Learning for sustainable development in Swedish preschools – meaning making and agency - a child oriented perspective

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During the past decades, the concept of education for sustainable development (ESD) has influenced educational policies on international, national and local levels. The United Nations Convention on the Right of the Child (UNCRC) states that children have the right to be involved and to be heard in matters that affecting them. In Agenda 21, the UN agreement for global sustainable development, children are recognized as important participants in the shaping of a sustainable future. International research about education for sustainable development and children's agency in early childhood education is still very limited. The aim of this study is to explore understandings of children as active participators in ESD. The study draws on curriculum theories with textual analysis as the methodological approach. Applications for the award 'School for sustainable development", administered by The Swedish National Agency for Education, are analyzed, looking at different perspectives of children's meaning making and agency. The findings illustrate how children are constructed as active citizen in the applications. The presentation attaches special importance to citizenship, modern childhood, learning and didactics from a child oriented perspective. So far, the concept of ESD as a pedagogical content and practice in the Swedish preschool has not been discussed and problematized to any significant extent in scientific research. Therefore, it is becoming urgently necessary to scrutinize how constructions of global political agenda influence children's everyday life in preschool.

Swedish children's drawings of the outside and inside of their bodies

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Research topic: Children's development and knowledge formation go on in several areas at the same time. As is known from research on children's cognitive development, this is enhanced by their motor development and their increased abilities to move (cf Ericson). But also other areas of human living existence do have impact on children's development, like the effects of socio-economic environment, their parents' language proficiency and what cultural belonging they adhere to, to mention a few of those factors we recognize.
Children's thinking of the surrounding world has been studied in a number of studies. Generally it is agreed on that children's thinking often differ qualitatively from adults', which was one of major results of Piaget's studies during the 1920-ies. The explanations to such qualitative differences has been largely dependent on what philosophical frame of reference has been chosen. Piaget can be said to have biological frame of reference, Ericson a psychoanalytical, while Vygotsky is seen as a Marxist (history-materialist).
Aim: My presentation reports a study where the impact of cultural belongingness on children's thinking is in focus. The study is a replication of a study by Steward, Furuya, Steward and Ikeda (1982) where preschool children in the United States and in Japan were investigated on their knowledge of the human body. In this study the participating children made drawings

on what they knew about what external parts should be part of a human body and what the inside of a human body should look like. Very young children have been known to know large number of external parts of the body. When it comes to the inside of the body the difficulties increase and children do experience less knowledge. Steward et al could show that the cultural backgrounds of the children did exercise impact on the children's ways of describing the outside and the inside of the human body.

Methodology/research design: In the present study preschool children are first asked to draw what they believe are parts of the outside body. After that in a similar way they are asked to make a drawing of what the inside of a human body look like. The basic drawing of a human body and the instructions used by Steward et al is used in the Swedish study. The data (the drawings) are analyzed qualitatively in order to discern any qualitative differences among the children and if there are any effects of age or sex on the outcome. The outcome is also compared to findings of the Steward et al study. The outcome is presented and discussed at the presentation.

Expected conclusions/findings: The study is a replication of a previous study, where the outcome was explained by the cultural differences between USA and Japan regarding children's knowledge formation. One interesting point is if Swedish children do show similar qualitative differences when compared to the children of the Steward et al study. Another interesting comparison is related to time and the fact that the previous study was published in 1982. A relevant question then is if Swedish children do have the same kind of ideas about the human body as the children of the Steward et al study had for about 30 years ago.

Relevance for Nordic Educational research: The study presented is important of several reasons. Firstly because the study deals with a topic of interest, of which we need more research. Then there is the comparison with the outcome of the previous study, where the impact of cultural belongingness was clearly visible. Furthermore, there is important to learn about what kind of knowledge development there exists among children during a time period of 30 year.

Information visualization in school

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Research topic/aim: The aim for this paper is to present and discuss a research project concerning "Information Visualization in Schools" and some results from an initial Pilot study. Due to technology, people are increasingly faced with the problems of filtering and interpreting enormous quantities of information. The information technology today produces and allows access to huge amounts of information. Information and communication technology (ICT) has in many ways changed the terms and structures for learning, especially for the younger generation. To develop strategies to handle the quantity and access to information and create an understanding of how children´s way of learning are connected to technology is therefore essential.

Information visualization technology is a research area which is aiming at illustrating information which for the eye is difficult to uncover or even impossible to perceive or interpret. Thanks to the visualization technology it is easy to create more easily understandable