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HELPING STUDENTS DEVELOP HIGHER ORDER THINKING SKILLS

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Abstract. *The 21st century context seems to be quite challenging when it comes to discriminate between facts and opinions, truth and lies. Therefore, students should be equipped with the necessary skills which will enable them to judge the value of truth, to transfer the acquired knowledge to new contexts, to solve problems and to think critically. The article examines the importance of scaffolding the development of higher order thinking skills at the university level. Students appear to be rather unprepared to think critically. That is why the educator is to design the education process in such a way as to help students enhance their higher order thinking skills. The article examines some strategies applied to fourth-year students at Alecu Russo Balti State University, which can be used to help students become critical thinkers.*
Keywords. *higher order thinking, transfer, problem solving, critical thinking, skills*

The role of higher education institutions in a student's professional development is above all to help them acquire knowledge keeping their mind open, but always questioning and judging the degree of its truthfulness. The education process itself should stop being viewed as a mere transmission teacher-centred process, where there is no interaction and the value of what is transmitted is not supposed to be questioned at all. 21st century students should be above all equipped with the necessary skills to be able to reason, question and judge the value of the received information.

Indeed, while turning into large information consumers it is becoming more and more challenging to distinguish facts from fiction. Students seem to struggle to differentiate between what is true and what is false. Hence the development of higher order thinking skills should be fostered in the classroom, besides the development of skills to be used in their future professional environment.

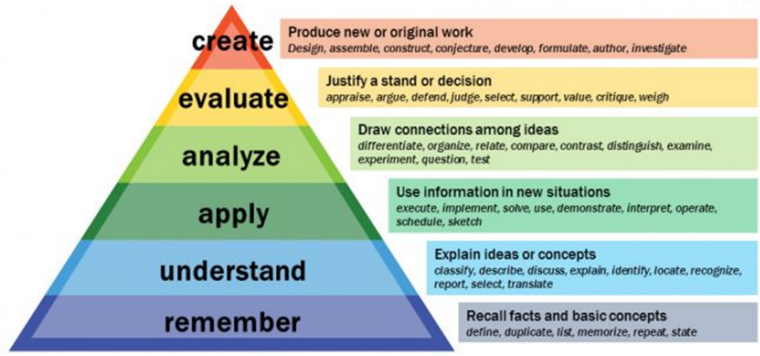
The process of education should be student-centred, whereas all the participants should engage in a constructive dialogue having equal speaking rights and being able to reasonably express a concrete point of view. Dialoguing is to be viewed as negotiating and co-constructing the meaning of what is to be justified, true and believed.

At the same time, technology should be integrated in this dialogue as it has become an essential if not a primary source of information in the 21st century. Moreover, the very nature of communication has changed due to the technological advancement. People tend to turn to the Internet every time they need to get informed, thus apparently becoming more and more dependent on the information found there. That is why being able to discriminate between knowledge and opinion becomes essential in the present context.

The notion of higher order thinking is not new. If we look at Bloom's taxonomy (Figure 1) (https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/), higher order thinking skills are positioned at the top of the pyramid. The distribution of skills goes from basic skills towards more complex. Thus, at its base there are the skills of recalling facts and basic concepts. It is a lower thinking skill, yet, it is crucial to acquire it as in order to develop higher order thinking skills one needs to have developed lower order thinking skills.

The problem is that sometimes too much emphasis is placed on memorizing, whereas analysis, evaluation and creation are totally overlooked. At university, learning should not be based on memorizing/learning by heart a certain amount of information without applying it to real life situations.

Figure 1: Blooms' taxonomy



Brookhart (2010) suggests considering higher order thinking within the framework of three, sometimes overlapping, concepts, such as transfer, critical thinking and problem solving. She points to the need of making the learning process meaningful, where the learned knowledge could be transferred to new contexts. Students are thus equipped with the ability to apply the previously acquired knowledge to new contexts and create new meanings without depending on the teacher's presence.

When it comes to critical thinking, scholars point to the fact that while having become a 'buzz word' in education (Kennedy et all, 1991), it may be reduced to an overly simplistic definition considering exclusively the upper three levels in Bloom's pyramid (Ennis, 1993). Norris and Ennis (1989) broadly define critical thinking as reasonable, reflective thinking focused on deciding what to believe or what to do.

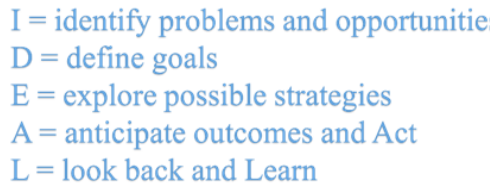
Kennedy et all (1991) recommend to define critical thinking not only considering the cognitive aspect (i.e. skills or abilities) but also considering the more affective aspect, i.e. dispositions a person should possess. Thus a critical thinker is open-minded and considerate of other people, stays relevant, is impartial, suspends judgement and takes a stance when warranted, questions one's own views, and uses his/her critical thinking skills.

In this case the teacher's role is to enable the students with skills and develop dispositions that will boost their ability to think. Students are expected to make sound judgements, being able to judge the credibility of the source, a crucial skill to be developed in the 21st information era. Barahal (2008) suggests using the 'Artful Thinking Palette' consisting of six thinking routines guiding students' thinking. The author points to the fact that these routines can be used in any educational context. The routines displayed symbolically in an artist's palette include: questioning and investigating, observing and describing, comparing and connecting, finding complexity, exploring viewpoints, and reasoning.

Problem solving can broadly be defined as the original process of finding solutions to difficult or complex issues. The teacher's role is to help students look for valuable solutions to open ended problems, being aware that there might be more than one solution to a problem, or that there might be several ways to tackle the problem. Bransford and Stein (1993) conceived the IDEAL approach to solve a problem. Each letter stands for a possible path to be taken to solve a problem. Figure 1 displays the framework.

The suggested framework could be used by teachers to help their students develop the problem solving skills. In the scholars' opinion the framework is useful if applied flexibly: 'for example, you may identify an important problem or opportunity, define your goals, explore strategies, anticipate possible outcomes, and realize the need to redefine your goals before actually acting on strategies.

Figure 2: IDEAL approach to problem solving



In short, you won't always want to go through the IDEAL components in a fixed order. This will become clearer as you gain experience using IDEAL' (Bransford and Stein, 1993: 20).

The assumption is that students first need to have lower thinking skills well developed in order to be able to develop higher order skills. But what would be the case of university students? They are supposed to be equipped at least with lower thinking skills while entering the university. Consequently, what teachers should strive to do is to help them develop higher order thinking skills. 4th – year students are expected to be able to transfer knowledge to new contexts, think critically and find viable solutions to open ended problems. Yet, while working with students in their last year of study, I could notice their higher order thinking skills were rather poorly developed.

Within the course of discourse analysis at Alecu Russo Balti State University while focusing on language functions, one of the students mentioned the fact that they learned about them, i.e. memorized them, before but they could not understand why they needed that information. While following the steps of the IDEAL problem solver, most of the students considerably improved their analytical skills. They could transfer the learned knowledge to real life contexts in order to solve problems. When they were helped to develop the skills of analysing a stretch of language taking into consideration the language functions, their motivation increased and they became more skilful in decoding appropriately different types of discourse.

Another traced problem is that because higher order thinking skills are underdeveloped, students seem to ignore the importance of several courses in their professional development. Thus, students studying translation did not see any use in studying stylistics. They thought of their instruction process only as a continuous translation exercise. Moreover, the translation itself was not considered within its context, it looked more like a drilling exercise for them, devoid of any contextual meaning. The teacher's role is crucial in raising students' awareness of the pitfalls of such a disposition. Instead students should understand the value of open-mindedness and thoroughly consider every opportunity contributing to their professional growth.

During the semester students were challenged to question and investigate, observe and describe, compare and connect different functional styles, as well as find complexity, explore viewpoints, and reason. At a certain point, they were asked to deliver a speech on Why is it (not) important to study Stylistics?. They were told that every opinion is accepted provided they offer solid reasoning. It should be mentioned that only one student still believed that the subject was useless. The others, however, seemed to have changed their mind. One of the students said:

We can enumerate other disciplines which are related to the study of language, but stylistics concerns more the application of the knowledge in practice. Think about questions and problems we face while writing an e-mail, a research paper or preparing to deliver a speech. It is stylistics which helps us to find the solutions and which points us the right way of doing things. Think about how we talk with our teachers, friends or neighbors. It is not just a stream of words you say at random; this is a conscious choice to adjust your speech to the situation. These are the reasons to

study stylistics. [. . .]Exercising our skills in writing essays, letter or poems we are on the way to develop our personal style of expressing thoughts, which distinguishes us from others.

The student's answer seems to indicate that they can apply the acquired knowledge to new contexts. They are able to explicitly enumerate the benefits of stylistics in their academic development, but above all they clearly see how to transfer knowledge, think critically and solve problems.

Another student stated the following:

So, we have to study stylistics because it enriches our way of thinking about language, improves our skills of language and makes us to be like critics. Don't think that stylistics is boring. It becomes interesting when appears the necessity to write something and we don't know how is correctly.

The use of the modal seems to indicate the remaining resistance in that student's mind. Yet, they seem to understand that the purpose was not to make them learn something, but rather to think about something from a new perspective so that they can 'be like critics'. The answer also shows that stylistics has contributed to the development of their transfer skills.

Another problem faced during my interaction with the students surfaced while dealing with Jonathan Swift's A *Modest Proposal*. At first, the students appeared to misunderstand the purpose of the essay. They did not have the necessary skills to properly analyse it. What they focused on was the literal meaning of the suggestions described, refusing to look beyond the surface of the text. Moreover, while dealing with Noam Chomsky's essay A *Modest Proposal*, the students struggled even more in understanding its meaning, stating at the end that Jonathan Swift's essay was much easier.

The students seemed to operate with the historically established concepts as true, i.e. eating a baby is a horrifying unacceptable crime. Yet, they could not deal with concepts related to the present global context at all, i.e. justifying and promoting terror could lead to extremely horrific consequences, resulting in so many casualties, including children. What seemed to be even more shocking was their lack of desire to want to know. Only one student showed enthusiasm in discussing and co-constructing the meaning of Noam Chomsky's essay.

While dealing with these two works it became evident that the teacher's presence was still needed in order to guide students to make reasonable judgements. Such a process is rather difficult as students seem to relate to concepts which are easy to process, and are reluctant to deal with more complex concepts which require extra-effort in understanding their meaning. So while becoming large information consumers, students should be helped to question above all the quality of information, on the one hand, and its value on the other.

Tomas and Thorne (2009) speak about the importance of metacognition as both thinking about your thinking and knowing about knowing. In the scholars' opinion students should be helped to become aware of their strengths and weaknesses so that they can develop their higher order thinking skills. In particular they point to six steps to be taken by student:

1. Know your strengths and weaknesses.
2. Capitalize on your strengths and compensate for your weaknesses.
3. Defy negative expectations.
4. Believe in yourself. This is called self-efficacy.
5. Seek out role models - people from whom you can learn.
6. Seek out an environment where you can make a difference.

Cox (http://www.teachhub.com/teaching-strategies-enhance-higher-order-thinking) suggests ten strategies to be used by teachers in order to enhance students' higher order thinking skills:

1. Teaching strategies to help determine what higher-order thinking is (i.e. developing students' metacognition);
2. Encourage questioning (i.e. promoting asking questions all the time);
3. Connect concepts (i.e. finding relationships between what is known and what is new);
4. Teach students to infer (i.e. finding the meaning by making inferences);
5. Use graphic organizers (i.e. helping students frame their thoughts);
6. Teach problem-solving strategies (e.g. using the IDEAL problem solver framework)
7. Encourage creative thinking (i.e. helping students inventing, imagining, and designing what they are thinking);
8. Use mind movies (i.e. encouraging students to create a movie in their mind of the concept(s) they are learning);
9. Teach students to elaborate their answers (i.e. helping students understand the concept(s), not just memorize it/them);
10. Teach QARs (i.e. Question-Answer-Relationships - labelling the type of question that is being asked, then using that information to help students formulate an answer).

As seen, enhancing students' higher order thinking skills should be fostered in the education process at every level. Yet, the assumption is that at the university level they should be prioritized. University studies are to prepare students for the real world, enabling them with the skills to make sound judgements, find viable solutions to problems and transfer the acquired knowledge to new concepts. The process of education has never been more complex due to the technological advancement. Yet, with grit and determination both educators and students could enter into a constructive dialogue of co-creation of meaning.

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