

SUSTAINABILITY OF PROFESSIONAL DEVELOPMENT

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This contribution addresses the issue of sustainable impact of professional development projects. It claims for widening the scope from evaluations of short-term effects to analyses of long-term impact. For that, the contribution discusses various types of effects and possible levels of impact. In particular, an overview concerning factors promoting the impact of professional development projects is provided. A case study that analysed the impact of an Austrian professional development project three years after its termination is introduced. The paper closes with further research questions that emerged from this study.

Key-words: professional development, sustainable impact, promoting factors, case study

INTRODUCTION

The quality of teaching and learning represents a recurring key issue of research. In particular, teachers are considered to be playing a central role when addressing this topic: „Teachers are necessarily at the center of reform, for they must carry out the demands of high standards in the classroom” (Garet, Porter, Desimone, Birman, & Yoon, 2001, p. 916). Various types of professional development projects are offered to support and qualify these teachers. The expected effects of such projects by both the facilitators and the participants are not only related to the professional development of individual teachers to improve teacher quality, but also to the enhancement of the quality of whole schools, regions and nations. The desideratum of all such projects providing teachers support and qualification is to enhance the learning of students. As Kerka (2003) states, “Funders, providers, and practitioners tend to agree that the ultimate goal of professional development is improved outcomes for learners” (p. 1). This strategy, to achieve change at the level of students (improved outcomes) by fostering change at the teachers’ level (professional development), is based on the assumption of a causal relationship between students’ and teachers’ classroom performance: “High quality professional development will produce superior teaching in classrooms, which will, in turn, translate into higher levels of student achievement” (Supovits, 2001, p. 81). Similarly, Hattie (2003) states, “It is what teachers know, do, and care about which is very powerful in this learning equation” (p. 2). Ingvarson, Meiers, and Beavis (2005) sum up: “Professional development for teachers is now recognised as a vital component of policies to enhance the quality of teaching and learning in our schools. Consequently, there is increased interest in research that identifies features of effective professional learning” (p. 2).

TYPES OF EFFECTS

The expected outcomes of professional development projects are not only focused on short-term effects that occur during or at the end of the project, but also on long-term effects that emerge (even some years) after the project's termination (Peter, 1996). Effects that are both short-term and long-term can be considered to be sustainable. So sustainability can be defined as the lasting continuation of achieved benefits and effects of a project or initiative beyond its termination (DEZA, 2005). As Fullan (2006) points out, short-term effects are “necessary to build trust with the public or shareholders for longer-term investments” (p. 120). Besides these short-term effects also long-term effects need to be considered; otherwise the result could be to “win the battle, [but] lose the war” (ibid.). Hargreaves and Fink (2003) state, “Sustainable improvement requires investment in building long term capacity for improvement, such as the development of teachers' skills, which will stay with them forever, long after the project money has gone” (p. 3). Moreover, analysis of sustainable impact should not be limited to effects that were planned at the beginning of the project; it is also important to examine the unintended effects and unanticipated consequences that were not known at the beginning of the project (Rogers, 2003; Stockmann, 1992).

SUSTAINABLE IMPACT

Evaluations and impact analyses of professional development projects are formative or summative in nature; in most cases they are conducted during or at the end of a project and exclusively provide results regarding short-term effects. These findings are highly relevant for critical reflection of the terminated project and necessary for the conception of similar projects in the future. But apart from and beyond that, an analysis of sustainable effects is crucial: “Too many resources are invested in professional development to ignore its impact over time” (Loucks-Horsley, Stiles, & Hewson, 1996, p. 5). This kind of sustainability analysis is often missing because of a lack of material, financial and personal resources. “Reformers and reform advocates, policymakers and funders often pay little attention to the problem and requirements of sustaining a reform, when they move their attention to new implementation sites or end active involvement with the project” (McLaughlin & Mitra, 2001, p. 303). Despite its central importance, research on this issue is generally lacking (Rogers, 2003) and “Few studies have actually examined the sustainability of reforms over long periods of time” (Datnow, 2006, p. 133). Hargreaves (2002) summarises the situation as follows: “As a result, many writers and reformers have begun to worry and write about not just how to effect snapshots of change at any particular point, but how to sustain them, keep them going, make them last. The sustainability of educational change has, in this sense, become one of the key priorities in the field” (p. 120).

Zehetmeier (2008) summarises the literature concerning the sustainability of change and provides a case study of four teachers from one school, analyzing the impact of a professional development project three years after its termination. For that, he

develops a theoretical model which allows analysing both the various characteristics of the project, the different levels of impact, and the factors promoting or hindering the sustainability of impact (see also Zehetmeier, in prep.).

LEVELS OF IMPACT

When analyzing possible effects of professional development, the question of possible levels of impact arises. Which levels of impact are possible and/or most important? How can impact be classified? Recent literature provides some answers to these questions; the following levels of impact are identified (Lipowsky, 2004):

Teachers' knowledge: This level can be defined in different ways, for example, referring to content knowledge, pedagogical knowledge, and pedagogical content knowledge (Shulman, 1987), or attention-based knowledge (Ainley & Luntley, 2005), or knowledge about learning and teaching processes, assessment, evaluation methods, and classroom management (Ingvarson et al., 2005).

Teachers' beliefs: This level includes a variety of different aspects of beliefs about mathematics as a subject and its teaching and learning (Leder, Pehkonen, & Törner, 2002), as well as the perceived professional growth, the satisfaction of the participating teachers (Lipowsky, 2004), perceived teacher efficacy (Ingvarson et al., 2005) and the teachers' opinions and values (Bromme, 1997).

Teachers' practice: At this level, the focus is on classroom activities and structures, teaching and learning strategies, methods or contents (Ingvarson et al., 2005).

Students' outcomes: Many papers highlight that students' outcomes are related to the central task of professional development programmes: namely to the improved learning and knowledge of the students (Kerka, 2003; Mundry, 2005; Weiss & Klein, 2006).

Zehetmeier (2008) points out that the complexity of possible impact is not fully covered by this taxonomy. For example, results of an impact analysis in the context of the Austrian IMST project (Krainer, 2005, 2007) show that the project made impact also on students' beliefs or other – non participating – teachers' practice. In particular, the findings of this analysis demonstrate that the taxonomy of levels of impact (see above) needs to be extended (Zehetmeier, 2008): The categories knowledge, beliefs, and practice are suitable to cover the impact in the teachers' level. But also on the levels of pupils, colleagues, principals, and parents all three categories (knowledge, beliefs, and practice) are respectively necessary to gather possible levels of impact. Moreover, in addition to these in-school levels, also beyond-school levels need to be considered when analyzing the impact of professional development projects: e.g., other schools, media, policy, or scholarship. These results lead to a grid of possible levels of impact (Zehetmeier, 2008, p. 197):

	In-School Levels					Beyond-School Levels			
	Teachers	Pupils	Colleagues	Principals	Parents	Schools	Media	Policy	Scholarship
Knowledge									
Beliefs									
Practice									

FOSTERING FACTORS

What are the factors that promote and foster the impact of professional development projects? Literature and research findings concerning this question point to a variety of different factors. To give an overview, in the following section Borko's (2004) four elements of professional development projects are used to organize and classify these factors: *participating teachers*, *participating facilitators*, *the programme itself*, and the *context* that embeds the former three elements.

Within the element of *participating teachers* the following factors are fostering the impact of professional development programmes: If the teachers are involved in the conception and implementation of the programme, they can develop an affective relationship towards the programme by developing ownership of the proposed change (Clarke, 1991; Peter, 1996). They can be empowered to influence their own development process (Harvey & Green, 2000). Teachers should be prepared and supported to serve in leadership roles (Loucks-Horsley et al., 1996). An "inquiry stance", taken by the participating teachers, also fosters the sustainability of impact (Farmer, Gerretson, & Lassak, 2003, p. 343): If teachers understand their role as learners in their own teaching process, they can reflect and improve their practice. Cochran-Smith and Lytle (1999) also use this notion for describing teachers' attitude towards the relationship of theory and practice: "Teachers and student teachers who take an inquiry stance work within inquiry communities to generate local knowledge, envision and theorise their practice, and interpret and interrogate the theory and research of others" (p. 289). Altrichter and Krainer (1996) recommend a reorientation of professional development programmes from "teachers to be taught" towards "teachers as researchers" (p. 41) and refer to Posch and Altrichter (1992) who state: „The most important part of teacher professional development takes place on site: by reflection and development of the own instructional practice and by school development" (p. 166).

Similar to the teachers, also the *participating facilitators* of the professional development programme should take a “stance of inquiry” (Ball, 1995, p. 29) towards their activities. They should reflect on their practice and evaluate its impact (Farmer et al., 2003). The facilitators’ knowledge, understanding, and their image of effective learning and teaching also foster the initiative’s impact (Loucks-Horsley et al., 1996). The development of mutual trust between the facilitators and the participating teachers represents a further fostering factor (Zehetmeier, 2008).

The *programme itself* should fit into the context in which the teachers operate, and provide direct links to teachers’ curriculum (Mundry, 2005). It should focus on content knowledge and use content-specific material (Garet et al., 2001; Ingvarson et al., 2005; Maldonado, 2002), and should provide teachers with opportunities to develop both content and pedagogical content knowledge and skills (Loucks-Horsley et al., 1996; Mundry, 2005). Moreover, an effective professional development programme includes opportunities for active and inquiry-based learning (Garet et al., 2001; Ingvarson et al., 2005; Maldonado, 2002), authentic and readily adaptable student-centered mathematics learning activities, and an open, learner-centered implementation component (Farmer et al., 2003). Further factors fostering the effectiveness and sustainability of the programme are: prolonged duration of the activity (Garet et al., 2001; Maldonado, 2002), ongoing and follow-up support opportunities (Ingvarson et al., 2005; Maldonado, 2002; Mundry, 2005), and continuous evaluation, assessment, and feedback (Ingvarson et al., 2005; Loucks-Horsley et al., 1996; Maldonado, 2002).

Lerman and Zehetmeier (2008) highlight that community building and networking represent further factors fostering sustainability. This claim is supported by several authors and studies, even if the categories used to describe these activities are sometimes different: Clarke (1991), Peter (1996), and Mundry (2005) point to cooperation and joint practice of teachers, Loucks-Horsley et al. (1996) and Maldonado (2002) highlight the importance of learning communities, Wenger (1998) and McLaughlin and Mitra (2001) identify supportive communities of practice, Arbaugh (2003) refers to study groups, and Ingvarson et al. (2005) stress professional communities as factors contributing to the sustainability of effects. In particular, providing rich opportunities for collaborative reflection and discussion (e.g., of teachers’ practice, students’ work, or other artefacts) presents a core feature of effective change processes (Clarke, 1991; Farmer et al., 2003; Hospesova & Ticha, 2006; Ingvarson et al., 2005; Park-Rogers et al., 2007; Zehetmeier, 2008).

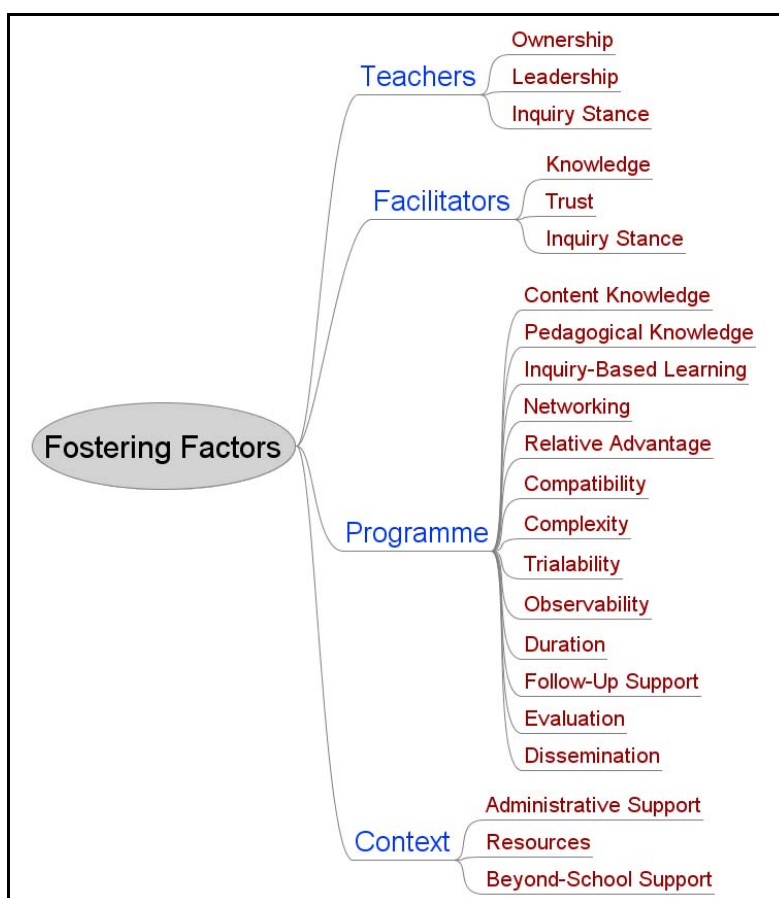
The dissemination of innovations or innovative teaching projects is another factor that fosters the sustainability of professional development programmes (Zehetmeier, 2008). E.g., teachers participating in the Austrian IMST project (Krainer, 2005, 2007) write down and publish reflective papers or project reports. As Schuster (2008) shows, teachers’ writings have a positive impact on their reflection skills and knowledge base. The dissemination of good practice projects and ideas requires a

structural framework that allows teachers to publish or actively present their projects and results. E.g., the Austrian IMST project created a web-based wiki where some hundreds of project reports written by Austrian teachers can be easily accessed. Moreover, an annual nation-wide conference is set up, where teachers can share their projects, ideas, and results. A professional development programme aiming at sustainable impact should provide these possibilities for dissemination even after the programme is terminated. Otherwise the possibility of dissemination along with the involved advantages for teachers' professional growth is likely to fade away (Zehetmeier, 2008).

Rogers (2003) highlights that the diffusion of an innovation depends on different characteristics: Relative advantage, compatibility, complexity, trialability, and observability. Fullan (2001) describes similar characteristics (need, clarity, complexity, quality and practicality) that influence the acceptance and impact of innovations. Relative Advantage includes the perceived advantage of the innovation (which is not necessarily the same as the objective one). An innovation with greater relative advantage will be adopted more rapidly. Compatibility and need denote the degree to which the innovation is perceived by the adopters as consistent with their needs, values and experiences. Complexity and clarity include the teachers' perception of how difficult the innovation is to be understood or used. Thus, more complex innovations are adopted rather slowly, compared to less complicated ones. Trialability denotes the possibility of participating teachers to experiment and test the innovation (at least on a limited basis). Innovations that can be tested in small steps represent less uncertainty and will be adopted as a whole more rapidly. Quality and practicality make an impact on the change process. High quality innovations that are easily applicable in practice are more rapidly accepted. Observability points to the claim that innovations which are visible to other persons (e.g., parents or principals) and organisations are more likely to be rapidly accepted and adopted.

The *context* which embeds teachers, facilitators, and the programme itself, is of particular importance regarding the sustainability of innovations and change processes (e.g., McNamara, Jaworski, Rowland, Hodgen, & Prestage, 2002; Noddings, 1992; Owston, 2007). Teachers need administrative support and resources (McLaughlin & Mitra, 2001). School-based support can be provided by students and colleagues (Ingvarson et al., 2005; Owston, 2007), and in particular by the principal (Clarke, 1991; Fullan, 2006). To foster sustainability not only at the individual (teacher's) level but also at the organisational (school's) level, Fullan (2006) proposes a new type of leadership that "needs to go beyond the successes of increasing student achievement and move toward leading organizations to sustainability" (p. 113). In particular, these "system thinkers in action" should "widen their sphere of engagement by interacting with other schools" (p. 113) and should engage in "capacity-building through networks" (p. 115). Support from outside the school (e.g., by national or district policies) is also an important factor fostering the programme's impact (McLaughlin & Mitra, 2001; Owston, 2007).

The following figure sums up and illustrates these factors that promote and foster the impact of professional development projects:



FUTURE RESEARCH

Impact analysis that combines and compares various cases and bigger samples could help answering the following questions (see also Zehetmeier, 2008):

- Do different professional development projects make different sustainable impact? Are there any patterns of impact?
- Does a professional development project show different sustainable impact on different participating teachers? Are there any patterns?
- Are there any hierarchical structures within the different levels of impact? Does one level require another one to occur?
- Are there any factors that promote certain levels of impact in a particular way?
- Are there any “universal” factors fostering sustainable impact?

Upcoming impact analyses dealing with these and similar questions appear to be necessary and promising; from the perspective of both scholarship and practice.

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