Revisiting Professional Learning Communities to Increase College Readiness: The Importance of Pedagogical Content Knowledge

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For over a decade, professional learning communities (PLCs) have been touted as an effective way to build upon the knowledge and skills of experienced teachers, yet much of the evidence base is derived from self-reports by practitioners. Although several generations of school reform (the standards movement, No Child Left Behind, and now the Common Core State Standards) have cited improving teacher effectiveness as key to improving student achievement, little change has occurred in the nature of professional development. This article argues that professional development generally, and PLCs in particular, would benefit from the insights gleaned from the extensive literature on teacher expertise that focuses on how well teachers understand the content they teach and how well they understand how students learn that content.

Keywords: policy analysis; professional development; teacher education/development; teacher knowledge

Since *A Nation at Risk* (National Commission on Excellence in Education, 1983) was published, several large-scale reform efforts have attempted to bring about systemic improvements in U.S. student achievement—from the standards movement (Resnick, Nolan, & Resnick, 1995), to the No Child Left Behind Act (2002), to the more recent Common Core State Standards, which are designed to ensure that all students are college ready (Common Core State Standards Initiative, 2010). Much attention has been paid to the role of professional development in these reform efforts to ensure that new expectations for teaching and learning are met (Borko, 2004; Darling-Hammond, 1996; Darling-Hammond & McLaughlin, 1995), especially in light of evidence of declines in the quality of those entering the teaching profession (Corcoran, Evans, & Schwab, 2004). For over a decade, professional learning communities (PLCs) have been touted by practitioners as an effective structure for providing professional development to teachers by building upon the knowledge and skills of experienced teachers (e.g., Chappuis, Chappuis, & Stiggins, 2009; DuFour, Eaker, & DuFour, 2005). Despite the limited evidence base for such claims (Saunders,

Goldenberg, & Gallimore, 2009), there is a thriving professional development industry devoted to texts and workshops around the concept of PLCs.

In this essay, we revisit the evidence on PLCs and argue that although PLC structures are perhaps necessary for effective schools, they are likely insufficient for meeting the new expectations of the Common Core State Standards to increase college and workforce readiness rates. We draw attention to the often overlooked teacher expertise literature on pedagogical content knowledge and suggest that without such knowledge PLC structures are unlikely to increase student achievement. Finally, we provide a recommendation to scale up professional development in which pedagogical content knowledge is a primary focus through online videos of expert instruction that are aligned with the Common Core.

In its standards for staff development, the National Staff Development Council (2001) defines PLCs[1] as

> ongoing teams that meet on a regular basis . . . for the purposes of learning, joint lesson planning, and problem solving. These teams . . . operate with a commitment to the norms of continuous improvement and experimentations and engage their members in improving their daily work to advance the achievement of school district and school goals for student learning. ("The Rationale" section, para. 1)

PLCs are typically characterized by a set of dimensions or attributes such as shared beliefs, values, and vision; shared and supportive leadership; supportive structural conditions; supportive relational conditions; collective learning; and peer sharing (DuFour, 2004; Hord, 1997; Louis, Kruse, & Bryk, 1995).

Further, it is generally acknowledged that strong PLCs are not only those in which new knowledge regarding content and pedagogy is acquired, but also those in which existing assumptions about teaching and learning are challenged and critiqued (Little, 2003). Much of the existing literature related to PLCs focuses on improving school climate and changing teacher practice. Self-reports of implementation generally highlight the perceived pros and cons of PLCs and include teacher and principal attitudes and perceptions of PLCs (Cranston, 2009); the effects of PLCs on teacher knowledge, skills, and practice, (Kruse & Louis, 1993); the process of implementing a PLC, including overcoming

obstacles (Bezzina, 2006); the role of teacher and principal leaders in PLCs (Bottery, 2003; Krovetz, 1993); and case studies of PLCs in practice (Kruse & Louis, 1993; Valli, 1994).

When examining the literature related to professional development more generally, the past two decades of research brought a consensus around the following features that constitute effective professional development: a focus on content, active learning, coherence, duration, and collective participation (Desimone, 2009). Drawn from studies with varied methodologies (e.g., Borko, 2004; Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 1994; Little, 1982; Penuel, Fishman, Yamaguchi, & Gallagher, 2007), these features address effectiveness in terms of improving teacher practices.

There is mounting evidence that certain features of professional development also can have an impact on student achievement. These features include training over an extended time period (Yoon, Duncan, Lee, Scarloos, & Shapley, 2007), a focus on the subject matter content and how students learn that content (Dopplet et al., 2009; Kennedy, 1998), and opportunities for teacher teams to work collaboratively on student learning (Saunders et al., 2009).

Several of the features of PLCs that are aligned with evidence of effective professional development (i.e., active learning, duration, training over extended time periods, and teacher collaboration) have been embraced widely by practitioners (Stoll et al., 2006). However, the research on subject matter content and how students learn that content is not typically sought out by teachers (Hiebert, Gallimore, & Stigler, 2002), nor is it regularly addressed in the literature on PLCs.

The notion that teachers need to have deep knowledge of both the content they are teaching and how students learn that content is not new. Shulman (1986) was the first to discuss this concept, which he called *pedagogical content knowledge*. An entire generation of researchers subsequently examined in great detail what expert pedagogical content knowledge looks like across a range of disciplines such as math, science, and history (e.g., Lampert, 1986; Leinhardt, 1987, 1997; Schauble, Glaser, Raghavan, & Reiner, 1991; Wilson & Wineburg, 1993). The findings from this body of work yielded great insight into what expert teaching across disciplines looks like and how that expertise affects student knowledge and learning.

Some preliminary efforts have been made to translate this extensive research base into professional development methods (cf. Arcavi & Schoenfeld, 2008; Ball & Bass, 2000; Brown, 1992; Carpenter, Fennema, Peterson, Chiang, & Loef, 1989; Gersten, Dimino, Jayanthi, Kim, & Santoro, 2009; Grossman, Wineburg, & Woolworth, 2001). In these efforts, teachers received substantial instruction over extended periods of time on content that was very deep and challenging, typically from university-based education researchers who had studied how to teach that content for years. However, it is likely because these concepts are complex and take time to implement, that a broad scale-up of professional development of this kind to teachers nationally would present challenges. Yet the research on teacher expertise has potential as a framework for designing PLCs that not only improve school climate and teacher learning opportunities but also improve student outcomes.

To move toward this goal, we recommend scaling up professional development in which pedagogical content knowledge is a primary focus through online videos of lessons taught by expert teachers that are indexed to the Common Core State Standards (Hiebert et al., 2002). Hiebert and his colleagues presented a persuasive argument that because "key phrases such as 'problem solving' or 'language experience' often mean different things to different teachers . . . videotapes of lessons can illustrate concretely what a teacher has in mind" (p. 8). A variety of videos for specific lessons could be provided that represent the diversity of contexts across local settings.

The development of such a library of lessons would provide a rich resource for the improvement of teacher practice, thereby affording equitable access to clear college and workforce readiness expectations for all. This is critical because the schools that need the most support and have the most changes to make are those that may be less well equipped to implement these changes (Porter, 1989). Further, it can be very difficult for schools and districts to recognize that they do not have sufficient knowledge, skills, or resources to reach high standards.

> There is no guarantee that the knowledge generated at local sites is correct or even useful. Teachers working together or a teacher working with his or her students might generate knowledge that turns out to undermine rather than improve teaching effectiveness. Local knowledge is immediate and concrete but almost always incomplete and sometimes blind and insular. (Hiebert et al., 2002, p. 8)

This suggests that externally developed, research-based, and standards-aligned examples of instruction would be very beneficial, especially for those teachers who need it the most (Desimone, Smith, & Ueno 2006). Although others have proposed online sharing of local instructional best practices (e.g., Lieberman & Pointer Mace, 2010), the problems described by Hiebert et al. would still exist.

Assuming a systematic, centralized, rigorous, and peer-reviewed process for the development of such a library, online videos of lessons that are indexed to the Common Core State Standards would therefore avoid the potential pitfalls of each local school posting videos of "best practices" that may be incomplete or insufficient. Each lesson could be packaged with front- and back-end information on what the research says about how students learn that particular content and why the lesson portrayed meets those goals, thereby explicitly building teachers' pedagogical content knowledge while providing them with concretely modeled classroom activities aligned to grade-level standards. This recommended library of online video lessons is but one of many potential levers for change, and we encourage both researchers and practitioners to consider others.

In these challenging economic times, when funding for professional development is tight, targeting funds to practices shown through research to have an impact on the desired outcome is surely the most prudent way to grow and maintain a quality teaching staff. The substantial, extant literature on teacher expertise has not yet been fully translated into effective professional development models beyond a few localized efforts. This body of work can serve as the foundation for the development of content-based, video-supported lessons indexed to the Common Core

State Standards and used as professional development to support local PLCs. Trained professional development providers might help schools translate such lessons and work to align local instructional efforts to the college and career readiness standards. Implementing this recommendation would serve to make more transparent the expectations both for instruction and for what students ought to know and be able to do in college and the workforce.

NOTE

[1] A comprehensive review of the literature on professional learning communities and other similarly named professional development structures (e.g., grade-level teams, distributed leadership) is beyond the scope of this essay. See Loucks-Horsley (1999); Stoll, Bolam, McMahon, Wallace, and Thomas (2006); and Wilson and Berne (1999) for more comprehensive reviews of the literature.

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