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Storied Science: Finnish and Swedish Students' Epistemological Beliefs on the Nature of Scientific Knowledge

Debates over the nature of scientific knowledge are mainly divided into two schools of thought. In the natural sciences, discussions focus on the relation to truth, its correspondence to reality, and for causal explanations (Sandoval 2003). In social sciences researchers discuss the same issues, but they also acknowledge that interpretations about the world are constructed socially, historically and linguistically. Thus, the term epistemology is understood differently in different academic traditions (Hofer & Pintrich 1997). But what do students' think about science when they enter to the university?

Psychologists have studied students' personal epistemology (e.g. Kaartinen-Koutaniemi & Lindblom-Ylänne 2008), while the focus here is students' scientific thinking from a cultural perspective. 'Science narratives' among Finnish and Swedish students have been collected in order to shed light on their epistemological beliefs (e.g. Perry 1970, Hofer & Pintrich 1997). First year students in Finland and third year students in Sweden write these narratives. The Finnish data is collected between 2006-2011, and the Swedish data in 2014. We are also collecting Swedish narratives in 2015. Through these, *My understanding of science* stories students' epistemological views have been analysed: do they base their thinking on a positivistic narrative of truth or do they see scientific knowledge more as a social construction? Alternatively, have they an idea of scientific knowledge at all?

According to preliminary results, Finnish students mainly have a positivistic epistemological view on science, and a minority have a constructivist. Swedish students have a wide diversity of views on science because they have already studied three years. There are students in both countries, which have 'neutral', or scattered view, but they recognize the principles of science (methods, data accumulation, openness, e.g.). Students see the nature of scientific knowledge as abstract, challenging or even frightening. However, some have already constructed an active relationship with science, and see themselves as members of scientific community.

References

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