Critical Thinking: From Theory to Teaching

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Metatiedot

Nimeke: Critical Thinking: From Theory to Teaching

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Aihe, luokitus:

Tiivistelmä: Thinking, including critical thinking, is indispensable to a person so that a person can base his or her decisions on solid reasoning and facts. Even so, to think critically requires more than just being critical; it requires skills and aptitude for applying the skills in practice. In addition, to become an advanced thinker, the skills need to be practiced, and for that classroom offers a natural venue.

Among numerous alternatives, Bloom's taxonomy and Paul's model provide two applicable frameworks for thinking. They can be consciously employed to practice critical thinking. The first one is a method for classifying the outcome of a thinking process. In turn, the second framework refers to a model of the elements of a thinking process.

The frameworks for thinking are examples of teachers' tools to formulate instructional objectives involving critical thinking. With the help of these frameworks, well-designed questions and the ABCD model, a teacher can strive to ensure students engage themselves in critical thinking during lessons.

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We all think. It's an essential part of us being human beings. But critical thinking – why should we be concerned with it? Don't we have enough people happy to criticize just about anything and everything? And how does critical thinking relate to teaching and learning? Relevant questions which will be discussed here.

Given the opportunity to gain a deeper understanding of critical thinking (from now on referred to as CT) by the U.S. Department of State, I was happy to take on the challenge. The E-Teacher Scholarship Program provided me with an opportunity to explore the concept of CT, a couple of frameworks for thinking, and the application of them to teaching. The process took the best part of my summer but the insights I had during the stifling summer days – and some nights – next to compensated anything I missed out while contemplating the art of questioning, or the incorporation of CT to lessons.

In the course, it became evident that rather than being about criticizing, critical thinking refers to fair-minded thinking which is aimed at reasoning at the highest level of quality [1] (#cite-text-0-0). This fair-mindedness entails a thinking process in which the strengths and weaknesses of different points are considered [2] (#cite-text-0-1). Without this ability, our thinking would be biased or, possibly, downright flawed. Thus, the skill of critical thinking is of great importance for everyone. Effectively, there are two components to CT: skills and habit of applying the skills [3] (#cite-text-0-2).

Bloom's Taxonomy and Paul's Model: Brief Overview

Critical thinking is about skills but the core question is which skills. To this, various scientists offer various solutions. Some of them are offered in a form of a framework for thinking. After a thorough literature research, Mosley et al. [4] (#cite-text-0-3) ended up introducing 41 frameworks of this nature. For practical reasons, it's appropriate to focus on some of them even if it were highly beneficial to acquire some knowledge of all of them. In the E-Teacher Scholarship Program, two were selected to be more closely reviewed, namely Bloom's revised taxonomy of educational objectives [5] (#cite-text-0-4), and Paul's model of critical thinking.

For many teachers Bloom's revised taxonomy with its six cognitive levels from simple to more complex (see Figure 1) is somewhat well-known as it has provided them with a tool for measuring thinking. There is also an older model of the taxonomy presented in figure 1. The taxonomy is a model of classifying thinking according to six cognitive levels of complexity. This taxonomy can be helpful for a teacher attempting to move students through a learning process. After all, it has been employed in the design of lesson plans to make them effective in terms of learning. [6] (#cite-text-0-5)
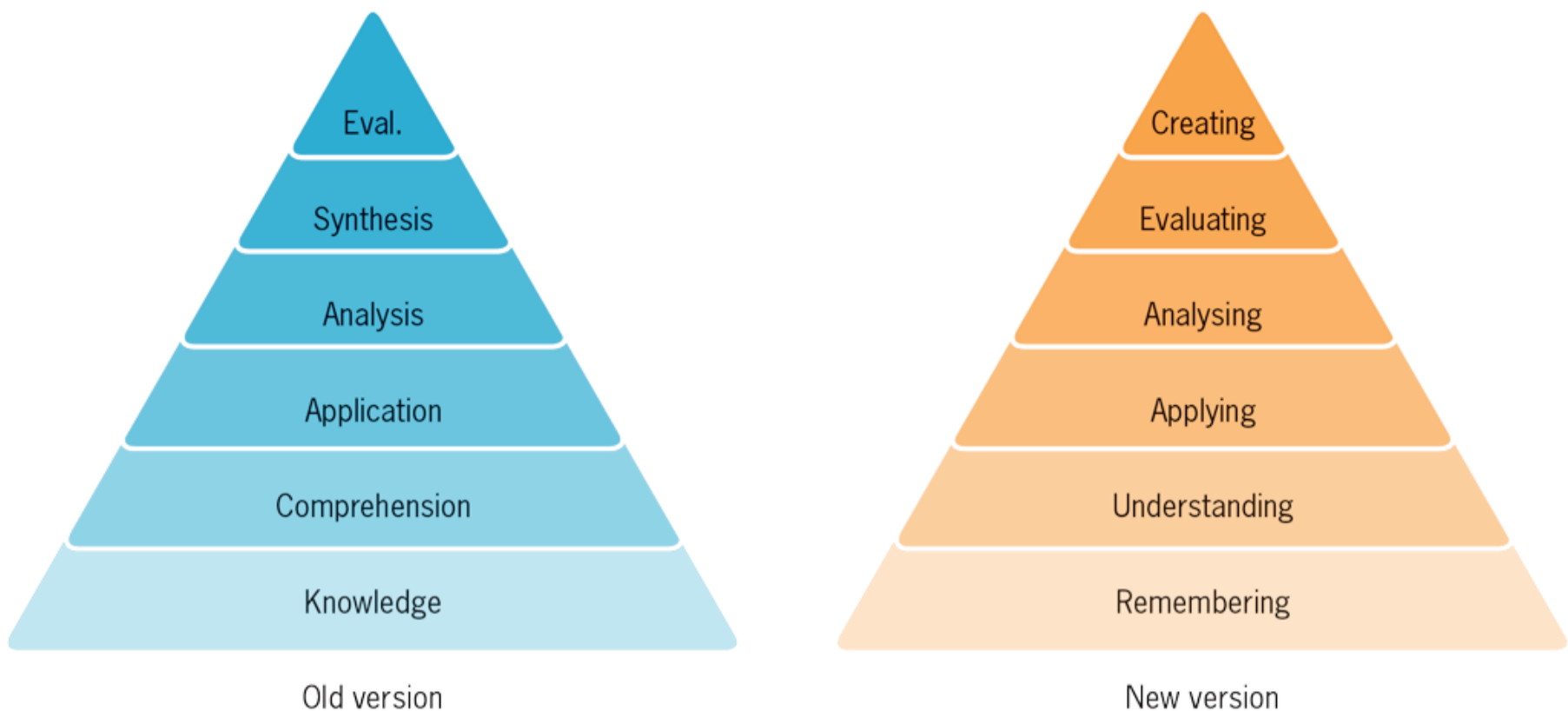
FIGURE 1. Six major categories in Bloom's Taxonomy: old and revised versions [1] (#cite-text-0-0)

As for Paul's model of critical thinking, it's possibly not as renowned as Bloom's taxonomy but it could offer just as functional a tool as Bloom's taxonomy (see Figure 1). These two frameworks seem to take two differing approaches to thinking. Bloom's taxonomy is about classifying the level of thinking behavior, for example thinking can be classified as being about remembering facts or about applying these facts into practice. On the other hand, Paul's model illustrates the process of thinking behavior.

Bloom's taxonomy can be portrayed as a hierarchical system whereas Paul's model can be depicted as a wheel. In this wheel the eight elements of thought, which are present in all thinking, are placed as in Figure 2. The idea is that a thinker can move back and forth between the elements [7] (#cite-text-0-6). This is a model of a process that can be consciously employed in decision making to guide one's thinking into a direction of CT.
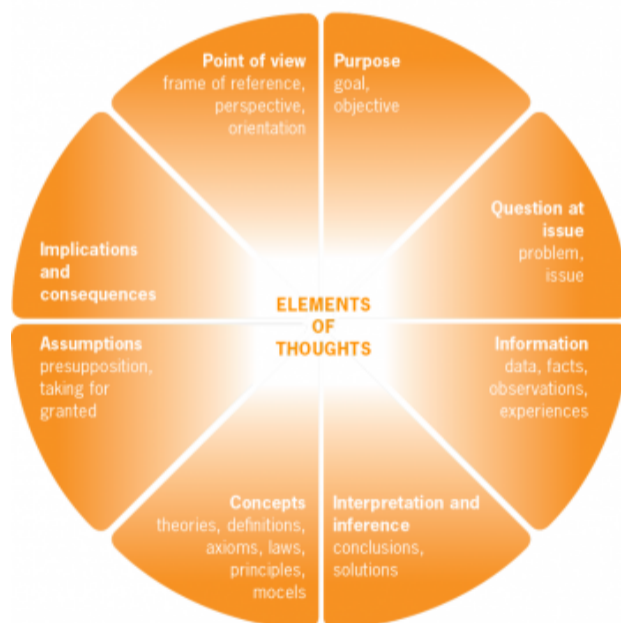

FIGURE 2. Elements of thought as presented by Paul & Elder [2] (#cite-text-0-1)

Even though Bloom's taxonomy and Paul's model appear to represent different approaches to thinking, they have some features in common as both include cognitive and affective aspects. The cognitive aspect is related to knowledge, and the affective aspect is concerned with attitudes, emotions and feelings (see Table 1).

TABLE 1. Cognitive and affective aspects in Bloom's Taxonomy and Paul's Model

Aspect / Framework	Bloom's Taxonomy	Paul's Model
Cognitive	levels of thinking [6] (#cite-text-0-5)	24 cognitive strategies (e.g. evaluating the credibility of sources of information) [2] (#cite-text-0-1)
Affective	five categories: receiving, responding, valuing, organizing and characterizing [8] (#cite-text-0-9)	nine affective strategies (e.g. developing intellectual humility and suspending judgement) [2] (#cite-text-0-1)

In Bloom's taxonomy, the levels of thinking are related to the cognitive aspect. When it comes to Paul's model, the concept of critical thinking is broken down into a list of 24 cognitive and nine affective strategies [2] (#cite-text-0-1). These strategies seem to address the elements of thinking (see Figure 2) from the viewpoint of action, i.e. what is to be learned or practiced, for example strategy 16 states: evaluating the credibility of source of information.

As for Bloom's taxonomy [8] (#cite-text-0-9), there is an affective domain with pertinent levels of behavior, and these levels depict the way people relate themselves to the phenomena they encounter. The levels encompass five categories starting with the simplest (receiving) and gradually moving towards more complex (responding, valuing, organizing and characterizing) behavior. In effect, the constant effort to improve critical thinking refers to an advancement to a higher level in Bloom's taxonomy and to a refinement of the thinking process depicted for example by Paul's model.

Some Implications of Critical Thinking for Lessons

Bloom's taxonomy and Paul's elements of thought might suggest the frameworks being rather theoretical. The challenge here is to translate these somewhat academic thoughts into instructional practice. In addition to the frameworks, there are some tools to do this, though.

In his book Chuska [9] (#cite-text-0-13) claims that well-designed questions will initiate higher-level thinking. He favors, for example, the idea of teachers posing students fewer, yet higher-quality questions with more than one viable answer. The aim would be to solicit higher-level thinking in forms of students applying, reacting to, or reflecting on the content, or the topic of the lesson.

Still another applicable tool to form instructional objectives with at least some critical thinking is the ABCD model. This model can be helpful in forming well-structured objectives in classrooms. The letters in this abbreviation stand for the following elements [10] (#cite-text-0-14):

A for the intended **audience**, i.e. students, of this particular objective,

B for the new **behavior** or **capability** the audience will possess after the task,

C for the **conditions** under which the audience is going to carry out the task, and

D for the **degree**, i.e. the criteria against which the success of the task will be assessed.

All of the elements above should be embodied in a concise description of an instructional objective for a specific lesson.

In order for an objective to be a CT objective, all of the elements above should be included in a concise description of an instructional objective for a specific lesson.

The following example of an instructional objective relates to a lesson topic of work motivation and constitutes only a part of the 90-minute lesson. Albeit important, the cognitive objective is set aside for now and the focus is on the affective objective. Employing the ABCD model, an instructional objective could be formulated in the following way:

Affective

Condition   **Audience**   **Behavior**   **Degree**

Discussing in pairs, students will be able to co-operate in order to determine the distinct features and viewpoints behind them fairly incorporating the relevant and justified ideas of participants into a joint analysis.

In the example of an affective objective, the audience is the students in the class. The behavior in this case refers to the capabilities the students will possess after the exercise, i.e. they will be able to co-operate with another person and incorporate differing ideas into one. This they will do in pairs which is the way they work and thus constitutes the condition. Students' success will be assessed based on whether in their analysis they demonstrate any distinct features and viewpoints of the theories as well as both participants' ideas to make it truly a joint analysis.

To be able to analyze an objective in this way makes it a critical thinking objective. An objective of this kind can also be analyzed in terms of Bloom's taxonomy and Paul's model. In this example, the objective targets some of Paul's critical thinking strategies and some of the levels in Bloom's taxonomy. In this case the affective strategies targeted in this objective were S-3 Exercising Fairmindedness and S-5 Developing Intellectual Humility and Suspending Judgement. In Bloom's taxonomy, the affective levels targeted in this objective were responding to others' thoughts and organizing ideas.

There is obviously a lot more to designing this kind of teaching. Firstly, to relate this to the frameworks for thinking, the following factors need to be determined: levels of Bloom's taxonomy and CT strategies the activity aims to target. And secondly, assessment of the activity is yet another dimension to be thought out prior to the lesson.

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