

Tetlan's Table

Cognitive Constructs	Visual Language Principles
Split Attention – Formats that force readers to visually seek, find and combine information requiring double processing interferes with learning core material. (Sweller, 1994).	Semantic Overlap - uses specific visual language (VL) elements to "guide readers through the document and to cluster elements together." (Horn, 1998, p.186). This eliminates split attention.
Attentional Capacity - is limited. Prolonging learner attention to identifying key elements and component processing of reading material can lead to poor reading habits.(LaBerge and Samuels, 1974).	Focusers - "Small, discrete visual elements used to organize smaller areas of the page ...to attract readers attention...at a specific place, or to delineate a collection of objects or text." (Horn, 1998, p. 185). This allows us to learn more efficiently during our limited attention span.
Element Interactivity - Integrating various elements into instructional design that are not intrinsic to core content or when placed inconveniently can interfere with learning. (Paas, 1992).	Compositional Semantics - focuses on using only pertinent words, images & symbols in visually tight construction units. (Horn, 1998, p. 145). This helps eliminate extraneous or misplaced content, limiting element interactivity.
System Topology - Identifies components and labels them. (Mayer and Gallini, 1990).	Labeling - integrates verbal and visual elements in order to distinguish terminology, parts and/ or functions. (Horn, 1998, p.173).
Component Behavior - Identifies components and shows how they change, naming parts, steps and sequences. (Mayer and Gallini,1990).	Transition Taxonomy – VL semantics use multiple taxonomies to identify transition across space and time: moment to moment, action to action, subject to subject, scene to scene, aspect to aspect, non-sequitur transitions. (Horn, 1998, p. 153). These combined with labeling identify component behavior.
Cognitive Overload - When short term memory can no longer process what it is seeing due to "disparate sources of information [being] physically integrated." (Sweller, 1994, p. 204).	Information Design Principle: Organizes designs to stay within memory limits. (Horn, 1998, p.237). This minimizes the cognitive overload phenomenon.
Schema Acquisition - A cognitive construct that states that the brain organizes information according to meaning. (Sweller, 1994).	Semantic Fusion - "...making meaning out of the tight integration of words, images and shapes..." through chunking and clustering information. (Horn, 1998, p. 97). This aids in building accurate schemas which increases probability of comprehension.
Information Processing Models & Memory Systems – Learning models that address and show that short term, working memory can process only limited amounts of information at one time. (deKleer and Brown, 1985).	Percept - Concept Integration: This principle selects, includes and integrates percepts (objects- shown as visual images) and concepts (mental ideas- shown as text) into units for ease of comprehension, retention and retrieval. (Horn, 1998, p. 95).
Theories of Expertise - Experts have learned to chunk information into meaningful units of understanding. (Bereiter and Scardamalia, 1993). These units are easily retrievable and provide a base for new knowledge.	Chunked Information - clusters words, images and shapes in order to provide a unit of information based on perception principles and memory. (Horn, 1998, p. 104 & 187). Chunks of information are the basic unit of knowledge that experts depend upon to store, retrieve and build knowledge.