

## Abstract

Title: Entering a Graphicate Society  
Young Children Learning Graphs and Charts.  
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The aim of this study was to uncover fundamental features involved in the understanding of some commonly used graphs and charts. Aspects related to graphics as knowledge objects were investigated in addition to contextual aspects in a broader sense. A point of departure was taken in the necessity for members of our modern society being "graphicate." (Some characteristics of graphic representations are presented and advantages of their use are indicated. A small number of previous studies on young pupils' comprehension of graphs and charts (including investigations of coordinates) are recounted in some detail.

Although a mainly socio-cultural perspective was taken, a "phenomenographic" approach was used with the particular aim of unraveling aspects of the graphs and charts crucial for a well developed understanding. During a series of working sessions in school settings, twelve pupils, 7-10 years old, constructed and interpreted four types of graphical designs, namely bar charts, pie charts, pictorial charts, and line graphs, under the guidance and supervision of the researcher. Video-recordings from these sessions along with the children's drawings constituted the major data.

In the first part of the analysis, principles from the phenomenographic research tradition were followed and an outcome space of different ways of construing each of the four types of graphics was identified. For the first three types of graphics, a main distinction was found between construing the depicted quantities as measurable wholes and as distinguishable, countable entities. A number of other aspects were identified which were also common for these formats. The outcome space for line graphs is particularly interesting, as it (a) differs from the other three and (b) to a great extent turns out to involve the comprehension of coordinates.

In the second part of the analysis the identified ways of construing the graphics were looked upon using the activity system creating them as a point of departure. Thereby, aspects of the context important for the children's construals are brought to the fore. It is shown that the tools, which were provided and used, played an essential role as to how the different graphs and charts were drawn and interpreted.