Letter to Editor

Concept mapping in medical education

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This article aimed to implement concept-mapping as a tool to improve the learning quality that enhances the higher order cognitive skills among medical students. A concept map typically represents ideas and information as boxes or circles, which it connects with labeled arrows in a downward-branching hierarchical structure. The relationship between concepts can be articulated in linking phrases such as causes, requires, or contributes to [1]. Students must take initiatives to develop their conceptual thinking through graphical representations. This would surely create confidence in their theory examinations because the strategy of representing the content in diagrammatic flow charts enhances cognitive visualizations which create an ability to visualize the relationship between the ideas that are mapped together. This visual mapping would also be very useful during integrated learning of medical subjects. Initially, it may be difficult to map the concepts but with the help of the facilitators they can easily overcome this phase. Thus, the facilitators have to reinforce the advantage that articulation of relationships between the concepts would surely enhance the meaningful learning among the students. Though the art of concept mapping was developed in 1972 by Professor Joseph D. Novak as concept maps "are graphical tools for organizing and representing knowledge", according to the Institute for Human and Machine Cognition, not many are aware.

I, Dr. Balaji Arumugam working as an active member of Medical Education Unit (MEU) in an esteemed institution and also a panel member of reviewers in Med Ed Publish (Association of Medical Education in Europe - AMEE) intended to guide students about concept-mapping to intensify their manner of learning. I took initiatives to explore about concept mapping to introduce some innovative ideas in my subject to assess the effectiveness of concept-mapping among students.

Four student volunteers were selected and the values of concept mapping were explained to them. The author prepared concept mappings for

the important areas of social and preventive medicine and distributed among these 4 undergraduate students. Gradually, the author also taught them to construct concept-mapping. After 2 months, prior announcement of questions to be learnt were revealed to the students and a question paper was provided to them, which included questions that were learnt normally by those 4 students and by concept-mapping by these 4 students.

Outcomes of concept mapping

The assessment revealed that ten students were able to

- Explain clearly about the underlying gleaning concepts
- Retain the acquired knowledge
- Pictorial representations with flow charts
- Utilized the branching hierarchical structure
- Illustrate complex topics in a comprehensible way
- Substantiate their learning concepts with regard to other integrated subjects

Facilitators are responsible for the competency frameworks of every future doctors because they promote learning and encourage students to achieve their goals. I wanted to inculcate this tool among the students with the help of other facilitators of our esteemed institution since it's a "**Collaborative Venture".**

As an initiative to my intention, I used concept-mapping as teaching improvement activity (**Figure – 1, 2**) in Faculty Development Program when I was a Resource Person for the "**BASIC COURSE WORKSHOP"** in "**MEDICAL EDUCATION TECHNOLOGIES**" on 24.06.2015, 25.06.2015 and 26.06.2015 organized by our Institute with collaboration of Sri Ramachandra Medical College and Research Institute on Domains of Learning.

The faculty members were very enthusiastic about this activity that reflected the active participation of the health educators to improvise the quality of medical education. Thus, concept mapping as a tool in medical education would enhance learning among medical students.

References

1. Joseph D. Novak, Alberto J. Cañas (2006). "The Theory Underlying Concept Maps and How To Construct and Use Them", Institute for Human and Machine Cognition. Accessed 24 Nov 2008.

Figure – 1: Concept mapping.

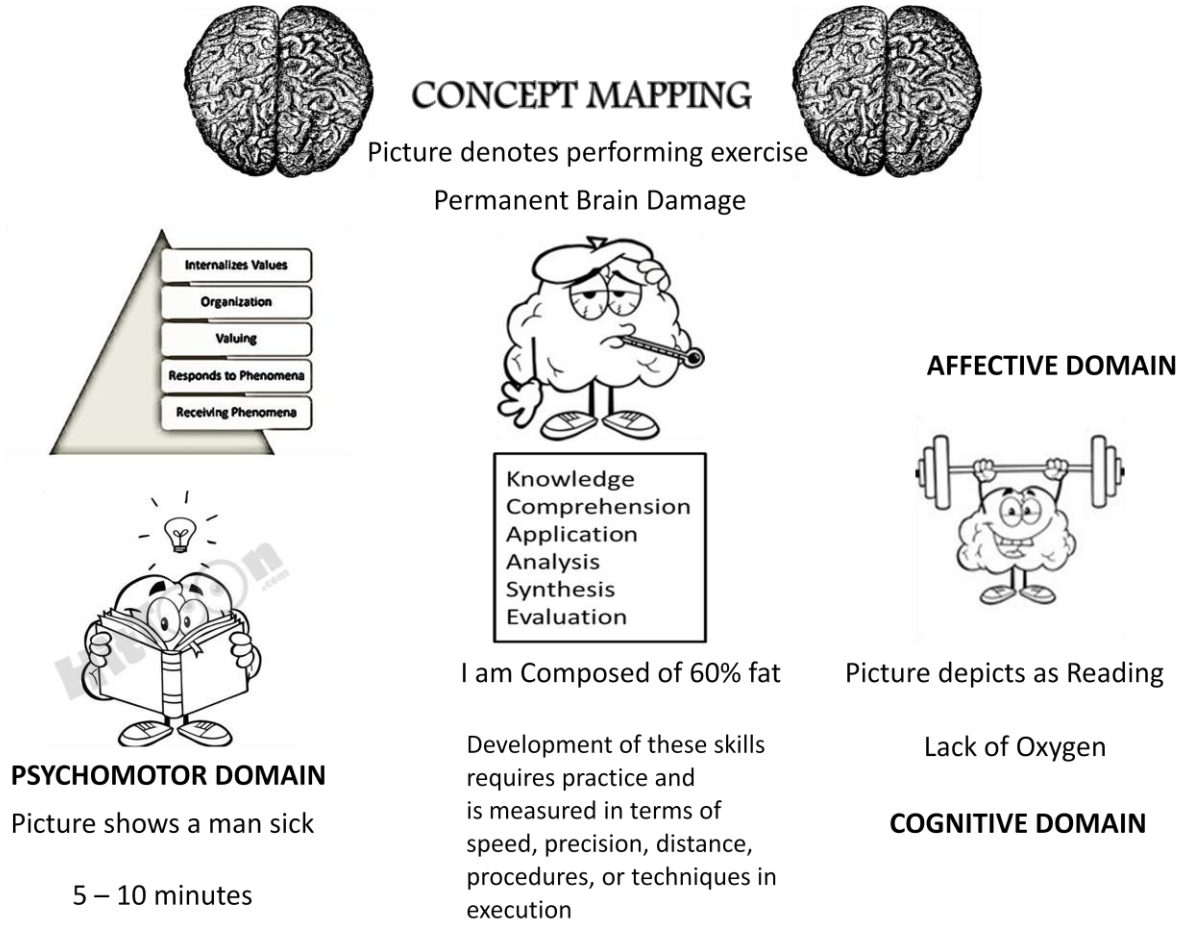

Figure – 2: Concept mapping answer.