

# **What happens when I use Bloom's Taxonomy for questioning in the classroom?**

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## **Group 2D**

### ***Rationale***

I elected to conduct an enquiry in to what changes occur when Bloom's Taxonomy is used for questioning. I was interested to find out if changes in language and terminology led to changes in learners' attitudes to their learning. I particularly wanted to know if it was possible to make a small change in my practice that would encourage learners to progress up the Bloom's hierarchy (see Appendix 1).

### ***Aims***

The aim of this enquiry was to establish what happened to learners' ability to answer questions which call on Higher Order Thinking Skills (HOTS). It was initially considered to focus on a group of learners who mostly used Low Order Thinking Skills. Quickly, it was realised how potentially interesting it could be to conduct the study on learners across all levels of the scale.

### ***Methodology***

The intervention made use of a variety of enquiry methods. A number of different approaches to evidence gathering were used in order to have the clearest overview of findings. The focus group was a small number of learners from an S.2 class. In total, six learners were selected for the main focus group: two learners from each of the three Orders of Thinking Skills. The specific methods used are detailed below, including information about how each method was used to assess changes in the learners' work and attitudes towards their learning.

### **Task Setting:**

The initial action was to assess the present working level of learners in selected classes. This was carried out in relation to Bloom's hierarchy. It had been decided that tasks would focus on reading for comprehension activities which, in this case, involved learners reading information on various musical genres and then attempting questions. The questions were categorised in to those requiring the use of Low Order, Mid Order and High Order Thinking Skills (LOTS, MOTS and HOTS). From the responses learners provided, it was possible to establish which level they sat at. It was important to the enquiry that learners knew what specific skills were required to complete each question. Displaying a Bloom's Taxonomy Verb Table on the wall detailing the skills and contexts for learning, allowed learners to become familiar with the terminology. Each set of questions on the worksheet linked to the Verb Table by colour, for example: 'Purple' questions were those requiring Remembering and Understanding skills. Tests using an identical system, with different content weekly, were used as a means of summative assessment at the end of each week of learning.

#### Questioning:

Questioning took place both in written form and as part of teacher-class discussion. It was important to establish what pupils already knew about Bloom's Taxonomy as knowledge of how the system works is an important aspect of the methodology (Shabatura, online). Empowering learners to be in control of their learning process and allowing them to be aware of the intentions would, it was hoped, encourage steadier progression up the pyramid. As mentioned, questioning was also used as part of the Task Setting. All learners were expected to attempt the same questions. The expectation was that not all learners would be able to answer all question-types initially, but that with the introduction of Bloom's Taxonomy and related vocabulary they would feel able to attempt more challenging questions as the intervention progressed.

#### Assessment Records:

Each learner who was targeted in the study had their progress measured weekly on a Benchmark Document (Appendix 2). The document detailed each discrete skill required at the different levels of the Bloom's Pyramid, giving possible subject-specific contexts in which that skill might be used. The forms were completed using a Red; Amber; Green (RAG) assessment system. Green indicated the learner was comfortable using the skills required for that outcome, amber was used if an attempt had been made and the answer showed some level of development of that skill. Red was used to indicate that either no attempt had been made to answer the question, or that the question had not been answered by making use of that particular skill.

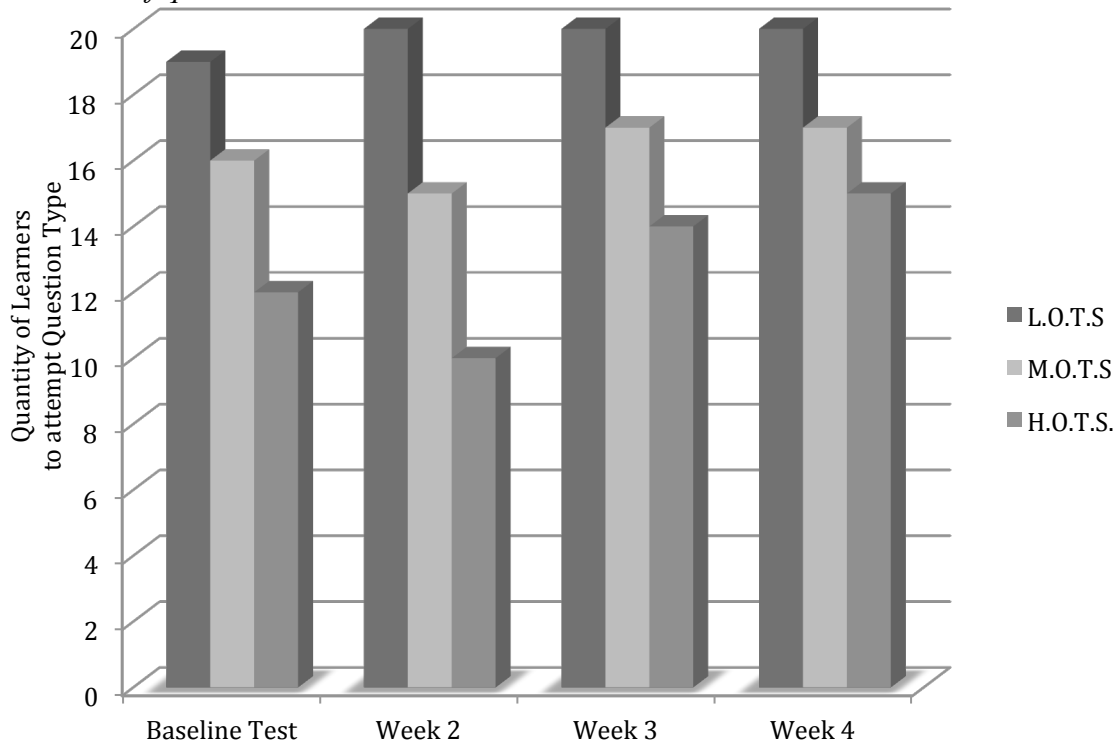
#### Teacher's Reflective Diary:

This evidence gave an opportunity to reflect on changes which were taking place, and to note any significant points regarding the enquiry. Although brief, given the short-term nature of the enquiry, it provided useful insight to the process. It also highlighted quite clearly the changes to learners' attitudes over the course of the investigation. The diary was used in two ways: as a planner, detailing which specific skills would be used for questions or tasks, and then as a reflective account of what had happened during the lesson and what noticeable changes had taken place as a result. The diary was completed for each lesson with the targeted class over the course of the intervention.

### ***Findings***

The graph indicates the number of learners who were able to answer each question type during the summative assessment task at the end of each week. The number of learners using Low Order skills remained consistently high throughout. There were some variations for Medium and High Order skills, but the general trend appeared to be upwards as learners familiarised themselves with the specific skills required.

Fig. 1 (below).: The graph displays the number of learners who were able to answer each question type in the end-of-week assessment tasks. There is a general rise in the number of learners who attempt each type of question.



Individual learners selected for the focus group had assessment record sheets kept detailing their test attempts. These show a more interesting pattern emerging, where individual learners begin to show that they have attempted to answer question-types they previously struggled with:

|                 |   |  |  |  |  |  |
|-----------------|---|--|--|--|--|--|
| <b>Apply</b>    | <ul style="list-style-type: none"> <li>The learner can solve problems using their understanding.</li> <li>The learner can interpret and translate specific language and terminology.</li> </ul>   | Applying knowledge of musical language, terminology and signs/symbols.   |  |  |  |  |
| <b>Analyse</b>  | <ul style="list-style-type: none"> <li>The learner can organise and categorise information according to its characteristics.</li> <li>The learner can compare and contrast different concepts and ideas.</li> </ul>   | Displaying ability to organise musical information/symbols/terms in to the appropriate chronological order. Explaining and highlighting differences between musical features and concepts.         |  |  |  |  |
| <b>Evaluate</b> | <ul style="list-style-type: none"> <li>The learner can collate their knowledge and understanding of concepts and ideas and can support their answers with suitable reasoning.</li> <li>The learner can make judgements about why certain things happen or exist, and can explain these judgements.</li> </ul> | Making reasonable and defensible judgements about different styles of music, commenting on why the music might exist, taking in to consideration the social and cultural influences on that style. |  |  |  |  |

Fig. 2.: Completed Partial Assessment Record for Pupil A showing changes in perception of ability to answer different question types.

## ***Conclusions***

From the enquiry, it is challenging to summarise the key changes that might potentially take place to the attitudes and abilities of learners when Bloom's terminology is introduced in questioning. However, it was clear that, over a relatively short period, using such language increased some learners' perceptions of their ability to utilise specific skills. Learners seemed better able to answer questions when they knew exactly which of the skills they needed to apply. They were able to do this more easily because they had access to verb tables and the colour coding system for different question types. Being clear and forthcoming in one's objectives is not a new concept, and ties in with Curriculum for Excellence and modern pedagogical theory, which suggests that learners do their best when they know what is expected of them:

Objectives for each stage of children's education are clearly stated and provide a helpful clarification of what both children and teachers are expected to do. Research has consistently shown that the lack of clarity in teaching and learning objectives is a significant inhibitor of pupil progress.

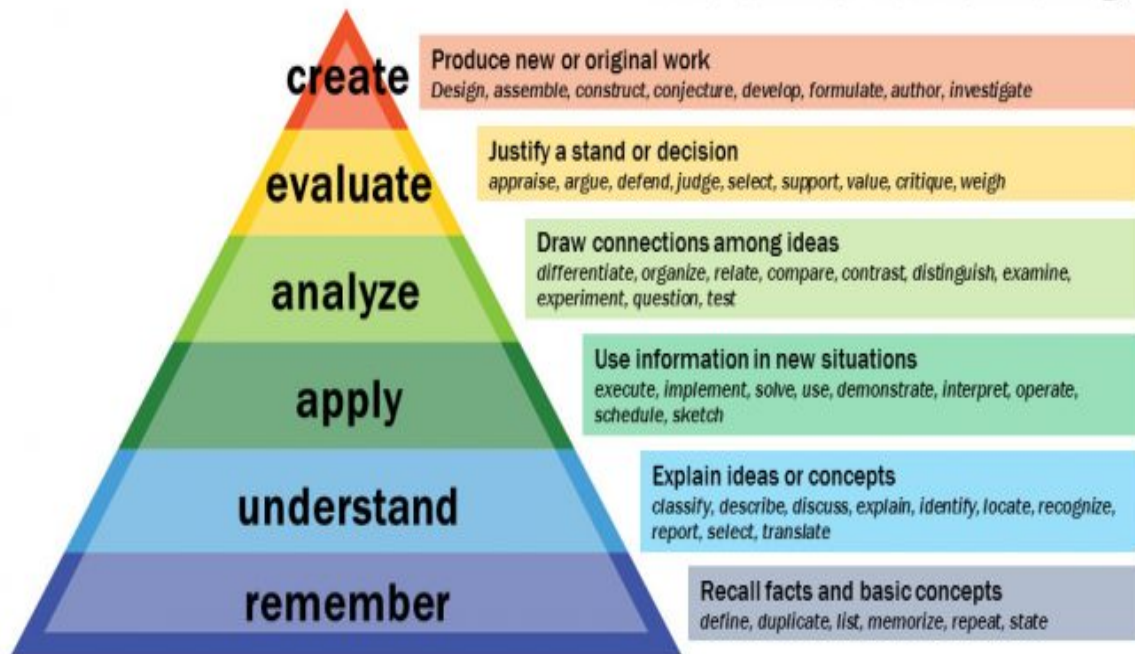
*Pollard et al 2005, p.188*

## ***Implications for Future Practice***

The potential benefit of using Bloom's Taxonomy and its associated vocabulary for all learners is very clear. From the findings presented after my enquiry, I would project that using this methodology could lead to learners taking greater risks in their learning. I would anticipate that the regular use of Bloom's Taxonomy in the learning environment could effect positive change on learners' attitudes to their work and would encourage the regular and consistent use of its approaches to learning and teaching.

## Appendix 1: The Bloom's Hierarchy

# Bloom's Taxonomy



 Vanderbilt University Center for Teaching

This diagram, taken from Vanderbilt University Center for Teaching's website, demonstrates the hierarchy of skills which are required in Bloom's Taxonomy.

The pyramidal shape serves to show that "All" learners can use skills at the bottom of the pyramid, "most" can use those in the middle and "some" can use those at the top.

The verbs listed at the right hand side of the diagram serve to describe different contexts in which these skills might need to be used, and were the basis for the benchmarks used in the Assessment Record Sheet (Appendix 2).

## *Appendix 2: Assessment Record Benchmark Document*

### Individual Learner Record of Assessment for: \_\_\_\_\_

| SKILL      | WHAT CAN THE LEARNER DO?  | CONTEXT FOR LEARNING  | Wk 1 | Wk 2 | Wk 3 | Wk 4 |
|------------|---|---|------|------|------|------|
| Remember   | <ul style="list-style-type: none"> <li>The learner can locate information in a text.</li> <li>The learner can duplicate and recall information.</li> </ul>  | Finding pieces of information relating to the topic.  |      |      |      |      |
| Understand | <ul style="list-style-type: none"> <li>The learner can select appropriate information from the text to answer questions.</li> <li>The learner can discuss and describe concepts/features.</li> </ul>  | Finding relevant information, displaying an understanding of the meanings of musical terminology and signs/symbols.   |      |      |      |      |
| Apply      | <ul style="list-style-type: none"> <li>The learner can solve problems using their understanding.</li> <li>The learner can interpret and translate specific language and terminology.</li> </ul>   | Applying knowledge of musical language, terminology and signs/symbols.  |      |      |      |      |
| Analyse    | <ul style="list-style-type: none"> <li>The learner can organise and categorise information according to its characteristics.</li> <li>The learner can compare and contrast different concepts and ideas.</li> </ul>   | Displaying ability to organise musical information/symbols/terms in to the appropriate chronological order. Explaining and highlighting differences between musical features and concepts.                                |      |      |      |      |
| Evaluate   | <ul style="list-style-type: none"> <li>The learner can collate their knowledge and understanding of concepts and ideas and can support their answers with suitable reasoning.</li> <li>The learner can make judgements about why certain things happen or exist, and can explain these judgements.</li> </ul> | Making reasonable and defensible judgements about different styles of music, commenting on why the music might exist, taking in to consideration the social and cultural influences on that style.                        |      |      |      |      |
| Create     | <ul style="list-style-type: none"> <li>The learner can infer information beyond the text, making sense of what information is available to rationalise responses.</li> <li>The learner can use their knowledge and understanding of a topic to create an original piece of work.</li> </ul>                   | With reference to existing and available knowledge, make assumptions and projections about different musical ideas and concepts.<br><br>Create original work which draws upon knowledge and understanding already gained. |      |      |      |      |

## ***Bibliography***

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