Supporting natural scientific literacy in ECEC: Developing students’ professional competencies

Eva Born-Rauchenecker

Purpose

The project LuPE intends to create an instruction concept for professional schools, which are the main training institution for future kindergarten teachers. The teaching material will be used in subjects like “Natural Sciences” or “Mathematical-scientific Education” in specialization of Early Childhood Education and Care (ECEC). With the principal purpose in mind – supporting children’s scientific inquisitiveness in everyday situations –, the project’s main aim is to find ways to allay students’ fears of this issue and to encourage them in their role as a future coach to children’s scientific interest and learning process. In order to win the students over to a subject area often experienced to be abhorrent, the concept focuses methodically on a variety of approaches to scientific topics potentially relevant in kindergarten and emphasizes a biographic attachment to these topics, e.g. by eliciting the students’ everyday knowledge about plants, animals, scientific phenomena.

Conceptual/Theoretical framework

Empirical studies point out the relevance of ECEC professionals’ attitudes.

The support of learning processes in everyday situations requires ECEC professionals’ reflection skills and analytical competencies. Their attitudes towards natural sciences are decisive.

Design/Methodology

A specific questionnaire examined students’ (N=420) self-concept of natural sciences. In addition, teachers and students will evaluate the LuPE concept based on further questionnaires and group discussions.

Results

Students’ little interest in and fears of natural sciences are often a result of former school experiences and claim a (re-)discovery of the presence of natural sciences in their own life and a low-level (re-)start at professional schools. Variegated methods in class help them to enjoy studying science again and to strengthen their professional competencies as future kindergarten teachers.

Limitations

The first project phase ends September 2017. Research into effects of the LuPE concept on attitudes during apprenticeship and on coaching in kindergarten is planned.

Research/Practical Implications

The first modules of teaching material are offered to a small network of professional schools and implemented in the current year of apprenticeship. At the end of the school year, the joint experiences of teachers and students with the new concept will be asked about. With
regard to the current state of research, their judgments will promote the further design of the LuPE material.

**Originality/Value**

Successfully developing an innovative modular concept of natural scientific literacy and its implementation in professional schools will yield a professional support of natural scientific learning in everyday situations in kindergarten.

**References**


