**Are Finnish Boys Better In Science? Gender Differences at the Item Level in TIMSS**

The aim of this paper is to highlight some of the reasons behind item-level gender differences found in the Third International Mathematics and Science Study (TIMSS) carried out in 1999. The gender differences between Finnish seventh-graders, 1471 girls and 1449 boys, in overall science achievement were very small, with the boys gaining a statistically significant superiority in scores over the girls only in physics. However, when the differences between the boys and the girls were studied at the item level, statistically significant differences could be found in 1/3 of the 146 science items. Almost 70 per cent of these differentiating items favoured the boys, particularly in physics, chemistry and earth science whereas the content areas of biology and scientific inquiry and the nature of science favoured the girls. A link was found between item type and gender differences. The extended-response items, which required students to interpret texts or diagrams in order to describe or explain procedures or scientific concepts, seemed to inspire the girls, who answered at greater length, more than the boys, who answered briefer. On the other hand, the multiple-choice items were found to work better for the boys. This paper includes also a qualitative content analysis of the science items where the items were classified into four performance expectation categories according to the illustrative skills and cognitive abilities that the items were designed to assess. The conclusion discusses the connection between gender differences and different performance expectations.