Principles for High-Quality, Standards-Aligned Professional Learning

Annotated Bibliography


This article argues that the Common Core State Standards offer a watershed opportunity to set the work of preparing and developing teachers within a set of shared standards for what constitutes the content of necessary preparation. Exploiting the existence of shared student standards for mathematics and ELA/literacy learning offers the possibility of a common foundation on which a stronger educational infrastructure could be built. The authors also attest that popular opinion is more sympathetic to the idea that skillful teaching is crucial for students' success.


This book suggests a school structure that deliberately places all teachers in a system that demands intensive collaboration around teaching. As a result, this collaborative process—which includes lesson planning, collaboration, and teaching—helps identify and develop the broader range of skills that demonstrate leadership capacity. In other words, the system described is deliberately designed to identify and develop a broader range of skills than those just identified with classroom teaching.


This research study was conducted by The Boston Consulting Group (BCG) that interviewed and surveyed more than 1,300 stakeholders (teachers, professional development leaders in district and state education agencies, principals, professional development providers, and thought leaders) to identify the needs and opportunities for improvement on professional learning. Teachers described effective professional learning as relevant, hands-on, and sustained over time and the need for these elements consistently emerged throughout the research conducted for this report. The study also named key areas of focus including “improving collaborative and personalized models and identifying key use cases for technology that can improve professional development at scale” to help “address many of the current barriers to effective professional learning.”

Calvert, L. (2016). *Moving from compliance to agency: What teachers need to make professional learning work.* Learning Forward and NCTAF.

This paper reports on research conducted by Learning Forward and the National Commission on Teaching & America’s Future to “understand the disconnect between the professional learning that teachers need and want and what they actually experience on the job.” The report “emphasizes the importance of teacher agency and pinpoints strategies that education leaders and policymakers can use to leverage agency in designing more effective professional learning.” By interviewing teachers and school administrators they learned that “the opportunity is ripe to work together to clothe the emperor. Let’s bring in our teachers as partners to create job-
embedded, authentic systems of learning for the whole school community. Let’s give them the
time, the structures, the support, and the choices they need to be fully engaged in improving
practice and solving our most pressing educational challenges. When we believe in our
teachers, listen to them, and support their continual development, there is no telling what our
educators and their students will accomplish."

improvement: Creating coherence from the classroom to the district office*. Harvard Education
Press.

This book reports on the findings from a partnership between the Middle School Mathematics
and the Institutional Setting of Teaching (MIST) research team from Vanderbilt University and
four large urban school districts. The study investigated what are the necessary elements to
supports teachers’ development of high-quality instructional practices at scale. The MIST team
endeavored to form a true partnership with the districts, rather than to only collaborate with
them, so that the research was with rather than on the districts. The researchers found that it is
necessary to adopt a systems-wide perspective, from the classroom to the central office, in
order to effectively improve instruction at the classroom level. From this perspective, the key
elements of the instructional system included teacher professional learning, instructional
coaching, instructional materials, assessments, and school and district instructional leadership.
Their findings indicate that an effective approach to high-quality instructional practices is one
based on a distributed model of instructional leadership carried out by leaders at different
levels of the instructional system and is based on “contours of expertise” (work is led by
individuals with the greatest expertise on particular aspects of instruction).

development: What it is, who is responsible, and how to get it done well*. National
Comprehensive Center for Teacher Quality, Mid-Atlantic Comprehensive Center, and National
Staff Development Council.

This brief focuses on describing specifically what job-embedded professional development
consists of and what types of teacher learning opportunities count as being job embedded. It
raises a range of questions of how job-embedded professional development can improve
teaching practices and student learning outcomes. The brief intended to answer these
questions with a focus on job-embedded professional development for teachers only (not for
other educators such as principals). This is a review of the research and then a set of policy
suggestions for how states, districts, and schools can implement based on best practices. When
“skillfully implemented and supported by federal, state, and local policy,” job-embedded
professional development “constitutes a powerful lever to advance student learning.”

learning in the learning profession*. National Staff Development Council.

This report examines what research has revealed about professional learning that improves
teachers’ practice and students’ learning. It describes the relative availability of such
opportunities in the United States as well as in high-achieving nations around the world, which
have been making substantial and sustained investments in professional learning for teachers
over the last two decades.

*Improving Schools*, 16(1), 5-20.

This article connects arguments in the field of integrated and multi-professional working and
focuses on the need to promote a strengths-based approach to children, and to providing
services in general (written with a social services perspective). The focus is on promoting creative writing in young children but translates well into the conditions for promoting creative and flexible approaches for teachers in how they approach teaching. The treatment utilized “strength-based and social justice approaches to encourage professionals who work with children and families to recognize the diversity of children and support children and families to collaboratively, creatively, and flexibly develop solutions to their own life issues and their own learning.” The author concludes that a culture shift can be achieved that stimulates creativity and innovation [in childhood] if organizations recognize the abilities [of children] to stimulate each other’s creativity, support freedom to learn collaboratively, and challenge institutional barriers such as targets and top-down performance indicators.


This article reports on “a growing body of empirical research” that “suggests a core set of features is common to effective professional development.” Consequently, “these core features that lead to teacher learning provide a starting point for assessing professional development programs, and they lead to a core conceptual framework for judging whether professional development is doing what we want it to do — increasing teacher knowledge and instruction in ways that translate into enhanced student achievement. When we want to know whether teacher professional development is working, we should first decide how to define professional development, measure its core features, use the conceptual framework to judge whether it’s producing the desired results, and keep an open mind about the tools we use to assess its effectiveness.”


This article summarizes the current knowledge around best practices in professional learning. The authors name five: (a) content focus: activities focused on subject matter content and how students learn that content; (b) active learning: opportunities for teachers to observe, receive feedback, analyze student work, or make presentations, as opposed to passively listening to lectures; (c) coherence: content, goals, and activities that are consistent with the school curriculum and goals, teacher knowledge and beliefs, the needs of students, and school, district, and state reforms and policies; (d) sustained duration: PD activities that are ongoing throughout the school year and include twenty hours or more of contact time; and (e) collective participation: groups of teachers from the same grade, subject, or school participate in PD activities together to build an interactive learning community.


This paper introduces the idea of the Instructional Core. It argues that anything that cannot point directly to how it improves student learning probably does not. Elmore presents seven principles for effective work with teachers.


This paper first acknowledges the issue of nonstrategic use of professional development resources and then moves on to highlight what research tells us about how professional development could be better designed to achieve desired impacts on instruction and student learning. The paper reports “the review suggests that no particular approach to professional development is a silver bullet. Instead, those designing or selecting professional development need to both help teachers envision what it would look like to teach differently and provide them with supports to help teachers bring those practices into the classroom. Professional
development that offers new knowledge and skills combined with program materials that help teachers transfer new ideas into their instruction can be a potent combination for instructional improvement."


This new meta-study seeks to answer the following three questions. First, how does a teacher's classroom practice respond to intervention? It does, but there is so much heterogeneity of benefit that it is difficult to attribute positive effects directly to causes (no "magic bullets" identified). Second, are specific aspects of classroom practice more or less responsive? Academic content-focused coaching and interventions had better (more statistically significant) results than general classroom coaching (management or affective interventions). Lastly, are particular intervention features (e.g., coaching, video and technology components, intervention length) associated with improvements in classroom practice? Coaching, particularly a mix of in-person and remote, was effective as was teachers having active agency and enough time to absorb and then engage in deliberate practice of the new learning. Teachers having access to various sorts of student data as part of their professional learning was also associated with improvements in classroom practice.


This article is a summary of Gay's book: *Culturally Responsive Teaching: Theory, Research, and Practice* (2000). It argues that teachers need to learn, along with content pedagogy and knowledge, these aspects of cultural responsiveness to be effective with students who come from cultures other than the teacher's own: explicit knowledge about cultural diversity, capacity to alter curricula when greater cultural responsiveness is needed, and demonstrating cultural caring (and caring in general). Another aspect of culturally responsive teaching is cross-cultural communication, designed to ensure everyone is feeling heard and understands what is being communicated. The final aspect of culturally responsive teaching is what Gay terms "cultural congruence," that is, bridging between cultures represented by the students and their families and that of the teacher in such a way that it maximized academic involvement (and success) of the students.


This research study was conducted in three large urban school districts from three states to examine the impact of a professional development model (Teacher Study Group) "on first grade teachers’ reading comprehension and vocabulary instruction, their knowledge of these areas, and the comprehension and vocabulary achievement of their students." The Teacher Study Group modeled a PLC structure where the teachers learned together from the researchers about reading science, but then decided together how they were going to change what they were doing in their classroom as a result. Through classroom observations of teaching practice, significant improvements were seen, and TSG teachers outperformed control teachers on the teacher knowledge measure of vocabulary instruction. This was one of the studies that informed the Mary Kennedy (2016) review of studies as it had the most robust results.

This paper puts forth a research-based answer to how districts can structure professional
development so that teachers change their teaching practices, leading to improved student
learning outcomes. First, the paper addresses the complexities of developing an effective
professional development program and suggests starting with an assessment of the strengths
and weaknesses of current practice in light of new [CCSS] reform demands. Then there is a
review of the research about the structure of professional development that truly changes
teachers’ work and the learning of students. Lastly, the paper touches on what funding effective
professional development might look like in a district.

495-500.

This is a popularized summary of the Yoon et al (2007) meta-study done as part of American
Institutes for Research. This reports the high-level findings from Yoon’s analysis of over 1,300
studies that potentially address the effect of professional development on student learning
outcomes. This research synthesis confirms the difficulty of translating professional
development into student achievement gains despite the intuitive and logical connection. Those
responsible for planning and implementing professional development must learn how to
critically assess and evaluate the effectiveness of what they do. This synthesis set the stage for
Guskey’s stages for evaluation of PD.

and rigor among culturally and linguistically diverse students*. Corwin, a SAGE company.

This book ties together culturally responsive classroom practice, particularly the work of
bridging academic content to what is known and currently understood by students from various
cultures potentially different from that of the teacher with what is known about cognitive
science and brain development. Hammond argues for high-quality content and for teachers to
be helped in developing skills to connect to and encourage student learning via settled brain
research.

learning in high-performing systems*. National Center on Education and the Economy.

This report analyzes the way four high-performing systems provide professional learning to
their teachers. Shanghai, British Columbia, Singapore, and Hong Kong each score near the top
of all jurisdictions tested in mathematics, reading, and science on the Programme for
International Student Assessment (PISA). While these systems are quite different, the key to all
of them is that collaborative professional learning (teachers working with other teachers to
improve curriculum, instruction, school climate, etc.) is built into the daily lives of teachers and
school leaders. Accordingly, “for all of these people, professional learning is central to their
jobs. It is not an add-on. It is not something done on Friday afternoons or on a few days at the
end of the school year. Teacher professional learning is how they all improve student learning;
it is how they improve schools; and it is how they are evaluated in their jobs. They work in
systems that are organized around improvement strategies explicitly anchored in teacher
professional learning.”

Kozleski, E. (2010). *Culturally responsive teaching matters!* Equity Alliance at ASU.

This report defines and identifies several key features of culturally responsive teaching. The
author elaborates on the importance of culturally responsive teaching in classrooms and for
students: “In 2000, Geneva Gay wrote that culturally responsive teaching connects students’
cultural knowledge, prior experiences, and performance styles to academic knowledge and
intellectual tools in ways that legitimate what students already know. By embracing the
sociocultural realities and histories of students through what is taught and how, culturally
responsive teachers negotiate classrooms cultures with their students that reflect the communities where students develop and grow. This is no small matter because it requires that teachers transcend their own cultural biases and preferences to establish and develop patterns for learning and communicating that engage and sustain student participation and achievement.”


This article is an overview of culturally relevant pedagogy. It traces the earlier work and outlines the seminal research of Ladson-Billings. The research consisted of observing, interviewing, videoing, and interacting together with a group of eight carefully selected teachers who were peer-, parent-, and screening instrument-identified as being effective teachers of African American students. The teachers themselves were part of the action-reflection process that informed the research. From this work, Ladson-Billings extracted core principles that gather together under the umbrella of culturally relevant pedagogy. The teachers in the study all exhibited: caring, personal accountability for student outcomes and the culture of their classrooms, consistently high expectations for each student, willingness to meet students where they were and move them further, and cultural competence/self-awareness.


This study followed more than 1,000 fourth- and fifth-grade teachers in a representative sample of 130 elementary schools across the city between 2005 and 2007. Researchers examined one-year changes in student achievement scores in mathematics. The most striking finding was that “students showed higher gains in math achievement when their teachers reported frequent conversations with their peers that centered on math, and when there was a feeling of trust or closeness among teachers.” Thus, “in trying to improve American public schools, educators, policymakers, and philanthropists are overselling the role of the highly skilled individual teacher and undervaluing the benefits that come from teacher collaborations that strengthen skills, competence, and a school’s overall social capital.”


This meta-analysis focuses on 95 studies (published post-1989) focused on classroom-level STEM instructional improvement through professional development, curriculum materials, or both. Findings include that programs including both professional development and curriculum materials are more effective than those that include one or the other. In addition, student outcomes were significantly larger among programs that focused on use of curriculum materials, improving teachers’ content and pedagogical content knowledge, and/or how students learn the content. Student outcomes were also larger where there was same-school collaboration, summer workshop time, and ongoing implementation meetings.


This paper draws a sharp distinction between procedural (“algorithmic”) skills attainment that can be taught in remote, or scalable ways, and the “non-algorithmic” skills (e.g., “creating a welcoming, open communication environment,” “conceptualizing a predicament that is acceptable to multiple parties initially at odds,” and “credibly and publicly taking responsibility for an error”) that need to be learned through on-the-job coaching, co-creating understanding with colleagues, and sustained opportunities to develop such skills.

This report discusses the impact of teacher quality on student achievement. Based on research, “when it comes to the distribution of the best teachers, poor and minority students do not get their fair share.” Therefore, “three states—Ohio, Illinois and Wisconsin—and their three biggest school systems—Cleveland, Chicago and Milwaukee—set out with the Education to tackle this problem. As a result, teams of stakeholders in each jurisdiction were able to collect data on teacher distribution and identify patterns. The teams “found large differences between the qualifications of teachers in the highest-poverty and highest-minority schools and teachers serving in schools with few minority and low-income students. The teams then analyzed the information to determine possible reasons for the patterns, and came up with strategies to achieve a fairer distribution.”


This chapter provides essential research that underlays the NSTA science educator principles for effective professional development. Effective professional development must focus on student learning and educator needs, engage and challenge science educators, be sustainable over time, be an interactive activity, be content-specific and collaborative, and integrated with other school initiatives.


This article is based on both a review of the literature and on teacher survey and district performance data from over 9,000 teachers in one large urban district (Miami-Dade). Researchers found that three factors in teacher professional learning collaborations lent themselves to better student outcomes. From prior research, a focus on student work and performance, and a focus on instruction and course content leads to better student outcomes. From their surveys of self-reported satisfaction with the quality and content of collaborative professional learning, they determined the quality of the collaboration matters for student outcomes and teacher improvement as well. Though there are still myriad factors that affect the success of students in schools and teacher effectiveness, these elements should not be dismissed as critical components that can lead to better outcomes in schools.


This chapter highlights three of the principles developed during TERCs summer training program. The following are frequently recognized universals apropos to high-quality professional learning: regular school-year follow-up support is an indispensable catalyst of the change process for teachers; teacher training should be tied to instructional materials and curriculum; and schoolwide collaboration is essential to reform.


This two-part research study attempted to refine some of the instruments that purport to predict essential attributes for urban teacher success with students (identified by Gay, Haberman, Ladson-Billings, and others) and apply it to two groups of teachers with five or more years of experience: successful teachers (carefully defined by their success criteria) and unsuccessful teachers (also defined). The desired result was to develop a reliable instrument
that could predict what characteristics would promote teacher success with urban students. Both groups of teachers did equally well on the survey tool. The implications are that urban teachers are equally aware of the attributes of effective teachers, but widely divergent in applying those attributes in practice. The finding points to the need to develop concrete, clear professional learning experiences so teachers can develop and be supported in implementing the practices that would make them successful with urban students.


This study investigated whether a professional development (PD) program focused on helping teachers better implement “making connection” math problems led to increased teacher content and pedagogical content knowledge as well as increased student learning. Teachers from one of the largest school districts were randomly assigned to the PD program or the control condition (the district’s standard PD offerings). A total of 59 sixth-grade teachers, who collectively taught about 3900 students, participated. The experimental PD program focused on teacher learning in three phases: content exploration, lesson analysis, and link to practice. Fidelity of implementation of the PD program was good as sessions were highly attended and participants viewed the program as an important aspect of their professional lives. The PD program did not lead to significantly greater increases in teachers’ knowledge or in better maintaining the cognitive demands of math problems. There was a significant effect on student learning as students of treatment teachers scored significantly higher on a quarterly assessment (multiple-choice problems) administered by the school district.


This five-year study was a rigorous experimental design to investigate the effects of grade-level teams working collaboratively to improve student learning. The study thoroughly trained school leaders and coaches/instructional leads to run PLCs for their teaching staff. Topics and foci were driven by the school teams. Grade-level meetings were focused on student achievement and pre- and post-tests (Stanford 9) were the measurement of student progress. For two years, teams worked with school leadership only (no results against controls from those years). For the final three years, teams worked with instructional leads and lead teachers (results against controls were phenomenal). Teacher agency was credited with some of the results, since they were gaining skills and knowledge they valued and asked for. The findings conclude that “stable school-based settings, distributed leadership, and explicit protocols are key to effective teacher teams.”


This article is an overview of twenty years of research and application. There are two assumptions Schoenfeld has tested: 1) research and practice live in productive synergy and each can inform the other and 2) research and findings from one discipline, if carefully crafted and controlled, can yield insights more broadly into other fields. Schoenfeld’s primary findings are that people’s moment-by-moment decision making in teaching math, but extending to all knowledge-rich domains, can be modeled as a function of their resources, orientations, and goals. So investments need to be made in demonstrating to teachers how to build classrooms that include the following five dimensions: 1) focused and coherent mathematics, 2) cognitive demand, 3) access to mathematical content, 4) agency, authority, and identity, and 5) uses of assessment.
Stigler, J., & Hiebert, J. *The teaching gap: Best ideas from the world’s teachers for improving education in the classroom*. Free Press.

This book primarily explores the best professional learning practices from among the highest performing countries (determined largely by persistent top PISA rankings). Teaching is identified as a cultural and collaborative activity that is learned through informal participation over long periods of time. There is also a focus on student work and student learning as exemplified in the Japanese Study Model (which this book brought to popular awareness). The lesson study model is based on a collaborative, long-term, continuous improvement model that maintains a constant focus on student learning and on the direct improvement in teaching in context. The summary recommendations include to expect continual, gradual, and incremental improvement, maintain a constant focus on student learning goals, focus on teaching, not teachers, make improvements in context of the teaching and in the work of teachers, and build a system that can learn from its own experience.


This international study parallels the work of Culturally Responsive Classroom research in the US. This synthesis was developed to “consolidate the international and New Zealand evidence around the emerging knowledge base about how to promote teacher learning in ways that impact outcomes for the diversity of students in our classrooms.” The synthesis identified a number of conditions and principles associated with professional learning that impacted substantively on student outcomes. In summary, such learning required teachers to engage with new knowledge that involved theoretical understandings—typically pedagogical content and assessment knowledge—and the implications of these for practice. The focus of this new knowledge was on the links between teaching and its impact on student learning. The professional learning environment provided teachers with extended opportunities to learn through a variety of activities and assisted them to integrate new learning into alternative forms of practice.


This study examined the implementation of peer coaching as compared to no coaching (standard presentation only) on the transferability of staff development in grades one through eight. Quantitative and qualitative data were collected at the beginning and end of the study. The quantitative data were collected by classroom observation of three areas of staff development tallies: low profile interventions, cooperative learning, and higher order thinking. The peer coaching and standard presentation participants reported in journals their responses to three questions probes. The three probes focused on the strategies, attitude, evaluation, and application of low-profile interventions, cooperative learning, and higher order thinking to classroom practice. A qualitative analysis was made by the study director to gather data on variables that could not be included in the statistical treatment.


This research article asks two questions: why are teachers not teaching subject-specific courses in culturally appropriate ways, and what are those ways in mathematics, specifically? Teachers had several beliefs regarding the first question: 1) mathematics is culture-neutral, 2) convenience and reliance on textbooks guided teacher moves, 3) curricula are standardized around the topics assessed on high stakes tests, and 4) lack of models for what it might look
like. For the second action research question, these themes emerged from the data: 1) deconstruct misguided beliefs about mathematics teaching and learning, 2) integrate culturally relevant content and social and justice issues, 3) utilize culturally responsive instructional strategies, 4) foster communal learning, 5) openness to students’ divergent thinking and problem-solving, 6) detrack the mathematics classroom, and 7) teacher’s critical consciousness, advocacy, and activism.


This article, though geared to teacher educators, formulates what skills and attitudes teachers need to be successful in teaching a wide array of students from varied backgrounds. Villegas and Lucas outline their core components, which resonate with in-service professional learning priorities as well. Culturally responsive teachers are: “socio-culturally conscious, have affirming views of students from diverse backgrounds, see themselves as responsible for and capable of bringing about change to make schools more equitable, understand how learners construct knowledge and are capable of promoting knowledge construction, know about the lives of their students, and design instruction that builds on what their students already know while stretching them beyond the familiar.”


This article is a review of preschool curriculum and professional development implementation studies. Weiland and the team (all co-authors of the re-examined research for this study) combed through five pre-school curriculum and professional development implementation studies looking for common or critically important trends. Five common features were found most salient for where programs met with success: 1) specific instructional content, 2) inclusion of highly detailed teacher scripts, 3) incorporation of teacher voice, 4) time for planning, and 5) use of real-time data.


This article presents the ideas of James Stigler, coauthor of *The Teaching Gap*, on ways to improve professional development for educators. Stigler believes professional development should be “directly related to teachers’ practice, site-based, long-term, and based on the specific curriculum used at the site.” Stigler describes the lesson study approach as an example in which “teachers plan instruction, observe what happens when it’s implemented, analyze what went wrong, come up with ideas for improving it, and try doing it again in their classrooms.” Stigler’s approach to improve teaching includes establishing “standard effective methods” and getting more teachers to implement them. There should be a shift from recruiting and retaining the best teachers to “improving the methods of teaching.” The challenge in improving professional development is therefore “creating a knowledge base” so teachers can share their knowledge on effective instructional methods.


This report is a systematic review of the research-based evidence on the effects of professional development (PD) on growth in student achievement in three core academic subjects (reading/ELA, mathematics, and science). The primary goal of this study was to address the question: what is the impact of teacher participation in professional development on student
achievement? Nine studies emerged as meeting WWC evidence standards, from more than 1,300 screened. Although the number of studies that met evidence standards was small, the average overall effect size of 0.54 was robust and fairly consistent across the nine studies, which the reviewers attributed to the finding that across all forms and content of PD, providing training to elementary school teachers does have a moderate effect on their students' achievement. Further, because the average number of PD contact hours averaged almost 49 hours across the nine studies, Yoon's team concluded that total contact hours must be substantial to get such a robust effect size. Since the studies varied in so many factors, the team was unable to make any conclusions about the effectiveness of PD by form, content, or intensity.

*All annotations are adapted or quoted from sources and abstracts*