Editorial NorDiNa 1/2018

Welcome to the first issue of NorDiNa in 2018. In this issue, we present seven scientific articles, and one abstract of a recent PhD dissertation.

The first article “Balancing Cost and Value: Scandinavian Students’ First Year Experiences of Encountering Science and Technology Higher Education”, by Fredrik Jensen, Ellen Karoline Henriksen, Henriette Tolstrup Holmegaard, Lene Møller Madsen, and Lars Ulriksen, investigates the experiences of students in science, technology, engineering and mathematics (STEM) during their first year in higher education, based on 874 Danish and 1314 Norwegian students’ responses to an online questionnaire. Rather than focusing on averages, the authors compared the experiences of two distinct groups of students: those who rated their overall study situation as better than expected (the satisfied group) and those who rated it as worse than expected (the dissatisfied group). Although the satisfied group was more positive to many aspects of their study situation, the dissatisfied group was also relatively positive to many aspects. All respondents expressed that the study cost more time and effort than anticipated, but only for some students (notably the satisfied group) was this high cost counterbalanced by a high value in terms of subject interest and social integration.

In his article “Pre-service teachers’ reflections on teaching a physics lesson: How does Lesson Study and Content Representation affect pre-service teachers’ potential to start developing PCK during reflections on a physics lesson”, Martin Vogt Juhler investigates the role of teacher students’ reflections in order to start developing their Pedagogical Content Knowledge (PCK). According to the author, recent research has found that reflection, as used during mentoring in field practice, however, regularly is an obstacle to deliberate reflection. The study addresses this problem by introducing Lesson Study and Content Representation as an intervention in teacher education field practice. The results of the intervention showed that the pre-service teachers reflected differently compared to the current state of practice. During the intervention, they focused more on: Goals for instruction, Pupils and their learning, Best representation of specific content, and Specific assessment. According to the author, differences in reflection might lead to pre-service teachers developing a more inter-related understanding of these focus areas as opposed to what happens in the current state of practice. This, in turn, could affect the pre-service teachers’ potential to start developing their PCK.

Helene Elvstrand, Jonas Hallström, Kristina Hellberg’s article is entitled “Preschool teachers’ views and experiences of working with technology in preschool”. Since Swedish preschool teachers have not had any formal technology education until just recently, the authors argue that it is of importance to investigate how teachers conceive of and experience technology in the daily activities of the preschool. The purpose of their study is therefore to describe and analyse Swedish preschool teachers’ views and experiences of technology and technology education in the preschool, focusing on what opportunities and obstacles they see. Their results show that when it comes to opportunities, the teachers consider technology to permeate all preschool activities, and the challenge here is rather to make technology visible. In terms of obstacles, however, the teachers are also uncertain about what technology is and want to have more knowledge of technology themselves, for example, relevant concepts for various technologies or activities.

In their article entitled “A science teacher’s complex beliefs about nature of scientific inquiry” Birgitte Bjønness and Erik Knain focus on teachers’ beliefs about the nature of science (NOS). According to the authors, a major concern relating to teaching scientific inquiry is that many teachers show epistemologically naive beliefs about NOS. In their study, the authors use in-depth interviews to identify an upper secondary science teacher’s beliefs about NOS and scientific inquiry in school. The results showed that what seemed to be a teacher’s positivist position was embedded in broader concerns regarding pedagogical considerations and personal engagement relating to the students. This broader ecology of a teacher’s beliefs can, according to this study, enable us to better understand why positivist epistemology and related myths concerning NOS are seemingly robust in school versions of scientific inquiry.

In their article “Qualitative differences in teachers’ discussions about assessment and students’ science knowledge” Marlene Sjöberg, Åke Ingerman, and Eva Nyberg investigate teachers’ collegial discussions about students’ science knowledge, in a context of collaborative planning and evaluation of teaching concerning the human body. The empirical data consisted of recordings of four meetings with researchers and one team of science teachers in a Swedish compulsory school. The study contributes to the understanding of collegial discussions as such and in particular what the teachers attend to as salient science knowledge. Using a phenomenographic approach, the results consisted of a set of categories of teachers’ qualitatively different ways of expressing students’ science knowledge.

In the article entitled “The nature of the relation between pre-service teachers’ views of an ideal teacher and their positive memories of biology and geography teachers” Anne Pellikka, Sonja Lutovac and Raimo Kaasila study pre-service teachers’ views on what characterizes an ideal teacher. According to the authors, literature acknowledges that pre-service teachers’ memories of their past might influence how they see their future as teachers, and thus on the construction of their teacher identity. However, the authors claim that little is known about the nature of the relation between pre-service teachers’ views of the ideal teacher and their memories of their own school teachers, particularly regarding specific subject disciplines, such as biology and geography. Narratives from three pre-service elementary teachers revealed that positive memories of biology and geography teachers and future-oriented reflection connected their past and their views on what characterizes an ideal teacher. According to the authors, the findings suggest that just one positive memory can have far-reaching significance.

In the article “The forest as a classroom in ”Uteskoleleven”. A contribution to knowledge of species and ecological understanding?”, Siw Elin Eidissen has analysed some aspects of the environmental project “Lære med skogen” (Learning About Forests) by the Forestry institute (Skogbrukets kursinstitutt) to consider its value in relation to education when it comes to ecological sustainable development. Her analysis of the 61 tuition activities in the digital learning resource “Uteskolelevens uteaktiviteter” shows that the forest is not being presented as a functional ecosystem, to the extent that it should. Eidissen argues that it is significant to highlight the forest’s ecosystem if one is to use it as a classroom to educate about ecological sustainable development. More ecological knowledge is important in these activities and has to be presented. In addition, more of the activities should especially emphasize the importance of dead wood being essential to the function of the forest’s ecosystem. If the students are meant to develop an understanding for ecological sustainable development in a forest, a theory about a functional ecosystem has to be focused upon and taught in an environment with specific ecological qualities, like natural forest, continuity and red listed species.

We hope you enjoy your reading!

Carl-Johan Rundgren & Are Turmo