

Advance Organizer:

Cognitive Instructional Strategy

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Abstract—This paper discusses advance organizer as a cognitive instructional strategy used to promote the learning and retention of new information. In the literature, researchers used narrative literature review to describe the current states of both art and science in focused areas of inquiry. Advance organizers are used in good "transmissive" teaching, e.g. direct instruction. Such teaching is different from simple rote learning, since learners are encouraged to relate new knowledge to old knowledge. Researchers collect all the important points of discussion, and synthesis them here with reference to the specific field where this paper is originally based on. The findings show that advance organizers present a higher level of abstraction. They are not just simple overviews, illustrating examples etc, but they share with such techniques the idea, that they must be integrated with other teaching/learning activities. Advance organizers provide the necessary scaffolding for students to either learn new and unfamiliar material (an expository organizer which provides the basic concept at the highest level of generalization) or to integrate new ideas into relatively familiar ideas (a comparative organizer which compares and contrasts old and new ideas).

Keywords—advance organizer; transmissive teaching; expository organizer

I. INTRODUCTION

An advance organizer is a cognitive instructional strategy used to promote the learning and retention of new information. "An advance organizer is information that is presented prior to learning and that can be used by the learner to organize and interpret new incoming information (Mayer, 2003)" [9]. "These organizers are introduced in advance of learning itself, and are also presented at a higher level of abstraction, generality, and inclusiveness; and since the substantive content of a given organizer or series of organizers is selected on the basis of its suitability for explaining, integrating, and interrelating the material they precede, this strategy simultaneously satisfies the substantive as well as the programming criteria for enhancing the organization strength of cognitive structure." [8]. "An advance organizer is not an overview, but rather a presentation of information (either verbal or visual) that are "umbrellas" for the new material to be learned." The advance organizing principle is compatible with many modern instructional design models like Merrill's first principles of instruction [1] [7].

II. THE FRAMEWORK

A. The Instructional Design Model

"According to Ausubel, learning is based upon the kinds of superordinate, representational, and combinatorial processes that occur during the reception of information. A primary process in learning is subsumption in which new material is related to relevant ideas in the existing cognitive structure on a substantive, non-verbatim basis" Subsumption Theory [8].

"Ausubel suggests that advance organizers might foster meaningful learning by prompting the student regarding pre-existing superordinate concepts that are already in the student's cognitive structure, and by otherwise providing a context of general concepts into which the student can incorporate progressively differentiated details. Ausubel claims that by presenting a global representation of the knowledge to be learned, advance organizers might foster "integrative reconciliation" of the subdomains of knowledge - the ability to understand interconnections among the basic concepts in the domain." [8].

Advance organizers are used in good "transmissive" teaching, e.g. direct instruction. Such teaching is different from simple rote learning, since learners are encouraged to relate new knowledge to old knowledge (what they already know).

According to Joyce et al. (2000), the advance organizer model has three phases of activity [5] [6]:

Phase I (includes presentation of the advance organizer)

- Clarify the aims of the lesson
- Presentation of the advance organizer
- Prompting awareness of relevant knowledge

Phase II (includes making links to/from the organizer)

- Presentation of the learning task or learning material
- Make organization and logical order of learning material explicit

Phase III (strengthening of the cognitive organization)

- Integrative reconciliation and active reception learning (e.g. the teacher can ask learners to make summaries, to point out differences, to relate new examples with the organizer).
- Elicit critical approach to subject matter (have students think about contradictions or implicit inferences in the learning material or previous knowledge)

The simple principles behind advance organizers are that:

1. Most general ideas should be presented first in an organized way (not just a summary) a [15nd then progressively differentiated.

2. Following instructional materials should integrate new concepts with previously presented information and with an overall organization.

Therefore, advance organizers present a higher level of abstraction. They are not just simple overviews, illustrating examples etc. ! But they share with such techniques the idea, that they must be integrated with other teaching/learning activities.

“Advance organizers provide the necessary scaffolding for students to either learn new and unfamiliar material (an expository organizer which provides the basic concept at the highest level of generalization) or to integrate new ideas into relatively familiar ideas (a comparative organizer which compares and contrasts old and new ideas). Ausubel contends that these organizing ideas, which may be single concepts or statements of relationship, are themselves important content and should be taught because they serve to organize everything that follows. Advance organizers are based on major concepts, generalizations, principles, and laws of academic disciplines” [1].

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III. ADVANCE & GRAPHICAL ORGANIZERS: PROVEN STRATEGIES ENHANCED THROUGH TECHNOLOGY

A. Using Advance Organizers

Educational researchers have shown that the activation of prior knowledge is critical to learning of all types. You can view (and print, if you like) this information, organized in a cluster map.

The theories and research-backing described in this outline is derived from my notes from chapters 6 & 10 from Classroom Instruction that Works by Robert J. Marzano, Debra J. Pickering, and Jane E. Pollock [2] [10].

1. What is an Advance Organizer?

- an instructional unit that is used before direct instruction, or before a new topic; this is sometimes called a hook, set induction, or anticipatory set
- popularized by David Ausubel, first in 1968
- introduced in advance of direct instruction
- presented at a higher level of abstraction than the information presented later
- designed to bridge the gap between what the learner already knows and what she needs to know
- use of advance organizers has shown, through several research studies, to improve levels of understanding and recall

2. How do I Use Advance Organizers?

- should focus on what is important, and essential
- "higher level" (more abstract) organizers produce deeper learning than "lower level" (more concrete) advanced organizers (analysis, synthesis vs. knowledge, comprehension—see Bloom's Taxonomy)
- different types of advanced organizers produce different results

3. What are the different types of Advance Organizers?

- Expository
 - o simply describes the new content
- Narrative
 - o presents new information in a story format
- Skimming
 - o skimming material before reading can be a powerful organizer
- Graphical Organizers
 - o effective with all types of organizers: pictographs, descriptive patterns, concept patterns, etc.

4. Benefits of Technology Used with Graphic and Advance Organizers

- Fluid and Dynamic
 - o Diagrams can be easily manipulated and updated
 - o Diagrams can be begun through a teacher template and completed by the student
- Resource Saving
 - o using a digital medium saves in paper and copier costs
 - o teachers can review student cues with a computer sometimes easier than using paper
- Organizer can extend into the Direct Instruction
 - o saved organizers can be used throughout a lesson, or for review at a later time
- Organizer can Adapt Easily into Notetaking and Summarization
 - o the graphic organizer can serve as a model for later organizational skills students may complete.

Exposure to the Internet without the user can cause a loss of students in searching. Thus teachers can also use other methods of carrying out discussions on the internet. Discussions may be conducted through user groups at www.google.com or www.gmail.com. For the authors the most appropriate method is via a discussion board that is dedicated to the purpose of discussion. Among the most widely used internet for discussion and is the in vision Power Board [15].

Finland, Hong Kong, Singapore, United Kingdom, United States and other countries have implemented national policies, the use of information and communication technology in education, and in fact, many of them are national ICT plan their second or third master. Keep in mind, the purpose of the knowledge society and globalization is the support of the Ministry of Education of Singapore, through the use of information and communication technology development, self-directed learning objectives, the purpose of this article is extracted self-directed learning (SDL), which is compatible with the cultural concept of Malaysia [16].

School management and the creation of appropriate conditions need to integrate Windows Movie Maker in the resources available to support teaching and learning of history cornerstone. this regard, Windows Movie Maker is software that can be used as a pack of Microsoft Windows and can be used to manage many school programs. Microsoft Excel can be used to prepare the budget and financial statements. By using Windows Movie Maker in the history teachers and learners can make the school to sell the film to such schools to potential donors to assist learners and principals [17].

Students should be considered for the study, who participated in the learning process. Interactive teaching methods, use of information and communication technologies give all students the opportunity to learn by doing digital research. Active learning approach helps to develop a positive self-esteem and develop students' lifelong learning (LLL). Given the ubiquity of ICT is no longer a need to prove that there is a need to teach how to effectively use information and communication technologies [18].

B. Using Imagery Knowledge

Allan Paivio's Dual-Coding Theory of Information Storage [link 1, link 2, link 3] proposes that knowledge is stored in two forms [11]:

- Linguistic Form
 - most widely used in schools today
 - involves writing and speaking
- Nonlinguistic, or "imagery" form
 - mental pictures
 - physical sensations: smell, taste, touch, sound, kinesthetic associations
 - explicitly engaging students in the creation of nonlinguistic representations stimulates and increases activity in the brain

C. How to Tap into Imagery Knowledge

- a variety of activities produce imagery representations:
 - creating graphic representations
 - making physical models
 - generating mental pictures
 - drawing pictures and pictographs
 - engaging in kinesthetic activities
- Imagery Activities should elaborate on knowledge
 - students understand a topic in greater depth
 - students can recall information more easily

D. Creating Graphic Organizers

Graphic Organizers combine the linguistic and non-linguistic modes of information storage

- Descriptive Patterns
- Time-Sequence Patterns
- Process/Cause-Effect Patterns
- Episode Patterns
- Generalization/Principle Patterns
- Concept Patterns

Other Imagery Methods

- Physical Models
- Mental Pictures
- Drawing Pictographs
- Engaged Motion—Kinesthetic Activity

IV. EXAMPLE OF GRAPHICAL AND ADVANCE ORGANIZERS.

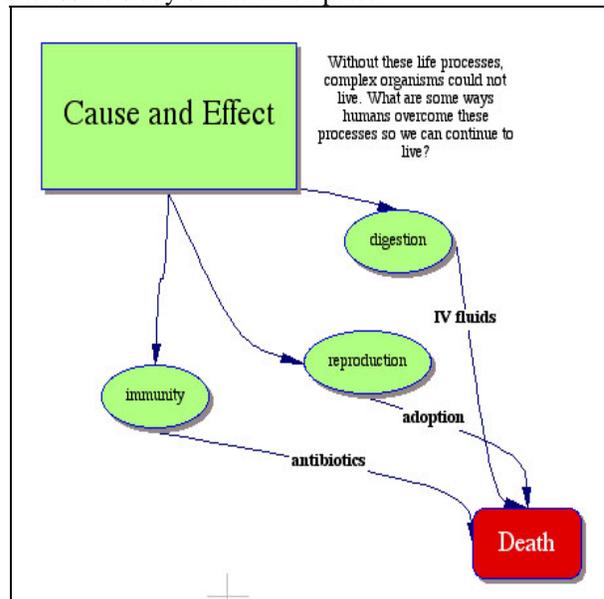
Educational The following example pair an advanced and/or graphical organizer with a Virginia SOL. These are all designed with the following guidelines [2]:

- The activity is not the major focus of the lesson in itself
- If used as an advanced organizer, more abstract concepts have purposely been included.
- A variety of methods can be used to implement advanced and graphical organizers, including computer technology

A. Example 1

Science (Which Is Suitable For History Teaching And Learning Too)

Students in the sixth grade investigate life processes of organisms. This activity encourages students to think abstractly, and would make an excellent advanced organizer after some study of had taken place.



Source: Inspiration or AppleWorks, MS Office

This is an adapted Process/Cause-Effect Organizer. Three life processes are listed in this diagram, obviously these will be studied this day in class. Without life processes we would die. How do humans adapt when these processes are in jeopardy?

Students will fill-out the "preventions" in the diagram, providing the answers such as "antibiotics, adoption," or "IV fluids." Students can produce this diagram, or complete a teacher-generated template, using a variety of software.

Inspiration makes this type of diagramming a breeze. Inspiration also comes with many pre-made graphic organizer templates. [2] researchers

V. COMPUTER-BASED ORGANIZATIONAL TOOLS [2]:

- Appleworks
 - o Drawing and Painting
 - o Presentations
- Inspiration/Kidspiration
 - o Outline Mode
 - o Diagram Mode
- iMovie
 - o Manipulation of Digital Pictures and Digital Video
 - o Filming of Digital Video
- iPhoto
 - o Kinesthetic Activities Captured
 - o Pictographs
- Microsoft Office (Word, PowerPoint, Excel)
 - o Organizational Charts
 - o Drawing Tools
- Internet and Web-Formatted Media
 - o Quicktime Streaming Video
 - o Teacher-Supplied Web Documents
 - o Information Gathering for Advanced Organizers (charts, skimming)
 - o Write Design Online Website
 - o Teach-o-logy Website
 - o California SCORE Graphic Organizers
 - o PS Print's Collection of Graphic Organizer Templates

An advance organizer is relevant introductory materials presented in advance in any format of text, graphics, or hypermedia [12]. Instructors may use an advance organizer to present a framework for module content [3].

Ausubel's idea of an "advance organizer" is to relate what a student already knows to the new content to be learned and thus increase retention. Advance organizers should be at a higher level of abstraction, generality, and inclusiveness than the content to be presented. Although not technically advance organizers, some faculty may choose to provide overviews, outlines, statements of objectives, pre-instructional questions, etc. for similar reasons [14].

Advance Organizers ARE (NETnet, 2002) [13]:

- Organizational cues
 - Tools that help connect the known to the unknown
 - Frameworks for helping students understand what it is they'll be learning
- Advance organizers are NOT
- A review of what was covered in the previous class session
 - A simple overview
 - Recalling what was done last week or last year
 - Telling the students about tomorrow

- Recalling a personal experience and relating it to what will be learned
- Stating the objectives of the lesson [3]

What are some examples of advance organizers?

Advance organizers can present themselves in a plethora of ways. These can include anything from skimming the reading material to the use of graphic organizers [4].

1. Narrative
2. Expository
3. Skimming
4. Graphic Organizers
5. KWL Chart

A. Narrative

This type of advance organizer presents new information in the format of a story. For example, a teacher will provide the main and important concepts of the lesson by telling a story that includes these concepts.

B. Expository

This type of advance organizer is used to present new or detailed information as opposed to making connections with previously introduced information.

C. Skimming

Skimming is when the teacher provides the learners with the opportunity to skim over the information that is about to be introduced, focusing on highlighted information (headings).

D. Graphic Organizers

Graphic Organizers are used as a method of presenting information in the visual realm. They are efficient because they highlight and focus on just the important aspects and they also show relationships between necessary information. Graphic Organizers take on a plethora of avenues and looks, but the two most utilized are Venn Diagrams and Concept Mapping [2].

E. KWL Chart

A KWL chart is a type of advance organizer that can be used at any age and for any subject matter. This particular chart has three steps [4]:

1. What the learner already knows about the subject matter
2. What the learner wants to know about the subject matter
3. What the learner learned

The first two steps take place before instruction. These steps allow the teacher to activate prior knowledge and get the students to ask questions and be active participants. The third step is the last step of instruction, the culmination of the lesson. Through this step, the learners reflect on what they learned and if their questions were answered.

VI. CONCLUSION

Advance organizer is worth to use to foster student engagement. Advance organizer establish a purpose and direction for students' participation in the lesson while also

serving to acquire their attention by virtue of the relevance, challenge, or intrigue of the lesson. It activates prior knowledge. When students have recalled prior, relevant information, their brains are better prepared to receive new information and connect that new information to an existing cognitive structure. It helps students identify and organize important information. Advance organizers help students know what to look for as they participate in a lesson and provide a framework for organizing information (e.g., a problem/solution framework). It meets the needs of students. Students who are able to connect new knowledge to or situate new knowledge in their existing cognitive structures are better able to understand and retain new knowledge.

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