

The use of Meaningful Reception Learning in lesson on classification

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Abstract

This paper begins with a learning theory of instruction. It describes how Meaningful Reception Learning can be used to teach in classification of items. Meaningful Reception Learning is a learning theory of instruction proposed by Ausubel who believed that learners can learn best when the new material being taught can be anchored into existing cognitive information in the learners. He also proposed the use of advance organizers as representations of the facts of the lesson. The principles of Meaningful Reception Learning; derivative subsumption, correlative subsumption, combinatorial subsumption and superordinate learning are used in the classification of items. The items classified in this paper are fabrics. The classification is divided into man-made fabrics and naturally occurring fabrics. The hypothetical learners in this paper are undergraduate students but the principles can be modified to fit a different audience.

Keywords: Meaningful Reception Learning, Learners, Advance Organizers, Subsumption, Ausubel

Introduction

The theory of Meaningful Reception Learning was developed by Ausubel (1960). Ausubel's experiments (1960) supported the idea that when learners were presented with facts that were of relevance to the lesson being presented, the learners were more likely to understand the lesson. When these facts are presented ahead of the lesson, they are called advance organizers (Ausubel, 1960). He noted that if learners were presented with the facts of the lesson in such a way that the facts subsumed into one another in a relational manner, the learners were more apt to learn (Ausubel, 1962, 1963).

Further, his experiment showed that when learners were provided with concepts that subsumed into one another like nested dolls, the learners were more likely to relate the concepts relationally. The use of concept mapping has been used successfully in improving performance in business and economic statistics (Chiou, 2009), problem solving (Hao, Kwok & Lau, 2010) and it has been used to improve performance in Biology (Udeani & Okafor, 2012).

The nested dolls in figure 1 are a representation of subsumption. The smallest doll can fit into the preceding doll which in turn can fit into the next doll until they all fit into the biggest doll. When the dolls are arranged in order of size, they can be seen relationally to one another. All the dolls can fit into the biggest doll.

Figure 2 shows a graphical representation of what the instructor can present to the learners. Crepon is written in red font or it may be bolded. The graphical representation in Figure 2 is adapted from Neal, M. M. (2005). *Needlework for schools*. Nelson Thornes Ltd: Cheltenham.

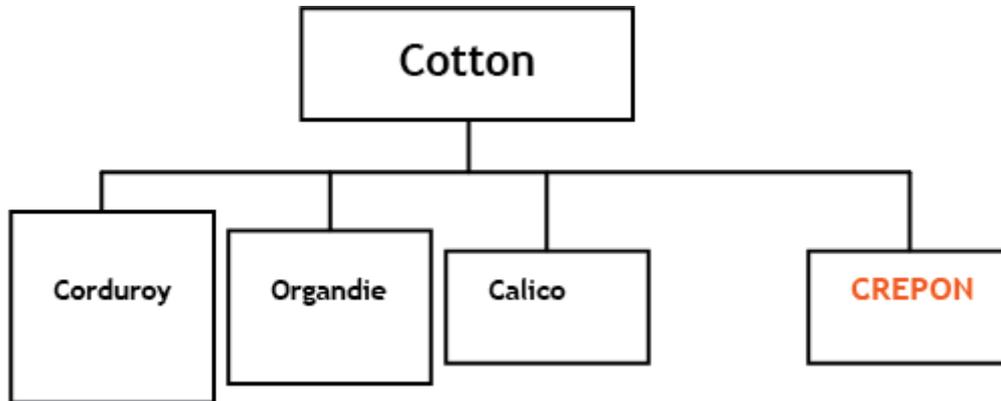


Figure 2 Graphical representation of derivative subsumption of crepon into existing knowledge of types of cotton

Correlative Subsumption

The learners would also learn through a correlative subsumption. This would involve some high level of thinking because they would add something new to their knowledge. If for example the learners knew that winceyette was a fabric but did not know that winceyette was also a cotton fabric because it is usually sewn as a nightwear, the learners would now add winceyette as a new knowledge that cotton can also be used as nightwear in the form of winceyette (Neal, 2005).

Superordinate Learning

In Meaningful Reception Learning, the learners also learn through superordinate and combinatorial learning. As an example of superordinate learning, if the learners know that fabrics were bought in shops and thought all fabrics were man-made, then if they learn that cotton and wool are naturally occurring; this new information would be superordinate to their existing knowledge that all fabrics were man- made.

Combinatorial Learning

Another principle of Meaningful Reception Learning is combinatorial learning. In combinatorial learning, the new idea is similar to the existing concept but it is not above or below it. As an example, I would expect the learners to know that wool, silk, cotton and linen are all naturally occurring fabrics. Further, I would expect them to know that wool and silk are from animal sources while cotton and linen are from vegetable sources or plant sources.

The learners should be able to assimilate the new information into their existing information and anchor their ideas to prior existing ideas in order to be able to retain the new knowledge. If the learners do forget, it would be because what they learned through subsumption, got dissociated from the anchoring idea (Driscoll, 2004). Even if they do forget, it would be easier

to retrieve or easier to relearn than if they had learnt from rote memorization. In Meaningful Reception Learning, the learner is able to differentiate more of the concepts in the learning process because of the relational associations made.

Lesson Outline

Since Meaningful Reception Learning encourages meaningful learning rather than rote learning, the learning material should be presented in a carefully organized way. The advanced organizer can be presented using PowerPoint slides, flip charts, smart board, handouts and the chalk board. The instructor should give an introductory statement that would show the relationship of high-level concepts that is broad enough to encompass all the information that would follow. As an example, the instructor can say, "*All fabrics can be divided into two broad categories*". The advanced organizer should present a general overview of what would be taught. It would show the broad concepts of the lesson, highlighting relationships amongst ideas that would be presented.

The advanced organizer should be easy to learn and use. It would be straight forward and show the logical relationships between naturally-occurring fabrics and man-made fabrics. In the advanced organizer, the instructor should make use of highlighting and bolding which is important in cognitive information processing because it is also important that there is clarity in the advanced organizer (Armbruster, & Anderson, 1988; Clark & Mayer, 2011; Glynn, S. M., & di Vesta, 1979 & Lohr, 2007). The learners can be encouraged to write the classification on flash cards.

In addition, a comparative organizer should be presented to compare and contrast the different types of fabrics, highlighting and clarifying those areas that may appear ambiguous. The instructor can make use of cross- referencing as some fabrics are made with a combination of man-made and naturally- occurring fabrics.

The instructor can make use of progressive differentiation, starting at the broadest classification of fabrics then narrow down to naturally- occurring which narrows further into wool and cotton which divides further into a myriad of other forms. In the man-made category, the instructor should progressively explain the differentiation of the man- made fabrics like rayon and chiffon.

The instructor should let the learners know the importance or relevance of the lesson to them. If they know how to differentiate the different types of fabrics, they would be able to choose the right sewing needle. They would be able to choose the appropriate fabrics for a particular dress design.

The learners should be discouraged from memorization because Meaningful Reception Learning would not occur by memorization (Driscoll, 2004). Meaningful Reception Learning can only occur when the learners are able to attach new knowledge (that is potentially useful) to existing knowledge that they already have (Ausubel, 1960 & Sweller, 2010).

The aim of the advanced organizer is to stimulate a recall of the prior knowledge of what the learner already knows about fabrics. The advanced organizer would also let the learners know what is important in the lesson.

After presenting the advanced organizer, the instructor should present the similarities between man-made fabrics and naturally occurring fabrics. I would give examples of the man-made fabrics and give examples of naturally-occurring fabrics. I would also give non-examples. For example, beads can be used to make dresses but they are not fabrics.

Fabrics could be man-made or they could be naturally-occurring. For meaningful learning to occur the instructor should teach the big ideas that are highest in the hierarchy first. Then the instructor moves from the largest division of fabrics (i.e. man-made or naturally-occurring), to the division of naturally-occurring fabrics into animal sources and plant sources. The animal sources are wool and silk. The plant sources are cotton and linen. The man-made sources are divided into two broad categories; natural polymers and synthetic polymers. The graphical representation in Figure 3 depicts the classification of the fabrics into natural and manmade fabrics and is adapted from an article from one of the projects by MIRALab (Meinander & Mäkinen, 2005). The MIRALab is involved in several projects including fabrics (MIRALab, 2013). It further describes the natural fabrics into fabrics derived from animal sources and fabrics derived from plant sources.

As the lesson is being taught, the students should look at the connections, the similarities, the differences, the concepts and encourage anchoring of the new information on to their existing knowledge.

At the end of the lesson, the instructor can create an empty chart with two large headings titled- *Naturally occurring fabrics* and *Man-made fabrics*. Each student can be given a card with the name of the fabric and a cut piece of the fabric. Each student can now be called upon to stick the fabrics under the right heading.

Some samples of the fabrics in the major divisions of the fabrics would be brought to class. PowerPoint Slides can be used to show the different types of fabrics. The instructor can actually bring different types of fabrics to class or the students can be encouraged to bring different types of fabrics to class. On a board or on a flip chart, the learners can make a table of the two major divisions of fabrics and place the appropriate fabrics underneath each table.

At the end of the lesson, these strategies would have resulted in meaningful learning because the learners were able to see the similarities and the differences in the divisions of the fabrics. They would have used derivative subsumption, correlative subsumption, combinatorial and superordinate subsumption.

The classification of fabrics is much more extensive than what I have represented but it has been simplified to give an idea of what the chart would look like.

Conclusion

This paper has described the use of Meaningful Reception Learning in a hypothetical lesson of classification of fabrics. It has made use of subsumptions and advance organizers. This paper also described the conclusions of Ausubel on Meaningful Reception Learning. Learners can learn relationally when the concepts of the lesson are presented in a way that the learners can anchor the new knowledge to already existing concepts.

Recommendation

While other learning theories can be used in teaching a lesson on classifications, the use of Meaningful Reception Learning can be used in lessons involving classifications of facts. The use of advance organizers in Meaningful Reception Learning and the use of principles of subsumption make the relationships in the items being classified easy to see at a glance.

Biography

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