

## Online vs In-Person Professional Learning Communities: A Qualitative Comparison of Teacher Learning Experiences

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**Abstract:** Teachers today have increasing access to professional learning communities (PLCs) through a rapidly expanding menu of online professional development offerings. While a valued opportunity for growth, online PLCs can limit opportunities for co-teaching, pedagogical practice, and experiential learning. This paper examines a teacher professional development program implemented in 2022, where 14 middle school teachers joined either an online or an in-person version of a summer practicum in which PLCs were fostered. In both versions of the PD, teachers worked in small teams of co-teachers to learn and practice teaching middle school students about Artificial Intelligence (AI), a topic in which teachers were non-experts. Findings from qualitative analysis of teacher interviews suggest affordances and barriers to teacher learning online as compared to in-person PLCs. The paper offers recommendations for online PLC structure and co-teaching to enhance teacher learning.

### Introduction

Today, advances in online teacher professional development (oTPD) are making both online and in-person professional learning communities (PLCs) equally available. Yet, few studies empirically examine teacher learning experiences in oPLCs against teacher learning experiences in comparable in-person PLCs. Specific oPLC features and practices may substantially vary from in-person PLCs (Lay et al., 2020), and teacher learning experiences in the two community settings may be quite different. As teachers return to their in-person classrooms, questions arise as to how the affordances (and challenges) of online PLCs (oPLCs) compare to those of in-person PLCs. Research is needed to qualify distinguishing features of online and in-person PLCs, and better understand the specific needs for sustaining PLCs in each setting in a post-COVID-19 climate. This paper offers such a comparison along with recommendations for sustaining oPLCs as compared to in-person PLCs by reporting findings from a study of a teacher PD program called Everyday AI (EdAI). EdAI aims to prepare middle school teachers to teach their students about artificial intelligence (AI) in their regular school-day classrooms. EdAI comprises two phases: a book club followed by a summer practicum. Using a qualitative analysis of participating teacher interviews, this paper examines teacher learning experiences during the EdAI PD Practicum component and the PLCs that emerged to address the following research questions: 1) How do teacher learning experiences in online PLCs (oPLCs) compare to those in in-person PLCs? 2) What affordances and barriers to learning do teachers experience in oPLCs compared to in-person PLCs?

### The Everyday AI (EdAI) Project

Everyday AI (EdAI) is a PD project designed to develop teacher knowledge and sustain PLCs in AI education during the years of 2021-2023; thus, the project overlaps the later stages of the COVID-19 pandemic and, like many teacher PD projects, adapted to include an online setting. EdAI comprises two phases of PD: 1) the AI Book Club (ABC) (20 hours) followed by 2) the Summer Practicum (40 hours). Teacher learning from the Practicum is the focus of this report as it was in this phase that teachers formed new PLCs in either an online or in-person setting. In the summer Practicum, teachers formed co-teaching teams to implement the curriculum in 2-week long (3-hours a day) summer camps for middle schoolers. Each co-teaching team comprised 3-4 teachers and 2 veteran teachers with prior experience implementing the curriculum in their classroom. During the Practicum, teachers took turns leading instruction; those not leading instruction observed and helped co-lead small group activities. The Practicum comprised 2 variations in setting: an online and in-person setting. Teachers in the online version used Zoom for instruction, using the camera, microphone, chat, and reactions to interact in a variety of ways, as well as breakout rooms for small group work. Teachers used Slack or WhatsApp (depending on their team's preference) to communicate with each other, i.e., ask questions during the ABC, and coordinate instruction during the Practicum. Teachers in both in-person and online versions used nearly identical versions of Google Classroom and Slack or WhatsApp.

## Method

Teacher participants and interviewees from the EdAI project (n=14) were in-service teachers recruited from 4 large US school districts serving student populations largely from underrepresented groups in STEM and Computing. Teachers' subjects were Computer Science (64%), Science (14%), Library (14%), and English (7%). Seventy-seven percent of teachers were from demographic groups underrepresented in STEM fields: 79% female, 21% Black/African American, 14% Hispanic/Latinx; 36% identified as women of color. Participants decided to join either an in-person or an online Practicum based on location and availability (in-person, n=6; online, n=8). Teacher interviews, conducted by the research team, followed a semi-structured protocol, prompting teachers to share their experiences of the Practicum as well as their views of its benefits and drawbacks. Analysis of the interviews was guided by the research questions using an inductive thematic approach (Braun & Clarke, 2006).

## Findings

From the 14 teacher interviews, 3 themes of teacher learning experiences were shared across the online and in-person Practicums: learning of new AI concepts, positive feelings towards co-teachers, and enthusiasm for co-teaching. Three other themes distinguished the online from the in-person Practicums. These are detailed below.

### Comparison of teacher learning experiences

As teachers described their learning experience, some reflected on how they might transfer their learning to their classroom. Most teachers spoke about what elements of the curriculum they would modify to "make it work," yet teachers who participated in the online Practicums tended to focus on the amount of work needed to implement the curriculum in their classrooms. One teacher explained, "*the activities have to change so much from remote to in person*" another shared, "*I think it was tough being remote. Some of those activities, I have to figure out how I'm gonna do them in person still*". These reflections suggest that the learning experience from online teaching may not translate well to in-person teaching.

### Comparison of Professional Learning Communities (PLCs)

Teachers from the in-person Practicums described learning through observing their co-teachers. One teacher explained, "*We never get to see other teachers, how they actually teach, how they move in the room. How they interact with the students*". Conversely, teachers from the online setting described learning as something that emerged as they "*bounce ideas off of each other*" and engaged in discussion with their co-teachers. In-person teachers defined the quality of collaboration by the complexity of scheduling and getting all the teachers in the same place; whereas the quality of intra-team communication that defined the collaboration for online teachers.

### Affordances and barriers of online PLCs compared to in-person PLCs

Teachers from both groups described 3 features of their Practicum experience and PLC that afforded positive learning experiences for them: useful learning resources, the slow pacing of the book club, and the guided teaching experience. While teachers in both groups reported issues with pacing, those in in-person settings felt the pacing of implementation needed better coordination among co-teachers; whereas teachers in the online settings reported a variety of issues with pacing including the long length of the PD and the amount of material to cover in a short amount of time. Teachers in the online setting also tended to report greater exhaustion and fatigue than teachers in the in-person settings. Lastly, teachers in the online Practicum expressed concerns about student participation.

## Conclusions

Strategies for facilitating and sustaining effective professional learning communities (PLCs) vary by setting. This paper reports findings that emergent PLCs in both the online and in-person settings positively impacted teacher learning of a new, complex content (ie., artificial intelligence); however, special accommodations were needed to sustain a transformative collaborative learning environment in the oPLC that were distinct from the in-person version. These accommodations of oPLCs were: 1) strong communication channels for co-teachers, 2) protected time to rest and reflect, 3) a platform that fosters student engagement. Findings also suggest that teachers in oPLCs may be less likely than their in-person counterparts to learn pedagogical strategies from their co-teachers or transfer their learning to their in-person classrooms. Further research is needed to investigate these findings.

## References

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