## How Children Synchronize with Their Teacher: Evidence from a Real-World Elementary School Classroom

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Abstract: This paper reports on how synchrony occurs between children and their teacher, and what prevents or facilitates synchrony. The aim of the experiment conducted in this study was to precisely analyze their movements and synchrony and reveal the process of synchrony in a real-world classroom. Specifically, the experiment was conducted for around 20 minutes during an English as a foreign language (EFL) lesson. The participants were 11 fourth-grade school children and their classroom teacher in a public elementary school in Japan. Previous researchers assert that synchrony causes the state of flow in a class. For checking the level of flow, Short Flow State Scale (SFSS) was adopted. The experimental procedure had four steps: 1) The teacher read aloud the first half of an English storybook to the children. Both the teacher and the children were at their own desks. 2) The children were subjected to an SFSS check. 3) The teacher read aloud the remaining half of the storybook to the children. She made the children remove their desks before reading. 4) The children were again subjected to an SFSS check. The movements of all participants were recorded with a video camera. From the movement analysis, it was found that the children synchronized better with the teacher in Step 3 than in Step 1, and that the teacher's movement became free and outstanding without a desk. This implies that the desk acted as a barrier between the children and the teacher. Removal of this barrier resulted in the children's reactions becoming synchronized with those of the teacher. The SFSS results proved that the children experienced more flow without a barrier than with a barrier. Apparently, synchrony is what caused flow or social emotions in the classroom. The main conclusion is that synchrony leads to cognitive outcomes such as children's academic performance in EFL learning.

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