

Essential ingredients of literacy in informatics

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In 2003, a discussion about literacy in informatics was initiated in Germany. Its aim was to coin the literacy concept in the sense of OECD-PISA for the domain of informatics or computer science. To illustrate the intended concept, a few sample test items were published along with an explanation of which competencies they ask for. This proved to be a very fruitful approach towards stimulating the discussion in teacher training seminars.

With the experience of these discussions and further test items in mind, this article endeavours to strengthen the underlying theory of literacy in informatics. We claim that education which yields literacy in informatics must enable young persons to explain and understand what we call the phenomena of informatics, i. e. the appearances and consequences of informatics in every day life which need not necessarily be labelled as such at first glance. It may even be that the phenomena are a good starting point for informatics education similarly to what was proposed by Wagenschein for physics education and by Freudenthal for mathematics education. Looking at the phenomena leads to a process of modelling, another central issue in informatics education. Here, a careful distinction between modelling as a process and various modelling techniques in computer science has to be made. While the former is a creative process of thought, the latter may be useful tools for this process and play a role similar to various calculi in mathematical modelling.

Of course, in addressing central ideas like phenomena and modelling, informatics in school will have to deal with the more formal aspects of informatics such as algorithms as well, and a certain degree of instruction in computer and software usage will also be needed. Returning to the initial approach of formulating test items, these sub-categories will have a place in their own right, since items addressing them are useful in analyzing various degrees of informatical literacy.