grouped in a logical way, with each learner justifying their choice of idea/ position on the display. In addition to this the teacher brings one idea to the wall, but in this case, it is not immediately obvious what the link is to the main topic. In this respect, some cognitive conflict can also be generated as learners look to develop links/consistent arguments between items. This strategy encourages learners to think 'outside the box' and be adventurous in their thinking about a new topic. It is a very interesting idea as it allows all pupils to participate and enhance engagement for the lesson.

Conversely, if a starter is not performed correctly there can be some inherent difficulties. Butt (2008) mentions a few different issues with starters. His first problem is that if it takes too much time, it could destroy the pace and direction of the lesson which when we link it back to the research project may not help with pupil engagement. Tied in with this, Butt (2008) continues by mentioning if there is no clear learning objective and the starter does not suit all abilities of students this could also cause engagement issues. Importantly he mentions that starter activities could become a routine and a predictable activity, which in theory might decrease overall engagement.

Linking back to Wallace and Kirkman (2012), they said that pupils' ability to engage in learning is also influenced by their emotional state. Furthermore, engagement is maximised in high-challenge, low-stress situations, which is further emphasised by Butt (2008) who states it's therefore important to plan starters that all students feel they can engage with and make some contribution towards. Kidd and Czerniawski (2011:100) add to this by confirming 'starters need to be as meaningful as possible and also need to capture everyone's attention.'

From this reading it is evident from the literature that having a good starter is important to the pupil's ability to recall previous knowledge and increase their engagement. However, if not utilised correctly it could have the opposite effect.

The methodology used, is lesson study research, which is a form of action research. Lesson study research methodology 'is a highly specified form of classroom action research focusing on the development of teacher practice knowledge' (Dudley, 2014:1). The research method was developed in Japan and is now used all over the world. Dudley (2014) mentions

that lesson study has been successful in the UK to improve teaching techniques and pupil progress with the aim to develop pedagogic approaches such as assessment for learning (AfL). This is why my research partner and I chose to look at starters and engagement – we wanted to see engagement levels increasing with the use of a starter. Validating our research proposal, Godfrey et. al (2018) mentions that lesson study has now emerged as a global race of countries seeking to increase pupil attainment. As the main source of bringing lesson study to the UK, Dudley (2014) says a lesson study cycle has a pair or small group of teachers looking at data gathered from day to day periodic assessment to agree a focus for pupil learning and progress. Then those teachers develop or improve those needs by identifying roughly three pupils in the class to observe. Subsequently they plan a research lesson looking at their research proposal and keep a close eye on the observed pupils.

The method of data collection used is non-participant observation, where my research partner and I will be observing from a distance and making notes, where the starter activity is the focus. Importantly, going into a school to conduct research, meant not disturbing the classroom environment and therefore this is why an observation approach has been utilised. The task was to observe naturally in the school setting and this type of research is known as naturalistic observation. Arthur et al. (2012) states that one type of naturalistic observation is known as non-reactive observation, where researchers avoid intervening whilst observing. This is also known as non-participant observation. Encyclopedia.com (2019) mentions that this method is sometimes criticised due to the fact the people being observed may act differently, which would invalidate the data.

To record the data, I adopted and tweaked the Leuven Scale (appendix 5). The scale was developed by Ferre Leavers at the Leuven University in Belgium. Wainwright et. al (2018) states the Leaven Scale uses a five-point score based on a set of observed behaviour or signals. There are 2 scales, one for well-being and the other for involvement. The involvement scale is shown below in Fig 1.

The Leuven Scale for Involvement

Level	Well-being	Signals
1	Extremely low	Activity is simple, repetitive and passive. The child seems absent and displays no energy. They may stare into space or look around to see what others are doing.
2	Low	Frequently interrupted activity. The child will be engaged in the activity for some of the time they are observed, but there will be moments of non-activity when they will stare into space, or be distracted by what is going on around.
3	Moderate	Mainly continuous activity. The child is busy with the activity but at a fairly routine level and there are few signs of real involvement. They make some progress with what they are doing but don't show much energy and concentration and can be easily distracted.
4	High	Continuous activity with intense moments. They child's activity has intense moments and at all times they seem involved. They are not easily distracted.
5	Extremely high	The child shows continuous and intense activity revealing the greatest involvement. They are concentrated, creative, energetic and persistent throughout nearly all the observed period.

Fig 1.

To adapt the scale to our research, my research partner and I kept the 'level' and 'well-being' categories the same (appendix 5). We adapted the 'signals' category and split them up into sub-categories. This was done to make the observation easier and further distinguishable. The benefit of doing this was, in such a fast-paced environment where a lesson starter is between 5-10 minutes, noticing minute details are very important and therefore our sub-categorised scale made much more sense as it became easier to differentiate the signals of the pupils being observed. The observation sheet used, with the modified scale can be found in the appendices.

After the lesson has concluded, semi-structured interviews with model questions will be conducted with the selected 3 pupils. The semi-structured interviews involve 8 questions which are to be asked directly after the lesson has finished. This was to ensure students had a fresh recollection of the events of the lesson, especially focusing on the starter activity. Sticking with the aforementioned lesson plan methodology, my research partner and I decided on 3 pupils to be observed, but from different levels of ability. From each of our 3 pupils chosen, one was a MAT (more able and talented) pupil, one middle ability pupil and one lower ability pupil. This was done to see the differing levels of engagement from the starter to each different ability pupil. Pupils were chosen by the main subject teacher and not by us as to ensure there was no observer bias. I wanted qualitative data as I aspired to see as to why the pupils were engaged more than others, but more importantly their reasons behind it. I felt with research about engagement in such a small sample, qualitative information would provide much more quality insight to the research question than numerical data.

After both lessons have been taught, reflection will be conducted by using the ARC Reflective Model (Fig 2) and linking to relevant theorists. The ARC model incorporates theories from many well-established authors, but uniquely incorporates them into a single model. This model has been used in previous assignments.

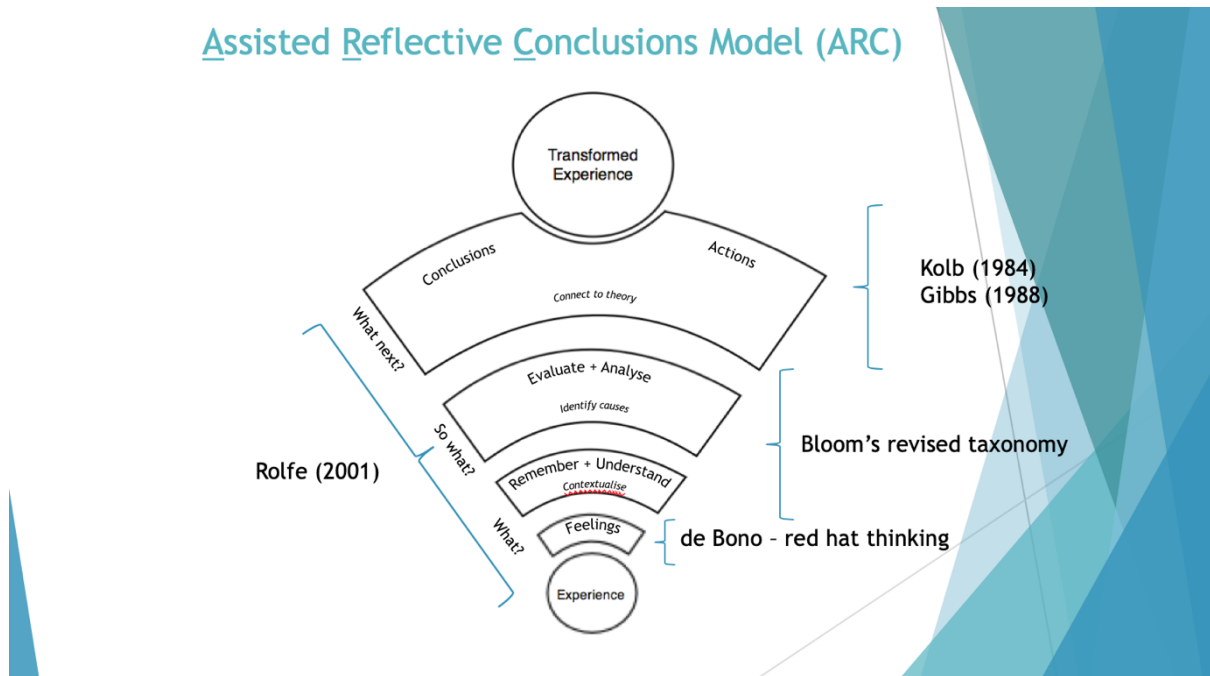


Fig 2.

Donaldson (2015:71) in *Successful Futures* mentions sound pedagogy '...requires high-quality teachers with a sound understanding of the 'why' and 'how' of teaching as well as 'what'. The ARC model does this by remembering the experience, reflecting on the feelings of said experience, the context of the experience, evaluation and analysis and finishing off with conclusions and next steps and actions. This will allow me to evaluate my findings and move forward in understanding pupil engagement.

There are ethical considerations that need to be considered when performing research in a classroom. As the pupils are minors, consent forms will be given to those who are selected for the research. With the consent form is an information sheet explaining to the parents what my research partner and I wish to conduct. Forms will be given to 5 pupils selected by the subject teacher as mentioned before but only 3 will be used for the study. This is to accommodate for any student absences on the day of the lesson study. In addition to this, GDPR is now ever more important since it came into force as of 25 May 2018 and BERA (2018) states that citizens are entitled to know how and why their personal data is being stored. Also, that researchers must have participants' explicit permission if their data is being shared. As such, the information sheet states data can be requested on any findings and will

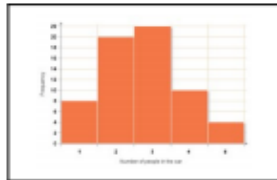
be stored on encrypted cloud storage. Once the research has been marked, all raw data will be destroyed. A note to point out is that the study is completely voluntary, and the pupil can withdraw at any time. I feel this is important as unknown circumstances can arise at any point and to be ethical and understanding to any human or animal is very important.

My research partner and I were fortunate enough to conduct the research on a single day. This meant that everything was fresh in our heads and other external variables were kept at bay. My lesson was first thing in the morning and as such we both went straight to the classroom to set up. Myself to set up the class ready for the starter as soon as the pupils walk through the door, and my research partner to set himself up in a corner to observe and take notes using our pre-prepared Leuven Scale observation sheet. Both observed lessons were year 7 classes. This was not done intentionally, but it's just how the lessons fell in our respective teaching timetables. My teaching lesson was computer science. I had taught the class many times before and the topic the class were advancing was creating an interactive quiz using Microsoft Excel and editing pictures for said quiz using a photo editing software called GIMP. This lesson was an additional lesson for the pupils to ensure all their pictures were edited and saved correctly ready to insert into the interactive quiz and therefore the lesson plan was the same as the previous lesson. However, as it was a new lesson, I didn't want to do the same starter again as to ensure the pupils don't get bored and zone out which is what Brown (2009) mentioned previously. Therefore, I gave them this starter to do on Microsoft Word where they have to use shapes (lines) to match the boxes.

Excel Starter

Name: _____

Draw a line to connect each pair of boxes



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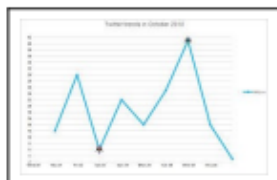
Column

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Addition

Division

Subtraction

Multiplication

Cell Reference

Pie Chart

Line Chart

Bar Chart

Goes down the page

Goes across the page

The task was pretty simple and something most students would be able to complete in a short period of time. Appendix 1 shows the notes taken from my research partner. The first 3 minutes are the beginning of the starter, the next 3 minutes are the middle of the starter and the last 3 minutes are the end of the starter. This was done so we could see the ranges of engagement throughout the starter activity. Pupil 1 is the middle attainer and you can see that the levels of engagement are very good to excellent. There is absolute focus and concentration without interruption. Throughout the starter the pupil actually converses with others, but it's in relation to the task in hand and not by distraction. There is good learning and engagement in the task, and her scores were 4A and 5A. Pupil 2 is the lower attainer. I recall the pupil coming in late and therefore had to be paired with another pupil as there were not enough computers for everyone. As such the pupils focus was on others around

the room scoring a 2B. It was noted that towards the end of the starter the pupil's actions were superficial and the task was unfinished. What was interesting to see was that the pupil knew the answers verbally. Pupil 3 is the MAT pupil or the higher attainer. Interestingly this pupil did not even open the starter until the end. He was very distracted within the first 6 minutes and was seen browsing the internet and off task, as such, scoring a very low 1B. The last 3 minutes of the starter was where the pupil was focused and engaged, jumping straight to 4A (engaged in the activity with no interruption). It seemed the starter was too easy for the pupil and hence there was a lack of engagement.

Throughout the lesson the pupils worked well and after the lesson finished, we took the pupils to the staff room to be interviewed as a group. With the 8 questions asked to them (appendix 2), they had all done starters before. What was interesting to see was the boys preferred the numeracy-based starters while the girl liked the English and comprehension starter styles. This was similar when asked if starters can settle a class. The pupils enjoyed the starter and understood that it was used to start the lesson and to get them warmed up. The MAT student liked having the starter on the board ready to go and mentioned having the computer 'file path' to the work, helps him. This seemed strange as he only started the work with only a few minutes to go. Notably all pupils mentioned starters sometimes take too much time, where they could be doing other work or something more relevant. This is what Butt (2008) mentions specifically where he says if a starter takes too long, it could destroy the pace and direction of the lesson. Towards the end of the interview we asked if they would like to add anything further and it was only the MAT pupil who said starters can get pointless however conceded that it activates prior knowledge.

The Assisted Reflective Conclusions (ARC) model completed by my research partner shows that a starter isn't for everyone. It is good fit for 'most' however the higher and lower ability don't seem to get too much out of it. This is due to boredom for the MAT pupil and distraction from the lower ability pupil. I feel the starter was relevant to the class and subject topic. A starter is used to activate prior knowledge, and this is what my starter did, by using different applications (Word) to complete knowledge on other applications (Excel and GIMP). The starter could be improved by adding an element of differentiation to ensure all pupils are appropriately challenged.

The second research lesson was just after lunch in the science block. My research partner set up his lesson and then pupils started to flow in after their lunch break. The starter was about 'energy transfers' where a question was put on the interactive whiteboard at the front of the classroom and the pupils who were put into pairs, wrote their answers down on a mini whiteboard. Each answer would be peer or teacher explained, before moving onto the next question.

Just like my lesson study, I also observed a MAT, middle ability and lower ability pupil. Pupil 1 was the MAT and as you can see from appendix 3, overall, she was concentrating in the task. However, there were moments of fidgeting and superficial attention. The task seemed too easy for the pupil and she was unchallenged which resulted in her playing with her hair. On our adapted Leuven Scale, she ranged from 3E to 4B which is overall a 'high' level of engagement. The middle attainer was a boy and what was interesting to see was when there was an element of mathematics in the question, initially he was challenged but he activated prior knowledge from his mathematics lesson to answer correctly. He was very happy about this and informed the teacher of how he came to this answer. You could see the pupil was putting in effort into the starter and that he was suitably challenged. He remained on task throughout but did initially give up slightly when the question was too hard. The final pupil observed was the lower attaining pupil who as soon as she sat down started daydreaming. In this scenario she was actually in a group of 3 and in the first three minutes I scored her a 1A on our scale – no concentration: staring, daydreaming. She basically left the work to the other pair and was not engaged in the lesson at all. Throughout the task she proceeded to stare at the board and occasionally glance over at the other pairs work. It became evident that the student had given up and had no interest at all in the activity. There were consistent blank stares throughout the activity.

During the group interview after the lesson, all pupils mentioned that they liked the mini whiteboard starters. They all knew that the starter was used to get ready for the lesson. What was interesting however was just like before with the pupils from lesson study 1, the girls mentioned that they don't like numeracy, but they do like finding mistakes in writing, or as before – literacy. Also, a note to mention was that the MAT pupil liked having a starter on the board ready to go whereas the other 2 didn't really have a preference. In regard to engagement all 3 pupils said that starters helped settle a class, so they are focused on the main part of the lesson. Finally, the MAT student mentioned starters work better when students are sat down.

The lesson after the starter was quite productive. My research partner got through most of the lesson and students were understanding his theories and concepts. But similar to lesson study 1, boys preferred the numerical aspect of the starters where girls enjoyed the English and comprehension tasks. Comparable to lesson study 1 was also the need for differentiation in the starter. With the MAT pupils getting bored and disengaged, some sort of differentiation is needed to keep them challenged. My ARC reflection states using different starters each lesson also ensures pupils don't get complacent and again, bored.

Understanding the 2 lesson studies shows that I need to modify my research. I now need to delve deeper in making different starters for different ability students. Or if not different

starters then at least some sort of extension for the students who would feel completing the starter would be beneath their intelligence. Also, to make this research more conclusive I feel a much bigger sample is required. Three pupils per class is a good number to observe but basing reflections and conclusions on two lesson studies is not comprehensive enough to make an informed decision. I am seeing a trend in the lesson studies about differentiation, but adding more lessons to the research would enable me to gain an in-depth qualitative analysis of exactly what needs to be done next to enable pupil engagement across the board.

What this means for my class in particular is that the starter is now a routine that the pupils expect. They understand the theory behind it and why it is done. The MAT pupils need to be pushed harder and farther to keep them engaged. This links back to literature from Butt (2008) mentioned earlier about if the starter does not suit all abilities, it can cause engagement issues. However, this shouldn't mean that they have the excuse not to complete the starter just because it may be too easy for them. The starter is an inclusion teaching technique where all pupils do the same work. MAT students should not be receiving special treatment of some sort. What they could do is help those around them. Peer teaching would be very beneficial in regard to a starter and this was evident from pupil 1 from my lesson study, where she was conversing but actually, she was helping others around her. The Department for Education (2010) mentions knowing as much as possible about the case pupils to be observed and where they are learning is really important. This is so the observers can start each observation as if 'zooming in' on the case pupil and then 'panning back' to allow the whole class to come into the frame. This is something my research partner and I did not do, as we did not have the time due to teaching and timetable responsibilities. A limitation I found is that the interviews were done together as a group. While lesson study theory suggests this is standard, whilst interviewing the two sets of case pupils some of the pupils just agreed with the others. This meant that the responses and comments made by those particular pupils may not be reliable or accurate, potentially because of peer pressure or even from sounding unintelligent. This then darkens the validity of those responses which is linked to what Encyclopaedia.com (2019) mentions earlier in this paper. Participant selection was another limitation of our lesson study, as unfortunately the lessons observed were both year 7 classes and as such there was no change in age of the students. In one way this meant the lesson study was good as we could analyse the data in regard to KS3, however it could be more interesting to see how the findings may change while moving through the age and Key Stage range. It may have been possible to gain deeper understanding of data which may change engagement levels throughout the secondary school lifetime of a pupil. This is potentially something I could do if I tweak and repeat the lesson study at a later date.

Another thing that could be rectified is the lesson structure for the case pupils. In my lesson pupil 2 did not have his own computer due to lateness and therefore could have potentially skewed engagement figures. Subsequently in lesson 2, pupil 3 is in a group of 3 rather than in pairs, which also could skew engagement results. What is important to take away from here is to keep fluctuating variables to a minimum. It is difficult of course in a classroom as so many variables are in flux, but next time if I want undeniable results, I need to incorporate this into my lesson study planning.

Furthermore, I did not pilot any of the methods beforehand to ensure they were correct and able to manage to catch what I wanted to find out. This didn't hinder me as much, as the questioning from the interviews was pretty straight forward. However, the questions could have been slightly more open which would have meant a more comprehensive answer. I did keep the structure of the interview semi-formal, as I needed to ensure the questioning was relevant to engagement as well as to allow the discussion to be open to be able to gain a deeper insight. But again, with both lesson studies focusing on year 7's it made responses slightly constricted as the pupils did feel ever so slightly awkward being in an interview, knowing they had just been observed. Using my teacher experience, it is evident that as the pupil grows older, they develop a confidence in talking with teachers rather than the shy and awkwardness year 7 pupils possess.

For the next school experience if I were to do a lesson study again, I would definitely spend more time analysing the different variables in play. Mainly this would be to increase the lesson sample size in the study, adding more ranges of age, as well as employing an individual interview rather than a group interview. All these three changes would allow for a more insightful and deeper understanding of my lesson study and therefore would make enhanced insights to engagement which would ultimately allow me to be a better teacher by being able to adapt my teaching to be accessible and engaging to all.

For those conducting lesson studies in the future, sharing the best practice would be to know the pupils beforehand. I feel this is of the utmost importance as understanding the case pupils is vital to determine engagement levels. Without knowing them pre-hand it is difficult to determine if their actual levels of engagement have increased or not.

To conclude my lesson study, I found that the use of starters increased engagement overall. It settled the class and the pupils expect a starter to open the topic and to activate previous knowledge. The only issue is that it doesn't increase engagement for everyone. MAT pupils need to be challenged further in ways of an extension task and the lower ability need 'scaffolding' to help them access the learning, therefore increasing engagement organically.

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Fig 1. Leuven Scale. Available at: <https://www.tes.com/teaching-resource/well-being-and-involvement-leuven-scale-6340990> (Accessed: 18th February 2020).

Fig 2. Adopted from university lecture presentation.

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