

Perceptions of Online Professional Development: Do Newer and Experienced Teachers Differ?

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Abstract: In this exploratory study, a small number of biology teachers participated in an online professional development (PD) course delivered in an asynchronous format. To understand the unique perceptions of newer and experienced teachers when delivering PD through an online platform, we conducted post-experience interviews, coded the transcripts, and analyzed the connections between the codes using epistemic network analysis. Findings revealed significant differences in how teachers perceive PD delivery format; experienced teachers had positive perceptions of face-to-face PD while newer teachers had positive perceptions of online PD. In terms of the online discussion, there were no significant differences; both groups articulated positive perceptions. Implications for evolving the design of online PD approaches are discussed.

Introduction

A well-trained teacher is a critical factor in a child's educational success. When teachers receive sustained, intensive professional development (PD), it can lead to gains in student achievement; unfortunately, most teachers participate in short-term PD (Darling-Hammond, Chung Wei, Andree, Richardson, & Orphanos, 2009). One scalable, affordable way to provide sustained, interaction possibilities is through online PD, a method that holds promise yet has little research-based evidence (National Academies of Sciences, Engineering, & Medicine, 2015). Since teachers generally prefer face-to-face PD (McConnell, Parker, Eberhardt, Koehler, & Lundeborg, 2013), online PD may receive mixed reviews. In particular, research has shown that newer teachers and experienced teachers respond differently to PD (Fox, Muccio, White, & Tian, 2015). In order to assess the extent to which negative and positive perceptions of high school biology teachers are connected with different aspects of online PD, we used epistemic network analysis (ENA). ENA enables researchers to understand not only how qualitative codes are connected but also how those connections vary between different people (Shaffer, 2017). Specifically, these questions guided the investigation: 1. How do experienced teachers differ from newer teachers in their perceptions of the PD delivery format? 2. How do experienced teachers differ from newer teachers in their perceptions of asynchronous discussion during online PD?

Theoretical considerations

Teachers find interacting with their colleagues extremely useful, yet collaborative PD elements tend to be weak (Darling-Hammond et al., 2009). Face-to-face collaboration is the preferred method by teachers, but research shows that when teachers participate in face-to-face PD and online PD they encounter similar social interactions (McConnell et al., 2013). Recently, researchers confirmed that teachers find participating in an online course to be an efficient form of PD; teachers believed that the collaborative features and sharing of ideas helped them learn better (Koukis & Jimoyiannis, 2018). In order to take advantage of the collaborative potential of an online platform, we designed a 6-week online PD course. To promote social interactions, the fully asynchronous discussions were seeded with discussion prompts created by facilitators. By fostering socio-cultural learning, we intended for all teachers to have a high-quality experience, yet the learning patterns of newer teachers may be different than those of experienced teachers (Vermunt & Endedijk, 2011). The collaborative elements of online PD may afford newer and experienced biology teachers the necessary support they need to learn, but we need to better understand the perceived value that they place on different elements of PD by using novel analytical methods.

Methodology

Eight high school biology teachers participated in our online course; seven teachers were female; one was male. Teaching experience ranged from 0 to 20 years with an average of 8.4 years of experience. Post-interviews were conducted. The questions were constructed to probe differences in their experiences between face-to-face PD and online PD, and to probe their perceptions of the asynchronous interactions. Transcriptions were qualitatively mined. A coding scheme was developed. For each code, utterances were assigned a positive or negative perception value. To examine connections between the coded data, we used ENA. ENA is a novel method for analyzing coded data and representing the connections as dynamic network models (Shaffer, 2017). Network models can be created that reveal a teacher's value structure, in fact, we can create one model that represents the value structures of multiple teachers. ENA can compare the two summarized network models and determine if they are statistically different.

Results

The first research question investigated how teacher perceptions of PD delivery format differed between new teachers (6 years or less) and experienced teachers (10 years or more). The model for NEW teachers ($n=5$) had the strongest connection between positive perceptions of online PD and positive perceptions of colleagues. The model for EXP teachers ($n=3$) revealed strong connections to positive perceptions of face-to-face PD. To determine statistical difference, we compared the centroids. At the $\alpha=0.05$ level, the t-test ($t(4.22)=4.13$; $p=.01$) revealed a significant difference between NEW teachers ($M=-0.74$, $SD=1.06$, $N=5$) and EXP teachers ($M=1.24$, $SD=0.14$, $N=3$). NEW teachers reflected a positive perception of online PD—this was intertwined with a positive perception of their colleagues. EXP teachers had negative perceptions of the online PD and positive perceptions of face-to-face PD.

The second research question examined how perceptions of asynchronous discussion differed between NEW and EXP teachers. The network models for each group were similar. In reviewing the transcripts, we found that NEW and EXP teachers had similar reflections about the online discussions. An EXP teacher stated that “they were useful especially when I got confused that I could look and see that there were other people that had the same questions.” Similarly, a NEW teacher said, “I also found reading other people's responses helpful.”

Discussion and conclusion

Our findings revealed significant differences in how teachers perceive PD delivery format; experienced teachers had more positive perceptions of face-to-face PD while newer teachers had more positive perceptions of online PD. As we scale-up online PD, we need to be mindful of these perceptions. In this study, both new and experienced teachers had positive perceptions of the discussion prompts. It seems online discussions satisfy the unique learning needs of both groups; new teachers can acquire the support that they need, while experienced teachers can provide suggestions.

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