How do students understand network protocols?

Anders Berglund
Uppsala Universitet
Information Technology
Sweden
Anders.Berglund@docs.uu.se

How students' understand and learn about network protocols is studied in an internationally distributed university course in computer systems. The course, in which the students work in project groups, each consisting of three Swedish and three American students, is taught jointly by two universities.

Insights into students' understanding of basic concepts within computer networks are gained through an empirical phenomenographic research approach. The use of phenomenography as a research approach makes it possible to study concepts of computer science, as they are experienced by the students.

Students' understanding of some of the protocols that are used within the project as well as their experience of the general concept of network protocols are investigated, and different ways of making sense of the protocols are discerned. Some aspects that indicate good learning outcomes are identified: to be capable of understanding a protocol in different ways and of making relevant choices between the ways it could be experienced according to the context in which it appears. These aspects are further discussed in relation to the teaching of computer networks.

The full report, on which the presentation is based, can be found at http://www.docs.uu.se/~andersb/lic