Basic cognitive skills – a comparison

Science

There are three established ways to approach a task. One can either use the methods in Bloom’s Taxonomy, the Scientific Method or the Universal Troubleshooting Method. Each of these methods is systematic and hierarchical – from the least complex to the most complex, with each step as important as the next. Each method has been designed to assist individuals in undertaking tasks that are seemingly difficult.

These methods have different characteristics and steps, but some of the means are parallel to the others. However, as diverse as these frameworks may seem, there are also segments connecting each method to the other.

Bloom’s Taxonomy (New Version) Originally conceptualized by Benjamin Bloom, Bloom’s Taxonomy is perhaps the most popular framework describing man’s learning method. Several theorists have also discussed and provided variations of this method and recently, Lorin Anderson and David Krathwohl proposed a new version of this method. (Wilson, “ Beyond Bloom - A new Version of the Cognitive Taxonomy,” par. 4) In following the template of Bloom’s Taxonomy, the first step involves the acquisition of the knowledge using the senses.

It often involves identification, repetition, and memorization. The second step is comprehension. Comprehension occurs when a person can already discuss a concept or idea by explanation or illustration. When an idea can be applied to concrete situations, one has already reached the third step – application. It involves being able to use the concept in more common situations that it can be related to. The fourth step – analysis – includes the ability to scrutinize the concept. The fifth step is evaluation, in which the concept can be judged and criticized based on certain standards.

By the sixth step, one shall be able to take the concept apart and use it to form a new complete entity – this is called synthesis. The Scientific Method The steps in the Scientific Method take on a slightly different angle. The first step involves asking the question where the topic to be studied is identified. Next, a background research is conducted about the concept. This is where available previous studies are referred to, so it is determined whether there have been other scientists or researchers who have undertaken the project. Formulation of the hypothesis is next in the process.

A good hypothesis is measurable and coherent to the question initially proposed. Tests are to be conducted to try out the validity of the hypothesis. The results of these tests are taken down and evaluated so as to draw conclusions. The results are further evaluated and connected to the previous steps. One analyzes whether there has been positive or negative results coming from the tests that have been conducted. The initial hypothesis is brought out and scrutinized on its validity. With all of the data that have been gathered, a detailed report is constructed to illustrate the details and results of the entire task.

One characteristic of the Scientific Method is that one or more of the steps can be repeated if the previous strategy does not yield results or the desirable outcome. Furthermore, there are times when a certain step like " testing the hypothesis" can be repeated several times in succession until concrete and verifiable results are accomplished. On the other hand, the new model of Bloom's Taxonomy requires fulfillment of a certain step before moving on to the next level. In fact, one cannot move on to the next level without the completion of the previous one.

For example: one cannot apply knowledge which he cannot comprehend first nor one cannot try to comprehend what he does not know of. Universal Troubleshooting Method The Universal Troubleshooting Method is characterized by a five-step program. Initially, a complete description of the problem is taken into account. To prepare for the process, all necessary tools should be present, including the best suitableenvironmentfor the project. All of the indications of the problem should be entirely noted detail by detail to ensure that the correct steps are going to be taken in the process of solving it.

To check if the problem is correctly identified, one should be able to replicate the symptoms. After this step, one is tasked to narrow down the root cause of the problem. This means that all nuances are to be tested and eliminated, if proven as a secondary cause. This can be a lengthy process and may require a lot of patience, much like testing the hypothesis in the Scientific Method. Once the root cause is identified, steps are to be taken to resolve or repair it. Using the appropriate tools, the root of the problem is eliminated and/or replaced. After the work in replacing or eliminating the problem, testing needs to be made.

One checks whether the problem still exists or persists. In cases when it does, then some of the steps are to be repeated to make sure that the problem is resolved properly. There may be instances when the problem is incorrectly identified and the step must be repeated to correctly identify the problem. But if the correct problem is resolved, it needs to be tested several times to ensure that it would not happen again. Additionally, one must check

if there are any potential problems that are created while resolving the main problem – problems that may cause more difficulty in the future.

The Universal Troubleshooting Method is aimed at solving or finding the solution to a particular predicament, while Bloom's Taxonomy can be used in more levels like learning a new skill – in fact, it is often utilized in a learning environment. This method (Universal Troubleshooting Method) can be more likened to the Scientific Method since it is normally following a dilemma. The steps, although not entirely interchangeable, can be repeated as much as it calls for. These methods require careful planning and execution – each project done following the steps correctly will definitely yield productive results.

These three approaches show how to manage a task. Each of these works based on a system that proves to be effective and, thus, valuable. Each system, each step, is geared towards the solution of the problem at hand. They are designed in such a way that each seems to be somewhat a reflection of the others, with variations or modifications devised based on necessity. But even with these distinctions, these approaches are, in the end, essentially similar to each other. Works Cited: Litt, Steve. " The Universal Troubleshooting Process".

2006. Troubleshooters. Com. 16 June 2009. . Wilson, Leslie Owen. " Beyond Bloom - A new Version of the Cognitive Taxonomy. " 2006. Dr. Leslie Owen Wilson's Homepage. 16 June 2009. . " Steps of the Scientific Method". ScienceBuddies. 2009. Kenneth Lafferty HessFamilyCharitable Foundation. 16 June 2009. .