Paalanen, Johanna. 2019. Multimodal classroom interaction during musicing in Finnish general music education. The Finnish Journal of Education 50 (3), 188–202.

The article explores an aspect of classroom interaction by looking at how music teachers employ embodied multimodal interactional resources when guiding students' musicing (singing or/and playing musical instruments together). The study is based on video-recorded data of 16 music lessons at a compulsory music course in Finnish upper secondary schools. Multimodal conversation analysis was used as a methodological framework. The analysis shows how music teachers deploy diverse embodied resources simultaneously. Moreover, all resources are adjusted to the rhythm of the music piece. The results suggest that the music teacher's rhythmic, accentuated and exaggerated multimodal embodied interaction facilitates the students' participation in musicing, and enhances rhythmic entrainment of the group. The findings have further relevance for developing research on embodied social learning, especially in the context of school education. Furthermore, the results can be used while discussing teachers' and students' roles, and the significance of art education and shared experience in school.

Descriptors: classroom interaction, conversation analysis, entrainment, music education

Miettinen, Reijo. 2019. 21st century competencies – OECD as the reformer of the language on education. The Finnish Journal of Education 50 (3), 203–215.

Several international projects in the beginning of the 21st century have defined the 21st century skills and competencies. They constitute a foundation for a new way of speaking about education. The forerunner of the development has been the OECD and its DeSeCo-project. The goal of the project was to recognize the key competencies required by the economic development and changes in technology and working life. The framework of comparative measurement requires the definition of generic competencies that are independent of the cultures and school systems of different countries. The language of competencies directs education to what can be measured and is evaluated to be important for employability and economic development. In doing this, it narrows down our understanding of the purpose and contents of *Bildung* and education.

Descriptors: Bildung, 21st century competences, OECD, PISA, DeSeCO-project, theory of human capital, comparative measurement, generic skills

Nieminen, Tuomas – Mankki, Ville. 2019. Teacher activism in teacher education curricula. The Finnish Journal of Education 50 (3), 216–225.

Teacher activists strive to promote equality and dismantle oppressive structures through societal activity. In this study, we investigate teacher activism in the written curricula of Finnish teacher education. In particular, we focus on pedagogical studies that produce teaching qualifications. The data consists of descriptions of courses included in the class and the subject teachers' pedagogical studies at the Universities of Helsinki, Eastern Finland, Jyväskylä, Tampere, and Oulu. Awareness and

action were used as preconceived analytical frameworks in our content analysis of the data. The results indicate that the curricula for teacher education aim to support the teacher trainees' awareness of social problems and opportunities for education to implement change. Nevertheless, the development of societal activism remains inadequate – or at least concealed – in pedagogical studies; for example, the obligation to participate in societal action outside the school is not explicated in the curricula. Therefore, it seems justified to criticise Finnish teacher education for insufficient support and encouragement of real social activity.

Descriptors: teacher activism, teacher education, curriculum, pedagogical studies

Kaarakainen, Meri-Tuulia – Saikkonen, Loretta – Kaarakainen, Suvi-Sadetta. Raising the future experts? The level of secondary and upper secondary school students' programming skills. The Finnish Journal of Education 50 (3), 226–241.

Technological development shapes interaction and learning environments, the surrounding society, and the future working life of today's students. Future skills requirements are integrated in the renewed basic and secondary education curricula, which aim to nurture the citizens of the digital society and to provide the skills needed in the future labour market. This study examines the secondary and upper secondary school students' programming skills. The data consists of the test scores from the programming tasks and the survey answers of the basic education ninth graders and both general and vocational upper secondary school students (N=8661). Based on the results, the students' programming skills are rather weak. The programming skills of male students are significantly better when compared to female students. Age and education level, on the other hand, have no effect on the level of programming skills. Active digital game playing increases the programming skills, as well as the general digital skills related to digital content creation and knowledge of the technological operating principles of digital environments. The reasons for students' incompetence in programming are likely to be found in the ease of use of current technology, and hence in students' unfamiliarity with formulas and code.

Descriptors: programming, basic education, upper secondary education, students