Concept/Mind Maps

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Educator Development Program
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**Goal:** The purpose of this Zipinar is to give a quick overview of the learning application of Concept/Mind Maps.

**Learning Objectives:** By the end of this Zipinar, you will be able to:

- Differentiate the structure of a concept map and mind map
- Explain the learning benefits of applying a concept map
- List the steps to generate a concept map
- Describe the facilitator’s role with concept maps
- Assess concept maps using a rubric
What is a Concept Map?

A concept map is a diagram that illustrates conceptual knowledge in nodes or cells and relationships linked with directional lines from general to specific.

Based on the Assimilation Theory of David Ausubel, Joseph Novak developed the idea of concept map to show prior knowledge linked to new concepts.

Concept maps begin with a focused question and moves top–down from general to specific connected by labeled links that can be cross linked. Whereas, a mind map is more flexible and personal graphic representation of a centrally--focused single topic that branches out like a spider and has color or images.
Why Concept Maps in CBL?

Concepts Maps involve:

- Active, collaborative learning (creating a graphic representation)
- Higher–order thinking (apply, analyze, synthesize, evaluate)
- Visual information organization (integrates relevant information)
- General to specific information (hierarchal relationships of ideas)
- Easy comparison of groups
- Self–directed learning encouraged
- Missing information identified
- Critical thinking assessed

Good for relating new information to previous knowledge

Best for formative exercises that includes more students needing active practice

Helpful for visually-oriented learners

How to Construct a CBL Concept Map?

**Instructor’s Skeleton Map:**

a. From a selected case, show the case and identify the focused question

b. Provide a parking lot of relevant information and concepts

c. Prepare map with lots of white space

d. Form group of learners or assign to all learners

e. Give a time limit or due date

f. Check map for achieving learning objectives and correct spelling

**Learner’s Directions:**

1. Begin with a given focused question or hypothesis

2. Create or select from a parking lot of key concepts

3. Relate concepts and link general to specific with arrows and phrases

4. Or, add to instructor-provided skeleton map

5. Revise with more patient information

6. Confirm final map for assessment
Facilitator’s Role in Concept Mapping

1. Introduce concept mapping exercise
2. Explain why concept mapping is assigned
3. Provide the learning objectives for mapping exercise
4. Specify criteria for assessing concept maps
5. Show an example and distribute materials/tools to map
6. Allow time for generating concept maps or give “expert skeleton” prepared by Facilitator
7. Observe activity and give feedback
8. Grade with a structured assessment sheet
9. Review maps with learners and ask for learner reflection on the final mapping
Clinical Reasoning in a Concept Map

Create a Case Parking Lot
Patent’s story
History and Physical Exam
Prioritizing information
Program Representation
Hypothesis
Additional diagnostic tests
Comparison of illness scripts
Differential diagnosis
Diagnosis
Treatment plan
Prepare to treat patent

What is the patient’s chief complaint?

Patent’s Medical History

Chief complaint in history?

Select

What information is relevant?

Physical Exam

Chief complaint in PE results?

Select

Irrelevant information?

Order tests?

Program representation

Select

Use semantic qualifiers

Organize & prioritize information

Search and select illness scripts

Illness Scripts

Compare to

Pattern recognition

Differential Diagnosis

Compare to

Reflect

Diagnosis & Treatment Plan
Assessing with a Concept Map

Benefits

• Encourages collaborative learning
• Promotes deep learning
• Transfers ideas easily in a graphic presentation
• Self-assesses actively by comparing learner’s map to a master map

Challenges

• Discourages non-visual learners
• Requires timing to complete map
• Frustrates learners if no feedback

Assessment Items

• Identifies key concepts
• Links appropriate relationships
• Expresses critical thinking
• Sequences concepts in order
• Completes mapping task
## Concept Map Assessment Rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Exemplary</th>
<th>Competent</th>
<th>Pass</th>
<th>Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>Well organized</td>
<td>Thoughtfully organized</td>
<td>Somewhat organized</td>
<td>Confusing and incomplete</td>
</tr>
<tr>
<td>Links</td>
<td>Precise labeled links</td>
<td>Links labeled</td>
<td>Links not labeled</td>
<td>No links</td>
</tr>
<tr>
<td>Thinking</td>
<td>Original thinking included</td>
<td>Concepts suitable for topic</td>
<td>Adequate ideas expressed, but thinking not shown</td>
<td>Not clear thinking with inappropriate topics included</td>
</tr>
<tr>
<td>Communication</td>
<td>High level of understanding expressed</td>
<td>Clear presentation of understanding</td>
<td>Some understanding shown</td>
<td>Difficult to understand</td>
</tr>
<tr>
<td>Teamwork</td>
<td>Worked well &amp; helped others</td>
<td>Worked well with others</td>
<td>Some teamwork</td>
<td>Liele teamwork</td>
</tr>
<tr>
<td>Achieved learning objectives</td>
<td>Enhanced achievement</td>
<td>Completely</td>
<td>Partially</td>
<td>None</td>
</tr>
</tbody>
</table>

Sampling of Free Concept Mapping Tools

### Concept mapping
- **Mindomo**
  - [https://www.mindomo.com/mind-maps-for-education](https://www.mindomo.com/mind-maps-for-education)
- **Cmap**
  - [https://cmap.ihmc.us/products/](https://cmap.ihmc.us/products/)
- **Gitmind**
  - [https://gitmind.com/concept-map-maker.html#_1](https://gitmind.com/concept-map-maker.html#_1)
- **Mindmanager**
- **Xmind**

### Mind mapping
- **Mindup**
  - [https://www.mindmup.com](https://www.mindmup.com)
- **Coggle**
  - [https://coggle.it/](https://coggle.it/)
- **Bubbl.us**
  - [eps://bubbl.us/](https://coggle.it/)
- **Mindmaple**
  - [https://download.cnet.com/developer/MindMaple/i-10187653/](https://download.cnet.com/developer/MindMaple/i-10187653/)
- **MindManager**
- **Mind42**
  - [https://mind42.com/mindmaps](https://mind42.com/mindmaps)

### Mapping Tutorials
- **How to Make a Concept Map**
  - [https://youtu.be/8XGQGhli0I0](https://youtu.be/8XGQGhli0I0)
- **Concept Mapping for Learning, Reflection, and Evaluation**
- **Word: How to Create a Learning Map**
  - [https://youtu.be/tZpgeCdZGQ](https://youtu.be/tZpgeCdZGQ)
Please click on this **LINK** and take the brief survey and share your thoughts about this Zipinar.

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*Thank you for taking the time to view this quick overview.*
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