

THE DEVELOPMENT OF THE CHECKLIST FOR EVALUATING STUDENTS' LINGUISTIC INTERACTION WITH THEIR TECHNOLOGY-BASED LEARNING OF MATHEMATICS²

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The primitive checklists designed from reviewing previous literature in the area of mathematics and linguistics were modified through the experimental research for finding the components of students' linguistic interaction with their mathematical learning. The research used a case study for the collaborative learning composed of three sophomore students in a vocational high school. The modified checklist was roughly divided into three categories: 'Knowledge Construction Statement' for understanding how the verbal interaction took place when students constructed mathematical knowledge, 'Social Interaction Statement' for collecting holistic information and dynamic aspects of the linguistic interaction, and 'Teacher's Instructional Statement' for investigating the teacher's role as a guidance for helping students to construct their knowledge.

It must be clear that words also fulfill an important, though different, function in the various stages of thinking in complexes (Vygotsky, 1962, p. 78). Language plays several important roles in the interaction. In pursuit of appropriating the higher level of mental function, the language of the less advanced shows such functions as exploring an alternative stage of mental function, as well as requesting and manipulating the assistance of the more advanced. It is noteworthy that the function of language of the more advanced is not a direct instruction, but a tool to assist, to motivate, to guide the activity and to organize the necessary tasks for the less advanced. With this checklist, math educators can detect the characteristics or functions of students' use of their language in discourse, which can be a mean for diagnosing their understanding and compare students' performance at ease. Also, the effect of technology can be described in process of learning mathematics in detail.

Reference

Vygotsky, L. S. (1962). An Experimental Study of Concept Formation. In E. Hanfmann & G. Vakar (Eds.), *Thought and Language*. Massachusetts: M.I.T. press.

² This article was excerpted from her doctoral dissertation achieved in the department of Mathematics Education in Dankook University, Seoul, Korea, in 2002.