עבודת גמר (תזה) לתואר

מוסמך למדעים

מוגשת למועצה המדעית של

מכון ויצמן למדע

רחובות, ישראל

מאת

גיל שורץ

Thesis for the degree

Master of Science

Submitted to the Scientific Council of the

Weizmann Institute of Science

Rehovot, Israel

By

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אפיון דיונים מבוססי-וידאו של מורים ישראלים למתמטיקה הצופים בשיעור יפני

Characterizing video-based peer discussions of Israeli mathematics teachers watching a Japanese lesson

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November 2016

Abstract

This thesis reports on a study conducted within a larger project, named VIDEO-LM (**V**iewing, **I**nvestigating and **D**iscussing **E**nvironments **o**f **L**earning **M**athematics), which was –developed at the Science Teaching Department in the Weizmann Institute for Science in 2012. In the project, groups of Israeli secondary mathematics teachers watch video-taped mathematics lessons, and discuss them using a six 'lens' framework which is designed to focus on the video-taped teacher's actions. The goal of these video-based discussions is to enhance the teachers' reflective skills and their mathematical-pedagogical knowledge.

This study focuses on VIDEO-LM PD sessions where teachers watched an 8th grade geometry lesson from Japan, which was video-taped for the TIMSS Video Study. The name of the lesson is 'Changing the Shape Without Changing the Area', and it contains only two tasks, which are challenging and intriguing. The method of teaching also make this lesson unusual: the teachers' actions are well-structured and the students are active, working alone and in groups, presenting and discussing their solutions on the whiteboard.

PD sessions where the Japanese movie was watched and discussed were documented. The transcriptions of these sessions, as well as written essays some teachers wrote, were analyzed using a qualitative methodology in order to find common themes. The identified themes were used to characterize the reflection types in the written and spoken data.

The data analysis suggests that watching the Japanese movie using the VIDEO-LM project's observation tools can lead to deep and fruitful discussions. These are the main findings:

- Three major themes were identified in the discussions: Teachers characterize the tasks; Teachers characterize the Japanese teacher's teaching; Teachers refer to their own teaching in light of the Japanese lesson.
- The use of the six lens framework helped to focus on the Japanese teacher's actions in the lesson: teachers talked about mathematical ideas, goals, tasks and interactions. The teachers used the observation tools in a serious manner and some of them adopted the reflective language that was suggested in the PD sessions.
- Teachers were reflective about their own teaching: during the discussions, some teachers changed their opinions or alternatively revised and justified them.
- The fact that the video-taped lesson was 'far' from the teachers' reality made them re-see everyday aspects of their practice, and to reveal conflicts which promoted reflective thoughts and actions.
- The reflective discussion motivated changes in the practice for various teachers. Many of the teachers reported they dared to try new practices in class following the PD session where the Japanese movie was analyzed.