



Principles of Meaningful Learning

Endah Retnowati

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- The meaningful learning is similar with the learning with understanding. In this case, the word *understanding* refers to conceptual understanding (comprehension of concepts, operations, and relations) and procedural fluency (skill in carrying out procedures flexibility, accurately, efficiently, and properly).



As we already know that when the learners be able to gather information from their environment and construct the knowledge by themselves in order to understand about something deeply, then here a meaningful learning occurs.

In order to reach the meaningful learning, the role of teacher as facilitator is needed.



Teacher must aware that students have different **preconception** with the material that they will be learned.

Conceptual and factual knowledge is very important to develop students' competence.

Meta-cognitive approach is also needed to help students control their own learning.



Four principles of meaningful learning:

- 1) new understanding begin with the prior understanding and experiences of the students
- 2) students' preconception must be engaged in the learning,
- 3) factual knowledge and conceptual frameworks are important towards meaningful learning, and
- 4) students self-monitoring can be attained by a meta-cognitive approach.



New understanding begins with the prior understanding and experiences

The existing (prior) knowledge of the learner, determined the next learning. It also leads to the development of conceptions. Moreover, the teacher should be aware that every student has different prior knowledge and experiences to begin new understanding or learning. Teacher should be able to draw on knowledge and experiences that students commonly bring to classroom but, then activate it with regard to the topic of study.



Students' preconceptions must be engaged in the learning process

Teacher should assist students to assimilate the different preconception of students with the materials or topics presented to students.

- Three strategies:

1. Draw on knowledge and experiences that students commonly bring to classroom but are generally not active with regard to the topic of study.
2. Provide opportunities for student to experience discrepant events that allow them to come to terms with the shortcoming in their everyday models.
3. Provide students with narrative accounts of the discovery of (targeted) knowledge or the development of (targeted) tools.

Factual knowledge (procedural fluency) and conceptual frameworks are important towards meaningful learning

When the proficiency of student in procedural or conceptual understanding too little, it is possible for students to understand something not deeply (superficial). Therefore, to understand topics or materials that be learned, students are expected to have good proficiency in factual knowledge and conceptual understanding and also make a link between both of them.



Student self- monitoring and reflection can be attained by a meta-cognitive approach

In the psychological literature, “meta-cognition” is used to refer to people’s knowledge about themselves as information processors (Donovan & Bransford, 2005).

From this definition, we obtain information that when the learners try to understand something deeply, they must develop their ability to take control of their own learning, consciously define learning goals, and monitor their progress in learning.



Three instructions that support meta-cognition

They are an emphasis on debugging, internal and external dialogue, and seeking and giving help.

1. Emphasize on debugging, help students to find where their errors are, why their answer is not correct, and correcting their answer.
2. Dialogue; give the chances for students to advance their thinking and monitoring their own understanding.
3. Students must have enough confidence on engaging new problems, try to solve them, and seek help when they are stuck, and helping can also increase the meta-cognitive awareness of the helper as he or she takes into consideration the thinking of the student being helped.

Summary

■ meaningful learning occurs when the learners be able to construct their own knowledge

■ meaningful learning occurs when the learners be able to construct their own knowledge and monitoring their progress by themselves

Summary

✚ Students can connect among their existing knowledge and afterwards connect them with the new knowledge by assimilation or accommodation way

✚ Between factual knowledge and procedural fluency must be linked in order to help students understand new knowledge (certain topics or materials)