SCHEMA THEORY

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BACKGROUND

- Pschycologist Sir. Frederic Barlett first proposed the idea of Schema Theory in 1932

- In carrying out a series of studies on the recall of Native American folktales, Bartlett noticed that many of the recalls were not accurate, but involved the replacement of unfamiliar information with something more familiar

- They also included many inferences that went beyond the information given in the original text. In order to account for these findings, Bartlett proposed that people have *schemata*, or unconscious mental structures, that represent an individual's generic knowledge about the world. It is through schemata that old knowledge influences new information.

- Then in 1993, Nunan defined Schema as a theory of language processing which suggest that discourse is interpreted with reference to the background knowledge of the reader or listener.
- He also notes that schema theory suggests that the knowledge we carry is organized into related patterns
- These patterns are constructed from all our previous experiences and the enable us to make predictions about future experience

- Richard Anderson, an educational psychologist, played an important role in introducing schema theory to the educational community.
- In a 1977 paper Anderson pointed out that schemata provided a form of representation for complex knowledge and that the construct, for the first time, provided a principled account of how old knowledge might influence the acquisition of new knowledge.

- Schema theory was immediately applied to understanding the reading process
- The schema-theory approaches to reading emphasize that reading involves both the bottom-up information from the perceived letters coming into the eye and the use of top-down knowledge to construct a meaningful representation of the content of the text.

SCHEMATA ARE THOUGHT TO HAVE THESE FEATURES:

- Schemata are composed of generic or abstract knowledge; used to guide encoding, organization, and retrieval of information.
- Schemata reflect prototypical properties of experiences encountered by an individual, integrated over many instances.
- A schema may be formed and used without the individual's conscious awareness.
- Although schemata are assumed to reflect an individual's experience, they are also assumed to be shared across individuals [in a culture?].
- Once formed, schemata are thought to be relatively stable over time.
- We know more about how schemata are used than we do about how they are acquired.

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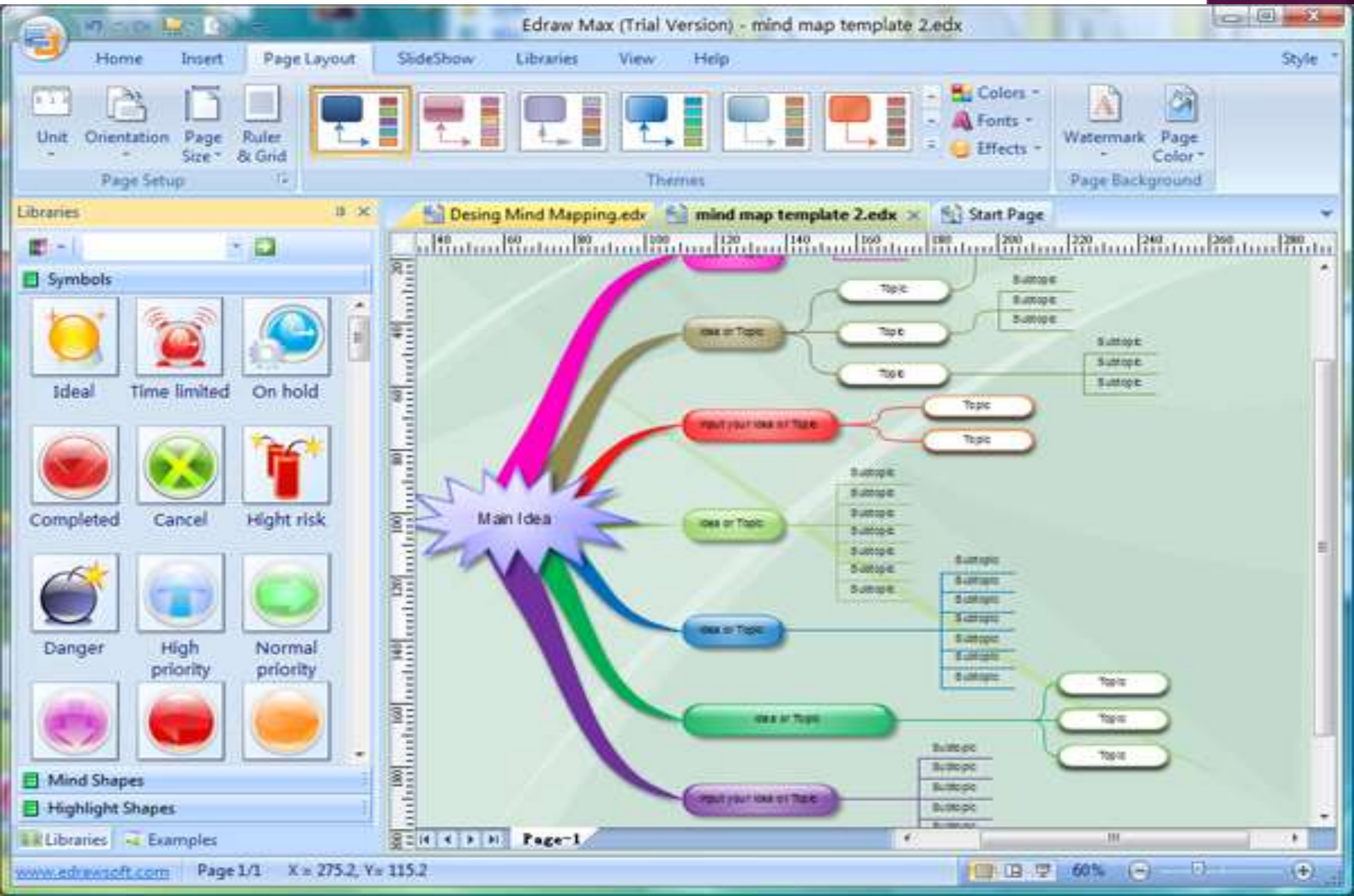
Driscoll suggests that a schema is analogous to

- A play, in that it has a basic script, but each time it's performed, the details will differ.
- A theory, in that it enables us to make predictions from incomplete information, by filling in the missing details with "default values." (Of course, this can be a problem when it causes us to remember things we never actually saw...)
- A computer program, in that it enables us to actively evaluate and parse incoming information.

- Schema Theory is important to CALL because it provides an idea of how knowledge is organized
- Dillon draw parallels between schema and interface
- When learners collaborate at the computer , their individual semantic structures on the information differ from each other

MIND MAP SOFTWARE



HOW CAN IT HELP STUDENTS?

- Along with the Constructivist Model
- This model Assumes that the learner comes to the classroom with a rich set of ideas
- Constructivism allows the student to build new information on what they already know.
- Constructivism supports collaboration and negotiation of meaning
- Collaboration provides opportunities for negotiation of meaning as learners struggle to build new schemata and extend existing ones.

STEIN AND TRABASSO (1982) NOTED THAT:

- Narrative schemata specify expected components of a story, such as the time sequence of events, and causal relations that should connect the events; during encoding or retrieval of a story, missing events may be inferred to fill in omitted information, and events may be reordered to correspond to a real-time sequence.
- Schematic knowledge has a significant effect on organization of ambiguous or disorganized stories.

- Many studies have shown that the use of schematic knowledge is so powerful that listeners have little control over the retrieval strategies used during recall of narrative information; even when listeners are instructed to reproduce texts verbatim, they cannot do so when the text contains certain types of omissions or certain sequences of events.

INFORMATION FOR TEACHERS

- Provide unifying themes for content, since information that lacks no theme can be difficult to comprehend, or, worse, the learner may "accrete" the information to the wrong schema.
- Choose texts with "standard" arrangement so that it conforms to student expectations.
- Encourage students to read titles and headings.
- Point out the structure of particular kinds of texts; e.g., what are the common features of published research articles?
- Ask questions to determine what students' current schemata might be.
- Pay attention to student answers and remarks that may give clues about how they are organizing information; i.e., what schemata are they using?

WHY DO WE NEED SCHEMA THEORY?

- Suppose you overheard the following conversation between two college-age apartment-mates:A:
- A: Did you order it?
  B: Yeah, it will be here in about 45 minutes.
  A: Oh... Well, I've got to leave before then. But save me a couple of slices, okay? And a beer or two to wash them down with?

- Do you know what the roommates are talking about? Chances are, you're pretty sure they are discussing a pizza they have ordered. But how can you know this? You've never heard this exact conversation, so you're not recalling it from memory. And none of the defining qualities of pizza are represented here, except that it is usually served in slices, which is also true of many other things.

- A young child may first develop a schema for a horse. She knows that a horse is large, has hair, four legs and a tail. When the little girl encounters a cow for the first time, she might initially call it a horse. After all, it fits in with her schema for the characteristics of a horse; it is a large animal that has hair, four legs and a tail. Once she is told that this is a different animal called a cow, she will modify her existing schema for a horse and create a new schema for a cow.

- Most people who have ever had a job have had more than one job. Think back to when you started your second job. If you had a successful first job experience then without even knowing it your brain developed a schema based on what is involved in having a job. You probably knew that it was a good idea to go see your manager to get your assignments for the day, you probably had a sense that there would be breaks at some point throughout the day, and you probably expected to be paid at some point for your work. Those expectations about what to expect are a *schema*.

BIBLIOGRAPHY

- ADAMS, MARILYN J., and COLLINS, ALLAN. 1979. "A Schema-Theoretic View of Reading." In *New Directions in Discourse Processing*, Vol. 2: *Advances in Discourse Processes*, ed. Roy O. Freedle. Norwood, NJ: Ablex.
- Learning Theory - Schema Theory - Knowledge, Schemata, Representation, and Information - StateUniversity.com
- Beatty, K. (2010). *Teaching and Researching computing assisted Language Learning*.
- Recker, M. (04 de Septiembre de 2014). *Learning and Communication Theories in Instructional Technology*. Obtenido de http://itls.usu.edu/~mimi/courses/6260/schema.html