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Assignment #1: Creative and Critical Thinking

Elementary and secondary schools look much different than they did even 20 years ago. The curriculum has changed along with them, but is still missing some key concepts. Critical and creative thinking have been hot topics in education for many years, and yet they do not seem to be a core part of the curriculum. A common topic of discussion recently has been about employers looking for employees with critical thinking skills, so of course students want to further develop these skills. In order to facilitate this, educators and education administration need to understand what critical and creative thinking look like, why they are important, and lastly, how to incorporate these skills into the curriculum and lesson plans.

Critical thinking refers to the ability to logically approach a problem or question, analyze information, and then decide on a solution based on all of the information available. These skills allow students to solve problems in all areas, such as social conflicts, academic challenges, and everyday situations. This type of thinking happens without most people realizing in situations such as deciding what route to take home from work or finding a parking spot. For children, critical thinking needs to be used daily in maintaining friendships, playing with blocks or other materials, and fitting new information and experiences into existing schemas of forming new ones (Snyder & Snyder, 2008).

Children should also be practicing creative thinking as often as possible, as it will help with those processes as well. Creative thinking includes generating new ideas, finding connections between factors in a problem, categorizing information, and looking at multiple perspectives (Piawa, 2010). Lin (2011) focuses on two types of creative thinking: product-oriented and process-oriented. The distinction between these two types should help educators to incorporate aspects of creative thinking into class activities, as product-oriented can be understood as the product of a student's work being original and expressive, and process-

oriented can be understood as solving a problem using creative thinking skills. Lin (2011) also discusses the concept of "Big C" and "little c" creativity, where Big C refers to creative thinking that has a large influence, and little c refers to creative thinking used in everyday life. In the classroom, everyday creative thinking is seen in questioning, searching, manipulating, and experimenting.

In the classroom, educators should strive to nurture both critical thinking and creative thinking skills. The skills associated with both types are key in problem-solving, and another way to see this is with the terms divergent thinking and convergent thinking. Lloyd and Howe (2003) explain divergent thinking as generating many ideas that may or not have chance at solving the problem, and convergent thinking would be used to take one idea and dig deep to figure out if it could actually work and why or why not. For example, a teacher might ask students to come up with an idea for a fundraiser. Students using divergent thinking would come up with many ideas, such as a bake sale, a concert, a school dance, etc. but some might not actually be possible. The convergent thinkers would find a couple ideas likely to work, such as a bake sale or a car wash, then use all factors such as school size, traffic, weather, etc. to decide which option would likely result in more money raised. So, in this example, a combination of divergent and convergent thinking would result in having a variety of options to choose from, and the most logical realistic option being chosen (Lloyd & Howe, 2003).

Critical thinking and creative thinking are of course extremely helpful in situations other than school fundraisers as well. Although the purpose of education can be argued, what's on most people's minds is finding a suitable job. With this goal, students approaching the end of their schooling are being interviewed about and tested on their critical and creative thinking

skills. Employers claim to value these skills when hiring, as critical thinking skills especially improve productivity in finding answers, improve the ability to analyze information, collaborative capabilities. It has also been said that have critical and creative thinking skills is positively correlated with individuals' mental health (Strom & Strom, 2011). These skills also come in handy for job interviews, and interacting positively and productively with colleagues. For example, being able to resolve small conflicts or disagreements professionally can go a long way with employers. So, with this goal in mind, educators need to make a strong effort to nurture critical and creative thinking skills in students. Lin (2011) explains that, "Children are naturally creative, open to new experiences, attracted to novel things - this will diminish if not nurtured by favourable environments." If educators are able to create opportunities for children to practice these skills, they will be better equipped for the career they wish to be in, and will even be better able to contribute to society in being able to form logical opinions about politics, environmental crises, and much more.

Unfortunately, these thinking skills are not innate. Young students need to be taught how to analyze and use a logical process to arrive at a decision or solution. Having students memorize the steps of the process of critical thinking will not facilitate them being able to use those steps to actually solve a problem. Students need opportunities to practice the process, and memorizing these steps will not lead to long-term knowledge or being able to use those skills to problem-solve in novel contexts (Snyder & Snyder, 2008).

With all of the research about what critical and creative thinking skills are and their importance, there are still curriculums that do not focus enough on fostering them due to barriers such as time and resources. Kabilan (2000) suggests that, ideally, activities and projects encouraging critical and creative thinking should be included in the curriculum that

still cover the required content. In their research, Kabilan (2000) notes that although this is ideal, it is not possible in many school districts as they have just enough time to cover the curriculum material when working efficiently, which isn't necessarily the most effective way for students to learn. Many teachers struggle with the pressure of teaching to the test, which does not allow them to fit creative projects or student-centered instruction into their lesson plans. With these barriers in mind, having clear guidelines of how to weave critical thinking and creative thinking skills into the curriculum or even unit or lesson plans would make the process seem more possible.

Snyder and Snyder (2008) nicely sum up the ideal way to educate students by saying, "We should be teaching students *how* to think, not *what* to think." In order to help students become critical and creative thinkers, educators need to get out of the mindset of filling the students' brains with knowledge, and instead help them develop skills to gain and use knowledge, because those skills will stay with them long-term. With opportunities to work on these skills, Kabilan (2000) notes that it is important to let students struggle a bit, because they learn so much more when they find the information themselves rather than spoon-feeding them where they passively take in the information. The main goal in teaching critical and creative thinking skills is to engage students in the learning process, because when students actively learn new information and concepts, they are more likely to remember and understand. One example of this could be to ask students to make a funny story with new vocabulary terms instead of writing out the definition multiple times for homework.

Along with student-centered instruction, a helpful strategy in teaching these skills to students is for the educator to model the process. One way to do this is with the acronym I.D.E.A.L.S., which stands for **I**dentify the problem, **D**efine the context, **E**numerate options,

Analyze possible solutions, **L**ist reasons why options will or will not work, and **S**elf-correct if necessary (Snyder & Snyder, 2008). By using this process as often as possible as an educator, students are more likely to follow your example and have several opportunities to fully understand the process. Horng, Hong, ChanLin, Chang and Chu (2005) bring up another important aspect, which is to connect class activities to real-life examples as much as possible. These researchers explain that when students make this connection, it allows them to bring critical thinking into other aspects of their lives instead of that mindset being forgotten about the second they step out of the classroom.

There are a few styles of activities or projects that encourage both critical and creative thinking, and are based on student-centered instruction. Johnson & Johnson (2013) suggest assigning either individual students or groups of students to opposing sides of an argument and ask them to convince the other student or group that they should take their side. In this process, students practice structuring arguments based on self-taught information from different sources, have to predict what points the opposing team will bring up and try to counter them, and collaborate with peers which allows them to practice social skills. This would be possible for a variety of grade levels based on the complexity of the debate question or statement. Another activity that would use some of the same strategies is to use open-ended questions. It could also be possible to combine this with group activity by having students either come up questions for their peers about a topic, book, etc. or answer a set of open-ended questions as a group. For example, if the class had finished reading a chapter of their novel, it would be a good strategy to ask them questions such as “Why do you think they did that?” or “Was that the right thing to do?” rather than simple questions with one-word answers (Baker & Rudd, 2001).

Activities such as these have led to major improvements in the creativity that has been encouraged in schools recently in Canada. One example of this is Maker Space, which is an organization with a goal of fostering creativity in students through hands-on building experiences (Dougherty, 2012). In one New Brunswick school, a group of students had the chance to construct the podium for an upcoming guest speaker (with assistance). Using cardboard and collaboration, they were able to successfully build a podium out of cardboard including specific places for the microphone cords to extend through. Experiences such as these are a great step forward with giving students all of the skills and tools they need to be successful in whatever it is they choose to do.

There continues to be increasingly more research being done on the topics of critical thinking and creative thinking, so the next step is to put that research into action. As students move through their lives toward their future, these skills can only help them. Hopefully, the effects of these educational objectives to improve critical and creative thinking will begin to be seen as the younger students begin to enter the workforce.

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