21st century skills development through occupational therapy students' reflection by use of mind mapping concept in course of introduction to occupational therapy

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Abstract

Promoting occupational therapy students to have reflection skill was necessary in 21st century skills because it could develop their creative thinking and critical thinking resulting in work improvement, and self development. This study aimed to investigate the efficacy of mind mapping concept as a means to promote reflection skill among occupational therapy students. The study was undertaken during course of "Introduction to Occupational Therapy" for 1st year students. Students were assigned to write mind mapping concept after each session of learning module (6 times). Research instruments were: 1) the scale of reflection behaviors, 2) Student's mind mapping concept and the questionnaire towards learning styles in 21 Century. Data were analyzed using percentage, means, standard deviation and contents analysis.The finding that after use mind mapping concept to reflection, the mean of students' refection behaviors significantly increased. The finding suggest that the use of mind mapping concept is an effective tool to enhance student's reflection skills. Occupational therapy educator should be developed to shift sufficient knowledge and skills concerning the utilization of reflection among occupational therapy students.

Keywords: 21st Century Skills, occupational therapy, mind mapping, reflection.

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1. Introduction

Students not only need to acquire relevant knowledge but also must learn to effectively interact with peers around the world and to find innovative solutions to new problems. Pellegrino and Hilton (2012) classify such 21st century skills into three domains: cognitive, intrapersonal, and interpersonal [3]. In fact, these skills have always existed, but schools around the world now explicitly identify them as an area of focus because of changes in the complexity and interconnectedness of international economic, political, and social environments. The students of occupational therapy needs a continuous and substantial influx of highly qualified to next generation of occupational therapists in health professional sector. Along with their traditional professional skills, in the modern healthcare workplace need additional skills that prepare them to be reflective and collaborative problem-solvers with a broader view than just their specific expertise. In this study need for teachers to integrated 21st century skills training by using classroom activities and mind mapping concept for students reflection into their classroom.

2. Literature review

2.1. 21st Century Skills

Students today will enter a workforce and a world that is much more connected than it was fifty, twenty, or even five years ago. This means that they must be able to know how to use this connectedness in their academic, personal, and professional lives and be able to gather and analyze knowledge from more sources. As technology continues to evolve, so must the skills students learn in school so that they are prepared for what the world will ask of them. For this reason, more and more scholars and educators study and advocate for the development of 21st century skills in schools. Thus, although most "21st century skills" are not new, they are now positioned as a major focus of schools and classrooms.

At the most basic level, 21st century skills are summed up as the "problem solving, critical thinking, communication, collaboration, and self management skills" (Nadler & Garland, 1989]. Students need in order to succeed in school and beyond. They are also referred to by other names, such as deeper learning, college/career readiness, and higher-order thinking (Pellegrino & Hilton, 2012). Regardless of the term used, the emphasis on 21st century skills comes from the fast and continuous development of technology in the 21st century. The internet specifically perpetuates the rapid exchange of ideas and the expansion of social and professional networks. What students learn, therefore, and how they are taught, must also change with the times. This requires changes in curriculum and assessment. In fact, with the right programs and proper equipment, the digital media that consumes so much of students' and educators' personal lives can also be useful as an educational tool (Buzan, & Buzan, 1993). Pellegrino and Hilton (2012) and Saavedra and Opfer (2012) identify three domains of competencies under the umbrella of 21st century skills. The first domain is cognitive skills, which includes students' ability to memorize information and use reasoning in diverse situations. The authors then delineate three clusters of competencies within this domain: students' knowledge of content, the processes and strategies they use while learning, and the creativity they show when approaching new knowledge or applying what they already know. Schools have historically focused most on cognitive skills, as teachers have clear ways to transmit knowledge to students and methods to assess the acquired knowledge (Pellegrino & Hilton, 2012; Saavedra & Opfer, 2012). The second domain of 21st century skills is intrapersonal skills (Saavedra & Opfer, 2012). This domain focuses on one's ability to manage behavior and emotions in order to reach goals. As with cognitive skills, Pellegrino and Hilton (2012) and Buzan and Buzan (1993) identify three main clusters of intrapersonal skills: intellectual openness to new ideas and others' opinions, an understanding of one's own ethics and conscientiousness, and the ability to positively evaluate and self-reflect on progress towards goals. Because intrapersonal skills are not necessarily outwardly visible, they are difficult to assess under current norms.

The final domain is interpersonal skills, which include the expression of ideas and appropriate responses to what others do or say (Pellegrino & Hilton, 2012). These skills have two specified clusters

of competencies: leadership, and teamwork and collaboration. Many schools now emphasize students' ability to work in groups or teams, with varying degrees of success. Like intrapersonal skills, interpersonal skills are difficult to assess.

In order for students to learn these skills, teachers must know how to teach them. Saavedra and Opfer (2012) point out that traditional classroom teaching [4]., in which a teacher transmits knowledge verbally and students then replicate that knowledge on exams, is not conducive to the development of 21st century skills. In such a setting, students have little or no opportunity to analyze or apply knowledge. Therefore, schools and teacher training programs must reconsider teaching methods in order to promote 21st century learning.

2.2. Mind Mapping Concept

Mind Mapping is a useful technique that improves the way you take notes, and supports and enhances your creative problem solving. By using Mind Maps, you can quickly identify and understand the structure of a subject, and the way that pieces of information fit together, as well as recording the raw facts contained in normal notes. More than this, Mind Maps encourage creative problem solving, and they hold information in a format that your mind finds easy to remember and quick to review. Popularized by Tony Buzan (Buzan, & Buzan, 1993; Tangchuang, 2005), Mind Maps abandon the list format of conventional note taking. They do this in favour of a two-dimensional structure. As such, a good Mind Map shows the 'shape' of the subject, the relative importance of individual points, and the way in which facts relate to one another. Mind Maps are more compact than conventional notes, often taking up one side of paper. This helps you to make associations easily. And if you find out more information after you have drawn the main Mind Map, then you can easily add it in.

Mind Maps (Buzan, & Buzan, 1993) are also useful for: Summarizing information, Consolidating information from different research sources, Thinking through complex problems and, Presenting information in a format that shows the overall structure of your subject. Buzan (1993) suggests the following guidelines for creating mind maps: 1) Start in the center with an image of the topic, using at least 3 colors. 2) Use images, symbols, codes, and dimensions throughout your mind map. 3) Select key words and print using upper or lower case letters. 4) Each word/image is best alone and sitting on its own line. 5) The lines should be connected, starting from the central image. The lines become thinner as they radiate out from the center. 6) Make the lines the same length as the word/image they support. 7) Use multiple colors throughout the mind map, for visual stimulation and also for encoding or grouping. 8) Develop your own personal style of mind mapping. 9) Use emphasis and show associations in your mind map. And 10) Keep the mind map clear by using radial hierarchy or outlines to embrace your branches (Buzan, & Buzan, 1993; Stone & Josiam, 2000).

3. Research methodology

3.1. Participants

The participants were 78 occupational therapy students. The students received lecture and activities in classroom of the semester. During implementation, students write reflection by mind mapping concept 6 times that their can learn knowledge and experience.

4. Research Instrument

All participants from classroom was assessed for knowledge, skills and students' perception. This study adopted triangulation method for redeeming research quality. The assessment tools are the scale of reflection behaviors, Student's mind mapping concept and the questionnaire towards learning styles in 21st century skills, and classroom observation. Classroom observation was used as a supplementary tool to reflex students behaviour during classroom activities.

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5. Data Analysis

The quantitative data from questionnaire were analysed by using computer program by reported means and standard deviation. While the qualitative analysis approach was analysed data gathered from classroom observation and contents analysis by using mind mapping.

6. Result

In order to determine the effective of 21st learning, result were evaluated. The results are shown here;

6.1. Results on Students' Perception

As a results, the students presented four domains; Students Participation, Learning Behavior, Motivation and attitude of the students found that overall, all in high level results
The following is the results for Table 1.

Table 1. Results on Students' Perception

Item	Mean	SD	Result
Students Participation	2.20	0.32	High
Learning Behavior	2.25	0.28	High
Motivation	4.17	0.17	High
Attitude	4.31	0.10	High

As a result, the students presented four issues, including the participation of the students in learning behavior and motivation of the students and the attitudes of the students found that overall, all in high level results.

6.2. Results on Mind Mapping

Mind Mapping was reflection of occupational therapy students after finished sessions in course of introduction to occupational therapy. They studied contents by more classroom activities and less lecture. Mind mapping example was shown below for Figure 1-2.

Figure 1. Occupational Therapy Symbols

Chupradit, S., Chaikham, A. & Boonrayong, W. (2017). 21st century skills development through occupational therapy students' reflection by use of mind mapping concept in course of introduction to occupational therapy. *New Trends and Issues Proceedings on Humanities and Social Sciences.* [Online]. 4(1), pp 188-193. Available from: www.prosoc.eu
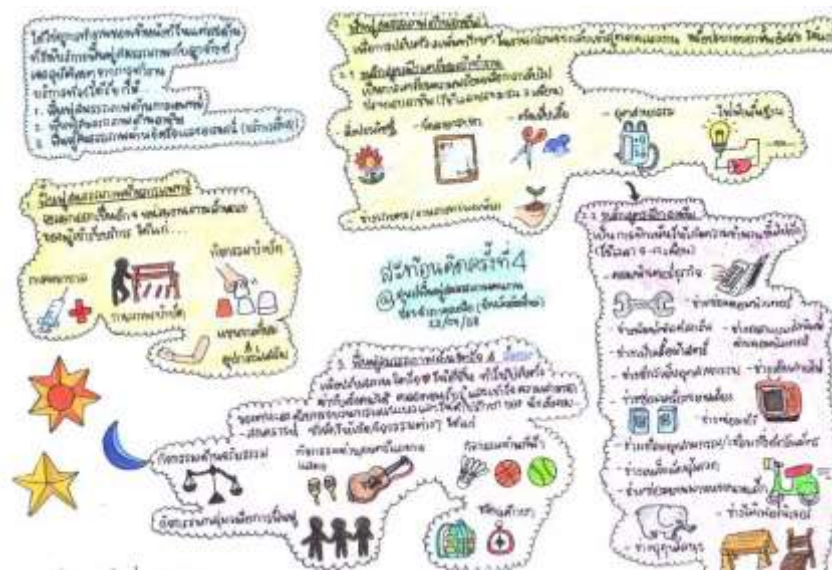
Figure 2. Mind Mapping Reflection

Figure 3. Mind Mapping Reflection

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7. Conclusion

The finding that after use mind mapping concept to reflection, the mean of students' refection behaviors significantly increased. The finding suggest that the use of mind mapping concept is an effective tool to enhance student's reflection skills. Occupational therapy educator should be developed to shift sufficient knowledge and skills concerning the utilization of reflection among occupational therapy students.

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