Summary

The present dissertation is an anthological dissertation, consisting of four papers revolving around various aspects of science camp participants' and teachers' profit by the camp experience. A science camp offers the opportunity for both participants and teachers to work with science in unconventional ways and through alternative communicative approaches. Science camps can be regarded as an activity which contributes with *something* to both participants and teachers. Through case studies, it is aspects of this *something* the dissertation seeks to capture. Theoretically, the dissertation focuses on the profit gained by the participants in relation to three dimensions of *scientific literacy* (product, process and methodology as well as social institution), and on how teachers' cooperation can be characterised according to professional learning communities. The dissertation and the contributing papers represent the first Danish research-based approach to science camps.

The first paper *What Characterizes a Science Camp? A Descriptive Literature Review* is a systematic descriptive literature review which outlines the trends that characterize the existing research literature on science camps. The review identifies great diversity in the use of the term science camp. Thus, the term differs in relation to a number of independent variables: theme, audience, duration, accommodation, and whether the activity does or does not take place within the framework of the educational system. The diversity within these variables makes it difficult to identify a common language and a clear definition when discussing the subject of science camps. Therefore, Paper I offers such taxonomy of science camps.

The following two papers revolve around case studies of Danish science camps with a focus on the participants. The methodological approach was quantitatively oriented and based on questionnaires which constituted the central data source.

The paper *Offering a Forensic Science Camp To Introduce and Engage High School Students in Interdisciplinary Science Topics* (Article II) presents a case study of a summer holiday science camp for high school students outside the framework of the established educational system. The science camp utilised a narrative approach, which was based on a forensic theme. The purpose was to illustrate key concepts of the science disciplines and show how the subjects: chemistry,

medicine, and physics can complement each other in forensic tests and in solving crimes. The paper explored whether or not the participants was experiencing any academic benefits from their participation, and whether or not they believed that this could be applicable beyond the science camp contexts. The paper gave rise to the development of a new analytical approach which was employed and presented in paper III, profit gained by the participants was analysed in relation to the dimensions of *scientific literacy* (product, process and methodology as well as social institution).

The third paper - *Effects of Science Camps* - focus on four science camps in a lower secondary school context with the subject food and science. Paper III took its starting point in insights from Paper I and II; key profits from science camps are not (yet) well documented. Paper III operationalises product, process and methodology as well as social institution as elements of *scientific literacy* in a Danish context. Paper III provides new and empirically supported knowledge of the profits gained by camp participants on both group and individual level. Article III identifies a number of findings which indicate that the participants positively develop their *scientific literacy* through the science camp experience.

The fourth paper – *Educational Reconstruction and Cooperation in Science* - explore teachers' possible yields of science camps. The paper came into existence in the recognition that the literature primarily concerns the beneficiaries' (participants') profits of an activity. This led to a desire to also examine the profit of an activity outside the traditional educational context from the perspective of the senders (teachers). The goal of the paper was to characterize teachers' profit of science camps within a theoretical framework of professional learning communities and educational reconstruction with particular focus on cooperative relations. Data was obtained through a qualitative questionnaire, and the group of respondents was primarily university students and all had voluntarily participated in the development and organisation of teaching in one or more summer holiday science camps during their university studies. The findings indicate that a science camp can significantly contribute to the development of a strong professional learning community characterised by joint construction.

Overall, the findings presented in this dissertation suggest that both participants and teachers profit by involvement in science camps.