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Introduction

Hello and welcome to *How to Use Bloom's Taxonomy in the Classroom: The Complete Guide*. Since I first started teaching I have used the taxonomy as a major part of my planning, questioning, activities, differentiation and assessment. It is a brilliant tool. Versatile, flexible and easy to apply; founded on sound educational principles; and a natural promoter of challenge in any classroom.

Most teachers are familiar with the taxonomy; it is used ubiquitously as a basis for mark-schemes. Yet little attention has ever been given to what the taxonomy can really do for the practising teacher. The books currently out there are few and far between. Those that do exist tend to focus on the theory behind the taxonomy, giving no account of its practical use in the classroom.

This book changes all that.

It is the first attempt to systematically analyse the taxonomy with the classroom teacher in mind.

Through everything that follows, I have one guiding aim: to look at the taxonomy from the teacher's perspective and to show what it can do. In the pages ahead, we travel far and wide, covering all the areas where the taxonomy is most useful.

Chapters 1 and 2 set the scene by providing an overview of the taxonomy's development and an explanation of how it works. Chapter 3 examines **knowledge and comprehension** in detail – the first two levels

of the taxonomy – looking at what they are and how we can use them in practice.

Chapter 4 moves onto the next two levels – **application and analysis** – to repeat the trick. And we then go again, for a third and final time, in chapter 5, where we turn to **synthesis and evaluation**.

At this point, the focus shifts. In the remainder of the book we examine how to apply the taxonomy in specific settings.

Chapter 6 looks at how to use the taxonomy to plan effective and challenging objectives and outcomes. Chapter 7 deals mainly with activities and, briefly, products. Chapter 8 looks at questioning, while chapter 9 deals with assessment. Finally, chapter 10 turns our attention to stretch and challenge.

Every chapter contains practical strategies, activities and techniques you can immediately apply to your own teaching. With that said, you can also adapt and modify the ideas as you see fit. And I am sure my suggestions will provoke ideas of your own. In this sense, the text is very much a starting point.

I hope you enjoy the book and find it useful. A collection of ready-to-use questions can be found in the appendix. These are based on keywords connected to comprehension, application, analysis, synthesis and evaluation. They can also be found in my book *How to Use Questioning in the Classroom: The Complete Guide*. I include them here both for your benefit and out of a sense of completeness.

All that remains for me to say is read on and enjoy!

CHAPTER ONE

Bloom's Taxonomy: Background and Explanation

In this chapter we examine the origins of Bloom's Taxonomy of Educational Objectives, placing it in historical context, before briefly explaining how it works, what it tries to do and how it can help classroom teachers.

This is a complement to the following chapter, where we look in more depth at why the taxonomy works. Here, our aim is to set the scene, to provide a foundation from which we can move off and explore the practical application of the taxonomy to our teaching, marking and lesson planning.

The Origins of the Taxonomy

In the late 1940s and early 1950s, a series of conferences was held in America in which educators came together to try to improve communication around curriculum design and the nature of examinations. The period is notable for the wider transition in the West to what we now know as a post-war society. That is, one increasingly characterised by a changed relationship between citizens and the state, as well as one in which formal education played a greater role than ever before.

Perhaps the desire to formalise and, to some extent, systematise the development of curricula and examinations reflected these changing norms. Certainly, the process would have been far less likely in the period

immediately prior, defined first by the Great Depression and, subsequently, the Second World War.

With the growth of formal education and its increasing importance to industrialised society, the necessity for some form of codification of educational objectives became more pressing. A delineation of some type was inevitable; that it came in the form it did is as much down to the motives of those involved as it is to the wider historical processes.

Put another way, the years following the conclusion of the Second World War seem a fecund period in which new ideas and developments about formal schooling could develop. Far more so than the decades preceding them.

The conferences were held between 1949 and 1953. Benjamin S. Bloom chaired the committee of educators who developed the taxonomy. He was an educational psychologist who studied at Pennsylvania State University and the University of Chicago.

The aim of the conferences was to codify the learning objectives educators set for their students. This codification came in the form of a taxonomy. A hierarchy of general processes which move from simple to complex in their make-up.

As a result of the conferences, a book was published in 1956. This was edited by Bloom and called: *Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain.*

A second book was published in 1964. This was called Handbook II: Affective domain. A third book was planned but never published. This was intended to deal with the psychomotor domain.

Most teachers are familiar only with the first of the taxonomies, concerning the cognitive domain. However, it is worth noting that the original attempts to classify learning objectives centred on a holistic view of education covering cognitive, affective and psychomotor processes. This indicates the educators who gathered at the conferences and who subsequently contributed to the books, Bloom among them, had an open and generous view of education – what it is and what it is for – rather than a reductive one.

Nonetheless, it is clear the taxonomy focussing on the cognitive domain gained real traction in the years following its development. This

suggests educators and administrators found it useful in terms of classroom practice, curriculum design and the construction of exams. Further, it is this which most closely matches that which remains dominant in the discourse and practice surrounding schooling: the development of cognitive thought processes.

Few would deny the importance of the affective and psychomotor domains. But that the cognitive domain takes precedence in the majority of formal schooling is hard to deny.

From this point forwards then, while acknowledging the existence of the 1964 book, as well as the intention to produce a third dealing with the psychomotor domain, I will use the terms Bloom's Taxonomy and the taxonomy of the cognitive domain interchangeably. Whenever I talk about the taxonomy, I will be talking about the cognitive domain.

That is what the book is about. That is what we will focus on.

The reasoning is simple. Since its inception, it is this taxonomy which has had the greatest influence, this taxonomy which teachers are taught about during their training, and this taxonomy to which we all return again and again, to help us plan lessons, assessments and questions.

The influence of the taxonomy is not in doubt. It has become a cornerstone of teaching and learning. One of the most important foundations on which much of contemporary education is based. That it continues to be so influential is due in no small part to its simplicity. Through the categorisation and ordering of various connected processes, it provides teachers with a powerful tool through which to think about the learning their students do and the lessons they plan.

What the Taxonomy Is

This leads us nicely to the question of what the taxonomy is. Put bluntly, it is a hierarchy of processes ranging from the simple to the complex. To master those higher up you must first master those lower down. The processes to which it refers can be used in relation to almost any type of content, with the caveat that their use will be cognitive in nature (rather than affective or psychomotor). Here is the taxonomy:

Level 6 – Evaluation

Level 5 – Synthesis

Level 4 – Analysis

Level 3 – Application

Level 2 – Comprehension

Level 1 – Knowledge

Level 1, knowledge, is the simplest. Here we are concerned with recall, memory and knowing. This is about gaining information and making it a part of our minds, such that we can call on it and use it when thinking and doing at a later date. For example, we would expect students to know what a word means before expecting them to be able to do anything with that word.

Level 2, comprehension, is about understanding what we know. So, for example, I might be able to recall the definition of a word, but that does not necessarily mean that I would understand this definition or how the word might be used in the context of various different sentences. Comprehension centres on students being able to demonstrate an understanding of the facts they know (which they can remember).

Immediately, we see two important features inherent to the taxonomy.

The first is that, as said previously, there is a sense of development running through the levels. This is why the taxonomy promotes mastery learning. To be able to operate successfully at any given level, you must also be able to work successfully at the preceding level. Comprehension relies on prior knowledge, just as the ability to apply understanding rests on both comprehension and knowledge of the original facts.

Even though the taxonomy splits cognitive processes into a series of separate categories, there remains the sense that these processes do not exist independently of one another. Rather, they are interlinked and intertwined. The taxonomy is a delineation, yes, but so too is it akin to a building, in which the top levels can only exist if the bottom levels are already in place.

The second is that the taxonomy provides a framework which mirrors much of our experience of learning. This is to be hoped if it is to be effective. But let us just consider the point briefly. Think back to when you first encountered something with which you were not familiar. An idea perhaps, or a piece of information. Chances are that your natural

inclination was to first try to understand what the thing in question was. And, to do this, you needed to know it – to be able to remember it.

Now, contrast this experience to a hypothetical individual who has no capacity to remember. Such an individual would not be able to understand any ideas or any information to which they were exposed because they would not be able to establish a starting point of remembrance from which to cast off. Their mind would not be able to assimilate the knowledge necessary to lead to understanding. This further demonstrates how the taxonomy reflects the lived experience of learning. (As a side point, our hypothetical individual would probably struggle ever to become a person as well, given as how our sense of self rests in large part on the ability to remember things concerning who we are and what we have done.)

After comprehension we have level 3, application. Here, we are concerned with how a student can take their knowledge and understanding of something and apply it in novel (and sometimes familiar) situations. The aim is to use the foundations which have been established to deal with things with which we are presented. In the classroom, this often involves students answering questions or solving problems once they have secured a basic level of understanding concerning a given topic.

Level 4, analysis, takes things a step further. It involves us being able to take apart that with which we are presented in order to show relationships, motives, causes, connections and ways of working. To be able to analyse something, we need to be able to apply that which we know and understand. If we haven't mastered, at least to some degree, the process of application, we will find it hard to effectively analyse that with which we are presented.

For example, we might ask a group of students to analyse how an engine works. To do this, they would need to examine the engine in detail, looking at how the parts connect together, looking at what causes what and how the different parts influence and interact with one another. Without a prior knowledge and understanding of engines and engine parts, a knowledge and understanding which students feel confident applying to different situations, this task will be very difficult. Students might be able to point to how things within the engine connect or affect each other – they might even be able to describe this in some rudimentary way – but without a degree of mastery over the underlying facts and

principles, they will struggle to accurately analyse the structure of the engine to any meaningful degree.

Once again, this illustrates the way in which the levels of the taxonomy are interlinked and how successful mastery relies on firm foundations.

Moving on, we see that level 5 is synthesis. This involves the creation of that which is new. It could be completely new, or it could be a development of something already existing. In this sense, the category covers a wide range of cognitive processes. In the context of analysis, the intellectual development here stems from the fact that a student needs to be able to effectively analyse the structure and make-up of a given item if they are to create something which reflects this, utilises it or goes beyond it.

Let us continue with our engine example to illustrate the point.

Having successfully analysed the structure of the engine, students are now asked to design an improvement to make the engine more efficient.

The word 'design' here signifies that an act of synthesis is being requested. And that act cannot be successfully completed unless students are first able to analyse the structure of the existing engine. This is because any improvement which they design will have to take account of that which exists already. Thus, we see the central feature of all synthesis-based cognitive acts: the movement from what is to what could be.

Successful synthesis relies on an analytical understanding of what has come first. Another example further demonstrates the point. If we ask a student to create an argument supporting the abolition of the death penalty in those countries where it remains in force, we are expecting that students have some degree of analytical understanding of what constitutes an argument as well as the idea surrounding the death penalty itself. If students are unable to analyse why the death penalty still exists and why many argue that it should not, then they will not have the tools necessary with which to construct their own argument regarding its abolition.

Once again, the metaphor of a building is helpful. It is easier to build on firm foundations than it is on shaky ones. In the latter case, we are severely limited in the scope of what we can do. And, crucially, there is a much higher likelihood that our edifice will fall if it is put under any sort of pressure.

This is exactly what happens in the classroom, though not necessarily to bad effect.

For example, a student who has failed to grasp the way in which our engine works may produce a design which, when put into practice, quickly fails. Now, this would demonstrate to us as the teacher that the student does not have a sufficient grasp of the engine's structure to create a successful improvement. But, it would also give the student an important learning opportunity. When played out, either in practice or through a model, they would see the failure of their design and then be compelled to ask: Why did it go wrong?

To answer the question, they would need to return to the drawing board and compare what they did with what they know about the engine. However, this knowledge would now be supplemented by the knowledge of their design's failure! From here they can begin to deduce further information about the engine's structure by comparing what they thought they understood with what actually happened when they tried to build on their understanding.

Exceptional application of Bloom's Taxonomy by teachers therefore involves the creation of an environment in which students are encouraged to see their mistakes as essential steps on the path to mastery.

A brief detour to reinforce this point before we turn to level 6, evaluation.

When developing the electric lightbulb, Thomas Edison went through hundreds of iterations with a team of workers. Each attempt was a failure. But each one provided an insight into why success had not been forthcoming.

Eventually, Edison and his team were able to produce a working lightbulb. They had mastered the process.

We might look at this as an incessant, repetitive journey between analysis and synthesis. Working with incomplete knowledge, Edison and his team continually tried to create something based on their analysis of what they did know and understand. Each failure indicated the incompleteness of their analysis. Therefore, on each occasion, they had to return to this and see what they could glean by comparing what they did know and understand with the information provided by the failure.