Questioning Teacher Goals in Professional Development: Do Goals Really Make A Difference?

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Abstract: This study reports empirical evidence on a common principle of effective professional development dealing with teachers' involvement in their own learning. The data used were collected during a five-day mathematics institute involving 51 teachers in grades three through eight. Questions of how participants' goals influence their satisfaction, perceptions, and learning were examined. Surprisingly, the alignment of the participants' goals with the institute's goals did not effect satisfaction, perceptions, or learning.

Background

Teachers play a critical role in student achievement (e.g., Hill, Rowan, & Ball, 2005). Because of issues with achievement, a variety of reform efforts aim to change and rebuild the way teachers think about teaching and learning (e.g., NPEAT, 2000). As a result, a variety of lists of principles on effective professional development (PD) have emerged. The sources of these lists and the foundations from which they are derived vary (Guskey, 2003). In general, there is a strong lack of data about teacher learning (Fishman & Davis, 2006) leaving the list developers to rely on best practices in the development of these lists of principles.

One common principle of effective PD focuses on teachers' involvement in their own learning. Specifically, teachers should be involved in the identification of their own learning needs, the learning opportunity and the PD process to be used (Guskey, 2003; Hawley & Valli, 1999; NPEAT, 2000). Selecting and committing to professional development goals is considered a key motivator; it drives learners' choices, their attention and their resulting opportunity to learn (Pintrich & Schunk, 1996). To explore the role of teacher involvement, this study attempts to determine how teacher's personal goals as they aligned to the stated workshop goals affected their satisfaction with, perceived usefulness of, and measurable learning from a mandatory PD experience in which they were not able to help shape the goals.

Methods

The PD program was designed to improve K-8 mathematics teaching in one rural district working to implement the state's new mathematics standards. The developers' goals for the project included: increasing mathematical content knowledge for teaching, building a shared vision of standards-based practice, introducing investigations-based teaching strategies, and integrating manipulatives to support mathematical learning.

The data were collected from 51 third through eighth grade teachers during the five-day mathematics institute held immediately prior to the 2007 school year. The research questions of interest were:

1. How do participants' alignment with workshop goals influence their satisfaction with a PD experience?
2. How do participants' alignment with workshop goals influence their perceptions of the usefulness of a PD experience?
3. How do participants' alignment with workshop goals influence their performance on an assessment after a PD experience?

Surveys and an assessment of teacher mathematical knowledge for teaching (Ball, 2003) were administered both as pre and post-workshop measures. The pre-survey included the question, "What are your personal goals for this summer institute?" Given that the teachers received little prior information about the summer institute, their stated goals likely identified what they valued. The responses were coded to indicate whether each teacher's goals were aligned to one or more of the stated institute goals. Unclear or blank responses were labeled "Ambiguous". We found that 24 teachers listed goals aligned to the institute goals; 12 teachers listed goals did not align to the goals; and 15 teachers listed goals were Ambiguous.

To determine participants' satisfaction with and their perceptions of usefulness of the PD, we considered six Likert-scale questions. Each question asked teachers to rank whether they strongly disagree, disagree, agree and strongly agree. We converted these scores to numeric ratings of 1 to 4. We then ran a crosstabs analysis between each question and the three groups. A Pearson chi-square statistic was calculated to determine whether there was any significant difference between the three goal-alignment groups.

As a measure of the institute's impact on teacher learning, we relied on matched forms of the algebra subtests of the Learning Mathematics for Teaching (LMT; SII/LMT, 2004) assessment for each grade band (3-5 and 6-8). The assessments, given at the beginning and end of the institute, were scored using the *z*-score

conversion tables provided by the test developers and changes in mean z-score was considered significant in cases where $z \geq 0.3$.

Findings

Analysis of the correlation between the teacher satisfaction scores on three Likert-scale questions and the three goal-alignment groups showed that there was no significant difference at the 0.05 confidence level between the groups.

Teacher perception of the usefulness of the PD experience was determined from three different Likert-scale questions. But, as with the satisfaction scores, the analysis of the perception scores showed no significant difference at the 0.05 confidence level between the three groups.

Teacher learning was determined by considering the mean gain scores on the LMT. While the ANOVA analysis showed no significant difference between groups at the 0.05 confidence level, each of the groups did experience significant growth when considering the LMT gain scores. In our sample, the Ambiguous group showing the most growth (z=1.072); the Aligned group showed the middle amount of growth (z=1.023); and the Not Aligned group had the least growth (z=0.836) between the pre and posttest administration.

Discussion

In this study we examined the impact of teachers' personal goals on their satisfaction with and perceptions of PD. We also considered the impact of these goals on their mathematical knowledge for teaching development. Based on the principles for effective PD, we expected those teachers whose goals met at least one of the institute goals to show higher levels of satisfaction and demonstrate higher levels of learning. Surprisingly, our study found that all of the teachers showed significant gains in their knowledge; however those in the Ambiguous group showed the most growth, but only slightly more than the Aligned group. Teachers' satisfaction with and perceptions of usefulness of their PD experience were not significantly different regardless of whether their personal goals aligned to those of the PD.

This raises questions about the importance of teachers' involvement in their PD experiences. Contrary to the prevailing consensus, suggesting that teachers need to set their own learning goals (e.g., Hill, 2004), our data suggested that teacher alignment with the goals of the workshop was not an essential characteristic. Thus, involvement as developers in the PD effort may not be critical for participating teachers' success in the PD. In this particular study, the PD could be considered "successful" even in the cases where the teachers' goals were not aligned with the institute goals.

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