

**THINKING MAPS - AN EFFECTIVE VISUAL STRATEGY
EFL/ESL FOR LEARNERS IN 21ST CENTURY LEARNING**

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Abstract In this 21st Century learning students are encouraged to master skills that can enhance their professional in their lives. The traditional method to teach English now is suggested to be integrated with the standard modern method to Enhance higher order thinking skill. Thinking Maps is a language of eight visual patterns, each based on a fundamental thought process, designed by Dr. David N. Hyerle. Looking at to the demands in teaching English, educators need to consider Thinking Maps to their English instruction. The goals of this strategy are to help teacher having a variety of technique in teaching English and to cover the demand of 21st century learning in Enhance students' thinking skill. Aware towards a potential of this teaching strategy, Thinking Maps could be one consideration for teacher to practice in the classroom. This paper will elaborate on how the Thinking maps implement can give the contributions in teaching and learning English. The discussion will be in the introduction of Thinking Maps, the concept of Thinking Maps in English language teaching. Furthermore, the application of Thinking Maps into real instructional context will be elaborated.

INTRODUCTION

Nowadays, 21st century learning skills become a crucial change that has been moving over the last century from manufacturing to asserting information and knowledge facilities. We can see that knowledge is becoming more developed, more specialized and rapidly growing. Technology in information and communication has been shifting the nature of how people work and the meaning

of social interaction. Shared decision-making, information distributing, cooperation or collaboration, revolution, and speed are being urgent for a certain party. Nowadays, successful skills are emphasized to the way pupils are able to communicate well, able to adapt in response to new demands and changing environment, and able to explore the power of technology to provide creative and innovative knowledge (Pacific Policy Research Center, 2010)

Looking at to the American education that has been greater, it obviously need to be considered as a teaching and learning model for the other country to transform their education as well. To be an academician and a career-ready today, the process in teaching and learning must exceed mastery of core subjects and the comprised 21st century knowledge and skills such as critical thinking, communication, collaboration, and technology literacy. The American Association of Colleges for Teacher Education (AACTE) and the Partnership for 21st Century Skills believe that new teacher should be aware and be prepared with 21st century knowledge and skills. Teacher should also be familiar on how to integrate those skills into their instructional setting. Beyond classroom, fulfilling 21st century skill shall be our nation's priority to meet challenges in 21st century. This will be a matter in our education if the system is not following the 21st century demands in teaching our children (Greenhill, 2010).

To succeed in this 21st century learning pupils will be faced challenges pertaining to knowledge and skills, argument pertaining to the competencies and skills pupils are dealing with the unforeseen challenges ahead has resulted a number of literature. Cerneiro (2007) found that new approaches to learning must provide the characteristic of pupils now. Scott (2015) concluded that higher-level student should not be the only one party to get the growth of 21st century skills. Furthermore, not as well as it is be reserved solely for them. Instead, the earliest formal education should feel this important competencies and skills that are able to cultivate their meta-cognitive.

Looking at to the objectives of 21st century learning, The Personalization, collaboration, communication, informal learning, productivity and content creation are emphasized to be embedded by students' competencies and skills.

These aspects are key point of the whole vision in twenty-first century learning (McLoughlin and Lee, 2008; Redecker and Punie, 2013). In addition, personal skills (initiative, resilience, responsibility, risk-taking and creativity), social skills (teamwork, networking, empathy and compassion) and learning skills (managing, organizing, and metacognitive skills) are either considered as a crucial performance in the twenty-first century workplace (**Learnovation, 2009**).

Skills in 21st Century learning

The framework has been designed and developed by The Partnership for 21st Century skills, it conveyed that pupils are facing the global demand to have skills and thrive in this global economy era. The framework for 21st century skills are classified into four categories by The North Central Regional Education Laboratory (NCREL) and the Metiri Group, they are digital literacies, innovative thinking, operational communication, and high productivity.

Thinking Maps

Hyerle (2009) stated that Thinking Maps is a language of eight graphic patterns in which every pattern is related through a fundamental thinking process. And according to DeLorenzo (2011), Thinking Maps are one tool to provide visual support for the mental processes of diverse learners. The graphic patterns are connected to the cognitive skills whereby they can stimulate how thinking is developed. These graphic patterns as well are employed in all content areas. Not only are they used in different combinations for depth and complexity, but are also implemented by all parties in the educational setting community. Such as individual and a group across every grade level and curriculum are able to integrate these set of tools for life-long learning.

Hyerle (2007) established eight specific types of graphic organizers that are well known as thinking maps: circle map, bubble map, double bubble map, tree map, flow map, bridge map, brace map and multi-flow map. These maps showed specifically the enhancement in different levels of thinking on which map can support and facilitate students to practice and apply which level of thinking explicitly. Many researchers have conducted in this studies that showed how

thinking maps are effective in fostering students' thoughts (Weis, 2011; Long & Carlson, 2011; Kumari & Kumari, 2013). In traditional methods students are more emphasized on note-taking which it only offers a linear pattern of thinking while thinking maps are able to support and offer students the autonomy to determine which cognitive skills they focus on and how they form their thinking (Hyerle, 2009 & Hickie, 2006). By thinking maps students are able to elaborate their dependent learning and understanding on the practice in teaching and learning process which habituates them to realize and notice of how learning occurs. This awareness allows and motivates them to expand their mind and have a look to a variety of ways in using their higher order thinking skills (Hyerle, 2011). In general, the eight thinking maps which are flexible, consistent and easy to use will help students in learning.

The Concept of Thinking Maps

The discussion that involved higher-order thinking skills must include Benjamin Bloom's Taxonomy of Thinking (Bloom, 1976). Benjamin Bloom and his associates theorized a number system contained of six types of metacognitive skills which are abstracted into higher and lower-order thinking skills. Lower-order skills include knowledge, comprehension, and application while higher-order thinking skills involve analysis, synthesis, and evaluation (Himmele, & Himmele, 2017).

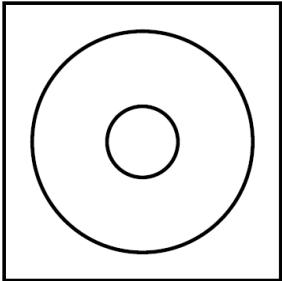
Many educators got difficulties and confused how to facilitate students to achieve Educators higher-order thinking skills. Based on the concept found by Bloom's Taxonomy is the work of Norman Webb (1997). He shifted the focus of his model from cognition to curricular depth in his creation of the Depth of Knowledge (DOK), which has enjoyed widespread popularity since its inception in 1997. This model has four levels (i.e., recall, application of skills and concepts, strategic thinking, and extended thinking) that are more cyclical than hierarchical. Tasks that are given to any level students will involve a certain skill from Bloom's Taxonomy. In this case DOK functions to help students afford to portray and observe the context of students' skills and understandings (Himmele, & Himmele, 2017).

Both DOK and Bloom's Taxonomy are concept fundamentals for the implement of Thinking Maps with students in that both concepts not only depict but inspire educators to evolve students' higher-order thinking skills. As described on the Thinking Maps home website, "Thinking Maps are consistent visual patterns linked directly to eight specific thought processes. By visualizing our thinking, we create concrete images of abstract thoughts. These patterns help student reach higher levels of critical and creative thinking – essential components of 21st Century education"

As students take ownership of Thinking Maps they can nurture higher-order thinking skills and require fewer scaffolds. Finally, they can be accustomed to apply their own critical thinking questions. Every map in eight Thinking Maps provides students the formats that are able to reflect and record connections to other content areas, prior knowledge, and the context in which they learned the latest information. All of this forms a schema for the student to relate the current information with the old one and emphasize and strengthen new memory patterns. Highly skilled educators expand the process by embedding critical thinking questions to lead and facilitate students in making their own connections. In this way Thinking Maps become a reference and guidance for students to have cognition and analysis skills.

The Concept of Thinking Maps in English Teaching and Learning

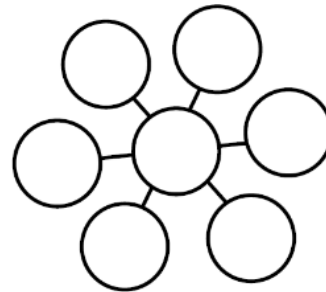
Hyerle (2011) proposed eight types of Thinking Maps which every type has its own function. They are circle, bubble, double bubble, tree, brace, flow, multi-flow, and bridge. Each of them will be explained in the table below:

Types of Thinking Maps	Graphic
<p>1. Circle Map</p> <p>This map helps the students to generate relevant information about topic which is represented in the centre of the circle. This</p>	

kind of map is usually used for brainstorming and deepening the content.

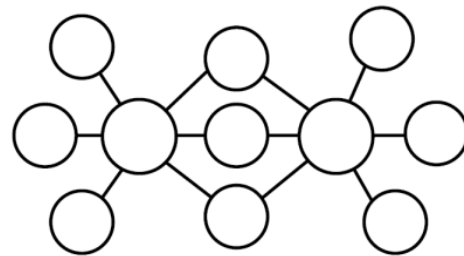
2. The Bubble map

The bubble map is used for describing things using adjectives. It helps the students to develop their ability to identify qualities and use descriptive words.



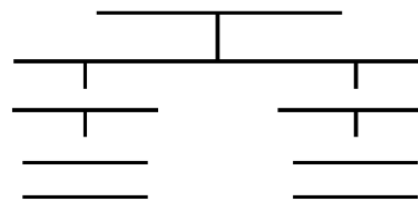
3. The double bubble map

This map is designed to compare and contrast two different things. Students can use this kind of map when they want to examine similar and different qualities



4. The Tree Map

This map helps the students to do both inductive and deductive classification. It can be used to classify things and ideas. Students will learn to create general concept or main ideas at the top of the tree and the specific details or supporting ideas in the branches below



5. The Brace map

This is designed to analyse the physical objects. It is

<p>used to show the component parts of a physical whole. This map encourages the students understanding on how to determine physical boundaries</p>	
<p>6. The Flow map This type of map is used to show order, sequences, cycles, timeline, actions, steps, stages, and directions</p>	
<p>7. The Multi-flow map This map is used to show the cause and effect relationship. The centre is an important event. On the left side of the event is the cause while on the right side is the effects.</p>	
<p>8. The Bridge Map This map is used for creating, seeing and interpreting analogies</p>	

Table 1. Types of Thinking Maps, Its Function, and Graphic

From the table above, it can be underlined that Thinking Maps are the representation of our thinking in the form of visual language. The Thinking Maps highlight the cognitive skills such as defining in context, comparing and contrasting, describing qualities, classifying, sequencing, showing cause and effect, and seeing analogies.

Studies of Thinking Maps in English Language Teaching

There are number of studies have been carried out by some researchers with different subject and purposes. Long (2011) tried to seek how Thinking

Maps affect the student's achievement. The students in his class had difficulties in compiling notes and connecting sentences in a paragraph. After he implemented Thinking Maps strategy in his classroom, the students showed big differences on how they link ideas and concepts. From his study, Long (2011) concluded that Thinking Maps are beneficial to students and teacher because they illustrate how students link ideas and concepts. Thinking Maps invite students to demonstrate their thought process on paper instead of in their minds.

Idek (2015) examined the practicability of Thinking Maps to foster students' ability to express their ideas orally in English. Tree map and flow map were integrated with speaking activities. The result showed that most of the students thought that the Thinking Maps helped them to generate ideas, expand the ideas and express them orally. The students felt more confident and delivered their speech in a more well-structured and well-thought content. This is similar to the results of the study conducted by Gallagher (2011) which showed that Thinking Maps improved the students' organization and clarity of writing.

Another current study was conducted by Fan (2016). The researcher implemented thinking maps to support students' thinking and decision making in the writing program in the elementary school in Taiwan. Circle Maps and bubble maps are two of the Thinking Maps that students applied in their writing program in 2 weeks for 5 times teaching. The study stated that Thinking Maps were able to facilitate students in enhancing good structure, providing ideas in their own essay writing.

Cooks & Sunseri (2014) in their research also examined the impact of some writing strategies on ELLs' writing skills that consist of prewriting strategies and scaffolding strategies inherent in the Thinking Maps (TM) program. The 8 students in grades 3 were selected to participate during writing class 2 days a week for 6 months. Expressing ideas in effective and innovative way was the purpose of the research. The result showed that most of students' writing scores specifically in ideas and organization have increased. Therefore, this program was acknowledged as a positive effect on English language learners' writing skills.

Omar & Albakri (2016) in their case study also conducted research in a secondary school which was believed by Ministry of Education to employ the thinking maps in the teaching and learning of English language. They used observations, interviews and field notes to collect the data. The findings exposed that students' critical thinking skill fostered through the use of thinking maps in literature subjects. The application of the thinking maps in literature subjects showed positive effects which the findings confirmed that the use of thinking maps helps students to generate ideas, enhance students' written and oral language and form their self-confidence in presentations.

In Indonesian context, a similar study was conducted by Murbiyani (2015). She tried to implement Thinking Maps strategy in the classroom in order to improve the students' writing skill in recount text. Through classroom action research design, she found that Thinking Maps can enhance the students' writing skills. Fan (2016) conducted a study on the use of Thinking Maps in writing project to the elementary students. She found that Thinking Maps help most of the students in developing good structure, providing more ideas in essay writing. As a result, the students are confident in English writing.

Another study was conducted as well in the use of double bubble maps by Maharani (2017). The study applied a classroom action research. The details in finding and discussion showed that double bubble map could affect the students' writing skills. The students were assisted in organizing their ideas and developing a coherent and united paragraph. The increasing mean scores of the subjects have proved the positive changes. The mean scores in pre-test, post-test 1, and post-test 2 were figures of 60.6, 67.5, and 74.8 respectively. Moreover, the subjects gave positive response towards the application of double bubble map. It was in accordance with the result of questionnaire.

The Advantages of Thinking Maps in ELT

Many researchers over the world have conducted the study on Thinking Maps as stated above, in 21st century learning thinking maps are obviously able to adapt in English language teaching as they helped students in any skills that are required to be mastered nowadays. Referring to the objectives of 21st century

learning; The Personalization, collaboration, communication, informal learning, productivity and content creation become key aspects for students' skills to be integrated in English language teaching (McLoughlin and Lee, 2008; Redecker and Punie, 2013).

Looking at to the objectives of 21st century learning Huitt, (2009) and Hyrle (1996) took a part to answer the demands through thinking maps as stated that thinking maps helped students to be a constructivist which are able to make explicit connections among thinking, meaning, and learning. Therefore, it appears that thinking maps facilitate teachers and students to construct knowledge (Huitt, 2009; Hyrle, 1996). It clearly looks that thinking maps assisted students to create their own content, to collaborate among pupils in the class, to be active and productive, and to be a problem solver. Hyrle (2009) said that “the use of visual representations during instruction support students learning; and visual learning strategies improve students' performance through explicit connections”.

Critical thinking is one of several objectives that are required to have by students in 21st Century. Paul & Elder (2007) said that students need to equip their self with critical thinking. It consists of several element skills of analyzing, making inferences, judging or measuring, and making the decision or solving problems (Paul & Elder, 2007). As Costa (2001) said that in the 21st century students are asked to have thinking skills in order to be able self-initiating, self-modifying and self-directing. Thinking maps are believed to facilitate students to hone their critical thinking skills as stated by Omar & Albakri (2017) in their study on Thinking Maps that findings showed that thinking maps gave a positive impact on students' comprehension as well as improvement in English language among students and findings demonstrated that the use of thinking maps increased their critical thinking skills in generating ideas, productivity and fostering self-confidence (Omar & Albakri, 2017). Meanwhile, Thinking Maps are able to be employed across all grade levels with many variations of content. They become valuable equipment for teachers in teaching and learning process (Long & Carlson, 2011). For students, they can benefit thinking maps as a new technique

that can be explored in any subjects and skills besides English. This will build students with creative, innovative and learner with problem-solving skill

Last other benefit that students are formed to be an active involvement learner since they are able to construct meaning through expressive and receptive language. This refers to Piaget's theory of cognitive development in significance of teaching and learning English (Piaget, 1981). From all benefits that are highlighted above, they demonstrate the useful and helpful strategy for both teachers and learners. Even any parties that involve in educational field are suggested and encouraged to try many techniques in order to get their students more developed. Especially in English Language teaching, the thinking maps are approved with many studies that informed us a number of positive impacts. Therefore, as an educator we have to see the development of teaching and learning strategies that conducted by other researcher or scholar over the world then we can adopt them in our school context.

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