



Teaching Unit on Geometry Designed from the Point of View of the “Nuclear Concepts Theory”

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Abstract

This work has the main objective to present a practical aspect of Theory of Nuclear Concepts (Casas and Luengo, 2003), in particular present a model of a didactic unit completely governed by the ideas of that theory. Thus, we intend to show that consists of a didactic unit based on this theory by highlighting the benefits of its implementation and transfer tools will lead to construction of new teaching units on the same line of ideas. The Theory of Nuclear Concepts is recent, but many studies have been done about it, exploring various aspects of that theory. This theory is based on the theories and ideas coming Ausubel (1968), Novak and Gowin (1984) among others, who argue that concepts are organized hierarchically around general concepts (concepts includers). The Theory of Nuclear Concepts differs from them in holding that the students' cognitive structure is organized around specific concepts that are not necessarily the most general and also argues that as learning progresses the students' cognitive structure is transformed into a simpler structure. To explain these facts the authors propose a "Theory of Nuclear Concepts" whose main elements are the "geographical organization of knowledge", the "core concepts" and "paths of least cost." This theory provides a broad knowledge of students' knowledge and this enables a better intervention by the teacher, it is important to note that the study refers to the Pathfinder associative networks. The practical approach and broad knowledge of the conceptual frameworks of students during the learning process is a tool that contributes to student success in mathematics. In our study, we propose the development of mathematics teaching sessions based on this theory, and also propose the assessment of student learning based on the changes produced in their cognitive structure.