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Explaining the Puzzling Results in Professional Learning Research

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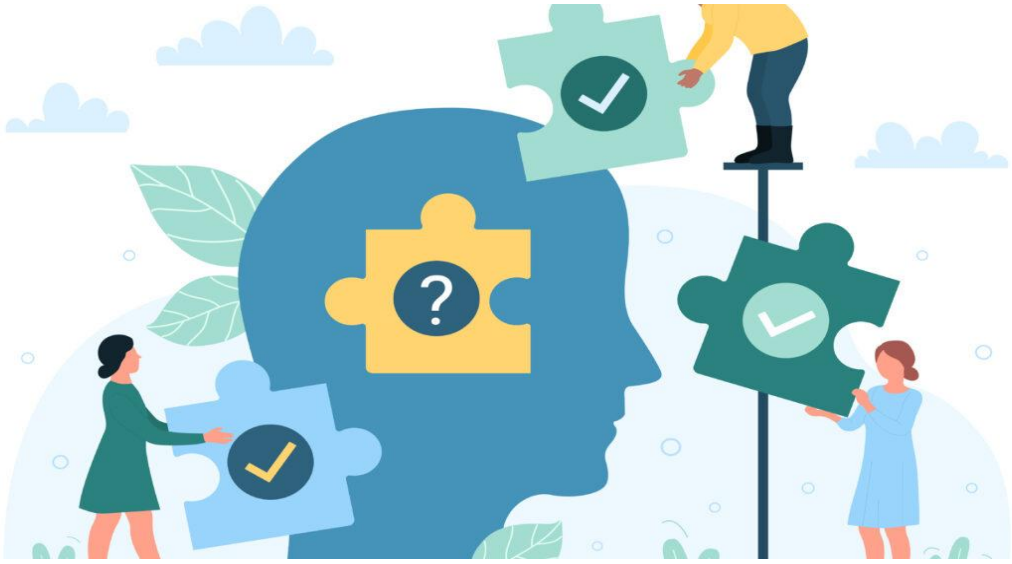

Research shows professional learning can have positive effects on teachers but little effect on student learning. Why does this happen, and what can educators do about it?

Every modern proposal for educational reform and every plan for school improvement emphasizes the need for high-quality professional learning. The reasons for this emphasis are clear. Our knowledge base in education and in every academic discipline has grown exponentially in recent years. In addition, new developments in technology and the use of artificial intelligence (AI) have prompted changes in teaching and learning that were unimagined a decade ago. To be effective, educators must keep abreast of these changes and continually refine and renew their professional knowledge and craft skills.

Furthermore, most modern educational reforms require school leaders and teachers to transform their roles and take on new responsibilities. Structural changes in the way schools are organized require educators to change the way they go about their jobs. Those changes include shared decision making and alternative school governance policies, as well as increased efforts to encourage greater parent and community involvement. School leaders and teachers at all levels need professional learning to succeed in these new roles.

Discouraging results

We know professional learning is essential; however, there are serious concerns about its effectiveness. In 2013, Allison Gulamhussein analyzed educators' professional learning initiatives on behalf of the National School Boards Association's Center for Public Education. She came to the sobering conclusion that "Most professional development today is ineffective. It neither changes teacher practice nor improves student learning" (p. 3).

A year later, Russell Gersten and his colleagues (2014) examined professional learning programs in mathematics for the U.S. Department of Education's Institute of Education Sciences. Their comprehensive review of 910 studies echoed the same concern. They concluded, "There is very limited causal evidence to guide districts and schools in selecting a math professional development approach or to support developers' claims about their approaches" (p. 1).

Andy Jacob and Kate McGovern's (2015) review of professional learning programs for The New Teacher Program, *The Mirage,* offered an even more disheartening conclusion. They surveyed more than 10,000 teachers and 500 school leaders from three large public school districts and one mid-size charter school network and interviewed more than 100 staff members involved in teacher professional learning. This extensive investigation led them to conclude:

In short, we bombard teachers with help, but most of it is not helpful to teachers as professionals or to schools seeking better instruction. We are not the first to say this: In the last decade, two federally funded experimental studies of sustained, content-focused, and job-embedded professional development have found that these interventions did not result in long-lasting, significant changes in teacher practice or student outcomes (Garet et al., 2008; Garet et al., 2010). And while countless other studies have been undertaken, researchers summarize the evidence base as weak and the results mixed at best (Arens et al., 2012; Bos et al., 2012; Gersten et al., 2014; Hill et al., 2013; Yoon et al., 2007). (p.2)

In a related response to the growing popularity of professional learning communities (PLCs), Julianne Wenner and Todd Campbell (2017) examined 704 research studies on teacher leadership conducted between 2004 and 2013. Their synthesis revealed that only 54 of these studies (less than 8%) met the criteria of being high-quality empirical studies published in peer-reviewed publications. None of these high-quality studies investigated the effects of teacher leadership on student learning outcomes. Similarly, a study by Sarah McKenzie and colleagues (2024) evaluating the impact of the PLC model on students in Arkansas schools over six years showed no statistically significant impacts on student achievement or value-added growth.

Positive but puzzling results

Despite these striking setbacks, more recent reviews of professional learning research have yielded promising, but puzzlingly mixed results. For example, Rachel Garret and her colleagues (2021) at the American Institutes for Research conducted an extensive meta-analysis of high-quality studies of teacher professional learning published between 2010 and 2020. Their aim was to establish connections between elements outlined in the Learning Forward Standards (2011; revised in 2022) and changes in teachers' instruction as well as improvements in student learning. To be eligible, studies needed to "(1) include teachers in Grades K-12, (2) examine the impacts of professional learning on instruction measured through classroom observation, and (3) have enough information to compute effect sizes" (p. 5). Among the hundreds of studies identified, only 48 met these modest criteria for inclusion, and only 34 of these also explored impacts on student achievement.

Their analysis revealed that professional learning programs that incorporate the elements outlined in the Learning Forward Standards yielded an average effect size of 0.73 standard deviations on teachers' instructional practices. This is a remarkably large effect. It means that the average among programs that followed the standards is at the 77th percentile of the comparison control group that did not.

The average effect size on student achievement, however, was only 0.09 standard deviations. Although statistically significant, this is considered a very small effect that translates to only a 2-3 percentile difference. In other words, programs that incorporate the Learning Forward Standards appear to have a powerful influence on teachers' instructional practices, but a very modest effect on student learning outcomes. Other researchers have noted similar disparities in the effects of professional learning on teachers' instruction versus the impact on student learning (Hill, Beisiegel, & Jacob, 2013; Kraft, Blazar, & Hogan, 2018; Zou, Doan, & Kaufman, 2023).

What explains the inconsistencies?

What could explain this disparity? How can thoughtfully designed professional learning experiences that incorporate elements that contribute to effectiveness have significant influence on teachers' instruction but so little impact on student learning? Related research suggests several possible explanations.

Failure to consider teacher and context differences

Studies show that individual teachers vary in their response to the same professional learning experience (Firestone, Cruz, & Rodl, 2020). In addition, teachers work in very different contexts that can significantly affect program results (Guskey, 2014). Implementing the same practices in the same way in different contexts can yield vastly different outcomes. Therefore, taking individual teachers' needs and levels of knowledge into account, along with the unique characteristics of the context in which they work, may be crucial in determining how teachers perceive new ideas and adapt those ideas to their classrooms and their students.

Ineffective use of professional learning time

Time is vitally important in professional learning. To effectively change their instructional practices, teachers need time to learn the new practices, discuss those practices with colleagues, and adapt the practices to their specific context. They need time to pilot the implementation of the practices, gain targeted feedback on their implementation efforts, and receive ongoing support to sustain implementation. Depending on the complexity of the change required, the amount of time teachers need to see results can vary significantly. In their review of evidence on how teachers' professional learning affects student achievement, Kwang Suk Yoon and his colleagues (2007) found that only studies with 30 or more hours of teacher involvement showed positive effects. A review of studies of online professional learning by Sheralyn Dash and her colleagues (2012) found that effects of teacher behaviors on student achievement emerged only after 100-plus hours of professional learning delivered over an entire school year, with sustained focus on practical application of best practices.

Other research shows, however, that the *quality* of time may be more important than the *quantity* (Kennedy, 2016, 2019). In other words, how time is spent can be crucial, and doing ineffective things longer doesn't make them more effective. Therefore, studies of professional learning must consider how much time is allocated and how that time is used. These studies also should look at the specific types of activities involved, and how teachers are engaged in those activities.

Misaligned measures of student and professional learning goals

Reviewers of professional learning research also note that while some studies use measures of student outcomes that align with the professional learning goals, many use more generic commercial instruments or state assessments (Darling-Hammond, Hyler, & Gardner, 2017). Examinations of how these large-scale assessments align to state curriculum standards show that, in many cases, only about half of the curriculum standards' content is tested on the corresponding grade-level assessments, and only about half of assessment content corresponds to the curriculum standards (Polikoff, Porter, & Smithson, 2011; see also Maroun & Tienken, 2024). It could be that the instruments used to measure student achievement did not capture the learning goals that the new practices were designed to improve.

Differences between current and new teaching practices

The more teachers must alter their current instructional strategies, the more difficult implementation will be and the less likely they are to see improvements readily in student learning.

A study by Rossella Santagata and colleagues (2010) showed that professional learning is more successful in improving student achievement when it is closely linked to teachers' current classroom practices. In other words, the more teachers must alter their current instructional strategies, the more difficult implementation will be and the less likely they are to see improvements readily in student learning (Cohen & Ball, 1990). This does not imply that new practices should be altered to fit teachers' current practices, but rather that teachers vary in the support they need to successfully adapt and implement the same new practices.

Lack of access to high-quality materials

The effectiveness of professional learning frequently depends on teachers' use of high-quality instructional materials. Recent meta-analyses show that professional learning opportunities that offer teachers practice-supportive materials yield larger effects than those that focus on general principles (Hill et al., 2020; Kraft, Blazar, & Hogan, 2018). However, evidence also shows teachers' access to such materials varies (Boser, Chingos, & Straus, 2015; Taylor et al., 2015). Elizabeth Foster (2022) argues that this is an equity issue because, compared to teachers in affluent schools, teachers in low-income schools must spend significant amounts of time searching for these materials and sometimes must use their own personal resources to purchase them.

Low levels of teacher efficacy and belief in their impact

In a detailed qualitative study of "data-driven decision-making," Margaret Evans and colleagues (2019) found that teachers rarely reference their instruction as a contributing factor to student performance. Far more frequently, they connect student performance data to student characteristics, especially student behavior. Or, in some cases, they attribute it to a mismatch of student abilities to the type of assessment given, especially regarding multilingual learners. Only 15% of the time did teachers connect student performance data to their teaching. If teachers do not believe their instruction makes a difference, it is easy to see why changes in instruction would have little impact.

Failure to focus on evidence-based practices

It has long been recognized that the professional learning community too often pursues innovation at the expense of best practice (Guskey, 1996, 1997; Kalenze, 2014; Schmoker, 2018). Ideas that are faddish and trending get more attention than well-documented research evidence. Examples include past infatuations with learning styles, multiple intelligences, the Mozart effect, and emotional intelligence, despite the lack of research evidence supporting their effects (Waterhouse, 2006; Whitman, 2023). As a result, professional learning has not done much to reduce the prevalence of some of the most common ineffective instructional practices or increase the use of more powerful and proven strategies (Odden, 2009; Willingham & Rotherham, 2020).

In his book, *So Much Reform, So Little Change*, Charles Payne (2008) argues that the reason so many education reform efforts fail is due to "organizational irrationality" — a culture that embraces "innovation" over evidence (p. 64). Decades ago, Thomas Corcoran and colleagues (2001) described professional learning as "dominated by whims, fads, opportunism, and ideology" (p. 80). More recent reviews indicate it is "still not an evidence-based community" (Schmoker 2019, p. 34). If no trustworthy evidence shows that the practices teachers implement will lead to verified gains in student learning, why would improvement be expected?

Misguided planning

Perhaps most important are educators' misguided efforts in planning professional learning. Too often, professional learning planning centers on what educators want to learn, rather than on what improvements can be made in student learning. Discussions focus on the interests, desires, curiosities, and "needs" of school leaders and teachers, rather than on the learning difficulties of their students. To improve student outcomes, student needs must become the focal point in planning *all* professional learning (Guskey, 2025). Rather than concentrating on what school leaders and teachers want, we must focus instead on research-supported ideas and strategies that will help educators better address student needs.

Three essential questions

Planning effective professional learning that leads to demonstrable improvements in student learning begins by addressing three essential questions (Guskey, 2017):

What do we want to accomplish with our students?

The first question clarifies our goals. The truest measure of the effectiveness of any professional learning activity is its impact on students (Guskey, 2014). Since the primary objective of education is to help *all* students learn well, the main goal of professional learning should be to improve student learning outcomes. Such outcomes might include increased achievement in specific subjects or the development of important life skills, such as collaboration, communication, empathy, and personal and social responsibility.

How will we know if we do?

The second question identifies what evidence educators will use to verify that they achieved their goals. Because not everyone puts the same level of trust in the same types of evidence and no single source of evidence tells the whole story, multiple sources of evidence are likely to be required (Guskey, 2007; Guskey, Roy, & Frank, 2014).

Looking beyond the intended goals to the broader array of possible unintended outcomes is vital in judging effectiveness

What else might happen, good or bad?

The third question involves looking beyond the stated goals to consider possible unintended consequences. Sometimes things happen along the way, both positive and negative, that are not necessarily planned. Improving student learning in one subject, for example, may add to their self-confidence, which leads to improvements in other subjects. On the other hand, improvements in one subject could come from taking instructional time from other subjects, leading to declines in those subjects. Looking beyond the intended goals to the broader array of possible unintended outcomes is vital in judging effectiveness.

Planning professional learning

Only after educators address these three essential questions and clarify the student learning goals of professional learning should they turn to deciding what instructional strategies or practices are most likely to produce those results. This requires asking:

- What research evidence supports the strategies?
- How good or reliable is that evidence?
- Was it gathered in contexts similar to ours?

In addition, educators must identify the essential elements of those strategies and practices to ensure they can implement them with fidelity.

Once they've identified the strategies and practices they intend to implement, educators must next ensure that organizational support is in place. Many improvement efforts fail, for example, because of the lack of active participation and clear support from school leaders (Guskey, 2004; Kraft & Papay, 2014). Others prove ineffective because teachers are not provided the time, instructional materials, technology, or other resources necessary for successful implementation.

After considering organizational support, effective planning turns to the specific knowledge and skills educators will need to implement those strategies and practices. Professional learning experiences that will best enable educators to acquire those skills should also be considered. Seminars and workshops can be an effective means of sharing information and expanding educators' knowledge and skills. These workshops are especially useful when paired with collaborative planning, structured opportunities for practice with feedback, and follow-up coaching. Action research projects, organized study groups, collegial exchanges, well-led professional learning communities, online services, and a wide range of other group and individual activities also can be effective (Guskey, 2024). The key is to ensure the focus remains on "educator effectiveness and results for all students" (Learning Forward, 2022).

As Stephen Covey (2004) wrote, "We must begin with the end in mind." High-quality professional learning is the foundation for improvement in education. But to improve student learning, we must make sure *all* professional learning experiences and activities begin with students in mind. Thoughtful planning is the key to ensuring the link between teachers' professional learning and improvements in student learning.

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