Abstract
This thesis investigates the teachers’ role in developing and supporting open inquiry in science class-
rooms. The point of departure for the study is educational research suggesting open inquiry as an
approach to learn about Nature of Science (NOS) and scientific inquiry as a major part of science curricula. The thesis is based on a case study using an action research approach at an upper sec-
dondary school for three years. This in-depth and longitudinal study can be of importance in providing
context-dependent knowledge, increasing our understanding of scientific inquiry in school and the
conditions necessary for change of practice.

The first article offers an understanding why a positivist epistemology and related myths concerning
NOS are robust in school versions of scientific inquiry even though they go against the “appropriate”
views of NOS. The case study reveals that what seemed to be a teacher’s positivist position towards
NOS and scientific inquiry was embedded in a broader concern about pedagogical considerations
and personal engagement with low-achieving students. The implications are that teachers (students)
should be given the opportunity for guided reflections on personal experiences and commitment to
scientific inquiry in order to become more conscious of how they affect their beliefs and practice. The
second article identifies emerging issues concerning how the teacher support the students providing
them with a balance of structure and space – and how it constitutes the students inquiry process in
the different phases of the inquiry. The study indicate that there exist a necessary tension and inter-
play between structure and space, creating what can be seen as a driving force providing both explora-
tion and direction for the open inquiry. The notion of “structure and space” is suggested as a thinking
tool for teachers’ (students) to increase competence on how to scaffold more authentic versions
of scientific inquiry in school. The third article explores possibilities and constrains with collaborative
action research between teachers and researchers to improve science inquiry in school. It draws on
two action research projects experiencing many similar challenges. In both practices we found that
the transition between planning change and what happened in the actual classroom practice was
difficult. We suggests that the collaborative effort developing concrete tools for classroom practice of
science inquiry can act as an impetus for change when it is supported by both educational literature
and the situated practice. Thus, the distinguished voices of the teachers and researchers will comple-
ment each other and might act to bridge the gap between research and practice of science inquiry.

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