Cultivating a Blended Community of Practice to Promote Personal Learning

By

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Abstract

The purpose of this mixed-methods case study was to examine the effectiveness of a blended learning community of practice model in providing professional development to improve K-12 teacher’s self-efficacy in the implementation of personal learning. Eighteen teachers participated in a 9-month professional development focused on personal learning. Participants took pre and post self-efficacy tests based on 9 personal learning constructs. Qualitative data was collected from feedback surveys, online postings, and individual interviews. Teachers demonstrated greater levels of self-efficacy with regard to the implementation of personal learning after their participation in the professional development community. They reported increased confidence with regard to personal learning in the areas of planning, risk-taking, implementation, continuous improvement, and sharing their knowledge with others. Teachers developed additional competencies such as an increased knowledge of their students and skills related to technology, design, problem-solving, and facilitation. Teachers developed new dispositions such as flexibility and open-mindedness. Teachers found that elements of personal learning could be implemented without technology, but recommended the integration of technology to effectively implement personal learning across all nine constructs. The online components of the blended design, enhanced the teachers’ sense of community and helped to facilitate collaborative, interdisciplinary work.
Introduction

The implementation of personal learning has remained an uncertain and challenging space for most teachers to navigate even as it has received increased attention in PK-12 learning (Keefe, 2007; Pane, Steiner, Baird, & Hamilton, 2017). It is unsurprising that teachers are often unclear about what personal learning looks like in the classroom given the paucity of research about implementation. Minimal research has been done about the preparation of teachers to implement personal learning though professional development has been identified as critical to effective implementation (Bingham, 2016; Lin & Kim, 2013; Williams, Moyer, & Jenkins, 2014). There is a need to offer teachers professional development that helps them both clarify and construct their own understandings of personal learning while developing the knowledge and skills to apply it in classrooms.

National Context

There have been frequent calls for educational reform in the United States throughout much of the history of public schools. In 2005, Achieve, Inc. published a study in which recent high school graduates, their college instructors, and their employers cogently argued the need for more rigorous courses and higher expectations in high school because students were not sufficiently prepared for college and careers (Achieve, 2005). College and career readiness has become an urgent priority of the nation’s education agenda because the global, knowledge-based economy of today requires a better-educated workforce than previous generations. In the 20th century manufacturing economy, a high school graduate was able to earn a middle-class wage, however, by 2020, 65% of all jobs will require some form of postsecondary education or training (Symonds, Schwartz, & Ferguson, 2011). Further, a new study, Building a Grad Nation: Progress and Challenge in Raising High School Graduation Rates, reported the number of
schools with low graduation rates is actually growing (Civic Enterprise & the Everyone Graduates Center, 2017). The need for educational reform has perhaps never been more urgent than today.

Another related concern has been student performance scores on standardized tests. Although the number of low-performing students in science in the United States decreased by approximately 6% between 2006 and 2012, the number of low performers in mathematics and reading has remained consistent since 2003 (OECD, 2016). The most recent National Assessment of Educational Progress (NAEP) report documented that the gap between high and low-achieving students widened on a national math and science exam (National Center for Education Statistics, 2017). Nationally, only 37% of fourth-graders were considered proficient in reading, and just 40% reached this benchmark in math on the 2017 exam (U.S Department of Education, National Assessment of Educational Progress, 2017). Thirty-six percent of eighth-grade students were considered proficient in reading, and just 34% in math (U.S Department of Education, National Assessment of Educational Progress, 2017).

Several policy and reform recommendations have been made to address these far-reaching concerns. One of the most popular of these reforms has been “personal learning” (PL). In 2012, the U.S. Department of Education offered a 4.35-billion-dollar competitive grant opportunities known as Race to the Top to address deficits in college and career readiness and low performing students (U.S Department of Education, 2012). The first priority of these grants was the development of personalized learning environments (U.S. Department of Education, 2012). In 2014, the Next Generation Learning Challenges (NCLG) offered $7.2 million in grants to schools who developed plans to launch personalized, competency-based programs (Next Generation Learning Grants, 2014).
Policy-makers included more assessment flexibility in the federal Every Student Succeeds Act (ESSA) in 2015 hoping to prompt additional innovations in the area of personal learning at the state level (Murphy, 2017). About 20 states included elements of personalized learning in their Every Student Succeeds Act plans. Chip Slaven of the Alliance for Excellent Education, however, stated that states' ESSA plans have not met overall expectations for innovation in schools, particularly in the area of personal learning (Murphy, 2017, par 7). This is largely because no clear and consistent definition for PL exists nor has the federal government provided any additional guidance for designing policies, practices, and supports, including professional development, to promote personalized learning (Murphy, 2017, par 7).

These various calls for reform, funding tied specifically to the goal of personalizing education for students, and the inclusion of some type of personal learning vision in the ESSA plans of almost half of the states has encouraged some districts in the United States to include personal learning in their strategic plans, mission statements, and professional development agendas, but there is a lack of clarity and consistency about what PL really means and the best ways to support classroom implementation.

**Local Context**

Many school districts have updated their mission statements and goals to include the personalization of learning for students in order to address significant social and economic changes. This study explores how one district is addressing these changes in light of the pressing challenge to retool schools. The Clayfield Township Schools is a comprehensive public-school system serving students in pre-kindergarten through twelfth grade in New Jersey.¹ The district serves just under 4,000 students and is comprised of eight schools including a K-12 alternative

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¹ All proper nouns related to the research site and participants are pseudonyms.
school serving students from surrounding counties in addition to local residents. The district has approximately 350 classroom teachers. The Clayfield Township Schools adopted the following mission statement in 2014-2015 to reflect a new approach to education:

**2014-2015 Mission Statement.** The Clayfield Township Schools strives to create a safe, caring, and rigorous learning environment responsive to the individual needs and interests of our students offering programs of studies consistent with the Common Core State Standards, New Jersey Core Curriculum Content Standards, and 21st Century College and Career Readiness. Central to our programs are relevant, real-world learning experiences that stimulate and encourage curiosity, effective communication, goal setting and problem-solving skills while providing opportunities that promote creativity, self-expression, physical/emotional wellness and an appreciation of diversity. All students are provided with personalized learning experiences, critical thinking and technology skills needed to become thoughtful, responsible and productive citizens making contributions in local and global contexts fostering respect and accountability in all of their actions (Clayfield Township Schools, 2013).

Personal learning was also embedded in the Board and district goals. In the fall of 2015, the Board of Education requested a quarterly update on the progress of the personal learning initiative. Preliminary data revealed that there was no consistent definition or common language being used for PL, a local finding that resonates with current literature. The majority of teachers, or 86%, received no professional development on personal learning as indicated on a district professional development survey. To address the lack of understanding of PL, a professional development innovation focused on personal learning was developed, which formed the basis for this study.
The Innovation

The Personal Professional Learning Cohort (PPLC) was designed to address many of the perceived barriers to the implementation of personal learning, using the Communities of Practice (CoP) framework and a blended learning approach. Key goals of the program included implementing a district-wide framework for personalization as well as enhancing teacher self-efficacy with regard to the use of personalization strategies in the classroom.

The teacher cohort participated in a blended approach to professional learning, engaging in face-to-face learning and sharing sessions as well as online components. Face-to-face sessions focused on specific themes while encouraging flexibility based on the needs of the participants. These sessions also included design time in which teachers could apply their new learnings to the development of personal learning lesson plans and unit plans. Online activities served as extension of the face to face sessions and included online discussions and activities administered through a learning management system. As noted in Table 1, there were a total of ten different sessions.
<table>
<thead>
<tr>
<th>Session</th>
<th>Essential Question</th>
<th>Learning Topics</th>
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</table>
| 1       | What is PL and why do we need it?                                                  | • The Changing Educational Landscape  
            • Developing a Common Language  
            • Design Thinking |
| 2       | Who are our students and how do we meet their needs?                                | • Empathy Mapping  
            • Universal Design for Learning  
            • Learner Profiles/Learning Plans |
| 3       | How does student responsibility impact achievement?                                 | • Teacher and Student Roles  
            • Building Executive Function Skills  
            • Building Student Responsibility |
| 4       | How do we shift to a student centered/led classroom?                                | • Technology Infusion vs Blended Learning  
            • Learning vs Practice  
            • Designing Learning Centers  
            • Discussion Protocols Leveraging Technology |
| 5       | How do I collect and track meaningful data?                                         | • Powerful Facilitation  
            • Formative Assessment  
            • Tiers of Learning  
            • Teacher Cloning |
| 6       | How do I create meaningful performance based assessments?                           | • Transfer Tasks  
            • Authentic Audiences  
            • Rubrics  
            • Personalized Problem Based Learning |
| 7       | How can I leverage blended learning for personalization?                            | • Blended Teacher Competency Framework  
            • Planning for Blended Learning  
            • Digital Content (Curating and Developing)  
            • LMS: Canvas |
| 8/9     | What does PL look like in other schools?                                            | • Visits to Innovative Schools  
            • Virtual Field Trips  
            • Developing Professional Networks |
| 10      | What have we learned and accomplished?                                              | • Reflecting on Goals  
            • Sharing and Celebrations  
            • Presentations |
Purpose of the Study

The purpose of this study was to examine the effectiveness of a blended learning community of practice model in providing professional development to improve K-12 teacher self-efficacy with regard to the implementation of personal learning. The research questions was: RQ1: To what extent does participation in a blended learning community of practice affect K-12 teachers’ knowledge, skills, and self-efficacy for implementing personal learning?

International Society for Technology Education Standards

This study is directly related to the International Society for Technology Education (ISTE) Educational Leader Standard 3, Empowering Leader: Leaders create a culture where teachers and learners are empowered to use technology in innovative ways to enrich teaching and learning (ISTE, 2019). Specifically, education leaders empower teachers to exercise professional agency, build leadership skills, and pursue personalized professional learning, inspire a culture of innovation and collaboration that allows the time and space to explore and experiment with digital tools, support educators in using technology to promote learning that meets the diverse learning, cultural, and social-emotional needs of individual students, and support the development of learning assessments that provide a personalized, actionable view of student progress in real time (ISTE, 2019).

Literature Review

Personal learning (PL) has been a controversial concept that means different things to different people depending on the experience and perspective of the observer as well as the context in which it was referenced. Differences in definitions and approaches to personalization have caused confusion over the past several decades (Keefe, 2007). To some, personal learning is a synonym for blended learning; to others, it implies voice and choice for students; whereas
some might define it as project-based learning. This elucidates the necessity of having a common language within an organization attempting to implement personal learning but it also indicates the importance of continued and open conversations and communication among educational institutions and experts to move toward a common and complex understanding of personal learning.

**Personal Learning**

Personal learning is not a new concept. Elements of personalization can be traced to a variety of different educational approaches or philosophies including classical education, child-study, humanist education, progressive education, and individualized instruction. The earliest formal use of the word “personalized” can be found in the Personalized System of Instruction (PSI) introduced by Keller and his colleagues at the University of Brasilia in 1962 (Keefe, 2007). Keller’s (1968) PSI included the following components: (1) The ability for students to move at their own pace; (2) Mastery-based learning; (3) Lectures and demonstrations as vehicles of motivation, rather than sources of critical information; (4) Emphasis on the written word in teacher-student communication; and (5) The use of proctors which permitted repeated testing, immediate scoring, and tutoring.

Although PL is not a new concept, it has been revitalized as a part of recent educational reform movements and funding tied to the initiative. Further, the increased availability and affordability of technology has resulted in calls to leverage technology to personalize learning for students. The U.S. Department of Education included personalization as part of their 2010 and 2016 Technology Plans (U.S. Department of Education, 2010, 2016). Many curriculum and educational technology companies cited personal learning as one of their main selling features,
as parents demand more personalized approaches for their children (Bray & McClaskey, 2015; Keefe, 2007), yet there is still an absence of consensus on what is meant by PL, despite the increased focus on personalization. Planning and implementation for schools has been difficult because of this lack of consensus and concerns and critiques of PL plentiful.

Although there has been much dialogue about the meaning of personalization, there has been little research on the effectiveness of personalization on student learning. Perhaps because it is difficult to measure what you cannot define. Nevertheless, two important studies have been conducted. Pane, Steiner, Baird, and Hamilton (2015) at the RAND Corporation completed a study of 62 public and charter school districts that received NGLC grants to implement personal learning to support the implementation of college-ready standards. The report acknowledged that personal learning has been around for some time, but the adoption of such approaches has increased significantly, in part due to rapid advances of technology platforms and digital content, which have been used to personalize learning. Pane et al. acknowledged there was not yet one shared definition of personal learning, but claimed practitioners in the field generally looked for three characteristics:

(1) systems and approaches that accelerate and deepen student learning by tailoring instruction to each student’s individual needs, skills, and interests; (2) a variety of rich learning experiences that collectively prepare students for success in the college and career of their choice; and (3) teachers’ integral role in student learning: designing and managing the learning environment, leading instruction, and providing students with expert guidance and support to help them take increasing ownership of their own learning. (pp. 2-3)
Pane et al. admitted that there was considerable variety in the instructional models of the schools studied, but they identified five strategies that typified personal learning environments which was based on a framework developed by the Bill and Melinda Gates Foundation. Each strategy encompassed a set of tools or features of the personalized learning environment, some of which were central to the approach whereas others might be viewed as enablers of the approach. The personalization framework included the following:

1. Learner profiles: Learner profiles are records of student’s individual strengths, needs, motivations, progress, and goals used to inform learning. Goals are generated cooperatively by teachers and students. Student data is generated from multiple sources including projects, tests, presentations, quizzes, and software. Student data are provided to students, and teachers and students discuss these data.

2. Personal learning paths: Students are held to performance standards but the school model allows for multiple pathways to achieve and demonstrate mastery of these standards. Students make choices about the content and structure of learning and the school uses varied instructional strategies and curriculum materials to meet the needs of all learners. Time for one-on-one academic supports is built into the school day and there are opportunities for students to engage in meaningful learning experiences outside of school.

3. Competency-based progression: Student progress toward clearly defined goals is consistently assessed. Assessment occurs “on demand” when a student is prepared to demonstrate competency. Assessments are varied and students advance or earned course credit as they demonstrated competency, moving at their own pace.
4. Flexible learning environments: The school uses elements of the learning space, such as size, classroom organization, and furniture to support the implementation of PL. Schools also leverage staff and time in flexible ways to support personalization. Student learning time and student grouping strategies are flexible, data-based, and responsive to student needs. Technology is often a key aspect of the model and available to all students.

5. Emphasis on college and career readiness: Curriculum, activities, and programs are designed to promote college and career readiness in terms of academic and non-academic skills. Examples included college visits, college level courses, internships, or career surveys. Student advisory strategies and other aspects of the curriculum develop skills and competencies beyond academic content to include “habits of mind,” “learner identity” or “student agency.”

In this study of 62 public and charter schools that received the NGLC grants for personal learning, Pane et al. found positive effects on student performance in reading and mathematics and the lowest performing students made substantial gains relative to their peers (Pane et al., 2015). Scores grew substantially relative to national averages and results were widespread with the majority of schools having statistically significant positive results. No single personalized learning element distinguished the successful schools from other schools in the sample; however, Pane et al. identified groups of elements that distinguished the successful cases from others when present together. The three elements included student grouping in which grouping strategies were flexible, dynamic, and responsive to student needs; data discussion where students were provided with their own student data and included in discussions about how the data related to
student’s learning goals; and learning space, particularly as the learning space supported grouping strategies.

In a follow up study, Pane, et al., (2017) identified several benefits associated with personal learning. The PL structures allowed for more one-on-one time instruction between teachers and individual students. Additionally, teachers were able to maximize flexible grouping strategies based on student data. There were also modest gains in test scores. Students attending a PL school scored 3 percentile points better than a student with average test scores in a traditional school. The gains occurred in both reading and math but only the math scores were statistically significant. Students in PL schools who started the year academically behind also made up slightly more ground than comparable students in traditional schools. Pane et al. (2017) also found a cumulative improvement in student test scores after schools completed their second year of implementing PL. It is important to note that Pane et al. (2017) also identified some challenges associated with the implementation of PL and cautioned that more research is needed. Challenges included a lack of sufficient teacher PD, teachers not having sufficient time to develop customized lessons for each student, balancing the competing priorities of PL, collaborative learning, and meeting common standards, as well as a lack of high quality digital instructional materials to support implementation. Additionally, some of the teachers reported that when students were able to move at their own pace, many of the students moved too slowly based on current requirements.

**Professional Learning**

Critiques of professional learning are plentiful (Cole, 2004; & Elmore, 2004; Fullan, 2007; TNTP, 2015). Concerns related to the effectiveness of PD increased during the NCLB era,
as many teachers received PD of a very short duration, resulting in a decline in access to sustained learning opportunities (Darling-Hammond, Wei, Richardson & Orphanos, 2009; Hill, Beisiegel & Jacob, 2013). We know, however, that effective PD can lead to gains in student achievement. Darling-Hammond, Hyler & Gardner (2017) reviewed more than 35 studies on professional development, all of which resulted in positive outcomes for student achievement when particular factors were present. Darling-Hammond, Hyler & Gardner (2017) have identified 7 design elements of effective PD: which were used in the design of the PPLC: (1) Content Focus; (2) Active Learning; (3) Collaboration; (4) Use of Models and Modeling; (5) Coaching and Expert Support; (6) Feedback and Reflection; and (7) Sustained Duration.

**Blended Learning**

There is currently no standardized definition for what constitutes blended learning, although most agree that it consists of a combination of face to face and instructional online strategies. The disagreement arises with regard to the degree to which each is implemented or integrated. Zenger and Uehlein (2001) argue that blended learning does not occur simply by adding a few online strategies to a traditional classroom. Successful blended learning requires an integrated approach and the blend of methods should depend upon the needs of the students and the school (Zenger and Uehlein, 2001). Allen, Seaman, and Garrett (2007) are more specific in their definition determining that blended courses must have between 30-79% of the course content delivered online. Horne and Staker (2014) also made a distinction between blended learning and technology rich instruction arguing that in blended learning the Internet is leveraged to provide students a more personalized learning experience leading to increased student control over the time, place, path or pace of learning. The PPLC was designed using the Horne and Staker definition of blended learning.
In developing the PPLC, blended learning was used as a modality and as part of the content because it can help teachers to transition from more traditional teacher-centered instruction to more student-centered, active, personalized classrooms (Christensen, Horn, & Staker, 2013; Gemin, et al., 2015). Blended learning has been shown to enhance learning outcomes when compared with traditional face-to-face classrooms (Bernard, Borokhovski, Schmid, Tamim, & Abrami., 2014) and online classrooms (Chen, 2012). This is particularly true when the learning takes place through collaboration and community building (Agosto, Copeland, & Zach, 2013) hence the integration of the blended learning and community of practice models.

Blended learning was also used as the modality for the PPLC to extend the learning beyond the face to face sessions and to connect teachers across multiple schools as well as with experts outside of our school. Belland, Burdo, and Gu (2015) recommend that PD programs offer flexible learning using a blended learning approach. Further, PD should provide models of instructional strategies, including implementation to connect what is learned in the PD course to their existing classrooms (Belland, Burdo, & Gu, 2015; Darling-Hammond, Hyler &Gardner, 2017). The goal was for teachers to gain a better understanding of how to leverage blended learning to personalize instruction by participating in a blended, personalized PD. Additionally, blended learning has been shown to be an effective PD modality to promote sustainable change in educational practice, particularly in difficult teaching situations (Acree, Gibson, Magnum, Wolf, Kallogg, & Branson, 2017; Graham, Woodfield, & Harrison, 2013; Onguko, 2014; Moore, Robinson, Sheffield, & Phillips, 2017).

Theoretical Perspectives

**Self-Efficacy.** The construct of self-efficacy refers to an individual’s belief in his or her capability to “organize and execute the course of action required to manage prospective
situations” (Bandura, 1997, p. 2). It is a task-specific belief that regulates choice, effort, and persistence in the face of obstacles and in concert with the emotional state of the individual (Bray-Clark & Bates, 2003). Expectations of personal efficacy determine how much task-related effort will be expended, how long that effort will be maintained, and whether an individual’s coping behavior will be initiated (Bandura, 1982).

Research has indicated a positive relationship between self-efficacy and different motivational and behavioral outcomes in clinical, educational, and organizational settings (Stajkovic & Luthans, 1998). Self-efficacy has been consistently recognized as an important attribute of effective teaching and has been positively correlated to teacher and student outcomes (Tshannan-Moran, Hoy, & Hoy, 1998). Evidence suggests that positive self-efficacy beliefs can increase the extent to which teachers are willing to transfer skills learned through professional learning to the classroom (Bray-Clark & Bates, 2003). Additionally, research has also shown that teachers with high levels of self-efficacy tend to explore more alternative methods of instruction, seek improved teaching methods, and experiment more extensively with instructional materials (Allinder, 1994). Further, directing resources at enhancing self-efficacy can initiate and sustain an on-going process of individual improvement because of the nature of the reinforcing feedback cycle, a cycle in which initial increases in self-efficacy beliefs lead to increased teacher effectiveness that in turn enhances subsequent self-efficacy beliefs (Bandura, 1991).

Communities of Practice. Communities of practice are defined as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger-Trayner & Wenger-Trayner, 2015). Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human enterprise. Wenger (1998) identified three dimensions of communities of practice: mutual
engagement, joint enterprise, and shared repertoire. These dimensions were later updated to identify three critical elements that constitute a community of practice:

1. The Domain: A community of practice has an identity defined by a shared domain of interest.

2. The Community: In the process of pursuing their domain, members engage in joint activities and discussions, help each other, and share information. The relationships they develop help them to learn from one another. Members must interact and learn from one another for a community to be a community of practice.

3. The Practice: Members of a community of practice are practitioners. They developed a shared repertoire of resources such as experiences, stories, tools, techniques, and approaches to problem solving. They develop a shared practice. (Wenger, McDermott, & Snyder, 2002; Wenger-Trayner & Wenger-Trayner, 2015).

The concept and of communities of practice has been applied to different types of organizations and has been shown to have a positive impact on learning and improving the efficacy of work (Brown & Duguid, P., 1991; Goddard, Hoy, & Hoy, 2000; Hoadley, 2012; Lin & Kim, 2013; Wenger, 1998; Wenger, Trayner, & de Laat, 2011; Wenger-Trayner & Wenger-Trayner, 2015). Wenger, McDermott, & Snyder (2002) identified several benefits of implementing communities of practice (CoPs), both to the individual and to the organization. They describe both short-term and long-term value. In the short-term, an employee can get help with an immediate problem, receive multiple perspectives on an issue, and practice risk-taking and problem-solving in a supportive, collaborative environment. In the long-term, this structure helps the employee to develop professionally and engage in productive ongoing practices. Ultimately, they connect
professional development and the strategy of the organization (Wenger, McDermott, & Snyder, 2002).

Over time, the concept of community of practice has evolved from a descriptive one (Lave, 1987; Lave & Wenger, 1991) to a more prescriptive one (Cox, 2007; Wenger, McDermott, & Snyder, 2002). Communities of practice occur naturally, but can they be cultivated? Wenger, McDermott, & Snyder (2002) developed seven design principles for cultivating a community of practice which were leveraged in the design of the PPLC: (1) Design for evolution; (2) Open dialogue between inside and outside perspectives; (3) Invite different levels of participation; (4) Develop both public and private community spaces; (5) Focus on value; (6) Combine familiarity with excitement; and (7) Create rhythm for the community.

Method

This study employed a mixed-model design in which the quantitative and qualitative methods were implemented concurrently for the purposes of triangulation (seeking convergence and corroboration of results from different methods and designs studying the same phenomenon) and expansion (seeking to expand the breadth and range of research by using different methods for different inquiry components) (Johnson & Onwuegbuzie, 2004; Mertler, 2014).

Participants

The participants consisted of 18 K-12 teachers from across the district, drawn from volunteers for the PD. The teachers volunteered for the program by completing an application to be a part of the PPLC. For this particular study, it is necessary for teachers to self-select into the program because of the amount of extra work that will be required for the project and collective bargaining agreements. That being said, the goal was to try to create a representative sample by selecting teachers of varied genders, education levels, years of experience, teaching assignments,
and schools. All 18 of the participants contributed to the qualitative data; however, only 15 of the participants completed the self-efficacy post-test.

Sixteen of the participants were female. Eight of the participants were general education elementary teachers and 2 of the participants were elementary special education teachers. Ten of the teachers taught secondary education with 5 teaching middle school students and 4 teaching high school students. Secondary subjects included English language arts (ELA), science, social studies, math, business, world languages, and health and physical education. The participants varied in their years of teaching experience. Four of the teachers had between 1 and 4 years of teaching experience and were therefore non-tenured teachers. Five of the teachers had been teaching between 5 and 10 years. Five of the teachers had been teaching between 11 and 15 years. Two of the participants had been teaching between 16 and 20 years and two of the participants had more than 20 years of teaching experience. All 7 district schools were represented by this participant group.

Quantitative Measures

Quantitative data was be obtained by administering self-efficacy surveys to teachers before and after the intervention. The self-efficacy scale is based on Bandura’s (2006) one hundred-point scales of perceived competence in which individuals are asked to rate themselves on their perceived competence, or what they “can” do. Participants were presented with items portraying different levels of task demands and asked to rate the strength of their belief in their ability to execute the requisite activities. They recorded the strength of their efficacy beliefs on a 100-point scale, ranging in 10-unit intervals from 0 (“Cannot do”); through intermediate degrees
of assurance, 50 (“Moderately certain can do”); to complete assurance, 100 (“Highly certain can do”).

I administered the self-efficacy pre-test to participants (N=18) prior to beginning the PD. The post self-efficacy survey was administered after teacher participation in the PPLC and completed by 15 of the participants. To minimize response bias, self-efficacy judgments were recorded privately, a nondescript title was used on the appraisal inventory, and the importance of frankness on the survey was explained to participants in the context of the importance of the research.

Plano Clark and Creswell (2010) asserted that scores from a data collection instrument must be reliable, meaning the extent to which all of the items in the scale measure the same concept or construct. I calculated Cronbach’s alpha for the PL self-efficacy instrument to measure the internal consistency of the instrument and its constructs. The PL self-efficacy survey overall demonstrated high reliability with a value of .97.

**Qualitative Data**

Qualitative data was obtained from individual participant interviews, emails, online discussion board postings, online assignment submissions, and feedback surveys completed after each face-to-face session. Nine of the 18 participants were selected randomly, via lottery, to participate in semi-structured individual interviews. These interviews were conducted privately in our professional development room where our face-to-face sessions were held or in the teacher’s classrooms. The interviews were recorded and transcribed. The interview questions were piloted with two members of the previous year’s cohort and then revised for clarity.
I employed grounded theory to analyze the data from the focus groups. Grounded theory is a systematic methodology involving the construction of theory through the inductive analysis of data (Charmaz, 2000; Glaser & Strauss, 1967). The researcher implemented Strauss & Corbin’s (1997) three steps of coding (Cresswell, 2003). First, I Open Coded the data by reading through it several times and then created tentative labels for chunks of data that summarized what I saw happening, based on the meanings that emerged from the data. Next, I engaged in the process of Axial coding by identifying relationships among the open codes. Finally, I implemented Selective coding in which I integrated and refined the categories and identified the core concepts for the conceptual model from the axial codes.

**Results**

The following sections are organized to address the research question using data from both quantitative and qualitative sources.

**Teacher Self-Efficacy Quantitative Data**

The PL self-efficacy instrument was administered to 18 participants prior to beginning the PD. Fifteen participants completed the post test. I calculated means for each construct. I then conducted a paired t-test to compare the means of each construct for the pre- and post-tests. Table 2 displays the results of the paired t-test and includes the pre-and post-test means for each construct and the standard deviation, the difference, standard error and the $t$ and $p$ values.
Table 2
Personal Learning Self-Efficacy Survey Comparison of Means (n=15)

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<tr>
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<th>Pre-Test</th>
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Since the p value for all constructs is p < .05, it can be said that there was a change in the pre-and post-test values and it was substantial in terms of the pre-test variation. Since the post-test values were higher, the teachers demonstrated greater levels of self-efficacy with regard to the implementation of personal learning in all 9 constructs after their participation in the PPLC. This is important because one of the main district barriers was a lack of professional development in the area of PL. After participating in the PD, the teachers are now more confident in implementing PL, thus moving the district closer to its goal. This finding is also important because there has not been any other research done related to teacher’s self-efficacy with regard to the implementation of PL and this evidence indicates it is possible to increase confidence levels related to the implementation of PL with an intervention specifically designed to do so.

**Teacher Self-Efficacy Qualitative Data**

The qualitative data also revealed an increase in teachers’ self-efficacy levels related to personal learning but provided more information as to the specific ways in which the teachers felt more confident. Teachers reported higher levels of confidence with regard to planning, implementing, reflecting, and refining personal learning. The teachers also articulated increased confidence in teaching other teachers how to implement personal learning, largely because of the specific knowledge and skills gained as a result of their participation in the PPLC. Table 3 provides an overview of the areas of teacher self-efficacy.
### Teacher Self-Efficacy

| Planning | Teachers effectively planning for PL in their classrooms; teachers planning to integrate technology into their lessons | I really appreciated having this time to learn and work so I made the most of it. I got a lot done in every session and then I was able to roll this over into my regular planning. I feel good about planning for personal learning.  
I sign up for the computers every day now. I never knew what to do with them before other than to have students take notes or do research. |
|---|---|---|
| Risk-Taking | Teachers became more comfortable taking risks in their classrooms. | It's ok to not have all the answers now and we are permitted to fail.  
I feel like the cohort has created a safe space to try new things and that I won’t be penalized for things that don’t go well right away. This allows me to model failing forward for my students. |
| Implementation | Teachers felt more confident about the implementation of personal learning and the use of technology. | I was able to discuss ideas and find a way to begin to implement a flipped classroom and more choices into my math instruction.  
I used to get nervous when I had the kids on the computers. Now, I don’t even bat an eye. |
| Continuous Improvement | Teachers were reflective about implementation and were focused on continuous improvement. | I feel really good about it. I'm actually really excited for this next student group, because I have most of the work done. So, now I feel like I can tweak it. I wanted to put it into stages. I know I can keep making it better. |
| Sharing | Teachers shared their learning with teachers outside of the cohort. | I think this has been just such a learning experience for me. I know I'm sharing out with others who have not participated in it. I've been pushing it on them. |

**Planning.** Teachers reported increased confidence with regard to planning for personal learning as well as planning for technology integration, which is important because planning is a key component of teacher effectiveness, particularly when integrating technology into learning (Lee & Lee, 2014; McBer, 2012). One high school teacher stated,
I came to each cohort meeting very eager to see what I could do, and then I'm the type of person who immediately puts it into action the next day. So that night, I'll be changing my lesson plan, trying to experiment with something I learned in the cohort. That's what I did throughout the year. It really affected my planning.

Teachers reported on the importance of the planning, or design time, included in the PD. They found planning overwhelming in the beginning because, in order to allow students to move at their own pace, multiple lessons or content units must be ready to implement in the beginning of a unit. Since the cohort included design time for planning and because the teachers had each other and a coach available to support them, rather than just receiving information without the time to apply it, teachers were able to make a permanent shift in the way that they planned so that they could embed PL in their planning. Audrey reinforced this in her interview:

Sometimes if you're sitting through a workshop and now it's like, okay, great, hope you enjoyed that. Then you go home and now it's everything else that comes up, you sometimes forget what you learned and how you wanted to implement it.”

This highlights the importance of offering PD for a sustained duration in job-embedded contexts and using active learning models (Darling-Hammond, Hyler, & Garner, 2017). It also indicates that embedding design time into PD may also be an essential design element of effective PD.

**Risk-taking.** Teachers reported increased confidence with regard to taking risks in their classrooms. This is important in the change process. When asked about her level of confidence in implementing personal learning, Lori, a middle school ELA teacher, stated the following, illustrating growth in the area of risk taking,
I do now (feel confident). I was tentative in the beginning, and I think that's just normal. Any time you try something new, there's risk involved. But I just felt like, what's the worst that can happen?

 Teachers openly discussed their fears in the cohort sessions and became more open to taking risks as they connected with and shared experiences with their colleagues. Some teachers even became excited to come in and discuss their “failures” because they knew they would get more ideas and assistance from the group. Amy, an elementary special education teacher, commented,

 Sharing the different strategies that we have tried and worked have been extremely beneficial. It has also been helpful to learn from the failures of others and to get help with our own failures.

 This is important because risk-taking is an essential part of the change process (Fullan, 2007). The community may have played a significant role in promoting risk-taking as Zinn (2017) found that there are social motivation affects risk-taking and that it can be shaped by social forces.

 **Implementation.** Teachers reported increased confidence in the implementation of personal learning. Leighanne, a middle school ELA teacher stated,

 I have always put 100% of myself into my classroom and my students, but I was the one "in charge". It has been unbelievably eye opening to take a step back and just guide them to become problem solvers, collaborate with their peers, and navigate their own learning process. I am a much better teacher (and learner) after participating in this cohort!
There were numerous discussions of various types of PL implementations in the PD cohort. The teachers began implementing PL strategies in their classrooms after the second cohort session. As the year continued, they reported more and more implementation goals and accomplishments. They also reported being more comfortable using technology for personalization. For example, Deirdre a high school German teacher, stated, “My class is now completed blended. I think you could give me any topic in my field and I could figure out how to personalize it.” These changes were also observed by their PL coach and their principals and reflected in their teaching observations. All of the teachers agreed to open their classrooms to other teachers who were interested in learning more about PL because of their improved confidence with PL implementation which may lead to more teachers be willing to try this instructional approach (Hendry & Oliver, 2012).

Continuous Improvement. Teachers reported increased confidence in reflecting and making modifications for continuous improvement. Leighanne discussed how she did this in consultation with her students:

Something doesn’t go well, so I change it for the next class. I do have the luxury of teaching the same class three times a day, so you almost feel badly for that first period. You’re like, "Sorry, guys. You’re the guinea pigs," and they laugh. But I’m very open with my students, and I’ll say to them, "Hey, this is the first time I’m doing this." And then I always do a self-reflection. It’s something that I’ve always done. I always have a sheet at the end. It’s a survey and it asks them, "What did you like? What didn’t you like? How could we do it differently?" Then we talk about it.
Leighanne was also modeling reflection and continuous improvement for her students, processes embedded in PL generally. She was open to feedback and comfortable with failure, some of the dispositions and skills the teachers identified as being important for students. In the cohort sessions, teachers sought feedback from their colleagues and coaches. They were eager to receive feedback that would improve PL implementations. During their interviews, teachers frequently discussed the changes they implemented based on the feedback they received from the PL coach. In the last cohort session, the teachers discussed their plans for next year, and they were generally focused on improving and expanding their PL work which is important because continuous improvement is a critical component of effective innovation (Bessant & Caffyn, 1997; Fullan, 2007).

**Sharing.** Finally, teachers demonstrated increased confidence in sharing their knowledge of personal learning with their colleagues. Deirdre presented at her faculty meeting. She stated,

> They asked, “What are you doing differently?” And I showed them what I’m doing and they’re like "Oh this is- I can do that for the English class," and I'm teaching math and they're like "Oh, I can do the same thing." They do the same thing but with their own subjects.

All of the PPLC teachers shared with their colleagues the PL work they were doing in faculty or department meetings. This type of teacher sharing and leadership is critical to promoting educational change (Guskey, 1986; Harris, 2010).

**Teacher Competencies**

*Increased Knowledge of Students.* The teachers reported learning more about their students, including their interests and abilities. What teachers reported learning varied based on
the grade level of the students. Prior to the completion of the PD, elementary teachers seemed to know more about the interests and families of their students but less about their academic abilities. The secondary teachers seemed to know more about students’ academic abilities but less about their students as people, such as their interests and goals. This is consistent with the findings of Hargreaves (2000) in which he argued that elementary teaching is generally characterized by physical and professional closeness, resulting in greater emotional intensity, while secondary teaching is characterized by professional and physical distance, which threatens the emotional understanding on which high quality teaching and learning depends. To implement personal learning, the teacher has to know their students and have some type of emotional connection. The cohort participants began to learn about their students in ways they had not before, deepening their emotional connections. A focus on personal learning may help to develop the emotional connections that are sometimes lacking at the secondary level.

The teachers also realized that the students were capable of more than they had originally expected. Amy said, “I learned that students, especially the younger ones, can do a lot more than we think. They can really rise to the challenge.” Annette said, “I will never go back to the other way. It has just been amazing watching them grow and take charge of their own learning and just everything that they've accomplished has been amazing.” This is an important finding because the relationship between teacher expectations and student achievement has been well documented in the research literature (Brattesani, Weinstein, & Marshall, 1984; Brophy, 1986; Cooper, Findley, & Good, 1982; Cotton, 1989; Edmonds, 1979; Rosenthal & Jacobsen, 2003; Trouilloud, D., Serrazin, P., Martinek, T., & Guillet, E., 2002). If the PPLC or the approach to personal learning increased teacher expectations regarding student performance, this is likely to have a positive impact on student achievement.
Technology Skills. The teachers reported the development of a variety of technology skills including the use of Excel, Google Classroom, Canvas, discussion layering techniques, teacher “cloning,” and blended learning strategies which have been identified as important 21st century learning skills for both teachers and students (Bellanca & Brandt, 2010). There was widespread agreement amongst the teachers that technology could be used to support and help facilitate personal learning. For example, an Excel spreadsheet could be used to track student mastery of content standards. Sites such as Answer Garden and Padlet can be used to layer conversations ultimately improving the quality of class discussions. Aggie, a middle school social studies teacher stated,

    Padlet really helped students to think deeply about my content and interact with each other online before we talked about the topic in class. Whenever we did a Padlet before a class discussion, I always got better participation. There were more volunteers. I could also call on people by referencing their Padlet contributions.

Blended learning strategies and online content could offer students more choices in terms of subject-matter, more control over pace, and anywhere, anytime access. Steve, an admitted “techno-phobe,” embraced the use of technology. At the end of the cohort he told me, “My class is completely computer based at this point. I have not printed a single thing since the second marking period.” He also discussed innovative ways that he used technology with students. For example, he was home sick one day and he managed to still teach class from home. “I had 102 fever, bronchitis and a sinus infection. And it was funny, because I taught one of my classes, an entire unit on tobacco and nicotine, all through Google Classroom when I was at home.” Mary learned “how to facilitate a flipped classroom.” She created her own youtube channel with close
to 100 videos to help students learn biology. She liked that they could review them as many times as they needed to understand the concepts.

Some of the teachers were already very skilled in the use of technology and they helped to teach their colleagues. Melony, for example, is a business teacher and very skilled in the use of Excel. She taught many of the teachers how they could use Excel for personal learning such as using it as a facilitation guide for students and as a mastery tracker. Kelly, an elementary teacher, said of Melony’s teaching, “I learned how to use Excel and how to send class lists from Power School to Excel. This is very helpful because it helped me make checklists for standards.”

**Design and Problem Solving Skills.** The teachers reported the development of a variety of skills including design thinking and problem-solving skills. Design thinking was introduced in the first cohort session, and the philosophy was carried throughout the year. Several of the teachers responded positively to the idea of teachers as designers. After participating in the design school crash course in design, one of the teachers indicated on the feedback form, “The last partner activity was valuable, as it taught me how to analyze and identify a problem that I didn't actually even know existed prior to looking, while engineering a possible solution to not only solve the problem but to also improve a situation.” Some teachers implemented subsequently design challenges with students. This is an important finding because employees with these skills are beneficial to organizations, particularly those with complex knowledge bases (van Laar, van Deursen, van Dijk, & de Haan, 2018). In addition, having good design thinking skills assists individuals in solving complex problems and to be able to adjust to unexpected changes (Razzouk & Shute, 2012). Moreover, teaching these skills to our students will help them to develop their critical thinking skills and promotes dispositional traits such as persistence and
creativity which have been defined as essential 21st century skills. (Bellanca & Brandt, 2010; Henriksen & Puriva, 2014; Razzouk & Shute, 2012).

Facilitation. The teachers learned how to shift their roles to facilitate student learning rather than being the sole content provider in the classroom. The development of facilitation strategies was critical as this helped the teachers implement more student-centered classrooms. In one of the anonymous feedback forms, a teacher reported that they had learned “the ability of stepping back and giving the students the independence and opportunity they need to grow as learners. To be a facilitator.” Another teacher reported learning, “to act as a facilitator instead of always as the instructor.” Similarly, a teacher recounted “learning specific strategies for scaffolding student learning and taking the steps towards giving students greater responsibility.” It was not easy for all of the teachers to step back and relinquish this control.

In the beginning, Melony kept reporting that inevitably the class would return to whole group instruction because the students were not able to work independently. Eventually, she came to the realization that it was not the students that could not handle working independently or in small groups, but it was she, herself, who was uncomfortable not “commanding the room.” “At first, I felt like I wasn’t really teaching if I wasn’t talking to everyone all at once.” There is a common sense of discomfort when teachers shift to a learner-centered classroom. Evertson and Neal (2006) found that many teachers grappled with finding a balance in how active they should be in guiding students in a learner-centered classroom. Teachers often struggled with the degree to which they should relinquish their authority in the classroom (Evertson & Neal, 2006). The PPLC cohort provided opportunities for the teachers to discuss and work through some of these challenging questions.
**New Dispositions.** The teachers reported dispositional changes such as increased flexibility and open-mindedness which have been identified as important skills for managing the uncertainty around educational change and in developing creative thinking and problem-solving skills (Barak & Levenberg, 2016; Kenett, Levy, Kennett, Stanley, Faust, & Havlin, 2018). Some of this work was evident in observing them and their discussions throughout the cohort but they also articulated this in their interviews. Noel said, “The biggest skill that I’d say I’d gained would probably be ... keeping an open mind. Being flexible. I felt like I was flexible, but I'm a lot more now, even with assignments.” When asked about skills gained as a result of the cohort, Aggie said, “The ability to be open and receptive to a flexible classroom.” Leighanne said, “I now offer a variety of seating/learning/reading options, as well as a more individually paced, personalized learning environment.” After one of the cohort sessions, Amy pulled me aside and said that she was going to now be more open to other district initiatives because she was getting so much out of the cohort and it made her wonder what else she might be missing. This kind of flexibility and open-mindedness helped to make the teachers more receptive to learning about different ways of teaching. It also helped them to be supportive of students as they began to express and assert themselves in terms of learning pathways, demonstration of mastery, and seating preferences.

**Community and the Blended Learning Environment**

Community played a very important role in teacher learning and the blended learning environment enhanced community building. The teachers got to know their colleagues in the PPLC. Teachers reported learning from one another but they also talked about expanding their relationships and their networks. They enjoyed this camaraderie and the idea that they were “all in this together.” This theme came up frequently in the data. Leighanne reported, “I met a few people that I thought were ... that I didn't know before…So I felt that the interactions were great
and the fact that you're (with others) always helps because ... we were working together, so it was good.”

The teachers reported being isolated from other teachers, even in their own buildings. As the cohort continued, their relationships became more meaningful over time and they established plans for them to continue beyond the cohort meetings. Lori said:

At first, I was sitting with a couple of people from my school, which was nice because I normally don't get to speak with those people. Then as the cohort went along, I started branching out and then I even started working and talking with the language arts teachers from other schools. On the last day, we even said, "Wow, we never really got to talk to one another," because they were seventh grade, I was sixth grade, they were at different schools, so that was really good. We even used the online tools to keep in touch with what we were doing.

Noel concluded,

I just would like to share that I am very thankful for being a part of the cohort. I felt like it's given me so much in terms of just strategies and a network of colleagues that can support my ideas and at the same time I can bounce my ideas off of, which is really neat...now I feel like my network is much larger, and we are all in it together.

The blended learning environment was essential in the development of the community and the deepening of relationships and collaborative projects. Caleb said, “The online components were crucial because I got to interact with everyone and not just the people I usually sit with.” Beatrice, one of the elementary teachers stated. “The online part really promoted interdisciplinary and cross grade level work. Who would have thought that me, as a grade 3
teacher, would be partnering with a high school teacher?” There were several instances of class partnerships. In that instance, the high school students came to work with the 3rd graders on their writing. Lori remarked,

The online component made it so that none of our conversations ever had to stop because our face to face class was over. We continued out discussions and our work online and in between classes. I got more done and I felt more prepared for each of the face to face classes.

The idea that the online components contributed to the completion of more work was widely shared. Aggie, Audrey, Leighanne, and Lori developed units together online even though they were all in different buildings. Lori said this of the experience,

Being able to reflect on our experiences days after the sessions was powerful. The conversations and the learning kept going. The fact that we had an online private work space was amazing. Four heads are definitely better than one. It was also a time saving strategy. The four of us got so many more units developed working together that I would have ever done alone. The funny thing is that none of us ever see each other in person outside of the PD…

The importance of the blended learning environment in building and developing community is consistent with Rovai & Jordan’s (2004) findings in which blended environments were found to create a better sense of community than face to face or online classes. Further, teaching can be an isolating profession because teachers are in their own classroom all day, often with little interaction with colleagues (Schlichte, Yssel, & Merbler, 2005; Flinders, 1988; House & Lapan, 1979; Sarason, 1966;). Flinders (1988) argued for the importance of addressing teacher isolation
in reform movements. The PPLC helped to eliminate teacher isolation by providing the teachers with time to connect with one another and to share ideas and strategies, developing lasting relationships. This is consistent with the research of de Jong, Moolenaar, Osagie, and Phielix (2016) in which they found that there was a positive relationship between teacher social networks and teacher self-efficacy and commitment. The concept a cultivated community of practice, may offer a way to provide all participating teachers with these critical social networks to support the development of self-efficacy and commitment.

**Discussion**

This study demonstrated that it is possible to cultivate a community of practice (CoP) for professional learning and that the blended learning environment helped to promote community and collaborative working relationships. The importance of the online components in addition to the face to face sessions supports previous findings that demonstrated that online communities of practice (CoP) can increase communication and collaboration among teachers (Vavasseur & Mac Gregor, 202008). Further, the blended learning CoP increased teacher’s self-efficacy with regard to the implementation of personal learning and enhanced teacher confidence in several areas including planning for personal learning and technology integration, risk-taking, making modifications for continuous improvement, and sharing PL practices. Additionally, the teachers developed new competencies such as an increased knowledge of their students, improved technology skills, design and problem solving skills, and facilitation skills. This is consistent with research that has demonstrated CoPs to have a positive impact on learning and improving the efficacy of work (Brown & Duguid, P., 1991; Goddard, Hoy, & Hoy, 2000; Hoadley, 2012; Lin & Kim, 2013; Wenger, 1998; Wenger, Trayner, & de Laat, 2011; Wenger-Trayner & Wenger-Trayner, 2015).
Teacher reported dispositional shifts such as being more flexible and open-minded which have been identified in previous research as important skills for managing the uncertainty around educational change and in developing creative thinking and problem-solving skills (Barak & Levenberg, 2016; Kenett, Levy, Kennett, Stanley, Faust, & Havlin, 2018). Teachers made substantial changes to their classroom practice resulting in greater student agency which has been found to play a key role in students’ academic success (Ferguson, Phillips, Rowley, & Friedlander, 2015; Nogura, Darling-Hammond, & Friedlander, 2015). Agency and agency-related factors are helpful concepts for encapsulating multiple educational goals including the academic skills measured by standardized testing, but also the emotions, behaviors, skills, and dispositions necessary for effective learners and problem solvers (Hitlin & Elder, 2007).

Teachers recognized that some aspects of personal learning could be implemented without technology, such as providing opportunities for student voice in the classroom, but they were convinced that technology should play a key role in PL. Technology facilitated opportunities for teachers to “clone” themselves and “flip” their classrooms by making videos, they were able to offer student increased choices by having a variety of content and materials available to students via the Internet and content repositories, they were able to use technology applications to layer and improve student discussion, track student progress and mastery, support independent student research, and to expand their own professional learning networks. This is consistent with the findings of McLoughlin & Lee (2007) that technology can support greater student choice, self-direction, and participatory learning. To optimize personal learning, teachers recommended 1:1 tech environments, additional technology support, and technology coaches that could assist with implementation in the classrooms.
The nation is struggling to figure out how to adequately prepare our students for college and career, to promote creativity, and to eliminate achievement gaps so as to compete in a new and rapidly changing global economy. Given this desire and the many challenges we face in schools, there are frequent calls for reforming education. One of the more recent reform initiatives is personal learning (PL). Many policy-makers, funders, vendors, board members, and school leaders have jumped on this bandwagon, yet there is no consensus on what this term actually means and there has been little support for schools in trying to implement PL. Given the number of participants and the research methodology, the PPLC study is not generalizable, but it may have transferrable value (Mertler, 2014). The Personal Professional Learning Cohort (PPLC) project offers one approach that may be helpful in supporting school districts to work toward creating more personalized learning environments.
References


Clayfield Township Schools. (2013, September 3). *Strategic plan.*


