

INNOVATIVE TECHNIQUES FOR ENGAGING 21ST CENTURY LEARNERS USING ICT

Ms. Harinder Kaur

Assistant Professor

Department of English

Swami Swatantranand Memorial College,

Dinanagar, Punjab, India

ABSTRACT

The 21st century skills are a range of competencies, taught across all levels of education, that give students the skills they need to navigate an ever-shifting workforce. Engagement is the key to student learning. Using activities that are relevant and differentiated for 21st century students includes using activities that incorporate technology tools that are a part of their everyday digital lives. The integration of digital technologies into teaching practices requires teachers to acquire new strategies and activities for differentiating instruction for 21st century learners. These skills encompass the learning of complex judgmental skills such as critical thinking, reflective thinking, creative thinking and problem solving. The use of problem-based learning, case-based scenarios, demonstrations, lectures, and discussions were some of the instructional strategies can be used to enhance higher order thinking skills. The students can also be trained about *21st century skills* by using some innovative learning models like problem-based learning, project-based learning, inquiry learning, and cooperative learning. Stepping into the new era of learning, many societies around the world are engaging in serious and promising educational reforms. A holistic framework in the form of a comprehensive process of fostering higher order thinking skills by providing quality 21st century skills in teaching and learning. This paper highlights how technology can be used for differentiated instruction, and it describes specific technologically-enhanced activities that are appropriate authentic uses of technology for differentiating instruction.

KEYWORDS: 21st Century Skills, Critical Thinking, Creative Thinking, Decision Making Strategies, Technology based education.

INTRODUCTION

Higher order thinking skills as one of the important components for an individual

should be able to solve new problems in the 21st century. HOTS also play an important role in applying, connecting, or manipulating the prior knowledge in order to effectively solve new problems (Thomas & Thorne, 2009). The desired result from students' HOTS development can be gained by the active role of teachers in planning, implementing, and evaluating HOTS-oriented learning. To be able to plan HOTS-oriented learning, teachers need knowledge of ways, strategies, and methods to train students about HOTS. The paper is actually a conscious effort to describe the strategies that can build the knowledge base learning strategies and thinking skills. The paper, will describe the basis for my approach for developing higher order thinking skills.

Literature Review: According to Bernie Trilling and Charles Fadel, authors of *21st Century Skills: Learning for Life in Our Times*, 21st century skills reflect the idea that “the world has changed so fundamentally in the last few decades that the roles of learning and education in day-to-day living have also changed forever.” The ongoing trends of globalization, technological progress and demographic change aren't likely to slow down in the near future. Technology is improving at an exponential rate. Goods and services are routinely transported around the globe every day, and a study from *Psychology Today* found millennial workers switch jobs every 4.4 years, on average. The integration of digital technologies into teaching practices provides teachers with new strategies and activities for differentiating instruction for 21st century learners. Prensky (2005) describes 21st century learners as having an easy familiarity with: new systems for communicating (instant messaging), sharing (blogs), buying and selling (eBay), exchanging (peer-to-peer technology), creating (Flash), meeting (3D worlds), collecting (downloads), coordinating (wikis), evaluating (reputation systems), searching (Google analyzing [SETI]), reporting (camera phones), programming (modeling), socializing (chat rooms), and even

learning (Web surfing) (p. 10). Having this skill set, these learners find instruction that incorporates digital technologies meaningful, relevant, and motivational (Oblinger & Oblinger, 2005; Jonassen, Howland, Marra, & Crismond, 2008; Small & Vorgan, 2008). Engaging 21st Century Learners and Differentiating Instruction with Technology 2 Differentiation according to learning style (individual or collaborative), preferred learning medium (visual, kinesthetic, or aural), and ability (multiple resources to address multiple levels of academic readiness) is possible when integrating technologically-enhanced activities into the instructional setting (Tomlinson, 2001; Anderson, 2007). However, research has shown that effective integration of technology into classroom instruction for teaching and learning is not widespread (Bracewell, Sicilia, Park, & Tung, 2007; Cuban, Kirkpatrick, & Peck, 2001; Ertmer, 2005; Karsenti, Brodeur, Deaudelin, Larose, & Tardif, 2002). Therefore this paper highlights findings from recent research regarding the knowledge that teachers need in order to effectively integrate technology into instruction (Jaipal & Figg, 2009).

Engaging 21st Century Learner in teaching learning process using innovative techniques:

It is undeniable that one of the 21st century components that students are required to learn is the ability to use higher order thinking skill with ease. With the help of theories, it allows teachers to have a framework that enables them to scaffold ways to teach thinking skills in a more systematic way. Being able to use higher order thinking skills puts the students on a whole new level. There are some ways to encourage higher order thinking skills among students. Some of the ways that teacher can implement HOTS is through questioning. The students are able to

question the output given by the teacher; it shows that students are thinking. Not only that, teachers should create room for students to ask questions instead of restricting them or shutting doors for them when they have qualms. Teacher should ensure that the teacher doesn't give negative reaction to the students when they have questions same goes to their peers. Teachers should have an open room discussion in which it allows students to think creatively. If students have questions and they seem unsure to answer them, teachers can guide them to answer it themselves. Teachers can also adopt a good thinking skill among the students is by teaching them the process of how to create connections between concepts. Willingham (2007) stated in his research that, the processes of thinking are intertwined with the content of thought or known as the main knowledge. This engages the students with the knowledge that they possess with the new knowledge that they are going to learn. When the students are able to do this, it gives them better understanding of a concept. Another strategy that can help students in thinking critically is by teaching them to infer. Teacher should allow students to use real world problems. For example, have the students talk about an incident that is currently famous or trending. Receiving an aid to teach critical thinking is also another way to help to think critically. For example to include graphic organizer using diagrams enables students to make connections and develop relationships between ideas. Using diagrams also shapes the thinking into a more ordered and systematic way of thinking. Teachers can infuse critical thinking among the students. When students are doing critical thinking, they are required to imagine and strategize what they are thinking. Being able to use critical thinking allows students to process and understand information clearer. Critical thinking also permits students to think out of the box hence being able to comprehend a new knowledge in

several different perspectives.

It is essential to teach students to elaborate their answer. When students elaborate their answers, they have to know the concepts well and try to elaborate it from the meaning that they can decipher from it. This will also encourage them to talk about what they understand from what has been taught to them. Instead of a yes or no answer, more detailed answers should be required from the students. The best strategy to teach higher order thinking skill is by letting the students know about the relationship between question and answer. Teachers can do this by giving a question that involves a bigger picture to the students. Students should find answers from this question using all means possible. From this question students will have to rely on previous knowledge to answer a new question. This strategy is known to promote higher-order thinking because students are more alert between the bridges made from the previous knowledge to new one. All of the teaching strategy is well supported by Johnson & Thomas (1992) whom also presented four general principles concerning to successful learning strategies:

1. Assist in students' classification of knowledge to make it in a more systematic way so it is easier to apprehend knowledge and teachers can use media, visual and aid maps which can visually exemplify concepts and relationships.
2. Construct new knowledge from the knowledge that students already possess and then turn it as an aid to help students understand the difference between a new knowledge and previous knowledge.
3. Teachers assist students by teaching them problem-solving methods and choosing strategies suitable for methodologies and smooth the progress of thoughts about procedures.
4. Encourage deep thinking via amalgamation; for instance doing thinking in a

pair or in groups.

While teaching, teachers should identify the main concepts and teach them critically. Teachers must also ensure that students understand the critical features that define a particular concept and how they distinguish from other concepts. In doing so, students are developing their analytical ability which is a major component of HOTS. Teachers have at their disposal a pool of teaching techniques and methods to choose from that provoke higher levels of thinking. Some of these techniques could be problem solving methods, cooperative learning, and case method and so on. Evaluate student's understanding level and creativity by judging how well they respond to complex and abstract problems. This assists the students to identify their areas of strengths and weakness in thinking activities. The students will learn how to think about their thinking and learning. This enables them to capitalize on their strengths and further develop them as well as look for a way around their weaknesses. Brainstorming is a good way for creating original and innovative ideas. The time when students are divided into groups and are allowed to brainstorm and reflect on solutions to a particular problem, they are open to a deeper level of thinking, as one student develops an idea, the other students are also feel challenged to think and develop better ideas similarly engaging in higher thinking. Question-answer relationships teach students how to label the type of question being asked and this knowledge helps them in formulating answers. The two major categories of question-answer relationship (1) questions where answers can be gotten from documented facts in text (book question) and (2) questions that require one's own experience (head question). The students become aware of the relationship between textual information and prior knowledge aiding them in

determining what strategy to utilize when seeking answers to questions.

Teaching from concrete to abstract and then again back to concrete can be very useful for students. Teaching abstract concepts, the use of concrete materials can be used to reinforce learning for both young and old alike. If a student is able to state an abstract concept in terms of everyday practical applications, then that student has understood the concept and can always make useful inferences and applications from what has been learnt to solving new problems.

Technological Gadgets helps to engage learner in teaching learning process:

Using computers for activities better suited to or more efficiently completed with pencil and paper is not appropriate. For example, using tally marks to collect one small set of data is more manageable as a paper and pen activity than a computer based spreadsheet activity. However, if the data collection includes a larger sample or the purpose is to compare different sets of data, a spreadsheet would be a more effective tool for the purpose and reflects authentic use. Likewise, an appropriate use of technology to support instruction would be using video that can be stopped in the middle of experimentation so that the learners can measure and examine processes occurring during the experiment. This is an authentic use of video that would be used by scientific researchers in the field and cannot be replicated in a paper and pencil mode. Differentiation: Introducing a few skills at a time via “just in time” training or chunking of process skills Teachers in the study by Jaipal and Figg (2009) who selected activities that introduced just a few technical skills at a time took advantage of “just in time” training techniques to build technology proficiency in students while teaching subject area content or concepts. Those teachers who

focused on teaching with the tool rather than teaching the tool found that their lessons were very successful in impacting student understanding whereas those teachers who set out to teach students how to use a computer-based tool, such as PowerPoint or KidPix, ended up Engaging 21st Century Learners. For example, one teacher designed a social studies lesson that had students create a graphic organizer depicting the sources of food contained in a “lunchable,” or lunch product that was to be marketed in one of the five economies being investigated in the unit. Students quickly located the sources of ingredients on the Internet and used that information in a concept map drawn with Smart Ideas. The lesson was successful because there were only a few skills needed to manage the technology used in the lesson, and the technology (the Internet and Smart Ideas) served to support the students’ knowledge acquisition as part of the learning activity. In contrast, another teacher’s lesson required Grade 4 students to learn multiple computer skills to create a slideshow—all in one fifty-minute lesson. They had to search the Internet, locate pictures and information about animals, and create a slideshow using that information. The lesson soon disintegrated into chaos because these students could not learn so many technical skills in one lesson. Teachers therefore need to be cognizant of the variety of skill levels their students will have with different technology tools and focus on teaching a few skills while learning the content. Scaffolding may need to be provided to facilitate understanding of the process required to complete some complex technologically-enhanced activities (such as creating a slideshow). Teachers in the study who were able to “chunk” the required processes into a few steps, even assigning an acronym for those steps, were successful in the lesson implementation. One example of successful “chunking” is introducing students to

NETS, a term coined by Bernie Dodge (2008), to teach web searchers to Narrow the search, use an Exact phrase, Trim back the URL, and look for Similar pages, a process which provides novice Internet searchers with four specific ways to increase searching productivity and an acronym to assist in remembering those strategies. Differentiation techniques for technologically-enhanced lessons include providing supports during lesson implementation as well as designing properly scaffolded lessons. Teachers in the study found that a well-designed, brief handout provided to students during lesson implementation could be used to differentiate for differing technical skill levels as well as levels of reading abilities. Compare the examples in figure 1 and note that the Grade 4 handout provides too much detail whereas the Grade 7 handout is clear, concise, and easy to follow. Engaging 21st Century Learners and Differentiating Instruction with Technology 5 Additionally, adding preliminary or anticipatory activities to activate prior knowledge from students' previous experiences with technology into the introductory activities of the lesson served to assist students in making connections before using the technology to learn content or create products. For example, one teacher provided an exemplar of a concept web that she created to guide discussion of how resources from many places become the lunch product students had brought for their meal. By modeling the concept web before asking students to create their own concept web, she provided a framework of expectations for student performance during the activity.

Outcome of the Study: The Students need to be able to solve complex problems as they occur. Effective problem solving involves several elements:

- Learning from previous problems

- Finding new ways to solve existing problems
- Solving problems independently or as a group

Adapting behavior to different environment

CONCLUSION

We live in a fast-changing world, and producing more of the same knowledge and skills will not suffice to address the challenges of the future. A generation ago, teachers could expect that what they taught would last their students a lifetime. Today, because of rapid economic and social change, schools have to prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that we don't yet know will arise. Emphasize adaptability, technological skill and all the other 21st century skills listed below to help your students thrive in the face of new challenges.

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