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STUDENT TEACHERS’ MOMENT-TO-MOMENT REASONING AND THE DEVELOPMENT OF DISCURSIVE THEMES – AN ANALYSIS OF PRACTICAL EPISTEMOLOGIES IN A NATURAL HISTORY MUSEUM EXHIBIT

INTRODUCTION

The development of socio-cultural perspectives in education has involved an expansion of the research scope on learning, from being focused primarily on individuals’ cognition, to an emphasis on the role of communication and its historical, situational and cultural features (Lave & Wenger, 1991; Rogoff, 1995; Säljö, 2000; Wertsch, 1991; Wickman, 2004). The philosophical orientation of pragmatism, as developed for research in science education, has further added to this approach by providing ways of handling learning in terms of language use and meaning, and as part of whole activities having purposes (Almqvist & Östman, 2006; Gyllenpalm, Wickman, & Holmgren, 2010; Hamza & Wickman, 2008; Jakobson & Wickman, 2007; Lidar, Lundqvist, & Östman, 2006; Lundegard & Wickman, 2007; Wickman, 2006). In a previous study we introduced this perspective as a high resolution approach of studying student teachers’ moment-by-moment learning during a teaching activity in a museum of natural history (Piqueras, Hamza, & Edvall, 2008). In that article we presented an analysis of the first three minutes of the activity. Here we provide an account of the entire activity, illustrating how the approach can be used to elucidate also broader patterns of student reasoning. In the first part we present the framework of practical epistemology analysis, an operational mechanism for describing learning on a discursive level of people acting in an activity. Then we use this framework to describe the directions learning takes in response to what the students notice in the diorama. We also assess the relevance of the learning taking place, compared with the purpose of the diorama. Finally, we suggest some benefits of adopting this approach as a complement to other ones in museum studies.

THEORETICAL FRAMEWORK

The theoretical framework that we use in this study is based on the by now well established practical epistemology analysis initially developed by Wickman and Östman (Wickman & Östman, 2002; Wickman, 2004). Based on the work of
Dewey, the later Wittgenstein and socio-cultural perspectives, they suggested a theoretical mechanism for studying learning on a discursive level. Approaching learning discursively means focusing on how people act in order to take the activity forward towards a purpose. In that way, the analysis is close to how we understand each other in our day-to-day interactions (Wickman, 2006). Just as in real life interactions, we do not need to resort to complicated analyses about what occurs inside people’s heads in order to understand what is going on during an activity. By studying what people do and say as part of whole activities having purposes, we can describe what they learn in terms of how they use their previous experiences to cope with new situation and, consequently, how old meanings change in light of new experiences. What the participants do and say in the activity represents their practical epistemologies, that is, what they count as knowledge and how they get knowledge in specific situations. A practical epistemology analysis, then, is an analysis of how people cope with different situations during an activity.

To analyze this meaning-making process on a discursive level, Wickman and Östman (2002) introduced four concepts: encounter, gap, relation, and stand fast. Encounters occur between persons and between persons and artifacts or natural phenomena. As an activity proceeds, the participants notice gaps as a result of such encounters. To fill a gap, participants establish relations to those things which they are already familiar with, and which they do not need to put into question for the moment. These are the things which stand fast in the particular situation. Usually, what stands fast is seen through those words which are used by the interlocutors without questioning and which work as temporary points of departure for further action in encounters with the world. The basic rhythm in a learning experience can be described, in this approach, as a series of encounters in interplay with learners noticing gaps and filling the gaps with new relations to what stands fast (Wickman, 2006).

It is important to realize that the four concepts of the practical epistemology analysis are analytical. They do not constitute claims about what the participants “really” think or do. For example, it is irrelevant to ask whether someone “really” noticed a gap or not in a particular encounter. If the participants establish at least one relation then, by definition, this means that a gap has been noticed. It is also irrelevant to ask whether some encounters may have been overlooked in the analysis. This is because encounters are operationalized discursively, as that which occurs in student talk and action. Thus, an encounter is entirely visible in student talk. The same goes for the concept of stand fast. It is irrelevant to ask whether a certain word “really” stood fast to the participants, because it is not a claim about what they think or understand. It only implies what can be directly observed in student discourse, viz. that a word (or an action) is not – for the moment – being questioned by the participants. Thus, the four concepts are strictly analytical and operationalized in relation to each other, instead of being related to anything particular to the participants. In this way, the practical epistemology analysis does away with the need to make inferences about what is “actually” going on in a situation, or what the participants “really” mean.