Education and Training 2020
Thematic Working Group
‘Professional Development of Teachers’

Literature review
Quality in Teachers’ continuing professional development

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1. Teacher Professional Development:
   the international state of the art

The significant, positive correlations between teacher quality and student achievement, as most important within-school factors explaining performance, and between in-service training and student outcomes, are consistently borne out by research.

The European Union, focusing on high quality teaching as key prerequisite for high quality education and training, highlights the school’s duty to provide young citizens with the competences they need to adapt to globalised, complex environments, where creativity, innovation, initiative, entrepreneurship and commitment to continuous learning are as important as knowledge.

In particular, promoting the development of teachers’ competence in teaching transversal competences and heterogeneous classes, and collaborating with colleagues and parents, are seen as essential.

Although the complexities of the teaching profession require a lifelong learning perspective to adapt to fast changes and evolving constraints or needs, international studies on teachers and their professional development have shown that so far, in-service training is considered as a professional duty in about a half of all European states, but it is in practice optional in many of them. Incentives to encourage participation in CPD appear few, and penalties for no participation are rare. In accordance with the degree of centralization/decentralization in national education systems, the responsibility for planning and organizing CPD, falls to schools or local authorities in a certain number of countries (among others, the Netherlands, the UK and Ireland, as well as most Nordic and Eastern European countries).

The forms of support to teachers’ professional development can consist in paid working time and substitutions (often discouraged for budget and organisational reasons), funding of CPD costs sustained by teachers, salary incentives, CPD as condition for salary progression and promotion, national policies and campaigns (such as the recent one in Sweden).

An organized plan of support measures for new teachers in the first years of their career - the most demanding and decisive stage of teachers’ development - is foreseen in only a small group of EU countries, among which the UK, Luxembourg and Lithuania seem to have a wide range of support activities. Induction programmes are reported as mandatory in

Reference

Angrist & Lavy, 2001;
Darling-Hammond et al., 2005;
Rivkin, Hanushek, Kain, 2005;
Rockoff, 2004

Council Resolution 2007/C
300/07 of 15.11.07;
Council Resolution 2008/C
319/08 of 21.11.08

European Commission, 2007;
OECD, 2005;
Eurydice, 2009

OECD, 2005

OECD TALIS, 2009
only ten states of the OECD study, with Canada (Quebec), Switzerland and some US states offering the longest support (two years).

The form, content and context conditions of teachers’ professional development (CPD) are extensively described and analyzed in OECD’s recent TALIS survey, focussed on fostering educational performance and effectiveness, outlining key variables for effectiveness in teachers. The survey, which is based on the perceptions and self-reports of lower secondary education teachers, points out that CPD activities appear to be relatively loosely linked with school practices in the areas of instruction, evaluation and feedback, and school leadership; this seems to recommend policies aimed at a stronger integration of different functional domains of schooling.

In the following literature review, professional development is defined, in accordance with the perspectives of several studies taken into account by the TALIS survey, as related to activities developing an individual’s skills, knowledge, expertise and other characteristics as a teacher (excluding Initial Teacher Education).

2. Educational effectiveness research and teacher professional development: an overview


Literature on educational effectiveness seems to outline a conceptual framework that can be described as an ‘onion-rings’ model, going from the micro-level to the macro-level perspective – with individual teachers’ Clarke & Hollingsworth, 2002;
personal characteristics (competences, beliefs and attitudes) at the core, a second layer concerning teaching effectiveness in the classroom (instructional repertoires), a further layer about teachers’ cooperation in school contexts, and finally considering national policies and organizational features (including issues of autonomy, accountability, evaluation in education systems) as the outer layer.

The literature mentioned here is focused mainly on policy-amenable effectiveness features, considering the most favourable conditions for teachers’ professional learning, above all in school contexts as professional communities. Such a perspective takes stock of past failures of CPD programmes informed by a deficit-mastery model, consisting in ‘one-shot’ professional development approaches, adopting instead a ‘change as professional learning’ perspective, inspired by adult learning and situated cognition theories, according to the paradigm of the teacher as reflective practitioner, taking responsibility for learning to improve the quality of professional performance.

A shift can therefore be distinguished from a technical-rational-top-down approach to CPD, towards a more cultural-individual interactive approach to the professional development of teachers.

Since not all the learning of teachers promotes professional development in practice and school improvement, existing literature gives some indications about key professional learning activities that enable teachers to tackle rapid changes: keeping updated; experimentation; reflective practice; knowledge sharing; innovation.

As regards conditions affecting teacher learning, two theoretical perspectives are usually taken into account:

- psychological factors (teacher cognition and motivation);
- organisational factors (leadership, teacher collaboration, staff relationships and communication, locus of control, opportunities for teachers’ learning).

The latter factors are considered as prerequisites for linking teacher professional development and school development. The second theoretical perspective often refers to system theory on change, linking structural, cultural and political dimensions of school workplace environments to professional learning.

Scholars stress the need for research considering the interplay of the two perspectives - psychological factors, together with leadership and organisational conditions - deploying multi-level models. The few existing studies seem to show that psychological factors have relatively large effects on teacher learning, mediating the influence of leadership and organisational conditions.
Consistently with the recent learning and cognition theories mentioned before, researchers have highlighted the importance of teachers’ empowerment through collaboration, as well as the development of school cultures valuing shared responsibilities and values, revolving around the concept of professional learning community (PLC). Scholars converge on describing some features of professional learning communities (PLCs), characterized by dimensions such as the focus on student learning, shared values, collective responsibility, reflective professional inquiry, collaboration, group and individual learning.

The Professional Learning Community model is based on two basic assumptions:

- the idea of knowledge and learning as embedded in social contexts and experiences, and promoted through interactive, reflective exchanges;
- the assumption that participation in a PLC leads to changes in teaching practices and enhancement of student learning.

Recent empirical studies analysing the impact of PLCs on teaching and student learning support the idea that participation in a PLC leads to improvement in teaching practices, teaching culture, continuous teacher learning, and focus on student learning; the latter seems to qualify as a key element of successful PLCs. Moreover, the TALIS study, in describing contextual variables for CPD, provides representations of some key school characteristics for PLCs, namely a cooperative climate and evaluation/feedback mechanisms.

However, researchers warn about the need for more rigorous and robust evidence for the claim that CPD in schools sustains improvement and student learning enhancement, since the knowledge base on conditions for teacher learning in the workplace appears fragmentary and heterogeneous for concepts, methods and instruments, thus increasing the difficulty of testing complex multi-level models about the impact of teacher learning. Such complex models would be needed to understand the dynamic, recursive links between conditions and effects – to decide whether collaboration, leadership, teamwork and active participation in the PLC turn out to be input, throughput or outcome of learning processes.

On the system-level (the outer layer of the rings model previously described), recent research concentrates on the effects of decentralization/school autonomy, as well as evaluation/accountability mechanisms, with implications for the features of CPD and teacher quality. The results can be considered as inconclusive, apart from a few findings.

Autonomy and decentralization seem to work better for student results if

Mitchell & Sackney, 2000; Stoll et al., 2006

Bolam et al., 2005; Supovitz, 2002; Vescio, Ross & Adams, 2008

Imants, Sleegers & Witziers, 2001; OECD TALIS, 2009

Imants, Sleegers & Witziers, 2001; Vescio, Ross & Adams, 2008

Fuchs & Wößmann, 2004; Maslowski, Scheerens & Luyten, 2007; Mons, 2007

Garet et al., 2001

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coupled with external exit examinations - that is, accountability systems matched with devolution seem to have positive effects on outcomes; moreover, schools’ responsibility in hiring staff may influence the quality of schooling.

Recent studies concerning the status of professional learning in the US have also explored the ways in which policy can affect professional learning, taking four high-performing states (Vermont, Missouri, New Jersey and Colorado) as examples, selected on the basis of high levels of teacher participation in CPD, research-consistent policies, and student achievement improvements, but characterized by geographic, demographic and policy context diversity.

Several common features supportive of professional development stand out in the four US states selected as case studies:

- professional development standards, with a body overseeing teacher licensing, standards and development;
- individual professional development plans required of teachers;
- minimum levels of professional development for license renewal;
- induction and mentoring requirements for beginning teachers.

In one state, there is also a strong system in place for ensuring the local enactment of state-level policies through guaranteed levels of state and local funding of CPD, CPD committees, and monitoring of regional professional development centres and participants’ satisfaction.

3. School effectiveness research and teacher professional development: insights

As far as the third layer of the onion-rings model is concerned, school effectiveness research\(^{ii}\) can provide interesting insights regarding effective CPD and teacher learning, since researchers and practitioners have shifted their interest from studying change as a phenomenon\(^{iii}\) to endeavouring to relate knowledge and strategies to school development in a pragmatic, systematic and sensitive way.\(^{iv}\)

The following strategies have been found to be generally effective in promoting improvement in schools, especially when used together:

- concrete, teacher-specific and extended training;
- classroom assistance from local staff;
- teacher observation of similar projects in other classrooms, schools and districts;
- regular project meetings focusing on practical issues;
- teacher participation in project decisions;
- local development of project materials;
- principals’ participation in training.

This highlights the key role of the relationship between macro-level policies and micro-level behaviour; policy implementation – i.e. school improvement programmes - seems to be fundamental in determining teacher quality and student achievement.

School improvement approaches, which consider the long-term goal of moving towards the ideal type of self-renewing school as the centre of change, rest on a series of assumptions:

- reforms as sensitive to the situations of individual schools, where improvement efforts need to adopt a ‘classroom-exceeding’ perspective, without ignoring the classroom;
- a systematic approach to change, which must be carefully planned and managed over years;
- focus on internal conditions of schools: teaching-learning activities but also school procedures, role allocations and resource uses;
- accomplishing educational goals linked with the particular school mission – not only student scores, but also developmental needs, professional development needs and community needs;
- a multi-level perspective, considering schools as embedded in an educational system that has to work collaboratively – with the roles of teachers, staff, local authorities as clearly defined and committed to school improvement;
- integrated implementation strategies – top-down and bottom-up – where top-down policy can provide aims, overall strategy and operational plans, and bottom-up school response can provide diagnosis, priority goal setting, and implementation;
- a drive towards institutionalization, where change is successful when it has become part of the natural behaviour of teachers in the school.

A ‘new wave’ approach has endeavoured to merge school effectiveness research and school improvement perspectives, underlining some peculiar features of school quality improvement\(^5\):

- learning level, teachers’ instructional behaviour, and classroom level are targeted together with the school level;
- multiple levers are pulled to encourage school and teacher development, with the concern to utilize also all reinforcers and initiators of change outside the school – local educational authorities, as well as national policy agendas;
- a tight organization of improvement programmes, focusing on the

Teddlie & Reynolds, 2000

Stoll & Fink, 1994; Teddlie & Reynolds, 2000
relevance of organizational *cohesion, constancy* and *consistency*, with a commitment to enhanced organizational reliability and fidelity of implementation. This ought to promote ‘ownership’ and ‘collegiality’ among the school staff.

Some findings coming from relevant school improvement projects can thus be highlighted, as they can be related to effective teacher professional development at the school level.

Increased staff development in decision-making, which is considered as a key factor for school improvement, implies the development of clear decision-making structures and organizational processes, with dynamic and ongoing planning processes.

The importance of spending time building a collaborative culture within the schools is also stressed, wherein teachers keep learning and feel valued, risk-taking is promoted, and teachers are encouraged to articulate their values and beliefs, developing a shared vision of the school’s future.

All in all, there seem to be six conditions that underpin the work of successful schools.

- While teachers can often develop practice individually, there need to be many *staff development opportunities for teachers to learn together* for the whole school to improve.
- Successful schools have ways of working that encourage feelings of *involvement* from stakeholder groups.
- *Leadership* is seen as a function to which many staff contribute, rather than a set of responsibilities entrusted to an individual.
- The *coordination* of activities is important to keep people involved; *communication* within the school is an important aspect of coordination, together with the informal interactions between teachers.
- Recognizing *enquiry and reflection* as important for school improvement helps establish shared meanings around development priorities, and better monitor policy implementation.
- The processes of *collaborative planning for development* enable the school to link educational aims to identifiable priorities, sequence them over time, and maintain a focus on classroom practice.

Finally, developments in School Effectiveness /Improvement studies and approaches concern two further perspectives. On one hand, there has been increasing attention to the individual school context, with the tailoring of interventions to the specific characteristics, background and ecology of individual schools. On the other hand, evaluations of effectiveness programmes in the US have pointed out a more marked
change in student outcomes in the presence of a strong pre-ordained technology of programme levers or interventions, if compared with those programmes which expect schools to supply the contents of change.

This seems to underlie the trend of re-conceptualizing staff professional development activities with the provision of foundational material and ‘off the shelf’ models of school improvement that do not require school elaboration, while respecting the context specificity of individual schools.

4. Teacher Learning and Continuous Professional Development: relevant findings

To help young people learn the more complex and analytical skills they need for the 21st century, teachers must learn in ways that develop higher-order thinking and performance. To develop the sophisticated teaching required for this mission, they must be offered more and more effective professional learning. Meaningful learning is a slow and uncertain process for teachers as well as for students, with some elements that are more easily changed than others, according to the interplay with teachers’ deeply-rooted beliefs and attitudes.

A wide, all-encompassing conceptualization of teacher learning and development within communities and contexts is offered by Shulman & Shulman: it includes the key elements of vision, motivation, understanding, practice, reflection and community.

The findings presented here come from studies which mostly conceptualize teacher learning and development as a process of active individual construction and enculturation into social practices – linked to changes in participation in socially organized activities, and to individuals’ use of knowledge as an aspect of their participation in social practices.

However, the following overview of findings also takes into account the perspectives of evaluation literature and impact studies, in that they can contribute to understanding which features of professional development can actually make a difference.

It might be useful here to distinguish between professional learning and professional development, which often appear distinct in theory and in practice. If ‘professionals learn from experience and that learning is ongoing through active engagement in practice’, professional development features and delivery have often appeared at odds in several countries and realities so far, extracting professionals from their key professional learning environments (schools and classrooms) and assuming that experts know best what contents and kind of PD teachers need.

Borko, 2004; Franke & Kazemi, 2001; Greeno, 2003; Shulman & Shulman, 2004

Bruce et al., 2010; Sankaran et al., 2011; Webster-Wright, 2009
In contrast with traditional CPD perspectives, teacher professional learning is now mostly conceptualized in the literature as dynamic, ongoing, continuous, and set in teachers’ daily lives - embedded in the classroom context and constructed through experience and practice, in sustained, iterative cycles of goal setting, planning, practicing, and reflecting.

Teacher learning should therefore be embedded in the daily life of the school and provide opportunities to inquire systematically about teaching practices, their impact on students and about other issues of teachers’ work.

Examples of different types of collaborative, job-embedded professional learning activities can be:
- the analysis of the school’s culture;
- peer observations of practice;
- small-scale classroom studies about students’ written work;
- analysis of student data;
- study groups;
- involvement in a development or improvement process (designing or choosing new curricula or textbooks; assisting with the school improvement plan);
- case studies about patterns in students’ classroom behaviour.

The collective participation of teachers from the same department, grade or subject is more likely to be coherent with their experiences, afford opportunities for active learning, and contribute to a shared professional culture – the development of a common understanding of instructional goals, methods, problems and solutions.

According to recent research, teachers agreed that the most popular long-term professional development activities were peer observation and sharing practice.

As part of this model of professional learning, the importance of teacher collaboration comes to the fore. Traditionally, teaching is understood to be a ‘uniquely isolated profession’; nevertheless, teacher collaboration is identified by researchers and educators as one of the most relevant features of school culture in order to foster teacher learning, satisfaction and effectiveness. Collaboration arising from deep, individual and continuous interest is clearly hard to achieve, requiring trust and risk-taking; the ‘de-privatization’ of teaching implies changes of deeply-rooted norms, cultures and practices.

The relevance of teacher efficacy for teacher effectiveness, as related to powerful CPD experiences, ought also to be mentioned. The literature on

References:
- Birman et al., 2000;
- Boyle et al., 2005;
- Desimone, 2009;
- Guskey, 2000;
- Hofman & Dijkstra, 2010;
- Sato, Wei & Darling-Hammond, 2008

- Hindin, Morocco, Mott & Aguilar, 2007;
- Fullan, 2007;
- Fullan, Hill & Crevola, 2006;
- Puchner & Taylor, 2006

- Bruce et al., 2010;
- Bandura, 1997;
- Bruce & Ross, 2008;
the topic defines teacher efficacy as the teacher’s self-assessment of one’s own ability to support student learning; it is described as related to teachers’ persistence facing obstacles in order to meet goals in their practice, as well as with the tendency to changing, taking risks and experimenting.

Among the sources of teacher efficacy, the key ones appear to be mastery experiences (i.e. direct teaching experiences that are challenging but successful), together with vicarious experiences (observations of peers of similar ability levels, teaching challenging ideas successfully) and social/verbal persuasion (receiving positive feedback from students, peers and superiors).

Teacher efficacy is therefore strongly connected to teacher professional learning opportunities that can provide mastery and vicarious experiences, thus raising teachers’ personal competence levels. School-embedded professional learning opportunities can thus answer to self-directed desires for instructional change, which can then provide the motivation to sustain efforts and overcome obstacles.

A key pocket of research, finally, has consistently linked teacher efficacy and student achievement, indicating the former as a reliable precursor to, and predictor of, the latter. There seems to be an indirect but powerful relationship between increasing teacher efficacy and increased student achievement; research theorizations indicate that teacher efficacy, mediated by contextual factors, impacts what teacher learn from CPD, and how they learn, with reciprocal and reverberating effects.

Impact studies regarding teachers’ high quality professional learning and development have by now reached a research-based (theoretical and empirical) consensus on the critical features of PD – those which make an activity effective for increasing teacher learning and changing practice, and ultimately for improving student learning.

There are at least five core features of effective professional learning and development, on which there is research consensus, stemming from a great number and diversity of studies (both case studies, large-scale and experimental research) conducted since 2000, with the proposal of a core conceptual framework for studying professional learning and development’s impact on teachers and students.

The five core features of effective teacher learning and development are the following:

- content focus;
- active learning;
- coherence;
- duration;
Such a foundational framework considers both teacher change and instructional change, and operates with context as an important mediator and moderator, with several key influences:

- student characteristics;
- individual teacher characteristics;
- contextual factors of classroom, local professional community, school, district;
- policy conditions at multiple levels.

Teachers’ powerful learning is thus seen as enhanced:

- when there is collective participation and effective staff communication;
- in teacher networks and study groups;
- in professional development programmes that are longer, sustained and intensive, since traditional episodic, fragmented approaches do not allow rigorous, cumulative learning;
- when CPD is part of a coherent, integrated professional development programme of the school – that is, school curriculum, assessment, standards and CPD should be linked.vi

The kind of CPD most likely to affect teaching positively is therefore of the ‘hands-on’ kind, and has the following characteristics:

- a considerable duration;
- a clear theoretical rationale grounded in research, and a strong knowledge base;
- is based on collaborative, active learning and teaching (not on a one-shot lecture or a ‘drive-by’ workshop), as well as on feedback;
- is delivered to a team of teachers (same age group, subject, school...)
- is focused on specific content knowledge / strategies (not general), helping teachers develop the pedagogical skills to teach specific content, with strong positive effects on practice;
- is coherent, practical, focused on students’ learning of content and on the examination of students’ work, in relation to standards for what students should know and be able to do.

Active learning should include opportunities for reciprocal observation, co-planning and co-teaching, as well as presenting, leading or writing activities.

In this way, teachers can have powerful understandings of the subjects they teach (i.e., PCK – Pedagogical Subject Knowledge), of students’ thinking, and of effective instructional practices.


Birman et al., 2000; Borko, 2004; Ingvason, Meiers & Beavis, 2005; Snow-Renner & Lauer, 2005; Teddlie & Reynolds, 2000
Collaborative CPD turns out to be more effective than individual CPD:

- to promote changes in teachers’ practices, attitudes or beliefs;
- for changes in teachers’ classroom behaviours, as well as in their attitudes to professional development;
- for improvements in pupils’ learning, and changes in their behaviour and attitudes;
- collective work provides a basis for inquiry and reflection, to raise issues, take risks and address dilemmas in teachers’ practice, opening avenues for ‘de-privatising’ teachers’ practice;
- collegial learning in trusting environments helps develop communities of practice to promote school change beyond the individual classroom;
- a staff culture involving mutual learning, monitoring and commitment to collaboration is found to be a key feature of effective schools;
- fair uniformity of effective teacher behaviours, as linked with good socialization processes within schools, seems to be a recurring characteristic of effective schools.

To improve classroom practice, CPD should therefore be:

- collaborative and extended over time;
- include time for practice, coaching, and follow-up;
- be grounded in students’ curriculum, and aligned with local policies;
- be job-embedded and connected to several elements of instruction (e.g., assessments, curriculum).

To sum up, among the key factors that seem to inspire teachers to change their classroom practices, there are the following:

- collaboration and joint work with other teachers on concrete tasks and problem-solving, supporting teachers’ mutual aid, responsibility, initiative and leadership;
- observation and assessment/feedback processes;
- inquiry and reflection on own and others’ beliefs and behaviours;
- teacher educators and mentors modelling the new teaching practices, encouraging teachers to implement them, and constructing opportunities for teachers to share their learning and reflections;
- practical courses connected to the reality of classroom activities.

An approach meeting all these criteria is the professional learning community (PLC) paradigm, increasingly featured in the literature, and mentioned in previous paragraphs. In this model, teachers are engaged in ongoing work and dialogue together, to examine their practice and student performance, develop and implement more effective
instructional practices in their specific context, producing and sharing new knowledge and expertise.

The efforts to develop collaborative learning and working are often limited by individualistic and bureaucratic norms or structures in many contexts. Developing collaborative CPD – i.e. building a professional learning community - appears a slow, demanding process characterized by conflicts and misunderstandings, where participants form a group identity with norms of interaction and shared responsibility for growth, learning to use difference and conflict productively. Since the focus is on improving instructional practice, the identification of problems implies making one’s teaching practice public and adopting an inquiry stance.

The context conditions that seem to support joint, collaborative CPD have been found to be the following:

- smaller school size and common planning time;
- lower staffing complexity;
- the empowerment of teachers as decision makers;
- supportive leadership;
- mutual respect steeped in strong professional knowledge;
- a collectively held standard of teaching quality for teachers to describe, discuss and adjust their practices accordingly;
- a climate supporting risk taking and innovation.

Finally, the overall impact of CPD programmes on teachers’ practice, student learning and teacher efficacy ought to be evaluated within a conceptual framework, considering its relationships with structural features (contact hours, time span, collective participation), opportunity to learn features (content focus, active learning, follow-up support, collaborative examination of students’ work, feedback on practice), and mediating or moderating key factors spanning all the levels of the ‘onion-rings’ model (see Appendix).

The opportunity to learn features, according to the Australian study by Ingvarson et al., appear to have the largest effect on CPD outcomes – in particular, active learning seems to have a pervasive and generative influence on teachers’ practice.

Also the role of follow-up and ‘at the elbow’ coaching appears to be noteworthy, together with the importance of school context. A vital ingredient for effective CPD is a substantial level of professional community where teachers have time to think, analyse and talk about what students are learning and doing, and where principals and administrators expect evidence of professional development and value teacher learning.
Notes

Throughout the literature review, the acronyms CPD (for Continuing Professional Development) and PD (Professional Development) are used.

SER (School Effectiveness Research), originally rooted in US contexts and then developed in other countries such as the UK, the Netherlands and Australia, has sometimes had uneasy relationships with school improvement studies and programmes all over the world - although SER is suitable for providing the knowledge base for educational policy - because of different conceptualizations, beliefs and proposed strategies. However, the merging of the two paradigms has been gaining intellectual and practical ground since 2000, with a focus on managing change.

In the USA, the ‘Rand’ study disclaimed a one-to-one relationship between policy and practice across levels of government, demonstrating that the nature, amount and pace of change at the local level is a product of local factors, largely beyond policy makers’ control (McLaughlin, 1990).

School effectiveness studies have mostly shown ethnocentric tendencies so far, with the absence of cross-national perspectives or relationships between researchers internationally. However, there is increasing pressure for the development of internationally based perspectives on school effectiveness. In an era when educational policy prescriptions travel internationally with increasing frequency, with sometimes simplistic transplants or translations of findings from one culture to another, there is a growing need of understanding why some variables ‘travel’ – i.e. can explain effectiveness across countries - while others do not, as well as why there can be similar outcomes in the presence of different factors in different contexts.

The examples of projects embodying this approach, as mentioned by Teddlie & Reynolds (2000), are the Halton project in Canada, the Barclay-Calvert project in the US, the IQEA (Improving the Quality of Education for All) project in the UK, and the Dutch National School Improvement project.

Darling-Hammond & Richardson (2009) give the example of Ohio’s project for CPD concerning scientific subjects.
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