

Supplementary Table 6

Observations and reflections in the classrooms of the teachers who did not participate in the project

Theme	Category	Sub-Category	Codes	Quotes From Field Notes, Interviews and Video Recordings
Teachers	Emotional Changes	Stress		Two young experimental group teachers who did not attend the project stated that they experienced stress because they were unprepared for the 18-week application. <i>"The teacher allowed the students to check the materials but was unsure as to how to integrate those materials into daily plans. During breakfast, the students checked the materials and the user manuals agitatedly..." (Classroom 7, first week observation,09/06/18)</i>
		Uneasiness and feeling of to be interrogated		The teachers who did not attend the project wanted to check the observation notes constantly and even tampered with the cameras in the classrooms. The video recordings showed that those teachers were more nervous and more intrusive and inhibitive when it came to communicating with their students. <i>(Classroom 9, second week video recordings,09/13/18)</i>
		Precipitousness and feeling uncomfortable		We paid unannounced visits to classrooms to take note of possible sudden changes. When we entered the classrooms, the smile on the teachers' faces was replaced by a look of worry, and they stopped what they were doing and hurried into math activities without much preparation. <i>(Classroom 9, third week observation,09/19/18)</i>
		Less attention		The experienced teachers who did not attend the project were not very interested in the MAWS and materials. They saw the MAWS as any other center. One of the teachers stated: <i>"...I'll try to use it in math activities. I hope my students will take an interest in it. I will try and integrate it into activities when necessary..." (Tch, 10)</i>
	Teacher-child Interaction	Unattended observation		Almost all teachers who did not attend the project just sat at their tables and decided to watch their students check the MAWSs. The students tried to explore the materials on their own. <i>(Classroom 10, 6th week video recordings,10/08/18)</i>
		Poor quality math dialogues		The young teachers who did not attend the project asked their students simple-superficial and closed-ended questions about the MAWS and materials. <i>"One of the students picked up the 'number balance' material from the center and went up to the teacher with it. He asked the teacher how he was supposed to play with that material. The teacher just said 'The weights should be in balance. You're supposed to hang the balloons on both sides' and sent the student back to his desk." (Classroom 8, 9th video recordings,11/01/18)</i>
		Sliding over		According to the video recordings, some teachers chose unproductive activities about the MAWS and materials. <i>"Some teachers put off their students rather than dealing with their math knowledge needs in detail. They did not provide their students with enough time, tips, examples from daily life, meaningful questions, and praise-appreciation." (Classroom 8, 10th week field notes,11/06/18)</i>

Using MAWS (Math Workstations)	Ineffective use	Don't allow time	Some students did not have enough time to explore the MAWSs. The monthly plans showed that the teachers continued to design activities that were irrelevant to the MAWSs or used their old plans during the 18-week application. Those teachers also gave their students only 15-20 minutes to use the materials. <i>(Classroom 10, 6th week field notes,10/11/18)</i>
		Inconsistent use and inability to care	The video recordings showed that the teachers who did not attend the project performed math activities more when there were observers in their classrooms. Those teachers used the MAWS inconsistently , probably because they did not take it seriously. <i>(10-11-12-13-14-15th weeks field notes and video recordings)</i>
		Mediocrity and more teacher control	Contrary to how the MAWS is supposed to be used, some teachers kept their students under too much control during the activities. In fact, two teachers ignored the user manual and changed the order of the materials according to their activity plans. They also prevented their students from interacting with the materials. <i>(Classroom 7, 4th week field notes,09/27/18)</i>
	Unwillingness	Out of sight	The teachers of three classrooms set the MAWSs almost out of sight. Moreover, they could not integrate the MAWSs into activities adequately, and therefore, their students were not very interested in the materials. <i>(10-11-12-13th week video recordings)</i>
		Settling for existing materials	Some teachers deviated from the guide and failed to perform the activities on time. One of the teachers used the same material for six weeks although he should have moved onto a different material after the third week <i>(Classroom 9, 6-7-8-9-10-11th video recordings)</i>
Activities	Ordinary daily routine activities	Most teachers who did not attend the project decided to stick to the curriculum. They performed the MAWS activities much less often than those who attended the project.	
	Independent activities	The teachers who did not attend the project failed to integrate math activities into other activities. <i>(Video recordings)</i>	
	Whole group activities	The teachers in two experimental groups used activity pages and involved their students in desk-bound math activities in large groups. <i>(Video recordings)</i>	
Experience	Fixed attitude	<i>The experienced teachers who did not attend the project regarded the MAWS as the same as other centers. They did not integrate the MAWSs into their activities. They did not try hard to get their students to integrate the materials into their games. (Classroom 10, 6-7-8-9th week field notes)</i>	
Classroom Environment	Less efficiency	The math activities and the MAWS were less productive in four classrooms, the teachers of which did not attend the project. Those teachers were more authoritarian. Their students integrated the materials less in their games, entered into less interaction with their classmates and teachers about the materials, and were more dependent on their teachers (passive students). <i>(Field notes)</i>	
	Unused MAWS materials	<i>In two classrooms, the teachers had some unused MAWS materials at the end of the process. (Field notes)</i>	

Children	Emotional Effect	Non-fulfillment astonishment	The MAWSs had been placed in ten classrooms. In those classrooms, the students were highly interested and enthusiastic about the materials in the first weeks. However, four teachers who did not attend the project had students who lost their interest and enthusiasm over the weeks. The teachers did not perform the activities tailored to the goals and learning outcomes of the study and did not pay attention to the guide. Therefore, their students lost their interest in the materials. <i>(Field notes and video recordings)</i>
		Non-fulfillment curiosity	
		Non-fulfillment desire	
		Non-fulfillment enthusiasm	
		Decreased expectations	
	Peer Interactions	Daily dialogues	The students in those four classrooms were engaged in daily dialogues more than those in the other classrooms. Most students preferred other centers to the MAWS to play games. <i>(Field notes)</i>
		Limited math talk	Some students explored the MAWS by themselves. The other students had limited interactions and conversations about math. <i>(Field notes)</i>
		Routine cooperation	In these four classrooms, the teachers did not resort to the MAWSs, but instead they used large-group activities to teach math. The students in those classrooms did not make much collaboration about math, except during games. <i>(Field notes)</i>
	Child-teacher interaction	Fewer questions	In those classrooms, the teachers adopted a teacher-centered approach and focused on the learning outcomes in the curriculum. Their students questioned things less and asked their teachers fewer questions compared to the students in the classrooms where the MAWSs were used effectively.
		Teacher centered interactions	
Less questioning			
Interest in Materials	Short term use	In those classrooms, the students interacted less with some of the MAWS materials. After a certain point, they lost their interest in the materials. They did not find the opportunity to get acquainted with the materials because they were not introduced to them adequately. Therefore, they lost interest. <i>(Field notes)</i>	
	Less physical contact		
	Less attention		
Checklists (Mathematic skills)	Using mathematics less	In the classrooms where the MAWSs were used ineffectively, most students developed math skills (counting, relationships between numbers, symbolic use of numbers, and simple addition and subtraction with numbers 1-10) later than they were supposed to. Those students did not have enough experience with the materials. They had to accept new information without discussing, questioning, researching, and gamifying. They did not have much opportunity to experience math, which affected their math skills negatively. The delayed math skills observed in the checklists were due to the fact that the teachers used the wrong methods and techniques during the process. <i>(Checklist results)</i>	
	Delay in detecting numerical relationships		
	Difficulty in developing different strategies		
	Delay in operations skills		