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The profile of facilitators

Most school systems have people who are systematically entrusted with professional development (PD) tasks in the phase of continuous professionalization. Although they are trained as teachers, they are "self-made" regarding teacher trainings (Zaslavsky, 2008, p. 93) and usually devote themselves to this task in the context of a secondary job, which is at best compensated with little relief from the deputation in school practice. The many different names such as trainers, moderators, facilitators, teacher educators, etc. testify to the heterogeneity of this group's work. We refer to them here as facilitators. The work of these facilitators is of paramount importance for school and teaching development as it is they who inspire, attract and train local teachers to innovate and implement new teaching standards. As a nationwide institution, the German Center for Mathematics Teacher Education (DZLM) has set itself the task of developing and researching trainings on the facilitators level (Prediger et al., 2017). As a guideline for the qualification of facilitators, the DZLM introduced a profile based on the facilitators' competences. The profile is presented in this paper. In our review of relevant literature concerning facilitators, we focused our research on mathematical education (ME) and general adult teaching. It is shown that there is still a lack to capture all competences of a facilitator in ME. Thus, it is necessary to develop a new profile for facilitators in ME that takes into account the other existing models and yet bundles all competences.

Theoretical Framework

Competences of mathematics teachers

There has been a great increase in interest in PD in mathematics, which has led to its own research area in mathematics education research. Borko and colleagues (2017) have pointed out that the research gap on what is known about PD includes what facilitators need to know and are able to do and what is entailed in their preparation. The qualification of facilitators as well as their personal and material support is the focus of the DZLM's work. There are already studies that shed more light on the different roles facilitators take on during PD and their resulting general requirements, that are differentiated in form of competence lists (Smith, 2005; Zaslasvky, 2008).

For the required content-related knowledge of facilitators, different focuses are set in different studies. However, all accentuate that the knowledge needed by facilitators must go beyond the knowledge of teachers, as they have to teach new knowledge to the teachers (Borko et al., 2014). This

extended knowledge does not only refer to a new knowledge of mathematical content and the related relevant didactic aspects, which aims at further ME, but also the didactic knowledge of general adult education. This includes, for example, knowledge about mentoring, existing teaching practices (Even, 2005) or views of current teacher education research. The literature review of Borko et al. (2017) has shown that especially successful facilitators have deep knowledge, support group collaboration and create a collegial and trusting relationship with teachers. Cochran-Smith and Lytle (1999) also stress the different ways in which teachers generate new knowledge as relevant knowledge for facilitators. They distinguish between practical knowledge, which arises in the professional action of the teacher, theoretical knowledge, which is brought to the teacher from the outside and theoretical knowledge, that is generated by the teacher reflecting his/her own professional actions. It should be emphasized that while facilitators have an expanded knowledge in comparison to teachers, there are also knowledge elements that are relevant for teachers but not for facilitators (Beswick and Chapman, 2015). This includes, e.g. the detailed knowledge of school curricula or background knowledge about individual students.

Typical for a facilitator's work is its integration into different levels of professionalization in a school system. A model that reflects this level structure (emphasizing the technical and subject specificity of PD) is the "three-tetrahedron model of professionalization research", developed by the DZLM (Prediger et al., 2017). The elements of this model name the most important reference points of facilitators' activities. At the lowest level is the teaching tetrahedron, where the pedagogical triangle has been extended around a corner "materials and media". This teaching tetrahedron as a whole is the subject of further education. The teacher PD level is about professionalizing teaching - so the model's tetrahedron includes facilitators as teachers, teachers as learners and again "materials and media", especially with regard to PD. Facilitators are themselves "learners" at the facilitator PD level; involved in continuous qualification measures that vary greatly in quality and quantity in different school systems. Similar to the three-tetrahedral model of the DZLM, models usually describe the competences of facilitators in the context of the PD level up to the classroom level. For example, Borko and colleagues (2014) use their competence model to refer to the work of Ball et al. (2008) on "Mathematical knowledge for Teaching (MKT)" and similarly describe the knowledge for facilitators as "Mathematical knowledge for Professional Development (MKPD)". They subdivide the mathematical knowledge for PD into three domains: specialized content knowledge (SCK), pedagogical content knowledge (PD-PCK) and learning community knowledge.

Competences of facilitators in general adult education

As part of the GRETA BMBF project, a competence model (Fig. 1) was developed based on a delphi survey in a multi-level process of intensive exchange and dialogue with adult education experts (Lencer et al., 2016). It is intended for adult education and claims to provide a model for the education and training of adults in all fields of work. It should help to conscious education of PD facilitators. Thus, in the model, the fields for explicit technical reference are free and must be filled accordingly.

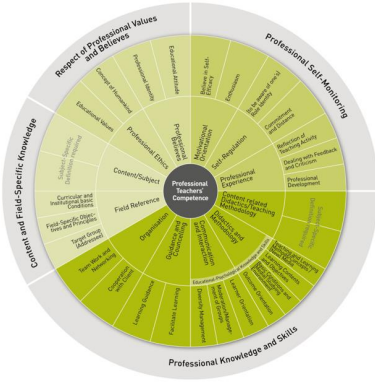

Figure 1: GRETA model (Lencer et al., 2016, p. 7)

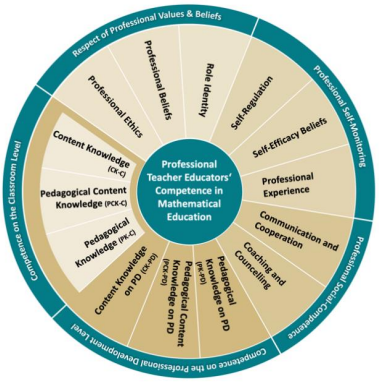

Figure 2: The new profile of facilitators in ME

The new profile of facilitators in ME

The DZLM generated a new profile that bundles all required competences of facilitators in ME. Therefore, other models were included and led to a model, which essentially follows the structure of the GRETA model. All theoretical aspects are already bundled in the GRETA model and a direct localization in the three-tetrahedral model is obvious. The main dimensions of the GRETA model in the outer ring are taken over as structuring, but the designations are adapted with regard to ME (Fig. 2). The new main dimensions are: Respect of professional values and believes, professional self-monitoring, knowledge and skills at the facilitator level, knowledge and skills at the classroom level. To fill these main dimensions with ME specific competences it is necessary to use the other existing models and studies about facilitators in ME. The search for a suitable profile of all aspects considered was initially proceeded based on literature. Next to the literature review the GRETA model was adapted in a process of expertise and exchange with the experts in DZLM.

After this process, we were able to show that the model can essentially persist but primarily the underlying indicators need to be concretized in a

mathematical manner. In summary, it can be said that the following relevant five elements are covered in the new profile (see Fig. 2):

- PD subject knowledge: Content knowledge (CK), pedagogical knowledge (PK) and pedagogical content knowledge (PCK)
- Mathematics-specific PD didactics and methodology
- Didactics and methodology of adult education

Outlook

The adaption is still in progress. Further details of the adaption of the GRETA model can be found soon in a further publication. The new profile offers orientation for the development and research as well as a concretization for the individual jobs with different topics. It illustrates the need to look at the entire occupational field and shows that not only individual competences can be included in a qualification measure.

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