

What happens when Bloom's Taxonomy is used to construct Higher Order Thinking activities?

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3E

Rationale

Higher order thinking (HOT) is a key skill which is embedded throughout Curriculum for Excellence (CfE). A 2009 HMIE report states that "...teachers should...consciously promote the development of higher-order thinking skills." (HMIE, 2009:13). This was reflected in a report by the Higher Order Skills Excellence Group, who contend that there should be an increased consideration to HOT skills within the Scottish curriculum (Scottish Government, 2011). Also highlighted is that the use of a taxonomy can assist in structuring thought surrounding the development of those skills (Scottish Government, 2011).

The most common method of developing HOT skills is through the use of Bloom's Taxonomy, published in 1956. This forms the basis of the advice given by the Higher Order Skills Excellence Group (Scottish Government, 2011). Bloom's Taxonomy "... is a multi-tiered model of classifying thinking according to six cognitive levels of complexity." (Forehand, 2012:42). The principle behind Bloom's Taxonomy is that in order to move up the stages from lower order thinking to HOT, you have to have mastered the lower levels first in order to be able to achieve the higher levels (Forehand, 2012).

For the purposes of this enquiry, the revised Bloom's Taxonomy will be used, developed by Anderson and Krathwohl (2001). The structure of the revised taxonomy allows teachers a standard against which student progress can be measured and seen (Krathwohl, 2002).

Aims

The aim of this practitioner enquiry was to investigate the impact of using Bloom's Taxonomy as a tool for creating HOT activities in the classroom.

Methodology

The research phase of the enquiry was carried out over a four-week period with a third year Modern Studies class, comprising of 28 students. Within the class were a range of students working at third and fourth level and included some students with literacy and processing difficulties. A questionnaire was carried out before the research was undertaken in order for students to self-assess their ability and understanding of low, middle and HOT strategies (Appendix A). This was then repeated at the end of the intervention period in order to gauge any changes that the students saw themselves. During the intervention period, all tasks were set in line with the progression in Bloom's Taxonomy, and the skills being developed during

each task were highlighted in order to ensure students were aware of the skill they were using and developing.

The main methods used during the enquiry were active listening and observation during activities within the classroom. Notes were taken of any comments or observations that were of relevance at the end of each period. This ensured that students did not feel pressured into giving a 'correct' answer. Jotter work was also marked and evaluated by comparing the tasks completed during the intervention stage to tasks completed before the enquiry began. Finally, a small focus group of six students were chosen based on their responses to the questionnaire at the beginning of the study. This group included students who felt confident in the use of HOT skills through to students who were unsure of what the skills entailed. At the end of the intervention period, individual conversations took place with each student to find out in more detail how they felt the use of Bloom's Taxonomy had impacted their learning. An effort was made to ensure tasks progressed throughout the week in order to allow students to work their way up the taxonomy from lower order thinking skills to HOT skills.

Findings

From the completion of the questionnaire at the beginning of the study, it became clear that a majority of students did not understand what some of the HOT tasks required them to do. Most were comfortable with lower order thinking tasks, however as the skills progressed up the taxonomy, less students knew what was actually meant by each skill. This meant that as the intervention period began, time was spent at the beginning of each activity explaining the skill they were developing and how to use that skill. In order to support students with this, Bloom's Taxonomy 'bookmarks' were created for students to stick into their jotters in order to ensure they had access to guidance on how to complete the tasks (Appendix C). During the first week of the intervention, through observation it was clear students were using these bookmarks for extra clarification. There was also added discussion between students about what they had to do in order to use that skill correctly.

The use of the Bloom's Taxonomy 'bookmarks' decreased gradually over the course of the intervention, leading to the conclusion that students were becoming more comfortable and confident with what was required from them in order to complete activities from each stage of the taxonomy. There was also a noticeable increase in student engagement in tasks. Compared to when similar activities were given prior to the intervention, students seemed much more willing to participate and attempt tasks, and their focus stayed on the task longer. However, some students, once tasks reached middle and HOT levels, began to lack interest and failed to even try to complete the tasks. This leads to the conclusion that there may have been a lack of confidence or a fear of failing which meant those students did not even want to try those activities. When working in pairs or groups, this reluctance was not as noticeable, therefore the explicit use of Bloom's Taxonomy and identifying the use of lower, middle and HOT skills may put some students off attempting tasks. In order to test this theory, at the end of the intervention a set of activities were set that progressed from lower to HOT skills, however this was not explicitly stated to the students. When this was the case, those students who were reluctant to attempt the HOT activities made an effort to try the activities.

Through comparing the work of students before and after the intervention, there was a difference in the quality and detail of the work produced. Post-intervention, students were writing longer, more detailed answers, perhaps due to the increased understanding of how to execute the skills required, particularly with reference to the HOT skills. However, for the students with literacy and processing difficulties, the use of Bloom's Taxonomy seemed to have negligible impact on their work, perhaps suggesting that there needs to be additional differentiation in place in order to enhance their understanding and execution of HOT skills.

At the end of the intervention a small focus group were spoken to and the general feeling was that the explicit use of Bloom's Taxonomy was a positive one. Students felt more comfortable using the middle and HOT skills as they were more aware of what they had to do, and they felt their work had improved as a result. Also, for those students who responded to the first questionnaire that they were unsure of their abilities at lower order thinking skills, the progression of the taxonomy allowed them the chance to move up the steps and challenge themselves, even if they still struggled with the higher order skills. This was reflected in the responses to the questionnaire at the end of the intervention (Appendix B).

Conclusions

The use of Bloom's Taxonomy in the classroom as a vehicle to create HOT activities is beneficial to both teachers and learners. Students are more aware of the skills they are developing through each task and are more willing to attempt HOT tasks when they are aware of the skill they need to use in order to do so. However, a small proportion of students lacked the confidence in their own ability to complete HOT tasks when they knew the structure of the taxonomy, and in turn did not always attempt the tasks which developed HOT skills to the best of their ability. When the taxonomy was removed, and the skill not explicitly stated, those same students were not as reluctant and did attempt the activities. Using this method also increased student engagement in tasks and the standard of work produced improved. There seemed to be a negligible impact on the work of students with literacy and processing difficulties however. Students were more confident in completing activities that progressed from lower order to HOT skills.

Implications for Future Practice

This method of using Bloom's Taxonomy in the classroom in order to structure HOT activities will be continued over a longer period of time to ensure the accuracy of the findings, as well as using the same method with other classes at various levels. More research will be done into how best to support students with literacy and processing difficulties to access HOT skills. The findings of this enquiry will also be shared with colleagues in the school in order to share best practise and hopefully promote its use throughout all areas of the curriculum, allowing students to develop HOT skills across all subjects.

Bibliography

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Appendix A: Questionnaire

1. How confident do you feel about what each of these skills require you to do?

Skill	Very Confident	Confident	Some Idea	No Idea
Remembering				
Understanding				
Applying				
Analysing				
Evaluating				
Creating				

2. Are you aware of having used any of these skills before?

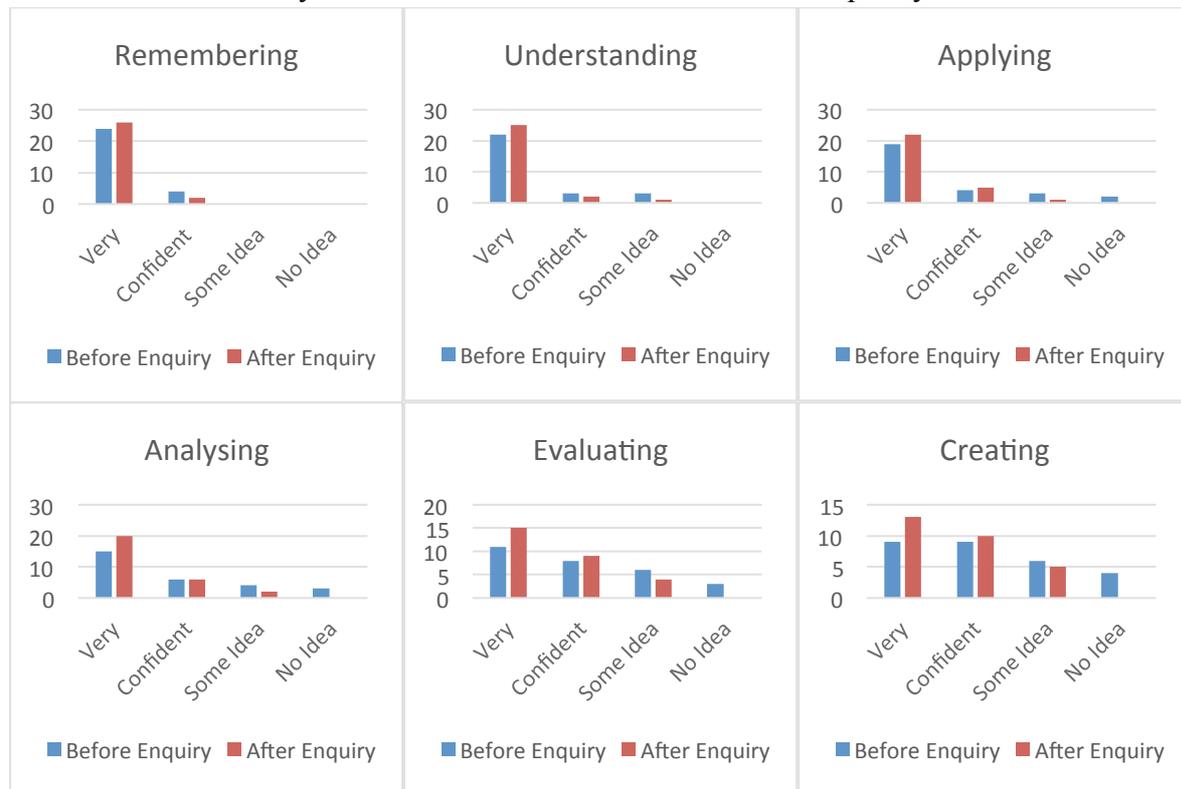
Skill	Yes	No	Not Sure
Remembering			
Understanding			
Applying			
Analysing			
Evaluating			
Creating			

3. How confident would you feel about answering a question which required you to use each of these skills?

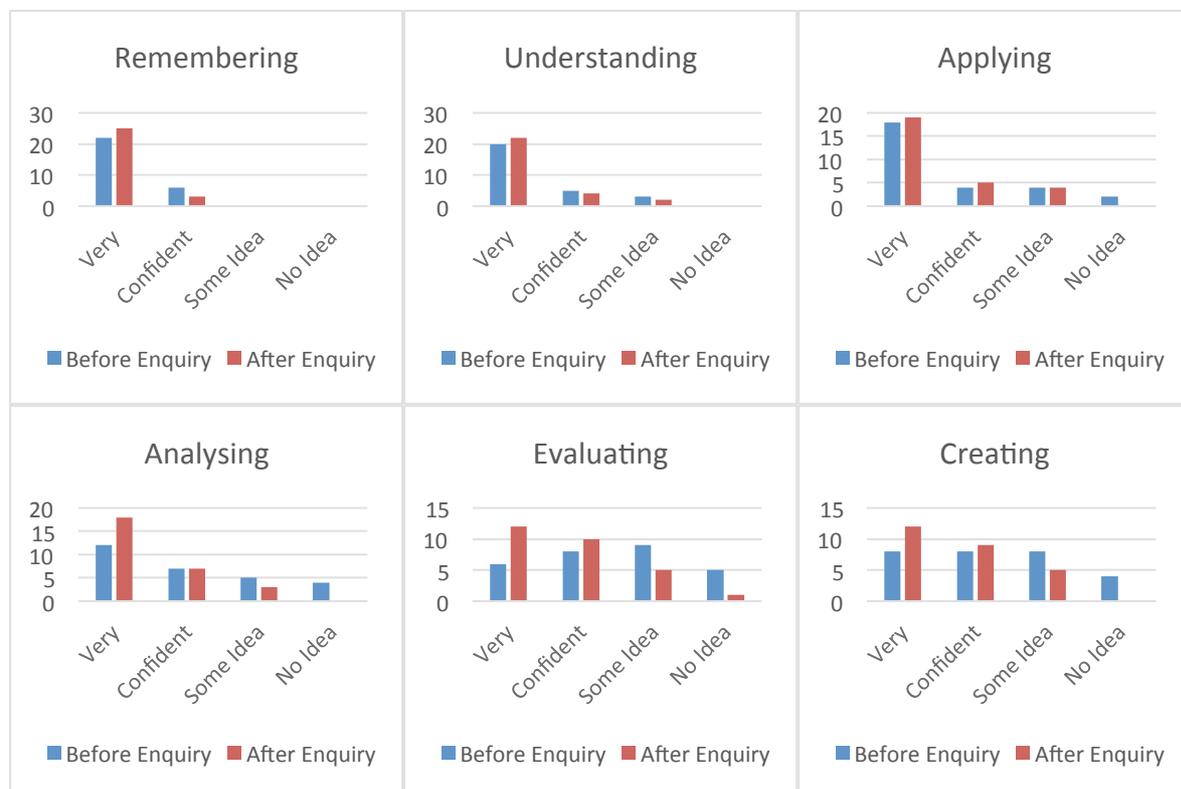
Skill	Very Confident	Confident	Some Idea	No Idea
Remembering				
Understanding				
Applying				
Analysing				
Evaluating				
Creating				

Appendix B: Questionnaire Results

1. How confident do you feel about what each of these skills require you to do?



3. How confident would you feel about answering a question which required you to use each of these skills?



Appendix C: Bloom's Taxonomy 'Bookmark'

Adapted from Anderson & Krathwohl (2001:67-68)

BLOOM'S BOOKMARK
REMEMBERING Recalling relevant information.
UNDERSTANDING Interpreting (putting it into your own words), summarising, comparing, explaining.
APPLYING Demonstrating, illustrating, practicing, completing questions.
ANALYSING Comparing, debating, examining, questioning, testing.
EVALUATING Prioritising, valuing, judging, measuring, scoring.
CREATING Designing, inventing, planning, producing, composing.