

# **The same teacher, the same curriculum materials, different schools: What is the enacted curriculum?**

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## **Abstract**

Recent studies of curriculum enactment suggest that different teachers enact the same curriculum materials in different ways (e.g., Cohen & Ball, 2001; Freeman & Poter, 1989; Manoucheri & Goodman, 1998, 2000). These researches usually link between the teacher (her beliefs, perceptions and knowledge) and the curriculum materials enactment. Some of the studies suggest additional factors, that have to do with the general context of enacted curriculum, such as: parents, external exams and school support (e.g., Cuban, Kirkpatrick & Peck, 2001; Roehrig, Kruse & Kern, 2007). This research, like abovementioned researches, focuses on the enacted curriculum, and examines how the same teacher implements the same curriculum material in two different schools. The aim of the study is to examine how the same curriculum materials are enacted in two classes in different schools by the same teacher.

This research comprises two case studies, each includes one teacher who teaches the beginning of the mathematical topic 'equivalent algebraic expressions', to two 7th grade classes from different schools. The same textbook was used in all four classes. The data collected includes: 1. Observations: 25-30 lessons throughout the school year in each of the participating classes; Other mathematics classes in each of the schools; Other non-mathematics classes in the participating classes. A total of 130 lessons were observed. The observations included continuous observations of the teaching of 'equivalent algebraic expressions' (15-19 lessons) in each class. These observations are the main data source of this research; 2. Interviews with the teachers; 3. Informal conversations; and 4. Field notes.

The data was analyzed both through quantitative and qualitative analysis. The research focuses on the following two aspects of the enacted curriculum: implementation of the recommendation that appeared in the curriculum materials and the types of algebraic activity that the students were exposed to during the teaching of the mathematical topic. Kieran's framework (Kieran,

1996, 2004), which distinguishes between three types of algebraic activities – generational, transformational and global/meta-level – was employed for the examination of the algebraic activities. Comparisons were made for two aspects of the research: between the enacted curriculum in each of the classes and the curriculum materials; and between each of the classes taught by same teacher.

It was found that in case study 1, that examined teacher Sara and schools Carmel and Tavor – most of the recommendations for instruction that appeared in the curriculum materials, were implemented: The students were exposed to the main mathematical subjects/ideas and the mathematical sequence that appeared in the curriculum materials; the lesson structure was similar to the recommended structure, and did not include work on assignments that were not recommended in the curriculum materials. In spite of the similarities in each of the classes, and the curriculum materials, and between the two classes – a few differences were found, mainly while comparing the enactment in Tavor versus the recommendations in the curriculum materials and the enactment in Carmel.

Examination of the algebraic types of activities that the students were exposed to in Carmel and Tavor schools throughout the school year shows that, although the students in the two schools were not required to deal with a similar number of assignments and tasks, in both schools they were exposed to the three types of algebraic activities in similar distribution as appear in the curriculum materials. Comparison of the algebraic types of activities exposed to during the whole class work, shows that there are differences between Tavor and the curriculum materials and between Tavor and Carmel. A lesser percentage of global/meta-level activities was enacted in Tavor than appear in the curriculum materials and than enacted in Carmel, in addition, there were several cases in which the same assignment/task was enacted in Carmel as a global/meta-level activity but was not enacted in Tavor with such algebraic activity.

In case study 2, which included teacher Rebecca and schools Gamla and Arbel, not all the recommendations in the curriculum material were enacted. Indeed, in both classes the main mathematics subjects/ideas intended for this topic according to the curriculum materials were presented to the students, and the topic was taught according to the mathematical sequence that appeared in the curriculum materials, however in both classes the lesson structures were different from the intended structure – unintended assignments were enacted, and some of the assignments were enacted not according to their purpose. These differences were found in comparison of each of the classes to the curriculum materials and in comparison between Gamla and Arbel.

Examination of the algebraic types of activities that the students were exposed to in both classes throughout the school year as well as in the whole class – shows differences between the curriculum materials and between Gamla and Arbel. In Gamla more global/meta-level activities were enacted, as compared to the curriculum materials and the enactment in Arbel. In Arbel, however, emphasis was given to transformational activities as compared to the curriculum materials and enactment in Gamla.

From teachers' interviews it appears that there is also a difference in the way both teachers perceived the curriculum materials, and that this perception is expressed in the different way each of them used the curriculum materials in their classes. Sara perceived the curriculum material as part of the pedagogical practice she would like to enact. In cases where the occurrences in class did not enable full implementation of the recommendations (mainly in Tavor), Sara made modifications in the enactment in a way that kept true to the mathematics pedagogical rationale. Rebecca, however, used the curriculum materials as a resource that includes a collection of assignments/tasks and algebraic activities. She modified the curriculum materials enactment in each class according to the class needs as she understands them.

Examination of the findings in light of curriculum enactment literature shows that in this study, as well as in others, the environment within which teachers work is instrumental in their use of the curriculum materials.

This research provides important information regarding the curriculum enactment in different classes in general, and in different classes taught by same teacher in particular, while focusing on the implementation of the recommendations for instruction structure in each of the classes, and the algebraic activity types the students were exposed to during the learning of the topic. This information is important for researchers, developers of curricula, and teachers.