Using Cognitive Dimensions Framework to Evaluate Constraint Diagrams

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The Cognitive Dimensions of Notations are a heuristic framework created by Thomas Green for analysing the usability of notational systems. Microsoft used this framework as a vocabulary for evaluating the usability of their C# and .NET development tools. In this research we used this framework to compare the evaluation of the Constraint Diagrams and the evaluation of the Natural Language by running a usability study. The result of this study will help in determining if users would be able to use constraint diagrams to accomplish a set of tasks. From this study we can predicate difficulties that may be faced when working on these tasks. Two steps were required. The first step is to decide what generic activities a system is desired to support. An Activity is described at a rather abstract level in terms of the structure of information and constraints on the notational environment. Cognitive dimensions constitute method to theoretically evaluate the usability of a system. Its dimensional checklist approach is used to improve different aspects of the system. Each improvement will be associated with a trade-off cost on other aspects. Each generic activity has its own requirements in terms of cognitive dimensions, so the second step is to scrutinize the system and determine how it lies on each dimension. If the two profiles match, all is well. Every dimension should be described with illustrative examples, case studies, and associated advice for designers. In general, an activity such as exploratory design where software designers make changes at different levels is the most demanding activity. This means that dimensions such as viscosity and premature-commitment must be low while visibility and role-expressiveness must be high.