

Mathematical language as a characteristic of a learner's mathematical insight

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Mathematical language as a concept is interpreted differently in different circumstances. Still, characterizing the development of a student's mathematical language one cannot ignore a number of parameters, such as an ability to grasp the syntactic structure of a sentence and logical connections between its parts; swiftness of incorporation of new items into one's vocabulary, whether mathematical or not; ability to handle new symbols, etc.

Mathematical insight is characterized as an ability for finding one's ways of action in new and unfamiliar (mathematical) situations, and is in turn one of the principal characteristics of one's progress in learning mathematics. Hence, an ability to grasp, elaborate and communicate new mathematical information is vital for meaningful learning of mathematics associated with depth of insight. In order to advance students towards higher levels of mathematical thinking, a teacher has to plan the teaching-learning process so that the students develop the ability for mathematical expression at an appropriate level. Integration of mathematical information presented in verbal, graphic and formal-semantic forms is an inseparable part of the process of meaningful learning of mathematics and is to be developed at all levels of learning.

In our talk, we plan to characterize the mathematical language as one of the parameters of a student's insight. We will also relate it to one's general verbal and analytic ability, and present a variety of examples to illustrate the role of mathematical language in development of insight.