Intrinsic Cognitive Load

Theory

Intrinsic cognitive load is the result of inherent complexity of the information which needs to be processed. For example, when translating a number of words intrinsic cognitive load is quite small, but when translating same number of words forming part of a sentence intrinsic cognitive load is higher since not only meanings of individual words, but also their relations must be analyzed.

Still, it should be noted that there is **no objective measure** of element interactivity, since what exactly will be considered as an *element* depends on learners existing schemata and how developed and automatized they are. Unlike a novice, an experienced learner with an appropriate schema will be able to manipulate multiple elements and their relationships as one and will therefore experience reduced element complexity and intrinsic load.[1)]

Practice

Earlier it was considered that intrinsic cognitive load

- "*cannot be manipulated through instructional design without changing nature of the task or compromising understanding.*"[2)]

Still, recent findings suggest it is possible to reduce intrinsic cognitive load using techniques like

- **simple-to-complex** sequencing[3)], or
- **modular presentation** of solution procedures[4)].

1)
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2)
Ayres, P. Impact of reducing intrinsic cognitive load on learning in a mathematical domain. Applied Cognitive Psychology, 20(3), 287-298. 2006.
3)
van Merrienboer, Jeroen J. G., Paul A. Kirschner, and Liesbeth Kester. Taking the Load Off a Learner's Mind: Instructional Design for Complex Learning. Educational Psychologist 38, no. 12003: 5. 2003.
4)
Gerjets, Peter, Katharina Scheiter, and Richard Catrambone. Designing Instructional Examples to Reduce Intrinsic Cognitive Load: Molar versus Modular Presentation of Solution Procedures. Instructional Science 32, no. 1/2: 33-58. January 2004.