Organizing Students Knowledge

Educational Situation:

In a course, the instructor asked a question to two students. The two answers differed, the first student answer matched the textbook, while the second emerged after some thinking and conclusion.

Following the students' answers reveals different forms of knowledge organization. The first students learned a fact that was not connected to any other knowledge, on the other hand, the second student appeared to have organized their knowledge in a more interconnected way, enabling him to think through the situation to come up with the answer.

Therefore, the organization of knowledge for the first student will not support his future learning much, whereas the organization of knowledge for the second student will provide a solid and strong foundation for his future learning.

So, how can I help students to organize their knowledge in a way that ease their learning and improves their performance.

The Issue:

As teachers, we often unconsciously maintain a complex network that links important facts, concepts, procedures, and other elements. In comparison most of our students have not yet developed such

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interconnected and meaningful ways to organize the information they experience in our course. Therefore, the way they organize their knowledge has deep effects on their learning.

Educational Practice: Encouraging Students to Work with Multiple Organizational Structures

The quality of learning and performance is not affected by what you know, but also by how you organize what you know. Therefore, rich and useful forms of knowledge organization are highly helpful in supporting learning and performance, as students tend to organize knowledge in a random and shallow way. Thus, we should instruct them to see important connections and build more links between the pieces of knowledge they are learning, so that this leads them to develop more flexible and effective forms of knowledge organization.

Implementation Procedures:

Some of the following steps can be applied:[1]

1- Provide your students with an organizational structure for the course: don't assume that your students will see the logical organization of the material you present; they may not recognize the fundamental relationships. Therefore, providing with a "big picture" view that shows key concepts or topics in your course and highlights the inter-relation can help students see how the parts fit together.

[1] Some students may be familiar with concept maps, while others may not. Therefore, make sure to explain the types of maps and how to create them to your students.

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2- Apply a concept map activity at the beginning of the lecture: to gain insight into what your students know about a particular topic, ask them to create a concept map that represents everything they know about the topic, a specific concept, or a question.

3- Create a concept map to analyze the organization of your own knowledge: sometimes it is difficult for us to perceive how we organize our knowledge, making it challenging to convey it to students. Therefore, drawing your own concept map is a method that helps visually represent how you organize your knowledge. Once your concept map is complete, the main organizational principles and key features you use become easier to identify, and you can then guide your students through your concept map to direct them and clarify how you want them to organize their knowledge.

4- Share with your students the organization of each lecture, lab session, or discussion: since students' organization of knowledge serves as a guide for retrieving and using information, it is highly beneficial to help them establish a solid organization as they learn. To achieve this, providing an outline, key point, a visual presentation for each lecture, lab experiment, or discussion can give students a framework to organize the information they are about to learn. Keep in mind that not all outlines or key points are equally effective in helping students develop connected and useful knowledge structures. Therefore, ensure that the organizational framework you provide includes the key concepts or principles you want them to organize their knowledge around in your lecture.

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5- Ask them clearly to connect the information from your course with knowledge from previous courses: through incomplete concept map that you provide them with.

6- Analyze tasks to determine the most suitable form of knowledge organization: it is important to analyze the required tasks to determine the style of organizing knowledge to facilitate learning and performance. Based on your analysis, providing students with an outline, template, or blank table may be most appropriate approach.

7- Ask them to create a concept map: this will give you an understanding of how much your students know about a particular topic, as well as how they organize and connect different parts of their knowledge.

8- Encourage your students to work with multiple organizational structures: to help students apply their knowledge more flexibly, ask them to classify a set items according to more than one organizational framework. Giving students practical exercise in organizing their knowledge using alternative structures or hierarchies helps them see that different organizational forms serve different purposes, which leads to build a strong and flexible structures of knowledge.

9- Use a sorting task to reveal students' knowledge organization: ask your students to sort into groups different problems, concepts, cases. This method uncovers how students organize their knowledge without requiring them to clearly state the basis of their sorting.

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10- Observe students work and look for issues in their knowledge organization: it is important to pay attention to the error patterns that students make in organizing their knowledge, as they may create inappropriate connections or sorting that obstruct their learning and performance.

Resources

The Book of How Learning Works: Seven Research-Based Principles for Smart Teaching. Translated by Anas Maktabi (King Saud University).

Center for Excellence in Learning and Teaching – Promising Faculty Ambassadors program (first session) 1441 AH
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