

Researching Communities of Practice When Transitioning In-service Educator Training to Blended Learning

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Abstract: The New Jersey Department of Education sought to develop an online professional learning community for 150,000 educators in nearly 600 school districts. The authors present a post-project analysis of the project developed in support of Face-to-Face, Blended, and fully online learning situations. This project created an “Online Professional Learning Exchange” with blended online learning modules and was funded with over two million dollars. The greatest strength of the OPLE tool is to aid the state of NJ in shifting their training from expert delivery of knowledge in a face-to-face format towards the Community of Practice. The paper presents a Systematic Review of the Literature, an analysis of Professional Learning and Training Methods, and a description of the Methods to create Blended Learning Modules focused on video, written materials, polls, and discussions. Through this integrated approach, the OPLE allows users to master concepts that enhance their ability to provide more efficient and practical instruction to their students. Finally, the paper concludes with the results and implications in light of the current world developments and their impact on education.

Key words: communities of practice (CoP), blended learning, educational technology (EdTech), professional learning, instructional design

1. Introduction

In America, Professional Development (PD) for K-12 educators has traditionally consisted of lecturing and workshop presentations. The projects featured in the paper, however, leverage current technologies, relevant research (Adinda & Mohib, 2020; Blitz, 2013, pp. 2013, p. 3; Koller et al., 2005), and experience in Blended Learning in order to deliver content in an engaging manner and allow teachers more significant control over their PD experience. This paper presents a post-project evaluation of creating an online training system in New Jersey, USA, for its nearly 600 school districts. The New Jersey Institute of Technology (NJIT) was awarded a series of grants to Dr. James Lipuma from the New Jersey Department of Education (NJDOE) Document ID#324-201-50025, to gather a team and manage the creation of digital materials and videos to create an online professional development repository and tool for educators. Cristo Leon, MBA, assisted with Project and Strategic Planning Design. This project created *Blended Online Learning* modules and was funded with over two million dollars from September 2014 to November 2015, with its intellectual property rights ending in December 2021.

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The current article presents the analysis conducted from January 2022 to May 2022.

2. Development of Networks and Communities of Practice

The NJDOE sought to develop an online professional learning community for 150,000 educators in nearly 600 school districts. This article provides a post-project analysis of the “Online Professional Learning Exchange” (OPLE) with blended online learning modules to support Face-to-Face, Blended, and fully online learning situations. The article draws on collaborative models (Calvo & Sclater, 2021; Catana et al., 2021; DuBow et al., 2018; Shrum et al., 2007).

2.1 Professional Development

Traditionally PD activities involve educators passively absorbing information delivered via lecture. However, blended learning techniques integrate digital technology into learning experiences to improve learning. Thus, space and time are not the limiting factors of education.

2.2 Objective

The OPLE construction aimed to create a platform to convey a fixed set of materials and allow other initiatives to generate effective PD for in-service teachers. *Key Resources* included videos of practitioners implementing the types of lessons accompanied by lesson plans and voice-over commentaries from the educators featured, the administrators who would be evaluating them, and outside subject matter experts where appropriate. These skill-building tutorials accompanied lesson plans and instructional information on the teaching practice activity or formative tool.

3. Theoretical Framework

Our retrospective review of the materials provided is a mixed-method approach. We had exploratory elements to determine effective practices utilized in the OPLE. Subsequently, new insights were discovered as the authors continued research into communities of practice and the collaborative convergence research approach. The Collaborative Convergence Pyramid (CCP) is a framework to analyze and understand large system change initiatives involving many stakeholders and partners from multiple sectors with varying levels of engagement and interest. In this case, the OPLE was working to change the education system by leveraging a range of public, private, and non-profit partners and many stakeholders from society represented by educators and administrators.

During the development of the OPLE, we employed the ADDIE model as a guiding framework to structure our investigation methodology. First, the needs of OPLE’s purpose and target participants were explored, and the “needs assessment” was conducted. Next, the OPLE went through iterative design and development based on best practices in the literature. Next, the Researchers conducted pilot testing with focus groups to identify updates during the implementation phases as the user interface and content were optimized. Finally, as the whole system was rolled out, the content and delivery evaluation by the sponsor and participants was handled with surveys and observations.

In the context of a post-completion review, the researchers revisited the employed system to scrutinize the analytical data and associated outputs through the lens of the newly introduced CCP framework paradigm. This approach facilitated a comprehensive assessment of the community of practice and multi-sector stakeholder group collaboration. Furthermore, by recognizing the significance of a collaborative framework and its role in fostering

community engagement in acquiring new skills and methods, this examination generated fresh perspectives on the subject project and its analogs.

4. Participants

Leaders like the NJ commissioner of NJDOE, the director of the Principals Supervisor's Association, and representatives of other state agencies and educational interest groups worked with Dr. Lipuma and his team from CLEAR to co-design the work. The Pilot tests with the educational stakeholders informed the work. In the end, there were over 10,000 participants in the tests, and the videos comprising the persistent presence of the OPLE have varying views on YouTube, ranging from under 100 to nearly 100,000. The project cannot disclose specific data or user details as the authors do not have permission to share disaggregated data or other aspects of the research. Due to the IRB restrictions and the contract between NJIT and NJDOE, we cannot disclose details of the participants, intellectual property, or other development elements now owned by the state of New Jersey.

5. SRL Review

The present study utilized a "Systematic Review of the Literature (SRL)" (Frey, 2018, p. 983; Ramírez-Montoya & García-Peñalvo, 2018) as a methodological approach for identifying the most pertinent studies in the field of Pedagogical Content Knowledge. The SRL strategy drew from three specific areas of research: Education, Administration, and Information and Communication Technology (Brereton et al., 2007; Higgins et al., 2019; Newman & Gough, 2020). The outcomes of the SRL served as a referential mapping tool for determining the essential sources. The "GPS model" yielded the most influential articles. The "GPS model" proposed by Yáñez León et al. (2021) was employed to identify the most influential articles.

6. Blended PD

Beyond just Blended learning, educators should be encouraged to establish online communities of practice (Gray & Smyth, 2012; Holmes et al., 2014; Riveros et al., 2012). This mode takes many forms (Alammary et al., 2014), depending on how the process is implemented, allowing students to control the time, place, and pace of learning. Simply put, blended learning adds technology tools to augment face-to-face instruction. However, at more advanced levels, these tools for digital learning allow the instructor to expand contact time beyond the synchronous classroom in order to provide the students the opportunity to work through activities (Chen, 2012), access resources, have a forum for discussion and/or engage with class materials, peers, or professors and other professionals at their own time and in ways that best fit the style and pace of learning of the individual student. For educators, this integration may not be accepted nor seem seamless. Many educational training providers offer live webinars for questions, answers, and feedback. Videos of these events may be made available for review after the event. One significant drawback to these videos is that locating specific materials for convenient and efficient review is difficult. This issue can be solved with videos that are pre-sourced by the PD provider, or when those are not available, learning objects that are tailor-made for the PD session by the provider directly.

Often educators search the open Web for resources, requiring the investment of time. What is found lacks focus, can be out of context, and is rife with inaccuracies or errors, rarely vetted or peer-reviewed. The OPLE model was designed to overcome these issues. This project developed a range of video types that effectively allow

educators to learn content, see demonstrations, access examples, and share their ideas and questions with the group. Videos play a vital part in the enhancement of education. They can explain the content in various ways for different learning styles and be accessed at any time and place. Video allows students to review content as often as needed, stop to take notes, or see material for the first time if they missed class. “Video allows educators access to demonstrations and explanations that might not be available otherwise due to limits on time, resources, access, or even safety issues” (Lipuma & Reich, 2016). “In conjunction with video and other materials to create knowledge objects, the activities and assessments combine to create persistent learning objects aligned for effective education” (Biggs, 1996; Kirby & Lawson, 2012).

7. Rationale and Results

The OPLE allows for user mastery of concepts that enhance their ability to provide more efficient and effective instruction to their students. Users progressing faster can access the following learning objects and move on to the next section. In contrast, other users may review portions of the material several times until they are comfortable with the content. Some users may use various resources that extend or delve deeper into the didactic material. This technology enables learners to be more self-directed and informed instructors for the given content. An essential aspect of an OPLE is the continued development of more modules and content. OPLE content can be disciplinary in order to deepen educator knowledge of content, aid their pedagogy, and/or assist in curriculum planning.

Moreover, OPLE can be more than just a tool for training. It can facilitate the effective engagement of educators in communities of practice. These efforts can assist Professional Learning Communities (PLCs) in working together to unpack standards and develop curriculum, breaking it into units, and working their way down to lessons that better align instruction with desired student learning outcomes.

7.1 Discussion

There are numerous benefits to the approach taken by the OPLE project over many traditional forms of PD. The OPLE model enhances traditional PD by allowing the individual learner to control the PD experience and enhances small-group PLCs by adding a blended learning component while integrating isolated PLCs into the larger online community. The goals and content of each module are contextualized and vetted so that the educator does not need to search the Web and filter out a large amount of irrelevant information to find the information they need. Users may view the material via YouTube as often as they like (Figure 1). The project materials have been provided openly to the public via the “Blended Online Learning Modules” NJ DOE website (Department of Education, 2020) as well as the “Curriculum Learning and Assessment Studies (CLAS) Network YouTube Channel” (Lipuma, 2015).

Groups of educators may use modules simultaneously and place them to guide the discussion of concepts and topics. All districts in NJ were provided access to the materials synchronously and asynchronously, reaching 20,000 total users. These each represented different groups of educators and administrators using the materials. Its users regularly access the OPLE for content and as a way to facilitate and manage conversations. However, in the end, it was found that without the critical elements for an influential community of practice, pockets of users gained the content knowledge but did not continue the interactions once the oversight was removed and essential content concepts were learned. The critical factors in effective Community of Practice (CoP), according to the literature review (Pyрко et al., 2017; Tucker & Seavey, 2018; Wenger, 2000), are Mutual engagement, Joint

enterprise, and Shared repertoire.

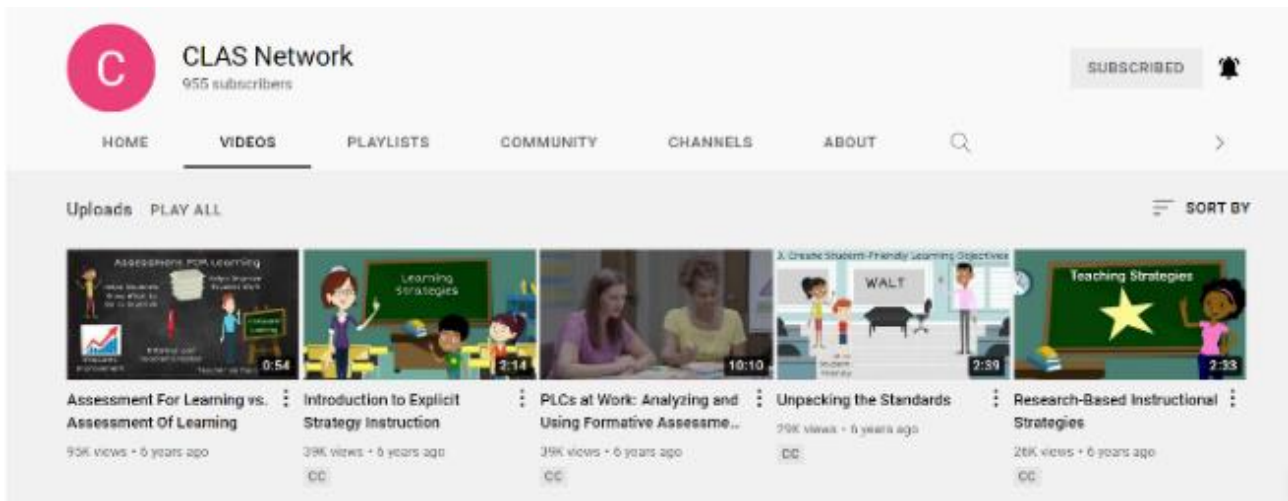


Figure 1 CLAS Network — YouTube [YouTube Channel]

7.2 Considering Sustainability

One key aspect of building and maintaining a community of practice is the value added that serves the participants’ interests. Without new value or new participants, PD will eventually reach saturation. With the advent of YouTube and social media, simple OPLE can expand to a channel.

The content mentioned above pertains to a STEM for All video, as presented in Figure 2, which the author’s NSF has produced INCLUDES project, as well as other ongoing outreach endeavors undertaken at NJIT. Dr. Saikat Pal and his associates, consisting of undergraduate and graduate students from NJIT's BioMedical Engineering department, have contributed significantly to this initiative. They have created videos to promote STEM education and facilitated virtual laboratory tours to showcase practical applications of STEM. Dr. Pal’s team had also undertaken in-person outreach efforts targeting schools.



Figure 2 STEM for All Showcase Submission

7.3 Current application of Virtual PD

Several outgrowths of this work would allow for more significant value-added to communities of practice. Many educators and administrators requested access to the spaces and subject matter experts to understand better the work being done at universities and corporations. Several virtual tours and outreach activities have been undertaken. Due to the disruption of the COVID-19 outbreak in NJ, many of these have been virtualized. For example, Dr. Pal visited schools and sent undergraduates and graduate students to schools to assist with PD. His students now create videos and run live-stream events for teachers and students. Virtual tours of the NJIT maker space and his lab are available asynchronously and in a hosted modality, allowing educators to see these applications in practice and ask questions. These and other such opportunities are a direct outgrowth of the work on the OPLE and the desire of educators to interact directly with SEM professionals and have their students see the real-world application of the lessons being taught and the standards being attained.

8. Conclusions

Any effective community of learners like the OPLE must foster communities to engage and add value for members. The OPLE also will be an effective medium for sharing best practices and seeking help from colleagues and experts. The tool's greatest strength is to aid the state of NJ in shifting its training from expert delivery of knowledge in a face-to-face format towards the community of practice model. In this way, the best practices and research around engaging and growing community interest can lead to sustainable and scalable results over time. The initial charge given for creating the OPLE was to include the community-building tools of online learning. Ongoing activities supported this; by the end of the five-year life cycle of the project, 20,000 users had engaged with the materials. However, once training succeeded in providing the needed learning, and the learning objects became a resource rather than a springboard to a vibrant community of practice. Further discussions and research must be conducted to examine the idea that an OPLE can catalyze a community of practice.

Overall, the OPLE project demonstrates the importance of collaboration, innovation, and research in developing effective professional development programs for educators. With ongoing advancements in technology and new insights from research, the potential for creating more engaging and effective professional development programs is vast, and the OPLE serves as an example of what can be achieved with the right approach.

Acknowledgments

The authors acknowledge significant funding from the New Jersey Department of Education and seed funding from Roche for our efforts.

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