

How can low stakes quizzing encourage students to set their own personal targets for learning?

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	Targed/Target	Yr hyn yr wyf wedi'i wneud yn yr aseiniad hwn. What I have done in this assignment.
Targed/Target 1	Use Harvard referencing correctly	
Targed/Target 2	Engage more deeply with literature	
Targed/Target 3	Be more critical in writing	

In the *Successful Futures Curriculum* by Donaldson a stress is put on encouraging students to become ambitious and capable learners (Donaldson, 2015). In order to achieve this one thing teachers must strive for is to impart the skills on how to revise independently. To get students to revise properly they must be able to set their own targets to work towards during independent revision. It was noted at the placement school that students regularly mentioned they felt they did not know what targets to strive for when studying on their own. In many classes students underwent regular short quizzes that were meant to be review of the class material. Thus the question developed of how these low stakes quizzes - or LSQ - could be used by students to develop their independent revision goals.

This study was carried out among three different classrooms taught by three different teachers. A year nine science class, a year nine mathematics class, and a year eight english class were the classes observed for this study. The three researchers discussed how they used low stakes quizzing in their classrooms and how they felt it helped students to set their independent revision targets. After some discussion the research question was developed as "How can low stakes quizzing encourage students to set their own personal targets for learning?" This question links to independent revision and classroom based revision as students can use low stakes quizzes as a way to set their home revision goals, while using the low stakes quiz in class to have a quick review before the lesson starts.

Research suggests that one of the many reasons why students do not study is that they simply do not know how to study (Bishop, 1989). This inability to set goals for studying and methods for studying can affect class performance. As such it is important to look at literature on why low stakes quizzing can be a tool for teachers to provide revision material to students in a quick and simple way.

The basis behind low stakes quizzes at the school the research was conducted is based on theories from Barak Rosenshine. One of his main principles that he believes should be used in daily teaching practice is daily review in the classroom. This daily review is for recalling previously learned knowledge and having a use for it. (Smolen, Zhang, and Byrne, 2016) This review can be implemented in a variety of ways, with just one of those ways being low stakes quizzes. Using daily review can help solidify new information via spaced time repetition. (Kapicke and Roediger, 2007).

Having goals is a huge step in performing effective revision.(Excel in Exams, 2015) When having a target to work towards, it is easier for a student to see the end goal and reason behind why they are studying. There are two forms of targets that can be set,

short-term goals, and long-term goals. Both of these are effective in giving more importance to the revision a student does on their own.

Some critics of low stakes quizzing question if it is actually less stressful for students. Student wellbeing is a large focus of the new curriculum for Wales and it should be at the forefront of teaching practice. (Donaldson, 2015) This means that it is crucial to make sure that these quizzes will not add to the stress of students in the classroom. When a student has an academic setback there are often spikes in stress hormone levels showing that there are physical side effects to a student feeling as though they have underachieved. (Lee et al, 2018)

Low stakes quizzing has had particular success in the Michaela School in London (Birbalsingh, 2016). This school uses low stakes quizzes to its advantage to give a reason for students to study daily. Because students have low stakes quizzes regularly at this school, they strive to perform well on them and study for these small quizzes. The students use these quizzes as a goal setting method for their revision targets. The use of low stakes quizzes at the Michaela School was instrumental in informing this research question as it provided a school where this revision method had found success.

Another advantage that low stakes quizzes have is that they are a way for students who do not have an ideal studying environment at home to revise. Even if these students are unable to study at home, they can feel as though they will achieve some revision in the classroom when these quizzes are given. (Birbalsingh, 2016) Even though it may be minimal study, it allows students to have some stability in knowing that they will have multiple chances to see a certain topic. Disaffected pupils also benefit from having a more rigid revision structure. This is possibly because having a framework for revision allows them to feel more motivated and more sure of their actions. (Cooper, 1993)

Independent learning is a goal that the new curriculum in Wales is striving for. Having educated citizens informed about the world around them makes for a healthier society. Having students who can study independently has far reaching benefits. Students who know how to revise may be more likely to study topics outside of school. Studying a variety of topics past the age of mandated education has positive effects on the brain and health as well as benefiting everyone in society. (Stephenson, 2010)

To perform this research the method of lesson study was used. This method was developed in Japan and has been used as far back as the 1870s (Dudley, 2014) This form of study uses teacher collaboration to improve their teaching practice via observation. Lesson study is one form of what is known as *Action Research*. Action research is a form of research in which the researchers are also participants in the research that is being

conducted. In the case of the lesson study, one of the researchers will teach a lesson that is being observed for the research (Reason and Bradbury, 2012).

After formulating a question to inform the research, the first step in a lesson study is for the teachers to plan a lesson around the research question. Using this time to help predict how the students will respond to the factor that is being investigated. This lesson plan is then implemented by one of the teachers while their colleagues observe the lesson. This cyclical method is essential to the success of the lesson study and makes it a form of research that can be carried out indefinitely if desired (Ming and Wong, 2014).

During this lesson observation three case study pupils are chosen to be the focus subjects of the observation. In a non-participant study manner the observer will note the behaviour of these pupils at key points using a Leuven Scale adapted for secondary school use. This Leuven Scale also has an area for comments to write about the behaviour of the students (Laeyers and Heylen, 2003). The Leuven Scale provides not only qualitative data about the students, but also quantitative data in its ability to prescribe numbers to behaviours. In this research the Leuven Scale was used to document student behaviour every three minutes as the research question focused on a lesson starter activity instead of the lesson as a whole.

The students chosen for the focus group were chosen based on prior attainment brackets. These students were chosen at random otherwise. Meaning that although they may have different prior attainment brackets, no other factors were taken into consideration when choosing the students. The students were asked to complete consent forms alongside their parents and it was ensured the students understood what their role was in the study. They were also told they could remove themselves from the study at any time with no consequences.

At the end of the lesson the three case study pupils were given a questionnaire to answer alongside the teachers on how they felt about low stakes quizzing. A questionnaire was chosen instead of a one on one interview with the students as it was decided that there would be a great deal of pressure on the students to answer questions on the lesson verbally with a teacher (Dayan, 2014). Alongside the questionnaire, the students were encouraged to feedback verbally if they so desired and discuss the questions with the researchers.

An important part of lesson study procedure is a reflection portion. This was done verbally between all researchers and using a reflective model known as the Assisted Reflective Conclusions model - or the ARC model. This model was chosen as it uses not only the concrete evidence found in observations but also the feelings of the teacher who

taught the lesson to understand the experience of the lesson being taught as a whole. The ARC model was also used as a way for the researchers to look back on their predictions and see if they were correct.

There are of course some problems that arise when using the lesson study design. One such problem is the ever looming presence of the Hawthorne Effect. This effect is difficult to avoid even in non-participant observation (Monahan and Fisher, 2010). Since the three case study students knew they were chosen the Hawthorne Effect is especially pertinent as these students may have felt as though they needed to provide answers to please the teachers.

A problem that occurs when using the Leuven Scale is even if all the observers agree on the terms of the scale, it may be possible their definitions of a certain activity differ and result in different numbers for the same case study pupil. This becomes an issue when the researchers go back to their observations to find the quantitative data does not correlate. This can be partially avoided by the researchers' feedback to one another in the form of qualitative data.

Whenever one conducts research it is important to make note of ethical considerations and how any ethical issues should be addressed. This research first had its proposal looked at by an ethics board to ensure that the student did not have any major risks. This was especially pertinent as the study involved minors under the age of 18 who were not in the presence of their legal guardians (BERA, 2018). A consent form was sent home to the pupils guardians asking them to return it with their consent for their child to participate in the study. Alongside this the students were reminded that they could withdraw from the study if any time they felt uncomfortable or no longer wished to continue with no repercussions.

The first lesson was in a year top set science class. The three students chosen to be case study pupils were chosen based on prior achievement levels. In this lesson a five question low stakes quiz was given at the beginning of the activity with the material based on material learned recently - within the previous two weeks. The quiz was made of entirely multiple choice questions and the students first answered the questions silently in their books as individuals. After the quiz had been done by all of the pupils, the class teacher called on students to answer the questions and give the answers to the whole class. The students all self-assessed their work in their books. Once this had been done the students were instructed to give themselves a revision target based on the questions they had gotten wrong. The students were responsible for creating their own targets and no targets were given to the students based on the low stakes quiz.

In walking around the room and from the observer point of view all of the students had participated in performing the low stakes quiz and in self assessing the quiz. On a whole the class was engaged and the three case study pupils in particular were engaged. It is important to note, however, that the level of engagement may have been increased by the presence of the two observers in the room.

Once the lesson was finished the researchers sat down with the case study pupils to discuss the lesson and the questionnaires. These pupils completed the questionnaires while occasionally asking for minor clarification on the questions as needed. Once the questionnaires were completed and the students had left, the three researchers began to discuss their feelings and observations about the lesson with the focus being the low stakes quiz. It was found that the pupils and researchers felt five review questions was not long enough for a low stakes quiz. The short nature of the quiz made it difficult to cover an expansive range of topics and therefore made goal setting more difficult. It was determined that the next lesson would have a longer low stakes quiz of ten questions.

Another issue that needed to be resolved was the pupils had mentioned they saw the use of low stakes quizzing for revising in class, but not how it could help their independent revision outside of the classroom. In this lesson no targets were provided for the pupils and they were responsible for knowing what to write down. To improve the low stakes quiz in the next lesson the researchers decided that questions would be linked to revision goals. Therefore students who felt they needed more guidance on what to study would have a list based on the questions that they had gotten incorrect.

Overall, the low stakes quizzing was received positively by the students and the researchers. It was found that the students found low stakes quizzes useful for recapping the material and as a method to revise quickly in lessons. It was also learned that the students would like targets set out for them and linked to the material.

As for the research itself, the Leuven Scale proved to be a useful tool in marking student engagement. It was a quick way to see how the three case study pupils were responding to the low stakes quiz from an observer's point of view. The only potential issue was how each user of the Leuven Scale may observe behaviours differently and thus effect the numbers seen. This is a difficult thing to avoid but the benefits of using the Leuven Scale outweigh this negative. The use of ARC model to reflect upon the lesson was useful as it provided a way to reframe and look back at the lesson as a team.

Improvements were made for the second lesson based on the reflections from the first lesson study. The lesson being observed was a year nine mixed ability mathematics lesson. The low stakes quiz for this lesson study contained ten questions, none of which

were multiple choice questions. This low stakes quiz was also peer assessed instead of self assessed as this was part of the classroom culture and the researchers felt it was important to keep this as it was what the students were accustomed to this. The low stakes quiz was based on a wider range of topics based on an entire unit. It was still used as a starter activity much like in lesson study one. And, as proposed, the change was made to include targets for the students.

Upon observation of the lesson the students were involved in answering the questions. The peer assessment portion of this lesson was interesting to watch as there was a spike in student engagement across the entire classroom. After the lesson had finished the process of giving the case study pupils the questionnaires was repeated in the same manner as the first lesson study.

The case study pupils in this study mentioned that the ten questions was too long for a low stakes quiz, especially when given as a starter activity. However, upon further questioning it was found that this was mainly because they had to work out each question instead of being given a few multiple choice questions that did not require working out on paper. The students did like that there was peer assessment as they liked the responsibility that came with the peer assessment. It also helped them to pay more attention to the questions and spot mistakes they didn't realise they made as well.

This low stakes quiz included a list of topics to study based on the questions given in the quiz. The case study pupils found this particularly useful in setting their independent revision goals as it provided them with a framework to revise from. However, one issue that arose around the goal setting was there was no goal for the pupils that had obtained perfect marks on the quiz. This lack of foresight was observed when several pupils who had perfect scores seemed perplexed on what to write when told to set a study goal.

For the next lesson it was determined to shorten the low stakes quiz and make it more manageable by adding a mix of different question types, including short response, true and false, and multiple choice. It was also agreed upon to create goals for pupils who obtained a perfect score on the low stakes quiz.

The issue involving the subjectiveness of the Leuven scale was discussed as well as what to change for the next lesson study. It was determined some more discussion could take place between the observers to determine which numbers they thought fit each case study pupil to attempt to make it more fair to the study. However, the importance of this was kept minimal as it was determined the observation itself was more pressing than the subjectivity of the scale.

After the improvements to be made had been discussed by the researchers, the third lesson study was planned as a team. The third lesson study was done in a top set year eight English lesson. The reason why it was a year eight class instead of year nine was simply due to logistical limitations imposed upon the researchers surrounding the dates in which the research could be conducted and the classes taught by the researchers. The low stakes quiz in this lesson was once again used as a starter activity for the lesson. There were eight mixed type questions for this quiz and in contrast to the second lesson study the students self assessed their quizzes as in line with the classroom culture. This quiz also had a larger range of material than done in the first lesson study, but not as wide a range as the second lesson study. This was done to keep to eight questions and not overwhelm the students. There was a list of targets at the end of the quiz based on the questions per topic as well as goals for students who had gotten every question right on the quiz.

The students in this class were quite engaged with the lesson except for one pupil who had an additional learning need and was known to try and disrupt class regularly in an attempt to get attention. Once again the pupils seemed more engaged when the time came to mark their work. The students also seemed more clear on the goal setting when given by the teacher. The students who had gotten full marks did not question why they had to write a target as well but instead wrote it immediately.

Once again the process of interviewing the case study pupils via the questionnaires was repeated and the lesson was discussed as a team. The length of this low stakes quiz was considered to be much better by the research team as the engagement of the class as a whole was kept throughout the quiz. Another positive of this lesson was that the students did engage with the target setting, even the students who received full marks. Providing a framework for the target setting of all students seemed like a huge improvement and the case study pupils did appreciate that we did not single any group out.

Overall, the research found that students do find low stakes quizzes useful in setting their independent revision goals. The most notable finding was that students feel that having the teacher provide a framework for these goals is useful to them. The length of the low stakes quiz seemingly has an effect on student engagement with the quiz, with students feeling shorter quizzes are not as helpful with setting goals and longer quizzes too long to focus on.

Providing a method for students to revise in class and inform their individual revision is a practice I would like to implement into my own classroom in the future. This focus on students becoming independent learners is a good goal, however, the transition to this end is one that will require teachers to provide support to students. Low stakes quizzes are not

without their problems, they can be time consuming to make and give to the class, as well as students needing to be taught how to use low stakes quizzes to their advantage.

If these barriers are overcome, low stakes quizzes provide a relatively quick way to check student comprehension of previous topics. They also can provide students with revision goals to use as independent learners. The students are able to check their knowledge of a previous topic with a quick review and instant feedback. Another advantage is the students, though encouraged to do their best, do not have a grade to work towards. This means the stress that comes with a number grade is removed and students can just work towards gaining knowledge.

Another item to address is the use of the lesson study method itself. The lesson study allowed the researchers to see their teaching methods through a different lens. Seeing low stakes quizzing from an outside view was useful as it was easy to see how useful it was in the classroom not just for the students but also the teacher. One of the main drawbacks to this method is how the case study pupils are interviewed about the lesson. Not only are three students an incredibly limited scope to interview for opinions on a teaching technique. This is understandable as interviewing the entire class would be time consuming, but providing questionnaires to the class as a whole and interviewing only a certain number of students may provide better learner feedback on the research question at hand. There is also always the concern that students did not provide honest feedback and simply sought to answer the questions in line with what they believed the teacher wanted them to write. The questionnaire is one way to attempt to work around this issue, but there is no real way to ensure the case study pupils provide honest feedback.

The use of lesson study in regards to this research proved useful in determining how low stakes quizzes help students set independent revision goals. It was determined that low stakes quizzes, when structured correctly, can give students insight on what topics they need to review independently. Providing a framework of revision goals seems crucial in helping most students with setting their goals.

It is important to remember though that findings of such small studies are difficult to generalise. This study looked at three lessons in different subject areas and focused on the responses of just nine case study pupils. The sample size is small and therefore may be unreliable. One other limitation to this study is the lack of repeatability. It would have been more effective to perform this lesson study with two classes in the same subject with the same class types, but it is understandable as to how and why this was not possible.

This type of study was effective in how it provided within just a few days quick and simple feedback about the research question. It was also tailored to the individual teachers

classrooms and the school. Having a quick and simple way for teachers to look into an issue that affects their school is highly sought after. The lesson study structure helps with informed practice and teacher collaboration. Being observed by peers can have a positive effect on an individual's teaching practice and taking the time to observe one's peers and be observed by them can lead to better practice for all (Burgess, Rawal, and Taylor, 2019).

The use of lesson study was new to all three researchers involved in this study. Piloting these methods in the classroom provided insight into the researchers further teaching practice. The low stakes quizzes were already in use at the school and integrated into the classrooms. Taking this form of in class revision and questioning students on how they feel it could be improved to help them was a new endeavour and helped not only the researchers but also teachers who had been using low stakes quizzes and not thought to look into them critically.

Allowing for teachers to take on roles as researchers as well as educators is a double edged sword, however. In one view it is important for teachers to be informed in their teaching practice. Involving themselves in the research can be one of the best ways to provide for their classroom. On the other side however many teachers already feel burdened with the current administrative workload (Tapper, 2018), and feeling obligated to do research on top of this may detract from potential teaching time and lesson preparation time. Lesson studies take time to plan and remove the teacher from a lesson or even an entire day of teaching.

A solution to this that would be interesting to implement in my future teaching would be small, self directed lesson studies. I found that the lesson study did encourage me to look at my teaching more critically and would be willing to implement them more often on a smaller scale. Using reflections in my daily lessons is a small way to see what is working, and what can be improved on for my own practice.

The teaching practice needs to be informed by scientific research. Hopefully with time, research can become more intertwined with the teaching profession to ensure that students receive the best education possible. This lesson study gave insight on how low stakes quizzing can help provide a framework for students' independent revision. This practice is one I hope to continue in my future teaching as I believe this study showed it can be a useful tool for the teacher and the students.

In a future lesson study I would be inclined to focus more specifically on the framework used for students to set targets. This could be done by providing goals in different formats, or simply changing how the students are instructed to set their independent revision

goals. Another aspect to research would be a long term study into how encouraging students to study for the low stakes quizzes can help them form study habits in the long term.

This research would also be interesting to conduct in other subject areas as it may provide insight into how students find low stakes quizzing useful for revising across the academic spectrum. One way this could be done would be instead of conducting the research in different classes, the research could follow a set of case study students by their lesson schedules.

This research leads me to recommend low stakes quizzes to teachers if they are looking for a quick method that helps students set their own revision goals. An added benefit of low stakes quizzing is how it can show instant feedback on classroom understanding when done correctly. I will be using low stakes quizzes in my teaching practice as I move forward and am inclined to experiment with how often I use them and at what part of the lesson I use the low stakes quizzes.

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