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Professional Development for Teachers: Recommendations for Effective Implementation

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Background

Sadly, a significant number of high school graduates are likely to find that they are not academically prepared for postsecondary education. ACT's® 2014 report on *The Condition of College & Career Readiness* showed that a little more than one quarter of students who took the ACT® were able to meet college and career readiness benchmarks in all four academic areas (English, Reading, Mathematics, and Science). Certainly services such as tutoring, mentoring, and enhanced academic advisement can be helpful in raising achievement levels, but significant improvements in achievement depend on what students experience in their classrooms. Although many variables impact classroom learning, “among school-related variables, teachers matter most” (Rand Cooperation, 2012). Teacher quality is consistently identified as the most important school-related variable in student achievement (Hightower, et al., 2011). Although college access programs are not designed to impact variables that influence teacher quality such as teacher certification or the quality of preparation teachers receive in colleges of education, they may be able to impact teacher quality through professional development. The purpose of this paper is to provide

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a research-based perspective on professional development and factors that make it more effective.

Current Definitions of Professional Development

Learning Forward (Formerly the National Council for Staff Development) defines professional development in the following manner.

The term “professional development” means a comprehensive, sustained, and intensive approach to improving teachers’ and principals’ effectiveness in raising student achievement.¹

In Title VIII, Section 8002 of the Every Student Succeeds Act (ESSA) (2015)², professional development is defined as:

activities that are an integral part of school and local agency strategies for providing educators...with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging state standards...

The law goes on to state that these activities,

are sustained (not stand-alone, 1-day or short term workshops), intensive, collaborative, job embedded, data-driven, and classroom focused..., and as a whole, are regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement, with the findings used to improve the quality of professional development.

These definitions contain two key points for understanding current views of high quality professional development. First, both definitions describe professional development with words such as “*sustained, comprehensive, and intensive*,” and is contrasted with “*...stand-alone, 1-day or short-term workshops.*” Unfortunately, this type of professional development may not be the norm for classroom teachers. Based on a review of the Federal Schools and Staffing Survey produced by the National Center for Education Statistics, Darling-Hammond, Wei, Andree, Richardson, & Orphanos (2009) found that although over 90% of teachers participated in some form of

¹ This definition was retrieved from <http://learningforward.org/who-we-are/professional-learning-definition#.VpZy2lK-Svk>

² THE ESSA replaces the No Child Left Behind Act (NCLB) which was enacted in 2002.

professional development during 2003-04, most of this participation was in workshops, conferences, and training sessions. Large numbers of educators are participating in professional development, but there appears to be a need for the *sustained, comprehensive, and intensive* types of learning specified in these definitions.

Second, the ESSA definition suggests a theory of change for effective professional development. In this theory, educators experience high quality professional development that enhances their effectiveness, which in turn leads to increased student achievement. This change process is consistent with Desimone's (2009) theory of teacher change, and its application requires some understanding of factors that impact teacher change.

Factors That Inhibit or Promote Teacher Change

Teachers' willingness, and maybe even their ability to change, is affected by a number of factors. In her work with teachers, Richardson (1998) found that teachers often resist change that is mandated or suggested by others, but they do engage in voluntary change based on their perceptions of what students need and what is effective in their classrooms. Teachers who are not involved in the design and planning of professional development can feel disconnected from the content, and can fail to see the relevance for their professional development (Bayar, 2014).

Teachers' resistance to change and new practices may also depend on the type of challenges they encounter in their professional learning. Powell and Kusuma-Powell (2015) note that teachers face both technical and adaptive challenges in their professional learning. Technical challenges can be addressed by providing teachers with information. For example, a school professional development session could provide instruction in how to operate a new piece of technology. Adaptive challenges require transformational learning that causes teachers to challenge their assumptions, beliefs and values, and potentially their identity as teachers. This type of challenge cannot be addressed solely through additional information. It is likely to require the *sustained, comprehensive, and intensive* professional development described in the definitions provided earlier.

Willingness to change can also be related to the accuracy of teachers' self-perceived effectiveness. In one study, researchers identified teachers who demonstrated growth on measures of effectiveness and then worked backwards to identify factors that were associated with professional

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growth (TNTP, 2015). One variable that consistently showed a relationship to measures of growth was alignment between teachers' perceptions of their instructional effectiveness and the results of their formal evaluations. The self-assessments of teachers who showed evidence of improvement were more likely to match the results of their formal evaluation. Teachers who did not show improvement were more likely to assign higher ratings to their instructional effectiveness than they received on formal evaluations.

A number of teacher characteristics such as teacher experience, motivation, self-efficacy and school contextual variables such as school culture, working conditions, and district leadership also can impact teachers' willingness to change (Whitwirth & Chiu, 2015). Professional development succeeds best in contexts that support it, and administrator buy-in is critical (Harwell, 2003). It is also important to note that teacher professional development can occur informally through what teachers learn in their classrooms and from each other (Desimone, 2009). Administrators should endeavor to create schools that embrace both formal and informal opportunities for professional learning and change.

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Research on Effects of Professional Development

Research on professional development has been conducted to answer two key questions. The first is the general impact question. Does professional development produce positive effects for teachers and their students? These studies have varied in terms of the impacts that are evaluated, but most studies included one or more of the following: (a) teachers' reactions to the professional development; (b) teacher learning (increases in knowledge); (c) teacher behavior (changes in teaching behaviors); and (d) results (student outcomes). The body of research on the effects of professional development on teachers and students has yielded mixed results, and has more consistently demonstrated impact for teachers than for their students (Garet, et al., 2008, Garet, et al., 2010; Garet, et al., 2011; Gersten, Taylor, Keys, Rolhus, & Newman-Gonchar, 2014; TNTP, 2015; Timperley, Wilson, Barrar, & Fung, 2007; Wade, 1984; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

The second key question concerns characteristics of effective professional development. Are there core features that are associated with effective professional development? In this case, researchers generally agree on a list of core features of effective professional development (Desimone, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gulamhussein, 2013; Steiner, 2004; US Department of Education, Office of Planning, Evaluation and Policy Development and Program Studies, 2010). These

elements do not seem to be prescriptive in the sense that they must be present in the same way in all professional development, but they should be considered thoughtfully in the design and delivery of professional development.

Core Features of Effective Professional Development

The research on the core features of professional development does not yield “magic bullet” type solutions. However, it does provide guidance for designing and implementing professional development.

There are two forms of professional development. The *traditional form* of professional development is delivery through workshops, institutes, and college courses. *Reform professional development* refers to activities such as professional learning communities, teacher networks, study groups, mentoring, and coaching. These approaches typically involve extended opportunities for teachers to carefully consider their own practice.

Studies that allow for a comparison between the two forms of professional development have not supported one form as being generally superior to the other (Garet, et al., 2001; Gersten, et al., 2014). Garet and his associates (2001) found, for example, that reform and traditional professional development of similar duration have similar effects. Gersten et al. (2014) found that professional development delivered through lesson study and through a college course were both effective. In this case, both options had sufficient duration and opportunities for practice and follow-up. It appears, therefore, that other core elements may be more influential than the delivery format.

Duration needs to be sufficient for the goals and audience. Duration is usually measured by the time span of the professional development and/or the number of contacts between professional development staff and educators (Garet, et al., 2001). Generally, sustained forms of professional development tend to be more positively associated with impacts on teachers and student achievement. Yoon, et al. (2007, p. 12) found that, “Studies that had greater than 14 hours of professional development showed a positive and significant effect on student achievement from professional development.” Gersten, et al. (2014) reviewed 910 studies on professional development approaches related to math, and identified five studies that met What Works Clearinghouse (WWC) evidence standards³. Of these, two found significant effects on students’ math competencies. In both of these studies, professional development contacts were sustained

³ WWC Standards for Research can be found at <http://ies.ed.gov/ncee/wwc/>.

over a period of months. Although Timperley, et al. (2007) generally found support for the “longer is better” idea in their research synthesis, they found two occasions when short-term professional development was effective. One was when a powerful idea was the focus of the professional development (e.g. teaching teachers how to screen students for auditory processing problems and the implications for classroom communication), and the second was when the professional development was focused on narrow curriculum goals. They also found examples of extended-time professional development that were associated with low or no impact. They noted that it was more a matter of how time was used than the amount of time allocated.

Collective participation is encouraged. Collective participation is when teachers from the same school, grade level, or department participate together in professional development (Desimone, 2009; Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet, et al., 2001). According to Garet, et al. (2001) collective participation can have a number of advantages. Teachers who work together are more likely to have opportunities to share what they are learning with their co-workers. Also, teachers who work together have a similar frame of reference in terms of curricular materials, course offerings, evaluation requirements, and students. Finally, collective participation may help sustain practices over time as a shared professional culture is built.

Coherence is observable. Coherence has multiple interpretations in the professional development literature, including alignment to goals, standards, and desired classroom practices, integration of theory and practice and early and later learning, and opportunities for communication between teachers with shared goals (Darling-Hammond, et al., 2009; Firestone, Mangin, Martinez, & Polovsku, 2005; Garet, et al., 2001). Generally, to be effective, professional development should focus on alignment to desired outcomes, integration of professional development content with classroom practice, and content that builds on prior content.

Content should focus on teaching and learning. To a large extent, research on professional development has focused on how it is structured rather than its content (Kennedy, 1998). Some research, however, suggests that professional development that focuses on subject matter content and how students learn that content is associated with increased teacher knowledge, and to some extent with improvements in student learning (Desimone, 2009; Garet, et al., 2001; Kennedy, 1998; Steiner, 2004). Additionally, Timperley, et al. (2007) found that in all studies they reviewed that demonstrated a substantive impact on student learning, there was

some form of integration (e. g., theory and practice). Also, in all of these studies, assessment was used for the purpose of facilitating learning, and in half of these studies, specific references were made to teachers developing their use of assessment to improve teaching.

Interestingly, an emphasis on subject matter content may pose challenges in terms of relevance. At the high school level, for example, teachers do not teach the same content. It may be impractical to provide a coherent professional development program that addresses all content areas. One possible compromise could be to provide professional development on a topic that cuts across curricular boundaries. For example, Wenglisky (2000) found that math and science teachers who received professional development on learners with special needs outperformed peers who did not receive that training in terms of student achievement.

Active learning opportunities should be provided. Promoting active learning means providing opportunities for teachers to be involved actively in meaningful analysis of teaching (Desimone, et al., 2002). Active learning can take multiple forms including observing other teachers, teacher observations with opportunities for feedback and discussion, instructional or curricular planning, presenting or leading discussions, and/or written work (Desimone, 2009; Garet, et al., 2001). Garet, et al. (2001) found that active learning had a small positive effect on teachers' knowledge and skills.

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Summary of Key Recommendations

- 1. Teachers need to be involved in decisions about professional development.** This involvement can occur in different ways, but it may be useful to encourage teachers to reflect on self-appraisals and other evaluations of their teaching when they think about potentially useful professional development topics.
- 2. Administrators should endeavor to create a culture that encourages teacher growth.** A culture of teacher growth should encourage both formal and informal professional learning opportunities for educators.
- 3. Select the form of professional development that best meets educators' needs.** There seems to be a tendency in the literature to be supportive of reform professional development models. Teachers can certainly learn a lot from each other, but sometimes the input of an outside expert delivered through workshops or courses might be most helpful.

- 4. Generally, sustained and coherent professional development is preferable to stand-alone workshops.** Although there are exceptions to this recommendation, professional development needs to be long enough to allow teachers to process and apply what they are learning. Also, later learning needs to build on previous learning.
- 5. Collective participation can help encourage teachers to build a shared professional culture.** When there is collective participation, teachers have shared experiences that can serve as a springboard to additional professional learning from each other.
- 6. Effective professional development has a classroom focus.** Effective professional development should focus on the academic content knowledge and the pedagogical knowledge necessary to help students learn academic content.
- 7. Effective professional development should provide time for practice and reflection.** Teachers need an opportunity to apply what they learn and to think about how it is working. This process may be particularly important for sustaining change.

References

- ACT® (2014). *The condition of college and career readiness*. Retrieved from www.act.org/readiness/2014.
- Bayar, A. (2014). The components of effective professional development activities in terms of teachers' perspective. *International Online Journal of Educational Sciences*, 6(2), 319-327.
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). National Staff Development Council and School Redesign Network of Stanford University. Retrieved from <http://learningforward.org/docs/pdf/nsdcstudy2009.pdf>.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199.
- Desimone, L. M., Porter, A., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instructions: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81-112.

- Firestone, W. A., Mangi, M. M., Martinex, M. C., & Polovsky, T. (2005). Leading coherent professional development: A comparison of three districts. *Educational Administration Quarterly*, 41(3), 413-448.
- Garet, M. S., Cronen, S., Eaton, M., Kurki, A., Ludwig, M., Jones, W., Uekawa, K., Falk, Bloom, H. Doolittle, F., Zhu, P., & Szejnberg, L.. (2008). *The Impact of Two Professional Development Interventions on Early Reading Instruction and Achievement*. NCEE2008-4030. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
- Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945.
- Garet, M. S., Wayne, A. J., Stancavage, F. Taylor, J, Eaton, M., Walters, K., Song, M., Brown, S Hurlburt, S., Zhu, P., Sepanik, S., & Doolittle, F. (2011). *Middle School Mathematics Professional Development Impact Study: Findings After the Second Year of Implementation*. NCEE 2011-4024. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
- Garet, M. S., Wayne, A. J., Stancavage, F. Taylor, J., Walters, K., Song, M., Brown, S Hurlburt, S., Zhu, P., Sepanik, S., & Doolittle, F. (2010). *Middle School Mathematics Professional Development Impact Study: Findings After the First Year of Implementation*. NCEE 2010-4009. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.
- Gersten, R., Taylor, M. J., Kays, T. D., Rolthus, E., & Newman-Gonchar, R. (2014). *Summary of research on the effectiveness of math professional development approaches*, (REL 2014-010). Washington DC: US Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from <http://ies.ed.gov/ncee/edlabs>.
- Gulamhussein, A. (2013, September). *Teaching the teachers: Effective professional development in an era of high stakes accountability*. Center for Public Education. Retrieved from <http://www.centerforpubliceducation.org/Main-Menu/Staffingstudents/Teaching->

the-Teachers-Effective-Professional-Development-in-an-Era-of-High-Stakes-Accountability/Teaching-the-Teachers-Full-Report.pdf.

Harwell, S. H. (2003). *Teacher professional development: It is not an event, it's a process*. Waco, TX. CORD. Retrieved from <http://www.cord.org/uploadedfiles/HarwellPaper.pdf>.

Hightower, A.M., Delgado, R.C., Lloyd, S. C., Wittenstein, R., Selers, K., & Swanson, C. B. (2011). *Improving student learning by supporting quality teaching: Key issues, effective strategies*. Bethesda: MD: Editorial Projects in Education. Retrieved from http://www.edweek.org/media/eperc_qualityteaching_12.11.pdf.

Kennedy, M. (1998). *Form and substance in nonservice teacher education*. Madison, WI: National Institute for Science Education, University of Wisconsin-Madison. Retrieved from <http://www.wcer.wisc.edu/archive/nise/Publications/ResearchMonographs/vol13.pdf>

Powell, W., & Kusuma-Powell, O. (2015). Overcoming resistance to new ideas. *Kappan*, 96(8), 66-69.

RAND Corporation (2012). *Teachers Matter: Understanding Teachers' Impact on Student Achievement*. Retrieved from http://www.rand.org/pubs/corporate_pubs/CP693z1-2012-09.html.

Richardson, V. (1998, September). *How teachers change: What will lead to change that most benefits student learning?* National Center for the Study of Adult Learning and Literacy, Retrieved from www.ncsall.net/index.html?id=395.html.

Steiner, L. (2004). *Designing effective professional development experiences: What do we know?* Naperville: IL, John Edward Professional Development Center™. Retrieved from http://www.gtlicenter.org/sites/default/files/docs/pa/4_PDResearchPolicyAction/DesigningEffectivePD.pdf.

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development: Best evidence synthesis iteration*, New Zealand: Ministry of Education. Retrieved from <http://educationcounts.edcentre.govt.nz/gogo/BES>.

TNTP (2015). *The mirage: Confronting the hard truth about our quest for teacher development*. Retrieved from http://tntp.org/assets/documents/TNTP-Mirage_2015.pdf

- U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. (2010). *Toward the identification of features of effective professional development for early childhood educators, literature review*. Retrieved from <http://www.ed.gov/about/offices/list/opepd/ppss/reports.html/>.
- Wade, R. K. (1985). What makes a difference in in-service teacher education? A meta-analysis of research. *Educational Leadership*, 42(4), 48-54.
- Wenglinsky, H. (2000). *How teaching matters: Bringing the classroom back into discussions of teacher quality*. Policy Information Center, Princeton, NJ: Educational Testing Service. Retrieved from <http://www.ets.org/Media/Research/pdf/PICTEAMAT.pdf>.
- Whitworth, B. A., & Chiu, J. L. (2015). Professional development and teacher change: The missing leadership link. *Journal of Science Teacher Education*, 26, 12-137.
- Yoon, K. S., Duncan, T., Lee, S.W.-Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007-No. 033). Washington D. C: U.S. Department of Education, Institute of Education Science, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory.

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