Environments of Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning

By

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Dedication

For our students.

"Do not train children to learning by force and harshness, but direct them to it by what amuses their minds, so that you may be better able to discover with accuracy the peculiar bent of the genius of each."

Plato

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Abstract

Research supports that Project-Based Learning (PBL) has a positive impact on student achievement and prepares students with 21st century skills. With over 150 years of presence in American pedagogical practice PBL is rarely used as a primary teaching strategy. This action research study examined why some teachers self-initiate a change to PBL. Findings from this study were used to advance student achievement for college and career readiness by developing an action plan to increase the number of teachers that utilize PBL.

This mixed method study investigated what motivators and pedagogical values within the administration's immediate control might encourage teachers to self-initiate a change in their instructional practice to PBL. Quantitative research examined two null hypotheses on the topics of school culture and desired pedagogical outcomes. Qualitative questions focused on why teachers choose to adopt PBL and what might have helped them to make a change to PBL earlier in their career. Descriptive statistics, cultural aspects, pedagogical values, and intrinsic and extrinsic motivators were triangulated with member checks utilized to increase the validity of findings.

This study found that there are common motivators and pedagogical values within the administration's immediate control that may encourage teachers to self-initiate a change in instructional practice to PBL. Both quantitative null-hypotheses were rejected. Qualitative analysis found that extrinsic motivators within administration's control were listed as being important to study participants in their change to PBL, in those factors that may have had them change sooner, and in suggestions for future areas for improvements.

Chapter 1

Introduction

The concept and methodology of Project-Based Learning (PBL) in the United States is neither new nor without an American pedagogical philosophy background. In the 19th century the American *mechanical education* movement, known to 21st century practitioners as Career Technical Education (CTE), was a catalyst for the emergence of land grant universities that were founded on the mechanical education concepts of learning, training, and solving for real-world situations and applications (Gordon, 2007). Learning by doing and real-world tactile projects were key concepts of Dewey's philosophy of *Progressive* education (1938; 1918). With over 150 years of presence in pedagogical practice and philosophy in America, PBL is rarely used as a primary teaching strategy (Stipanovic, Lewis, & Stringfield, 2012). This action research study examines why some teachers choose to adopt PBL with the purpose of developing a plan to increase teacher participation in professional development by 200% over two years while revising delivery and support structures.

Background and Statement of Problem

Research has found that the implementation of innovative pedagogical practices such as PBL (Bell, 2010) has positive effects on student achievement (Schaffer, Chen, Zhu, & William, 2012; Ravitz, 2010; Baumgartner & Zabin, 2008; Park & Ertmer, 2007). The implementation of PBL can challenge teacher values and knowledge. Studies have been conducted to examine the role of school culture in the implementation of reform practices such as PBL (Rhodes, Stevens, & Hemmings, 2011; Ravitz, 2010; Main, 2009).

Professional development may play a critical role in addressing intrinsic factors for the implementation of PBL (Rodgers, Cross, Gresalfi, Trauth-Nare, & Buck, 2009). While there are elements of control that administrators have in creating a school culture and delivering quality professional development, in some districts there is a limited capacity by which an administrator can direct a teacher or school into a particular pedagogical practice such as PBL. A review of the literature reveals a gap in the area of implementation of PBL in school districts that have collective bargaining agreements that do not allow for district mandated professional development without negotiations.

Purpose

The purpose of this study was to improve the author's understanding of some of the motivators and pedagogical values, within our control, that encourage teachers to initiate a change in their instructional practice to PBL. By increasing our understanding of these motivators and pedagogical values the administration could develop an action plan to nurture, facilitate, and promote them to increase the number of secondary teacher that self-initiate a move to the practice of PBL. The purpose of increasing the number of secondary teachers that engage in the proven pedagogical practice of PBL was to advance student achievement.

Research Question

What motivators and pedagogical values within the administration's immediate control might encourage teachers to self-initiate a change in their instructional practice to PBL?

Context

This action research study was conducted in a division of a large urban school district in southern California that conducts an annual two-week professional development opportunity for PBL known as the PBL Summer Institute. The district was comprised of 223 educational facilities and serves 133,182 students. The ethnic diversity of the district for the 2011-2012 school year was 46.4% Hispanic, 23.5% White, 10.3% African-American, 5.4% Filipino, 5.3% Multi Racial/Ethnic, 4.9% Indo-Chinese, 3.3% Asian, 0.6% Pacific Islander, and 0.3% Native American. The socioeconomic makeup of the district was comprised of 28% English learners with 64.9% of students being eligible for free or reduced meals. Published enrollment reports indicated that 31,542 students were enrolled in senior high which was the division's primary audience for PBL. The district had three active initiatives (a) college and career readiness, (b) professional learning communities, and (c) community engagement.

The size and scope of the division were 31 staff members that oversee programs and services of a team of over 300 teachers and additional contractor based services at 64 school sites. The division was responsible for the implementation of PBL at the secondary school level and employed a professional development staff for this purpose including but not limited to summer professional development, ongoing professional development, and final assessment opportunities for PBL. For the last three years the division has served one PBL cohort group of up to 40 teachers for a two week voluntary summer professional development workshop for pay.

The cohort of teachers that attended the 2012 summer PBL institute were the focus of this study. There were six high schools with *n = 24* attendees of the 2012 PBL Summer Institute, not including professional development staff and instructors. All attendees were taking part in a version of a high school reform initiative with 37.5% reporting that they were from Career Themed Small Schools and 62.5% reporting that they were part of a Small Learning Community (SLC) or Career Academy. From the six schools there were a total of seven teams that attended. The smallest team was comprised of two members and the largest team had five members with most groups having three team members.

The school district division responsible for this work has run various forms of PBL training for over two decades. The division has found that teachers requested summer professional development opportunities as they did not want to spend extended time away from their classes. This situation was compounded by the budget uncertainties from 2008-2013 that resulted in the reduction of the school year by five classroom days. This reduction came in addition to a reduction in the contract year for professional development that occurred a decade earlier. Between the 2008-2013 school years professional development funds were dramatically reduced at the state and federal level. The most prevalent professional development has been tied to the implementation of a district-wide technology plan which is implemented through a bond measure.

In support of the district mission for college and career readiness the governing Board of Education has passed resolutions and taken actions that required an increase in PBL training at the secondary school level. This decision for expanding PBL considered

(a) the fiscal recovery of the local school district and the gradual restoration of the school year, (b) the implementation of Common Core State Standards with Next Generation Assessments that stress adaptive and applied learning of procedural knowledge, (c) the continued expansion of Small Learning Communities (SLCs) and Career Academies, and (d) continued research in support of constructivist learning methodologies that involve PBL to increase learning outcomes for all students, but in particular to students at risk. To implement the district and division strategic plan, program administrators established a two year goal to increase the number of new teachers engaged in PBL by over 200% of 2013 participant levels. A primary challenge of implementation was in the area of generating teacher interest. The negotiated teacher contract was designed to offer rather than mandate systemic professional development with the exception of professional development tied to disciplinary action, remediation planning, those agreed upon through collective bargaining cycles, or negotiated through side letter agreements.

The findings of this action research were used by district administrators to develop an action plan to meet the targeted 200% expansion over a two year period. Action research addresses a local phenomenon and provides useful information to initiate positive change (Plano Clark & Creswell, 2010). Administration's plan focused on systems changes that would have positive impacts to student achievement by facilitating an instructor's self-initiation to change to PBL and constructivist learning environments while providing enhanced support structures to ensure a successful transition. The PBL expansion plan included: (a) alterations to messaging on PBL, (b) advanced planning time, (c) modifications to professional development, (d) a revision to annual support

structures, (e) inclusion of educational technologies and staff, and (f) reorienting the planning process to start at the year-end presentations and activities.

Definition of Terms

Project-Based Learning (PBL). The operational definition of PBL for this study meets the minimum common attributes outlined by Walker and Leary (2009) and Bell (2010): (a) real-world projects, (b) student-driven, and (c) teacher-facilitated.

Small Career Themed School. A high school with a single administrator that is comprised of 400-600 students who have a career themed course of study tied to core academics.

Small Learning Community/Career Academy (SLC). A grouping of students into a school within a school format comprised of 150-300 students and under the leadership of a teacher who acts as a coordinator.

Traditional School. A high school under the guidance of a single principal and at least two vice/assistant principals that is comprised of 1,200-2,700 students who have a full offering of core academics and electives.

Summary

There is recent and historical research to support accelerations in student achievement associated with the implementation of PBL, yet PBL is rarely used as a primary teaching strategy. This action research examines why teachers choose to adopt PBL with the purpose of increasing the number of teacher participants in voluntary PBL professional development over the course of two years. This study was conducted in a division of a large urban school district in southern California that conducts annual

professional development for PBL. In the next chapter the author reviews the theoretical framework of PBL, effects of PBL on student achievement, 21st Century Skills in PBL, and challenges associated with the implementation of PBL through a review of the related literature.

Chapter 2

Literature Review

This literature review examines the theoretical framework of PBL as a *Constructivist* learning model (Geier, Blumenfeld, Marx, Krajcik, Fishman, Soloway, & Clay-Chambers, 2008; Mills 2009; Baumgartner & Zabin, 2008; Summers & Dickenson, 2008), the positive effects of PBL on student achievement (Schaffer et al., 2012; Summers & Dickinson, 2012; Walker & Leary, 2009; Baumgartner & Zabin, 2008), how PBL is preparing students with 21st Century Skills (Bell, 2010; Smith, 2010; ChanLin, 2008), and some of the challenges associated with the implementation of PBL (Rhodes, Stevens, & Hemmings, 2011; Ravitz, 2010; Main, 2009; Leung, 2008). With a wide range of definitions, frameworks, and terminology that reference PBL it was necessary to create operational parameters of PBL for this review. A critical area of discrepancy is in the level of interdisciplinary or cross-curricular activities (Schaffer et al., 2012; Lattimer & Riordan, 2011; Bell, 2010; Ravitz, 2010) that ranged from single-subject approach to multidisciplinary project work requiring teams of teachers. The operational definition of PBL for this review met the minimum common attributes outlined by Walker and Leary (2009) and Bell (2010): (a) real-world projects, (b) student-driven, and (c) teacher-facilitated.

Theoretical Framework

Project-Based Learning (PBL) is a Constructivist model (Mills 2009; Baumgartner & Zabin, 2008; Geier et al., 2008; Mills 2009; Summers & Dickenson, 2008) in both curriculum design and instructional practice. The Constructivist approach

to learning is based upon an inductive process (Gutek, 2004) where by meaning is developed and shaped by the learner (Wiggins & McTighe, 2001). Constructivism is grounded in *Pragmatic* philosophy and requires fundamentally different approaches to curriculum design and instructional practice when compared with the educational philosophies of *Perennialism* and *Essentialism* (Ornstein & Hunkins, 1998**)**. In curricular design Constructivism is situated towards hands-on and process oriented learning experiences (Gutek, 2004). In instructional practice the teacher moves from a role of expert practitioner that transfers knowledge to students to that of a collaborative relationship with students where the teacher is charged with process oversight as a coach and guide for inquiry (Wiggins & McTighe, 2006).

In a revision of Bloom's Taxonomy, Anderson and Krathwohl (2001) identify Constructivism as a recognized and important goal in education that requires deeper understanding of subject matter. They situate Constructivist learning within the "Cognitive Process Dimension" (p. 65) and as an example of meaningful learning. Wiggins and McTighe (2001) frame *understanding* as the desired learning outcome and establish Constructivism as the process to achieve that goal. Daggett (2012) presents a further revision to Bloom's Taxonomy in the Rigor/Relevance Framework where the desired outcome of *adaptation* is tied to a Constructivist framework with applied learning to real-world unpredictable situations as a measure of success. The Daggett system also adopts Constructivist instructional practices where by teachers become facilitators of learning and focus on student outcomes.

In an era of standardized testing schools are often judged by the published results of their Adequate Yearly Progress, Academic Program Index, and Program Improvement status. Essentialists often criticize progressive frameworks such as PBL for taking emphasis away from fundamental core academics, the areas being measured by state testing systems, and maintain that schools should be focused on those rudiments (Ravitch, 2000). Postman (1995) suggested that there was little agreement or general consensus as to what the purpose, or desired end result, of public schooling should be. Dewey (1938) cautioned of the danger of choices that did not consider student development in its entirety; what he called the "either-or affair" (p. 52).To limit our thinking to a duality of either preparing students for the reality of testing now or for the possibilities that their future holds ignores that one affects the other. Research supports that PBL offers a framework where one need not be sacrificed at the expense of the other.

PBL for Student Achievement and 21st Century Skills

The author reviews quantitative and qualitative research on PBL in primary, secondary, and postsecondary schools and universities located in several countries. Research supports that PBL has positive effects on student achievement (Schaffer et al., 2012; Summers & Dickinson, 2012; Baumgartner & Zabin, 2008) including those as measured by standardized tests (Geier et al., 2008; Walker & Leary, 2009). Research has been conducted that suggests that the practice of PBL is preparing students for future success with 21st Century Skills (Bell, 2010; Smith, 2010; ChanLin, 2008). In this review, the author finds conceptual holes in the area of challenges that are associated with the

implementation of PBL (Rhodes, Stevens, & Hemmings, 2011; Ravitz, 2010; Leung, 2008; Main, 2009).

Positive Effects on Student Achievement

Research has found that the successful implementation of PBL has positive correlations to student achievement (Schaffer et al., 2012; Summers & Dickinson, 2012; Walker & Leary, 2009; Baumgartner & Zabin, 2008). There is evidence that PBL increases student scores on standardized tests (Walker & Leary, 2009; Geier et al., 2008). For example, a quantitative study conducted by Geier et al. (2008) found that students who participated in at least one PBL unit in science showed significant improvement on standardized tests. Geier et al. limited their research to the subjects within secondary school science. They found increased performance in Earth, physical, and life sciences with improvements between 13% points, standardized effect size of 0.37 SD, and 14% point, standardized effect size of 0.44 SD. A meta-analysis by Walker and Leary (2009) on PBL examined a variety of subject matters and found that PBL students scored higher on standardized tests and licensure exams in comparison to those that attended lecture based courses. A longitudinal study by Summers and Dickinson (2012) found that PBL students achieved higher scores on standardized tests while addressing greater numbers of college and career readiness standards when compared to students in traditional classrooms.

An important aspect to PBL is that it is student-driven (Walker & Leary, 2009; Bell, 2010). Students report that they feel a greater sense of achievement and understanding when engaged in PBL. For example, Baumgartner and Zabin (2008)

examined student impressions about their learning when engaged in PBL revealing a significant increase in student perceived knowledge. This finding triangulated with qualitative observations by researchers that students had increased their knowledge in critical areas and expressed a deeper interest in the subject matter. Research conducted by Schaffer et al. (2012) supported the research of Mills (2009) which found that students engaged in PBL reported increased self-efficacy in the areas of communication and connections.

A reason for increased student achievement across multiple measures may be the engagement that PBL provides. For example, Baumgartner and Zabin's (2008) descriptive case study found that PBL provided higher degrees of student engagement that led to increased student understandings of their capabilities for achievement. Lattimer and Riordan (2011) asserted that PBL was most effective when it balanced the project aspect that engaged students with an academically focused approach for deeper learning and understandings. Bell (2009) found that at times a didactic approach to PBL allowed for improved teacher classroom control, increased student engagement, and elevated learning outcomes. The authentic tasks and student-centered focus of PBL have been found to correlate with increases in long term retention of knowledge by students (Stobel & van Barneveld, 2009).

21st Century Skills

The needs of the 21st century workplace are different than what schools are teaching to students (Alfeld & Bhattacharya, 2012; Withington, Hammond, Mobley, Stipanovic, Sharp, Stringfield, & Drew, 2012; Roberson, 2011; Symonds, Schwartz, &

Ferguson, 2011; American Management Association, 2010). Standardized tests do not align to the skills that are required in the 21st century workforce. A Harvard Graduate School of Education report (Symonds et al., 2011) warned that schools needed to find systems that were "better designed to meet the needs of the 21st century economy" (p. 11). For example, the American Management Association and the Partnership for 21st Century Skills list the following four critical skill sets in their 2010 national survey: (a) critical thinking and problem solving, (b) effective communication, (c) collaboration and team building, and (d) creativity and innovation. The American Management Association (2010) survey of executives (*n = 2115*) found that "critical thinking, creativity, collaboration, and communication" (p. 1) were ranked as the highest priority skills that companies were seeking in their current and future workforce.

Research on PBL and student achievement has looked to develop multiple measures as a means to balance standardized academic test results with metrics that address 21st century skills. For example, while students engaged in PBL have outscored their peers on standardized tests (Geier et al., 2008), researchers such as Bell (2010) have suggested a need for multiple measures for success in PBL that more closely align to the skills noted in the American Management Association survey. Baumgartner and Zabin (2008) found that standardized testing did little to reflect deeper levels of student understanding and suggested that a system needs to be developed to measure student *attitudes* and *empowerment* achieved through PBL. A report from Stearns, Morgan, Capraro, and Capraro (2012) recommended a teacher observation instrument for PBL that

contained elements to address the development of student skill sets that are not necessarily addressed by curriculum standards or standardized tests.

Globalization and the rapidly changing economy will require the "knowledge worker" described by Drucker (2008/1973, p. 38) to be cross-cultural, collaborative, performance based, and shaped by technology—skill sets that PBL readily addresses. For example, a qualitative study by ChanLin (2008) found that technology in PBL helps students work on problems as members of the cyber-community. Membership in a cyber-community or working on a virtual team requires an understanding of how to lead and participate in synchronous and asynchronous workflow collaborations, each requiring different skill sets (Bell & Kozlowski, 2002). Smith (2010) found that PBL students could develop a broad spectrum of industry defined international business skills. The authentic projects of PBL (Walker & Leary, 2009) lend themselves for use in cross-cultural and multinational application to increase global awareness. Bell (2010) found that PBL prepared students for a global society while introducing them to performance through authentic assessment and personal reflection for improvement.

Challenges of Implementing PBL

The implementation of PBL can challenge teacher values and knowledge. For example, Leung (2008) conducted a limited sample size quantitative study on teacher concerns around the implementation of PBL. The participants of this study were current classroom teachers that viewed PBL as a transdisciplinary approach that would require increases in teacher coordination and preparation time. Teacher concerns were tied to their perceptions of possible impacts to their current teaching practice and standards of

student achievement. As a constructivist learning activity (Mills, 2009; Baumgartner & Zabin, 2008; Geier et al., 2008; Summers & Dickenson, 2008) PBL may require teachers to increase their content knowledge in areas outside of their field of expertise and in their primary disciple. For example, Wilhelm, Sherrod, and Walters (2008) studied pre-service teachers of mathematics and science programs that implemented PBL. They found that pre-service teachers were required to increase their understanding of their subject matter (p. 229) from a mean pretest score of 37.3% (*SD* = 12.7%) to a mean posttest score of 52.3% (*SD* = 17.9%).

Developing a comprehensive PBL program requires the dedication of a team of teachers and supportive leadership (Rhodes et al., 2011; Ravitz, 2010). Having PBL as part of the central mission and values of the school may help to promote a culture of collaboration and constructivist activities. For example, a qualitative research study by Rhodes et al. (2011) found that when opening a new high school having a strong sense of community and teamwork as part of the school's vision and values played an important role in the implementation of PBL. Main (2009) found that student and teacher culture are "intrinsically linked" (p. 467) to all aspects of a school's functionality. Roberson's (2011) examinations identified that a key characteristic of a positive school culture was that "learning should be connected directly to the real world" (p. 896).

School culture is complex and can be influenced by administrative structures. For example, Ravitz (2010) examined secondary *new reform model small schools, small schools* that were formed out of a traditional comprehensive campus, and *comprehensive schools* to compare school culture and the implementation of PBL. Ravitz found that

degrees of implementation of PBL could be tied to school culture and that school culture was often a reflection of the school's structure. The study found that new reform model small secondary schools were leading the way in the implementation of PBL.

With teacher perceptions and school culture playing a role in the implementation of PBL, motivational factors that lead a teacher to adopt PBL represented an area for further exploration. For example, Smith-Sebasto (2007) examined a school curriculum program that the teaching staff rated highly. They found that although the teachers rated the program highly 63% of teachers participating in the program did so due to extrinsic factors tied to one or more of their perceptions of being able to continue in their position at work, administrative expectations, or peer pressure. Professional development may play a critical role in the successful implementation of PBL. A qualitative case study conducted by Rodgers et al. (2009) focused on teacher orientation and professional development during the first year of implementation of PBL. Rodgers et al. (2009) found that professional development on PBL had changed teacher understandings of their role in the classroom, professional practice, and student outcomes.

Summary

Research shows that PBL has significantly increased student achievement as gauged by multiple measures including standardized tests, licensures, student reflections, and empirical observations from practitioners and researchers. Industry observations of the skills required for the 21st century workplace have been addressed in PBL methodology. Challenges of implementation include teacher's values and knowledge, school culture, administrative structures, and a better understanding of the motivational

factors that lead teachers to adopt PBL as their practice. In the next chapter the author presents the research design, plan, setting, participants, data gathering methods and procedures, instrument, procedural chart, and ethical considerations.

Chapter 3

Action Research Design

In Chapter 3 the author describes the action research design and procedures that were used to answer the research question presented in Chapter 1: what motivators and pedagogical values within our immediate control might encourage teachers to self-initiate a change in their instructional practice to PBL? The author presents an overview of the action research plan including (a) review of topic, (b) operational definitions, (c) setting, (d) participants, (e) data gathering methods and procedures, and (f) instruments. Ethical considerations are reviewed after the overview of the action research plan.

Action Research Plan

Recent research supports that the implementation of innovative pedagogical practices such as PBL (Bell, 2010) has positive relational effects on student achievement (Schaffer et al., 2012; Ravitz, 2010; Baumgartner & Zabin, 2008; Geier et al., 2008; Park & Ertmer, 2007). Operational definitions and frameworks of PBL do not necessarily agree on the level of interdisciplinary or cross-curricular activities (Schaffer et al., 2012; Lattimer & Riordan, 2011; Bell, 2010; Ravitz, 2010). Bell identified three common attributes for PBL; real-world projects that are student driven and teacher facilitated. For the purpose of our research PBL projects and teams met the standard of the five elements: (a) reverse engineered projects based upon targeted areas for growth in student achievement, (b) real world application, (c) agreed upon measures for success, (d) project implementation and assessments included members of the business community, and (e)

required the collaboration of at least three instructional team members from different disciplines, one of which was from Career Technical Education.

Studies have been conducted to examine the role of school culture in the implementation of reform practices such as PBL (Rhodes et al., 2011; Ravitz, 2010; Main, 2009). A review of the literature reveals a gap in the area of implementation of PBL in a school district that has a collective bargaining unit that does not permit district mandated pedagogical practice without negotiation with the exception of teacher remediation. This matter may be compounded within a large district that conducts district-wide initiatives while exhibiting structural elements of what Drucker (2008/1973) describes as *Federal Decentralization* or *Simulated Decentralization* (p. 443-451). With the considerations administrators that seek to implement PBL require a better understanding of the intrinsic and extrinsic motivators that lead teachers to change. The purpose of this study was to improve the author's understanding of some of the motivators and pedagogical values, within administration's control, that encourage teachers to initiate a change in their instructional practice to PBL.

This mixed method action research design utilized triangulated methodology (Plano Clark & Creswell, 2010) to explore school culture, common pedagogical values, and self-identified motivators of teachers who have chosen to implement PBL. The quantitative section of this research focused on school culture and pedagogical values through the analysis of two null hypotheses. The qualitative research focused on self-identified motivators for teachers. Descriptive statistics were gathered through background questions and published public reports.

Setting

A division of a large urban school district in southern California was the setting for this study. The size and scope of the division were 31 staff members that oversee programs and services of a team of over 330 teachers and additional contractor based services at 64 school sites. The division was responsible for the implementation of PBL at the secondary school level and employs a professional development staff for this purpose. The responsibilities of the staff for PBL included, but were not limited to, summer professional development, ongoing professional development, project planning interventions, and final assessment opportunities for PBL.

Participants

Participants were comprised of attendees (*n = 24*) of the 2012 PBL Summer Institute. There were secondary school teachers from six sites that self-selected to attend the two week PBL professional development program for cross-curricular, interdisciplinary, design. Participants were from the same school district and subject to the same collective bargaining contract that: (a) did not require teacher participation in professional development outside of the school year, (b) sets a maximum number of hours of required meetings or professional development held at schools, and (c) did not have provisions for the systematic adoption of new teaching practices without negotiations. While publicly published information on student and school sites was collected during this study, no minors or students participated in this study as the goal was to understand adult human behavior. While teachers were not paid to participate in

this research they did receive compensation for participating in the professional development workshop in an amount up to $2,000.

Data Gathering Methods and Procedures

The purpose of action research is to address a local phenomenon and provide useful information to initiate positive change (Plano Clark & Creswell, 2010). This mixed method action research plan utilized triangulation (Plano Clark & Creswell, 2010) to explore motivational factors and common pedagogical values of teachers that had chosen to implement PBL. Triangulation is a set of procedures for simultaneous collection, and separate analysis, of quantitative and qualitative data for the purpose of establishing a better understanding of a phenomenon by offsetting the strengths and weaknesses of each methodology (Plano Clark & Creswell, 2010). Triangulated methodology was also used to increase both content and project validity. Member checks and comparisons to applicable research were conducted. Data collection occurred over an eight week period and was analyzed after the collection of all data.

Quantitative research examined two null hypotheses on the topics of school culture and desired pedagogical outcomes. Null hypothesis one was: there are no common characteristics in school culture for teachers that choose to attend the PBL Summer Institute. Null hypothesis two was: there are no common pedagogical outcomes that are being sought for those teachers that choose to attend the PBL Summer Institute. All attendees ($n = 24$) of the 2012 PBL Summer Institute were asked to take the quantitative survey that included (a) background information, (b) questions on teacher culture, (c) questions on student culture, and (d) questions on desired pedagogical

outcomes. The survey was anonymous and administered through a website. With the exception of background questions, quantitative instruments were based upon those used or proposed in peer-reviewed research (Ravitz, 2010; Stearns et al., 2012).

Qualitative research was comprised of focus groups and interviews. Open-ended questions were utilized in each forum along with requests for time sequencing and rank ordering the motivators identified by the participants. The same questions were to be used with each group. Focus groups and interviews were recorded by the author taking notes of participant responses. All responses were subject to member checks to clarify responses, categorize responses as intrinsic or extrinsic, and to group responses into themes.

Instruments

Triangulation requires instruments and methods for collecting both quantitative and qualitative data (Plano Clark & Creswell, 2010). Instruments developed for this study were comprised of questions to collect teacher background information, questions from or based upon those used in peer-reviewed studies, and questions developed by the author. All instruments underwent validity and reliability approval by the assigned action research faculty sponsor after feedback from critical reviews. Information gathered was subject to member checks and critical friend reviews.

The quantitative portion of this research was conducted through an anonymous survey. The survey was comprised of background information and two parts that align to the two quantitative null hypotheses. With the exception of background information, the survey was on a 5-point Likert Scale (Plano Clark & Creswell, 2010). All attendees (n =

24) of the 2012 PBL Summer Institute were requested to take the survey. After collecting descriptive information the survey had two parts.

Part one of the survey focused on school culture and proposes the same questions used in the Ravitz (2010) study on PBL. There were 11 questions in this section, four on teacher culture and seven student culture. The four questions on teacher culture examined what teachers did in their last semester of school on the topics of: (a) regular meetings on student learning, (b) participation in shaping the school's norms, values, and practices, (c) instructional coaching and classroom visits, and (d) collective engagement in school decisions. At the conclusion of this section participants had the opportunity to contribute additional information on teacher culture in an open text box. The seven questions on student culture examined how teachers interacted with students on the topics of: (a) individual meetings, (b) student to teacher academic relationships, (c) learning goal reviews, (d) student decision making capacity, (e) peer support, (f) student effort, and (g) depth of knowledge. At the conclusion of this section participants had the opportunity to contribute additional information on student culture in an open text box.

Part two of the survey examined pedagogical outcomes. Questions in this section were formed based upon the Stearns et al. (2012) instrument for PBL classroom instruction as a guide, with the exception of question 5 that asked about California state testing. There were 10 questions on what was important to the teachers about their curriculum and instruction on the topics of: (a) defined outcomes, (b) rigorous content and higher order thinking skills, (c) student continuum of knowledge, (d) subject/grade level standards, (d) California state test questions, (e) interdisciplinary/cross-curricular,

(f) high functioning group activities, (g) assessment practices, (h) engaging students based upon prior knowledge, and (i) culturally diverse contexts. At the conclusion of this section participants had the opportunity to contribute additional information on pedagogical outcomes in an open text box.

Qualitative research was gathered from purposeful samples and utilized interviews with teacher program participants (*n = 2*) and focus group meetings with two participating teams (*n = 7*). The first three questions of the interview focused on the identification of motivators that led to the teacher's adoption of PBL. The first question was open-ended:

- What motivational factors, categorized as either intrinsic or extrinsic, made you decide to attend your first PBL Summer Institute?

This was followed by what was referenced as question two. This was comprised of the direction of a forced choice timeline sequence of motivators identified in question one, then closed-ended question, and finally an open-ended question. Question two was presented as:

- Based upon the motivational factors that you have identified, please place those items in sequential order in your journey to decide to attend your ***first*** PBL Summer Institute.
- Do you think that the sequential order was an important part of your decision to attend your first PBL Summer Institute?
- Please explain why.

This was followed by what is referenced as question three. This was comprised of the direction of a forced choice rank order of motivators identified in question one, then a closed-ended question, and finally an open-ended question. Question three was presented as:

- Based upon the motivational factors that you have identified, please rank order those items in terms of importance in your decision to attend your ***first*** PBL Summer Institute.
- Why did you rank the highest and lowest items that way?

The fourth focused on what motivators may have led the teachers to adopt PBL sooner in their career. This question was open-ended:

- What would have helped you to decide to attend your ***first*** PBL Summer Institute earlier in your career?

At the end of the interview participants made suggestions and recommendations pertaining to future improvements for the PBL Summer Institute.

Table 1

Procedural Chart

Purposes as related to the study's question	Data Gathering Method	Data Sources	Timing	Type of Data Collected	Key Questions, Concepts, and Observation
To determine if there are common characteristics of teacher culture for those who have chosen to attend PBL summer professional development.	Teacher survey Quantitative analysis	1. Teachers, full group	At the beginning of the project	Cultural elements on a Likert scale	Null hypothesis one: there are no common characteristics in school culture for teachers that choose to attend the PBL summer institute.
To determine if there are common pedagogical outcomes that teachers are seeking for their students.	Teacher survey Quantitative analysis	1. Teachers, full group	At the beginning of the project	Desired pedagogical outcomes on a Likert scale	Null hypothesis two: there are no common pedagogical outcomes that are being sought for those teachers that choose to attend the PBL summer institute.
To gain insight as to the student body of the schools where teachers are choosing to attend PBL summer professional development.	Records Teacher survey Quantitative analysis Descriptive analysis	1. 2011-2012 budget book 2. School Accountability Report Card 3. Teachers, full group	At the beginning of the study	Metrics on diversity, gender, socioeconomic status, and school structure/size	What are the descriptive statistics in the school's diversity, gender, or socio-economic status of teachers choosing to attend the PBL summer institute? How does that compare to the district average? Are there special considerations in relation to school structure or size?
To gain insight as to what kinds of motivators help teachers choose to attend their first PBL summer professional development.	Interviews and focus groups Qualitative analysis, theme building	1. Teachers 2. PBL Teams	During the study	Identification of motivators	What motivational factors, categorized as either intrinsic or extrinsic, made you decide to attend your ***first*** PBL Summer Institute?
To determine if there are common sequential orders of motivators	Interviews and focus	1. Teachers	During the study	Sequential order or	Based upon the motivational factors that you have

that help teachers choose to attend their first PBL summer institute.	groups Qualitative analysis, sequential order, theme building	2. PBL Teams		motivators	identified, please place those items in sequential order in your journey to decide to attend your *first* PBL Summer Institute. Do you think that the sequential order was an important part of your decision to attend your first PBL Summer Institute? Please explain why.
To determine if there are common motivators that help teachers choose to attend their first PBL summer institute.	Qualitative analysis, rank order, theme building	1. Teachers 2. PBL Teams	During the study	Rank order of motivators	Based upon the motivational factors that you have identified, please rank order those items in terms of importance in your decision to attend your *first* PBL Summer Institute. Why did you rank the highest and lowest items that way?
To gain insight into what kind of motivators within our control might have helped teachers choose to attend their first PBL summer institute earlier in their career.	Interview and focus groups Qualitative analysis, theme building	1. Teachers 2. PBL Teams	During the study	Identification of motivators	What would have helped you to decide to attend your *first* PBL Summer Institute earlier in your career?

Ethical Considerations

All research requires ethical considerations (Mills, 2011; Plano Clark & Creswell, 2010). Mills (2011) presents the American Psychological Association's *Ethical Principles of Psychologists and Code of Conduct* as applicable to action research (p. 26). These five principles are consistent with the Belmont Report and include the headings: (a) beneficence and nonmaleficence, (b) fidelity and responsibility, (c) integrity, (d)

justice, and (e) respect for people's rights and dignity. Action research is engaged in a local phenomenon and is not necessarily peer-reviewed or published (Mills, 2011). Some institutions do not require submission to an *Institutional Review Board*. Research that is not subject to an Institutional Review Board is still held to ethical standards set forth by the affiliated institution and the applicable code of ethics. This study did submit to an Instructional Review Board and was granted exempt status.

A document of informed consent was developed to ensure that subjects entered the research of their own free will. The informed consent letter included: (a) purpose of research, (b) associated activities, (c) procedures, (d) assurance of confidentiality and anonymity, (e) disclosure of alternatives, and (f) description of the benefits and risks. Benefits of this research included direct application of positive motivators for teachers to adopt innovative pedagogical practices such as PBL to advance student achievement. The benefit is accessible to subject participant and administrators to apply to school sites and district-wide initiatives.

The primary risks associated with this research study are confidentiality and anonymity. To ensure risks were minimized surveys were conducted without personal identifiers and qualitative information did not use direct identifiers. Electronic documents used during the research were password encrypted with research information, identifiers, and legends having been securely stored separately. Paper documents associated with this research are stored in a locked file location separate from the research documents and will be destroyed at a time that is applicable to the research either being published or unpublished but not exceeding five years.

Summary

This is a mixed method action research study that examines teacher motivation factors in the adoption of PBL. The operational definition of PBL was established within the attributes defined by Bell (2010) and being cross-curricular requiring the participation of at least one Career Technical Education teacher. The setting was a large urban school district in California with participants being teachers who have self-selected to attend a PBL summer professional development opportunity. The gathering of quantitative and qualitative data allowed for triangulation with bracketing, member checks, and external audits by critical friends increasing the validity of findings. Instruments developed were based upon existing peer-reviewed studies and questions developed by the author. Instruments were subject to critical checks and action research faculty sponsor review. This study did not qualify for a full review of the Instructional Review Board, but did adhere to all ethical standards established. Findings in Chapter 4 are comprised of quantitative and qualitative analysis as well as descriptive statistics. In the next chapter the author presents the results of data analysis, reviews findings, and discusses the limitations of the study.

Chapter 4

Data Analysis and Discussion

The purpose of this study was to improve the author's understanding of some of the motivators and pedagogical values, within our control, that encourage teachers to initiate a change in their instructional practice to PBL. Action research provides useful information to initiate positive change (Plano Clark & Creswell, 2010). Findings from this study were used to develop an action plan to nurture, facilitate, and promote motivators and pedagogical values to increase the number of secondary teachers that self-initiate a move to the practice of PBL. The purpose of increasing the number of secondary teachers that engage in PBL was to advance student achievement.

Findings

The author presents findings of this mixed method study in the areas of descriptive statistics, quantitative results, and qualitative results. Descriptive statistics were used to examine 2012 PBL Summer Institute participant's school site's administrative structures and compare their school site's ethnic diversity, percentage of English Learners, and percentage of free and reduced lunch eligibility with those of the district. Quantitative analysis and results provide the basis to confirm or reject the two null hypotheses of this study. Qualitative results provide information on the intrinsic and extrinsic motivators that help teachers attend their first PBL summer institute and those that would have helped them change to PBL earlier in their career. The author triangulated and compared these findings with those from studies reviewed in Chapter 2 in the discussion section of this chapter.

Descriptive statistics of attendees' schools and district.

There were six high school sites with *n = 24* attendees of the 2012 PBL Summer Institute. A review of the school's published metrics indicates an Academic Performance Index score for these schools that ranged from 649 to 825. The schools with attendees had an English Learner percentage that ranged from 20% to 40%. These schools had 43% to 100% of students that qualified for free and reduced lunch. School with >80% of students that qualify for Title I are counted as 100% free and reduced lunch. Of the schools that attended all were engaged is some form of high school redesign initiative.

Table 2

2012 Schools and Attendees by School Type

		Redesign		Traditional	
School	Attendees	CTSS	SLC/CA	SLC/NP	TCHS
School A	3		X		
School B	3		X		
School C	3	X			
School D	6	X			
School E	4		X		
School F	5		X		
Total	24	2	4	0	0
Percentage by school type	100%	33.33%	66.67%	0%	0%
Percentage by attendees	100%	37.50%	62.50%	0%	0%

Notes: CTSS = career themed small school; SLC/CA = small learning community/career academy; SLC/NP = small learning communities are on my campus but I do not participate; TCHS = traditional comprehensive high school.

The district reports (San Diego Unified School District, 2012) its diversity as being 46.5% Hispanic or Latino, 23.5% White, 10.3% African American, 5.4% Filipino,

5.3% Multi Racial/Ethnic, 3.3% Asian, 0.6% Pacific Islander, and 0.3% native American. The district API was listed as being 808 and was in year two of *Program Improvement*. The socioeconomic makeup of the district is 28% English Learners, and 64.9% eligible for free and reduced lunch. The diversity of the six participating schools varied. Those schools with higher English Learners percentages had higher Hispanic or Latino populations. While the district does not report any single sub-group as a majority, four of the six schools have >50% Hispanic or Latino populations with one school having 72% compared to the district average 46.5%.

Quantitative results.

Quantitative data examined two null hypotheses on the topics of school culture and desired pedagogical outcomes. Surveyed participants (n=10) reported that they primarily taught within a single subject with 9 of 10 teaching multiple grade levels. Seven of the teachers reported more than 10 years teaching experience with six teachers having achieved a Master's degree, three a Bachelors, and one a technical degree which is permissible for CTE teachers in the state of California with a *Designated Subjects Credential*. All but one participant indicated that they had been using PBL for three or more years with the majority having attended three or more PBL summer institutes. On a five point Likert Scale where 1 = not important and 5 = essential, survey participants indicated that being paid for the PBL summer institute was an important factor in their decision to attend with a median of 4, M=3.2, and a mode of 3 which indicated a 3 = important, but not a 4 = very important.

Table 3

Survey Participants' Descriptive Responses

	Curriculum		Teaching Experience		Education/PD		Pay
n=10	Primary	Secondary	Years	W/PBL	Degree	PBL PD	Factor
1	O/E	O/E	15+	5-9	M	3	3
2	SS		10-14	1-2	M	3	3
3	ELA	CTE	10-14	3-4	M	4	4
4	ELA	CTE/VPA	15+	5-9	M	3	3
5	O/E	O/E	10-14	10-14	A/T	5	5
6	CTE		3-4	3-4	B	3	3
7	CTE		5-9	5-9	M	3	3
8	CTE		15+	15+	M	2	2
9	CTE		3-4	3-4	B	2	2
10	ELA		10-14	10-14	B	4	4

Notes: O/E = other/elective; SS = social studies; ELA = English language arts; CTE = career technical education; VPA = visual and performing arts; W/PBL = with PBL; M = masters; B = bachelors; A/T = associate's or technical; PD = professional development; PBL PD = two week PBL professional development sessions. Pay factor is on a 5 point Likert scale where 1 = not important and 5 = very important.

The first hypothesis stated that there are no common characteristics in school culture for teachers that choose to attend the PBL Summer Institute. The purpose of this null hypothesis was to determine if there were common characteristics of teacher culture for those that have chosen to attend PBL summer professional development. This first null hypothesis had two sections of questions both based upon a study of Ravitz (2010). This information was collected from participants (*n = 10*) through an anonymous survey online during the duration of the eight weeks of data collection.

The first series of questions was based upon teacher culture at school sites and was comprised of four questions. These questions were related to how teachers interact

with each other on campus. On a five point Likert scale where 1 = never and 5 = all the time, the median was 3.25 and M=3.15. Table 3 summarizes the M, Var (x), and SD by question. In conducting an ANOVA the author finds evidence to support the null hypothesis noting a P-value of 0.467 with F less than F crit. This does not meet the established standard of the research plan where stated that $p \leq \alpha$ with $\alpha = 0.05$.

Table 4

Summary of Teacher Culture Responses

Last semester, teachers at my school . . .	*n*	*M*	*Var(X)*	*SD*
Had regularly scheduled meetings that focused on instructional practices and students' learning	10	3.4	1.156	1.075
Took a major role in shaping the school's norms, values, and practices	10	3.2	1.289	1.135
Had instructional coaching or critical friend visits between teachers	10	2.7	1.122	1.059
Were involved in school leadership, setting policies, or making important decisions for the school	10	3.3	0.900	0.949

Notes: n = number of responses; M = mean; Var(x) = variance; SD = standard deviation.

Table 5

ANOVA of Teacher Culture Responses

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Questions	2.900	3	0.967	0.866	0.467	2.866
Within Questions	40.200	36	1.117			
Total	43.100	39				

Notes: Method of $p \leq \alpha$ with $\alpha = 0.05$. SS= sums of squares; df = degrees of freedom; MS = means square; F = F distribution; P-value = probability value; F crit = F critical value.

The second group of seven questions related to how teachers interact with students in their classrooms. On a five point Likert scale where 1 = never and 5 = all the

time, the median was 3.4 and M=3.31. Table 6 summarizes the M, Var(x), and SD by question.

Table 6

Summary of Student Culture Responses

Last semester, how often did most of my students do the following	*n*	*M*	*Var(X)*	*SD*
Met individually with me to reflect on their progress and receive support	10	3.4	1.378	1.174
Formed close academic advising or mentoring relationships with me or another teacher	10	3.9	0.767	0.876
Had an individual statement of learning goals that they periodically reviewed with me	10	2.6	0.933	0.966
Made their own decisions about what to learn or how to learn it	10	2.8	1.067	1.033
Encouraged and supported their peers as learners	10	3.7	0.456	0.675
Gave their best effort and made the most of the opportunities to learn	10	3.5	0.500	0.707
Demonstrated that they were striving for in-depth knowledge, not just superficial learning	10	3.3	0.456	0.675

Notes: n = number of responses; M = mean; Var(x) = variance; SD = standard deviation.

Should there be little overall variance between and within groups of questions this finding would support that teachers are engaged in more personalized learning relationships with their students. In conducting an ANOVA the author found evidence to reject the null hypothesis noting a P-value of 0.012 with F exceeding F crit. This meets the established standard of the research plan where p was $\leq \alpha$ with $\alpha = 0.05$. Although the first series of questions on teacher culture did not support the rejection of the null hypothesis the second series of questions did. As the null hypothesis list that there are no common characteristics, a finding to reject the null hypothesis on either one of the two, or

both, sections supports rejecting the entire null hypothesis. This suggests that there are common characteristics in school culture for teachers that choose PBL.

Table 7

ANOVA of Student Culture Responses

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	13.086	6	2.181	2.748	0.020*	2.246
Within Groups	50.000	63	0.794			
Total	63.086	69				

Notes: method of $p \leq \alpha$ with $\alpha = 0.05$. * notes that $p \leq 0.05$. SS= sums of squares; df = degrees of freedom; MS = means square; F = F distribution; P-value = probability value; F crit = F critical value.

The second null hypothesis stated that there are no common pedagogical outcomes that are being sought for those teachers that chose to attend the PBL Summer Institute. The purpose of this null hypothesis was to test if there were common pedagogical outcomes that teachers were seeking for their students. Questions in this section were formed based upon the Stearns et al. (2012) instrument for PBL classroom instruction. This information was collected from participants (*n = 10*) through the anonymous survey online during the duration of the eight weeks of data collection. On a five point Likert scale where 1 = strongly disagree and 5 = strongly agree, median was 4.2, M=4.18, and mode was 4.2. Table 8 summarizes M, Var(x), and SD by question.

Should there be little variance between and within groups of questions, the finding would support that teachers had desired outcomes that were aligned with the defined outcomes of PBL. In conducting an ANOVA the author found evidence to reject the null hypothesis noting a P-value of 0.01 with F exceeding F crit. This exceeds the established standard of the research plan whereby $p \leq \alpha$ with $\alpha = 0.05$. This suggests that

there are common pedagogical outcomes that were being sought for in those teachers that attended the PBL summer institute in 2012

Table 8

Summary of Pedagogical Outcomes by Question

It is important to me that my curriculum and instruction . . .	*n*	*M*	*Var(X)*	*SD*
Have well defined outcomes	10	4.4	0.267	0.516
Contain rigorous content in the course content subject area that leads to higher-order thinking skills	10	4.6	0.267	0.516
Lead to a student being able to demonstrate a continuum of knowledge and understanding	10	4.5	0.278	0.527
Assess subject/grade level standards	10	3.9	0.322	0.568
Include items on state standardized tests (STAR and CAHSEE)	10	3.6	0.489	0.699
Are interdisciplinary/cross-curricular	10	4.3	0.456	0.675
Contain high functioning activities requiring students to work in organized groups	10	4.2	0.178	0.422
Have assessments that are continuous and varied	10	4.2	0.400	0.632
Engage students based upon their prior knowledge	10	4.0	0.444	0.667
Engage students around their cultural diverse contexts	10	4.1	0.322	0.568

Notes: n = number of responses; M = mean; Var(x) = variance; SD = standard deviation.

Table 9

ANOVA of Pedagogical Outcomes by Question

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7.960	9	0.884	2.584	0.011*	1.986
Within Groups	30.800	90	0.342			
Total	38.760	99				

Notes: method of $p \leq \alpha$ with $\alpha = 0.05$. * notes that $p \leq 0.05$. SS= sums of squares; df = degrees of freedom; MS = means square; F = F distribution; P-value = probability value; F crit = F critical value.

Qualitative results.

Focus group participants (n=3, n=4) and interviews (n=2) responded to four questions and made suggestions on how to improve the delivery of PBL and increase teacher participation. The first question was open-ended and established the basis for the second and third question. The first question was "what motivational factors, categorized as either intrinsic or extrinsic, made you decide to attend your ***first*** PBL Summer Institute?" The question generated 31 responses that went through a process of member checks to increase accuracy of the response and the validity of categorization and themes (Plano Clark & Creswell, 2010).

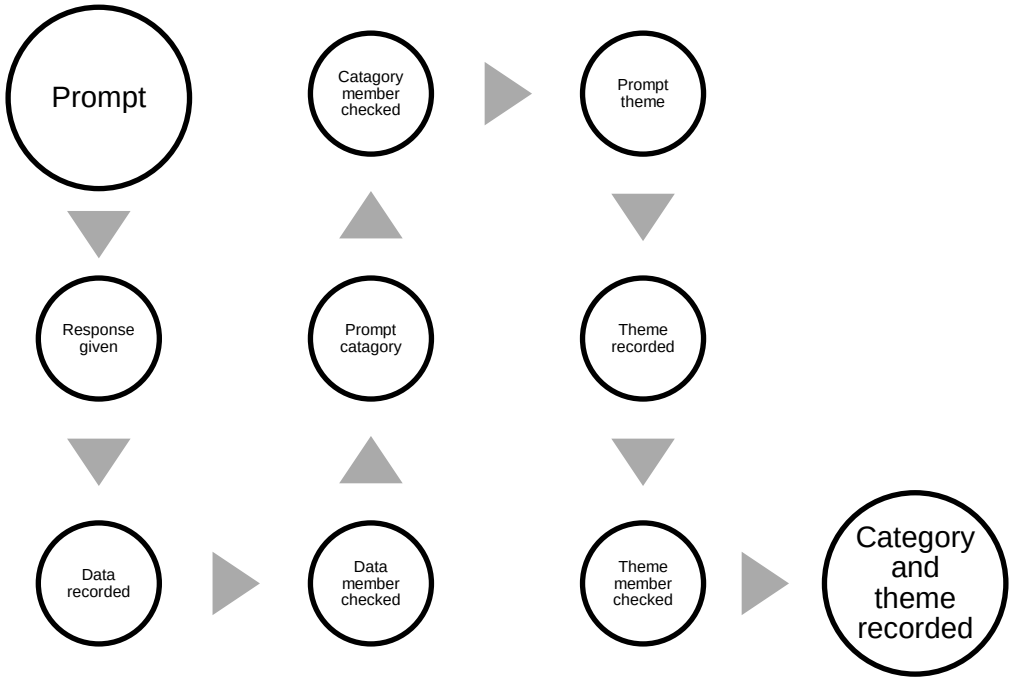

Figure 1. Simple process map of recording and sorting data with member checks for this study. To increase accuracy and validity a process map of member checks was used during focus groups and interviews. Additional subsequent member checks occurred.

Of the 31 responses participants identified 15 as being extrinsic and 16 as being intrinsic. Responses were grouped by emerging themes that participants identified as

being (a) environmental, (b) improvement, (c) compensation, (d) beliefs, (e) peer interactions, and (f) compliance. The most commonly identified theme was environmental which had six submissions as intrinsic and six submissions as extrinsic for a total of 12 responses. The second theme was compensation and represented six occurrences all being categorized as extrinsic. There were four responses within the theme of improvement and all were categorized as being intrinsic. An additional four responses fell under the theme of peer interactions with three being categorized as intrinsic and one extrinsic. Three responses were grouped under the theme of beliefs and were categorized as intrinsic. Finally, two responses fell within the theme of compliance with both responses categorized as extrinsic.

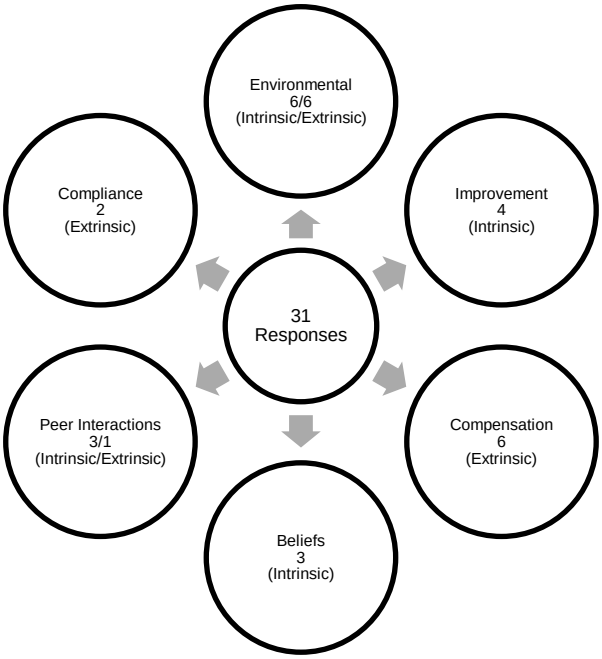

Figure 2. Summary of responses by theme and category. Through a process of member checking participants identified their responses as being in a category of either intrinsic or extrinsic. Through additional member checks six themes were established.

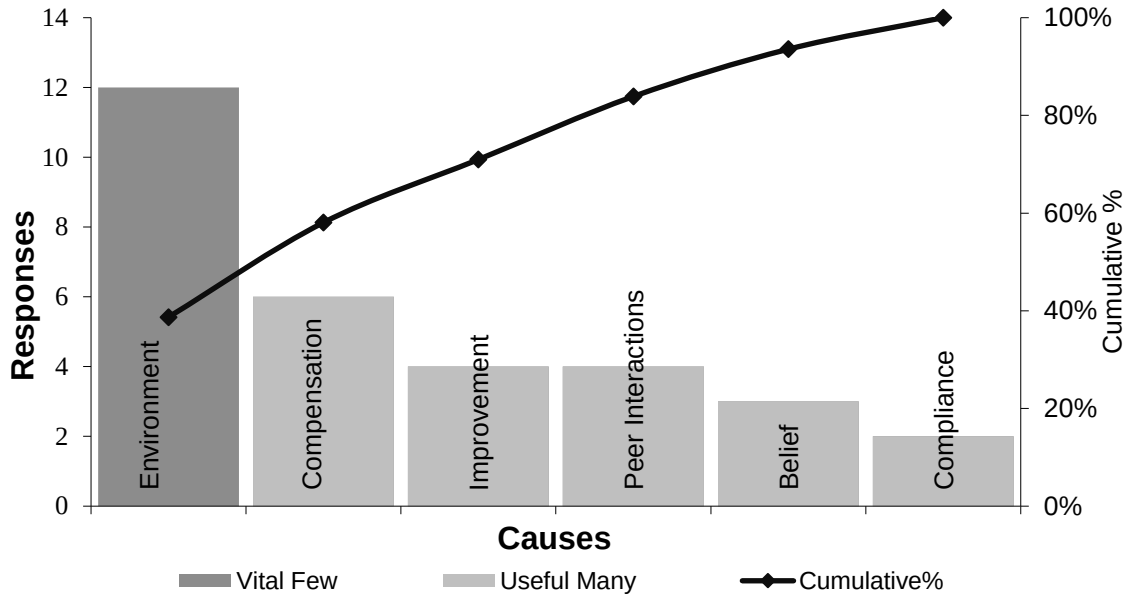

Figure 3. Pareto chart of the 31 responses to the first question organized by theme. In this Pareto the measure to establish the Vital Few was meeting or exceeding 25%.

The second group of questions began with having the participants choose a timeline sequential order of the motivators that they had identified in question one. This was a forced choice linear series of events and activity with no ties allowed. Once a sequential order was established participants were asked to reflect if sequence was an important part of their decision to attend their first PBL professional development. They were then asked to reflect upon why sequencing was or was not important in their decision making process.

Participants were successful in placing the identified motivators into a time sequence. All but one of the participants indicated that the sequence of events was important in helping them to choose to attend their first PBL summer institute. In sequence all participants reported that their first step involved an intrinsic motivator with

the most frequent theme mentioned being environment. All but one indicated that their second sequence of events involved extrinsic motivators with the most frequent theme mentioned being environment including the one intrinsic motivator on this topic. Of the six that indicated a third item in sequence all but one indicated extrinsic forces with compensation being represented four times. Of the four participants that listed a fourth sequential event all identified them as being intrinsic motivators and split evenly between improvement and peer interactions. Table 10 provides a summary of responses by category and if participants felt the sequence item was important.

Table 10

Participants' Time Sequence Steps and Analysis by Percentages

		Motivator by %		
Sequence Step	*n* =	Internal	External	Important by %
1	9	100%	0%	89%
2	9	11%	89%	89%
3	6	0%	100%	83%
4	4	100%	0%	75%
5	2	50%	50%	100%
6	1	0%	100%	100%

Notes: Important by % = the percentage of participants that felt that the time sequence step was important.

The third group of questions began with having the participants choose a rank order of the motivators that they had identified in question one. This was a forced choice ranking activity without equal weights or ties being allowed. Once they had established a rank order participants were asked to reflect on why they ranked the items in the order that they did.

Participants were successful in placing the identified motivators into a rank order. All of the participants indicated that the top ranked item was important in helping

them to choose to attend their first PBL summer institute. In ranking seven of nine participants indicated that an intrinsic motivator was important. This related to three intrinsic motivators for beliefs, two intrinsic and one extrinsic for environment, one intrinsic for improvement, one intrinsic for peer interactions, and one extrinsic for compensation. In second ranking six selected extrinsic motivators and three intrinsic with the overall topic of environment being the most selected. This related to three intrinsic environment, three extrinsic environment, two extrinsic compliance, and one extrinsic peer interaction.

Table 11

Participants' Rank Order and Analysis by Percentages

		Motivator by %		
Rank Order	*n* =	Internal	External	Important by %
1	9	78%	22%	100%
2	9	33%	67%	100%
3	6	33%	67%	100%
4	4	75%	25%	100%
5	2	50%	50%	100%
6	1	0%	100%	100%

Notes: Important by % = the percentage of participants that felt that the time sequence step was important.

Of the six that indicated a third item four selected extrinsic motivators with two identifying intrinsic motivators. Here three listed the extrinsic motivator of compensation, two identified environment with one intrinsic and one extrinsic, and one identified the intrinsic motivator of improvement. Of the four participants that listed a fourth motivator three identified intrinsic motivators and one extrinsic. Two identified peer interaction as intrinsic, one identified improvement as intrinsic, and one identified compensation as

extrinsic. Table 11 provides a summary of responses by category and if participants felt the sequence item was important.

The fourth question was open-ended on the topic of what motivational factors would have helped the participants to decide to attend their first PBL professional development earlier in their career. This question was answered by all participants (*n* = *9*) and generated 14 responses. Responses went through a process of member checks to increase accuracy and increase the validity of categorization and themes (Plano Clark & Creswell, 2010). Of the 14 responses participants categorized 11 as being extrinsic and 3 being intrinsic. Responses were grouped into the themes of (a) peer interactions, (b) compensation, (c) environmental, and (d) communication. The most frequently listed theme was on peer interactions with five extrinsic and one intrinsic, three were on communication as being an extrinsic motivator, three were on environment with two extrinsic and one intrinsic, two on compensation as being extrinsic, and one on improvement as being an intrinsic motivator.

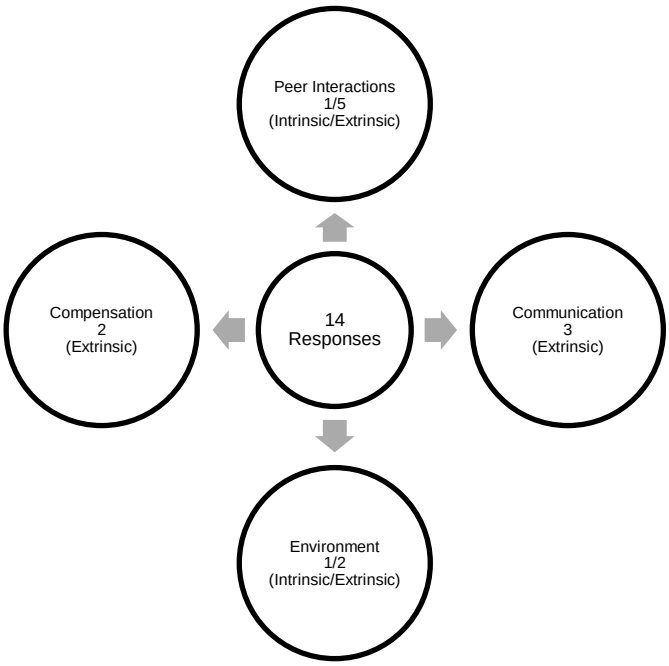

Figure 4. Summary of responses to question four by theme and category. Through a process of member checking participants identified their responses as being in a category of either intrinsic or extrinsic. Through additional member checks four themes were established.

As the fourth question was open-ended additional responses were generated on the topic of how the PBL Summer Institute could be improved. Participants ($n = 9$) generated 21 responses with 18 being extrinsic and 3 being intrinsic. Answers were grouped into three themes of (a) communication, (b) structural, and (c) deliverables. The most frequently listed theme was on structure with 14 extrinsic and 3 intrinsic. The additional two themes of communication and deliverables received one response each with both being categorized as extrinsic.

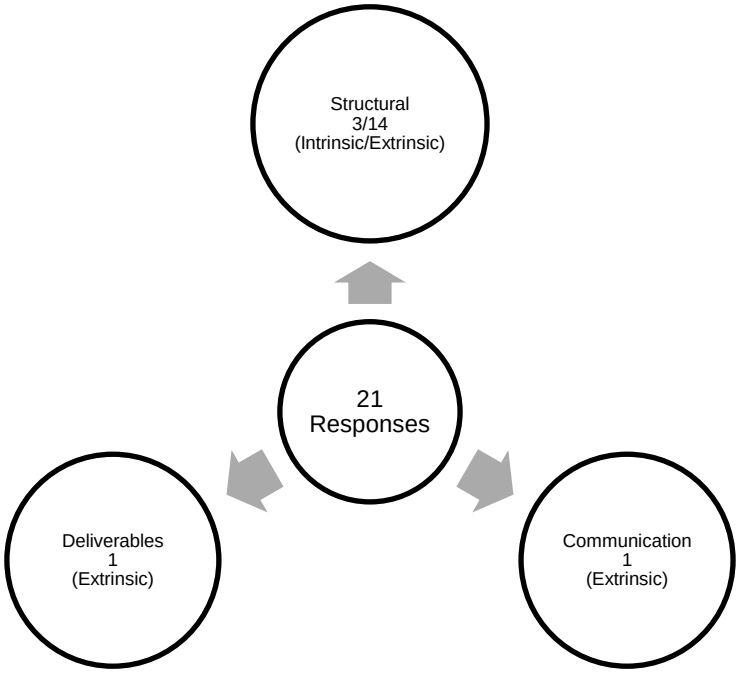

Figure 5. Summary of responses of ways to improve the PBL Summer Institute. Through a process of member checking participants identified their responses as being in a category of either intrinsic or extrinsic. Through additional member checks four themes were established.

Discussion

The findings of this study support those from other studies reviewed in Chapter 2. Attendees of the PBL Summer Institute 2012 fall under redesign categories that Ravitz (2012) found were more likely to find success in the implementation of PBL. Ravitz's categories differed slightly in designation without specific mention of SLCs. Ravitz references school types as being: (a) comprehensive, (b) other small schools, or (c) reform models. The reform model of SLCs is also known as school-with-a-school, house, and Career Academy. This study designated categories by those known to the local participants. As Action research describes a local phenomenon (Mills, 2011; Plano Clark & Creswell, 2010), local terminology was used to increase validity of reporting.

As a constructivist learning activity (Mills 2009; Baumgartner & Zabin, 2008; Geier et al., 2008; Summers & Dickenson, 2008) PBL may require teachers to increase their content knowledge in areas outside of their field of expertise and in their primary discipline. Surveyed participants (*n = 10*) reported that they primarily taught within a single curriculum area with nine out of ten teaching multiple grade levels. Four of the six respondents with a *Single Subject*, or standard secondary school, teaching credential reported instructing students in more than one curriculum category. An additional four respondents indicated that their primary curriculum area was in CTE. This does not necessarily mean that they were teaching in one single area of CTE as in the state of California CTE teachers can receive a Designated Subjects Credential with authorizations to provide instruction in several areas of CTE curriculum. All but one participant indicated that they had been using PBL for three or more years with the majority having attended three or more PBL summer institutes. On a five point Likert Scale, where 1 = not important and 5 = essential, survey participants indicated that being paid for the PBL summer institute was an important factor in their decision to attend with a median of 4, a mean of 3.2, and a mode of 3 which indicated a 3 = important but not a 4 = very important.

There were two series of questions that explored the first null hypothesis on school culture. The instruments utilized were similar to those used in the Ravitz (2010) study. The first series of questions was on teacher culture and did not meet the standard to reject the null hypothesis. From the first series of questions Ravitz found that all categories of schools were less likely to engage in the practice of critical friends. Data

collected in this study is reported on Table 4 and supports this finding with the practice of critical friends scoring the lowest of the four questions having a mean of 2.7 on a five point Likert scale.

The second series of questions was on student culture and did meet the standard to reject the null hypothesis. The rejection of the null hypothesis supports the findings of Ravitz with only reform model schools participating in this study. Although both series of questions did not meet the standard to reject the null hypothesis, median scores reflected in Tables 5 and 6 suggest that 72.7% of teacher to teacher and student to teacher cultural elements had an M above 3.2 with a range of 3.2 to 3.8. This was conducted on a five point Likert scale where 1 = never and 5 = all the time with a 3 = sometimes and a 4 = frequently. While Main (2009) asserted that student and teacher culture are intrinsically linked this study did not explore student culture in the model of Main. Rather teacher culture references how teachers interact and student culture represents how teachers and students interact.

The purpose of the second group of questions on the survey was to establish if there were common curriculum outcome factors that relate to why teachers self-initiate a change in practice. A null hypothesis was established that stated that there are no common pedagogical outcomes that are being sought for those teachers that chose to attend the PBL Summer Institute. The instrument developed for this section was based upon a report from Stearns et al. (2012) that recommended a teacher observation instrument for PBL. The purpose of their observation form was to record elements of

student skill sets that are not necessarily addressed by curriculum standards or standardized tests.

The second null hypothesis was rejected suggesting that there are common pedagogical outcomes that teachers engaged in the PBL Summer Institute 2012 were seeking. The instrument utilized on the second null hypotheses was conducted on a five point Likert scale where 1 = never and 5 = all the time. The range of *M* answers from Table 8 was from 3.6 to 4.6 with a 3 = sometimes and a 4 = frequently. For the 10 questions used in this instrument 80% scored at above 4.0. The two lowest scores of 3.6 related to inclusion of information on state testing with 3.9 relating to grade level standards. The two highest scores were that of 4.6 in the area of rigorous content and higher-order thinking skills and 4.5 on the topic of demonstrating a continuum of knowledge and understanding.

These findings suggest that teachers of the 2012 PBL Summer Institute were focusing on outcomes similar to those recommended by the American Management Association (2010). The American Management Study with n=2115 found that "critical thinking, creativity, collaboration, and communication" (p. 1) were the highest priority skills being sought by companies in their future workforce. While there is evidence that PBL increases student scores on standardized tests (Walker & Leary, 2009; Geier et al., 2008), this finding suggests that for participants of this study test scores were not as high of a consideration as others. State testing was the lowest scored item with a 3.2. The descriptive case study of Baumgartner and Zabin (2008) found that PBL provided higher degrees of student engagement that led to increased student understandings of their

capabilities for achievement. In Table 8 understanding, interdisciplinary, and high functioning activities all scored highly with a mean score of 4.5, 4.3, and 4.2 respectively.

The purpose of the qualitative portion of the study was to gain understanding of intrinsic and extrinsic motivators that may have led to a teacher's move to PBL. The interviews generated a total of 31 motivational factors with 15 being extrinsic and 16 being intrinsic. Participants identified six theses for the 31 responses: (a) environmental, (b) improvement, (c) compensation, (d) beliefs, (e) peer interactions, and (d) compliance. While the vital few identified were inside of the theme of environmental, an examination of the two leading themes reveals that 12 of the 18 responses fell within the category of extrinsic. Of the 12 extrinsic items listed many had links to uninterrupted planning time and compensation.

There were 12 responses in the area of environment. The six extrinsic responses were primarily tied to structured time for planning. Participants indicated that focused structured time was required to develop a balanced project that supported students engaging in deeper learning. This is consistent with the suggestions of Lattimer and Riordan (2011) that suggested that PBL was most effective when it balanced the project aspect that engaged students with an academically focused approach for deeper learning and understandings. The structured environment was tied to the theme of peer interactions with participants suggesting that working in groups is facilitated by the structure. Peer interactions were a theme that generated discussion around what one participant called out as "the loneliness of teaching." The collaborative nature of PBL and having structured group time was described as "very important to the process."

Intrinsic motivators from the theme of environment varied. Participants indicated that the competitive nature of PBL was a motivating factor. This was tied to student learning skills to meet the needs of the 21st century in alignment with several research studies (Alfeld & Bhattacharya, 2012; Withington et al., 2012; Roberson, 2011; Symonds, Schwartz, & Ferguson, 2011; American Management Association, 2010). Rodgers et al. (2009) conducted research on the importance of professional development during the first year of implementation of PBL. One participant stated that "knowing the quality of the PD provider made all of the difference. I knew I could trust them and that if they offered it that I should attend."

The theme of compensation was directly tied to the environmental theme with responses relating to structured time outside of the regular school year. Compensation was described by one member as being "not a reason to do it, but a rationalization of participating in a structured activity outside the school year." This summarized many participants' feelings on compensation with another member noting that "many teachers, particularly those in their first few years, see summer as a time for additional income." Another participant stated that "I would have participated in PBL sooner if I had known it was paid, but it was scheduled at the same time as summer school which I knew would bring some extra money."

The theme of improvement was categorized as being intrinsic. Every response in this area related to a self-identified need to improve or learn more. Bell (2010) found that an outcome of PBL for students was the engagement of personal reflection for

improvement. Participants suggested that their need to improve was part of their professional practice of reflection.

Questions two and three involved forced choice rankings of the 31 responses given in question one by timeline sequence and rank order. Most participants (*n = 9*) had only two motivators that led them to change their practice to PBL. Of the first two motivators by timeline sequence the first step was exclusively intrinsic and the second step was extrinsic for all by one participant. By rank order participants primarily listed their first item as intrinsic and second as extrinsic. Question one, two, and three focused on what did happen where question four relates to what might have been different in your process of adopting PBL.

In timeline sequence and rank order participants indicated their first steps in their journey towards adopting PBL involved intrinsic motivators. On the topic of what would have helped you to decide to attend your first PBL Summer Institute earlier in your career, 12 of the 14 responses were identified as extrinsic motivators. Rhodes et al. (2011) suggested that developing a comprehensive PBL program required the dedication of a team of teachers. The theme of peer interactions was centered on team structure and selection with one participant stating “for me, it has to do with who you get to work with” while another commented that “this is not just for education, this is the way the real world works—it collaborates.” Across themes the idea of understanding before committing was commented on with a participant stating “seeing the demonstration video of it helped me to understand what it should look like,” another noting that “it was not on

my radar," and a third indicating that having a team that "understands the commitment" as being important.

The fourth question was open-ended and generated responses on the topic of how the PBL Summer Institute could be improved. In this area 21 responses were given with 18 being extrinsic and 3 being intrinsic. Nearly all items fell within the extrinsic theme of structural modification of the PBL Summer Institute and support systems. Question four suggests that extrinsic motivators are an area that would have made a difference in an earlier adoption of PBL and an area where future improvements are centered.

A triangulation of findings suggest that participants had a more personalized relationship with their students, had aligned common pedagogical outcomes, and were motivated to start their change in practice based upon intrinsic motivators that can be supported by extrinsic motivators within our control. While participants identified intrinsic factors led both timeline sequence and in rank order importance, they did not dismiss the importance of extrinsic factors. Of those factors within the administration's immediate control Figures 1 and 2 demonstrate that there are 12 extrinsic conditions for consideration evenly divided between environment and compensation. Participants identified that nearly 79% of motivators that would have led them to adopt PBL earlier were extrinsic. For targeted areas for improvement participants indicated that nearly 86% of items listed were connected to extrinsic factors.

Limitations

The purpose of action research is to address a local phenomenon and provide useful information to initiate positive change (Mills, 2011; Plano Clark & Creswell,

2010). As this study is based upon local phenomenon it has limited inferential application. Inferential use is further diminished as no control groups were used. All participants fell under one the category as being from a reform school model and were therefore not a balanced representation of the types of schools from within the district.

The purpose of the study was to gain insight on how to increase the number of new participants in Constructivist practices such as PBL. Teachers that participated in this study were primarily from those that had already attended more than one year of a PBL two week summer professional development opportunity. Sample sizes were limited. While there were $n = 24$ attendees of the 2012 PBL Summer Institute less than half participated in the online survey with $n = 10$. Participants of the study were comprised of survey participants ($n = 10$) and those that were interviewed ($n = 9$) without knowing if those that were interviewed took the online survey.

Summary

The purpose of this study was to improve the author's understanding of some of the motivators and pedagogical values, within our control, that encourage teachers to initiate a change in their instructional practice to PBL. Quantitative findings rejected both null hypotheses one and two and suggest that there are common elements of school culture and pedagogical outcomes that were being sought by participants. Qualitative findings identified 31 motivators that led to participants adopting PBL, 14 motivators that may have led them to do so sooner, and 21 areas for future improvement of the PBL Summer Institute and support structures. While the majority of responses given for why a participant adopted PBL were intrinsic, those motivators that may have led them to adopt

practice sooner were primarily extrinsic as were those for future improvements. A triangulated finding suggests that participants had a more personalized relationship with their students, had aligned common pedagogical outcomes, and had clear motivators to initiate a change to PBL. Limitations to this study included limited sample size, not being inferential, not having a balanced representation of school types, and not using a control group. In the next chapter the author provides a summary and conclusions which include implications to practice and further research, how the results were shared, and a brief reflection on how the action research cycle is part of the author's professional and leadership practices.

Chapter 5

Summary and Conclusion

The purpose of this study was to improve our understanding of some of the motivators and pedagogical values that encourage teachers to initiate a change in their instructional practice to PBL. This study was conducted to help administration create an action plan to nurture, facilitate, and promote these elements with the goal improving student achievement through increasing the number of teachers that adopt the practice of PBL. This study used a mixed method research plan to explore school culture, common pedagogical values, and self-identified motivators of participants that attended a two week PBL professional development activity in the summer of 2012. Information was collected during an eight week period through an online survey and interviews.

Conclusions

The research question sought to understand what motivators and pedagogical values within the administration's immediate control might encourage teachers to self-initiate a change in their instructional practice to PBL. This study found that there are common motivators and pedagogical values within the administration's immediate control that may encourage teachers to self-initiate a change in their instructional practice to PBL. Extrinsic motivators within administration's control comprise 66% of the top two themes from teachers' responses. Extrinsic motivators within administration's control comprise nearly 86% of those listed by participants as being likely to have had them adopt PBL earlier and over 76% of those items listed for future improvement in the delivery and implementation of PBL.

The quantitative portion of this study explored two null hypotheses. The first null hypothesis stated that there were no common characteristics in school culture for teachers that chose to attend the PBL Summer Institute. Data was collected through an online survey with questions that examined teacher culture and student culture. An ANOVA was conducted and the null hypothesis was rejected based upon common characteristics in student culture. This suggests that there were common characteristics in school culture.

The second null hypothesis stated that there are no common pedagogical outcomes that are being sought for those teachers who chose to attend the PBL Summer Institute. In conducting an ANOVA the author finds evidence to reject the null hypothesis. This suggests that there were common pedagogical outcomes being sought by those in attendance. The rejection of both null hypotheses supports research reviewed in Chapter 2.

The qualitative research suggests that while intrinsic motivators were the first step in the participants' decision to adopt PBL, that extrinsic factors may have helped them to adopt the practice sooner. A triangulation of the data gathered suggests that teachers who study participants had more personalized relationship with their students, had common pedagogical outcomes, and were motivated to start their change in practice based upon intrinsic motivators that could be supported by extrinsic motivators within our control.

Attendees ($n = 24$) of the 2012 PBL workshop were from six schools that are considered reform model schools. Their API, diversity, and socioeconomic makeup varied according to their neighborhood. These schools were representative of their district by diversity and socioeconomic indicators, but were not a balanced representation of the

types of schools in the district as there were no comprehensive high schools listed. Participants of the study were comprised of survey participants (*n = 10*) and those who were interviewed (*n = 9*) without knowing if those who were interviewed took the online survey.

Implications for Practice

The setting of this study was within a large urban school district with a collective bargaining contract that placed limits on mandated professional development with the exception of teacher remediation or those agreed upon through negotiation. These findings suggest that contractual obligations and definitions were not factors for the teachers that participated. Participants sought a professional development activity that fell outside of the school year for the purpose of advancing student achievement by developing their professional practice. Although teachers listed compensation as an important factor, it was stated that it was to offset other revenue generating opportunities or to help them justify structured time for curriculum writing during their vacation.

Current practice will need to continue to support those aspects of school culture, pedagogical outcomes, and motivational factors that have led to the adoption of PBL while improving areas that may have led to earlier adoption. Practices that support how teachers interact, particularly in the area of the adoption of critical friend interaction, were revisited. Common pedagogical outcomes in the areas of standardized testing may be reviewed within the context of Common Core State Standards and Next Generation Assessments that seek out a similar adaptive learning outcome as PBL. All attendees of the PBL Summer Institute were from school reform initiatives that are present at other

schools that did not participate. Many of the school reform initiatives are SLCs on a comprehensive site and represent opportunities to reach out to teachers not utilizing PBL through communications and peer interactions.

With 67% of responses of the top two themes being extrinsic there are considerable practices for the administration to continue to support. There were close to 86% of motivational factors that may have led participants to adopt PBL earlier. This represents an implication in practice to areas within the administration's control such as communication, peer interaction, environment, and compensation. Continuing to develop the current model of PBL implementation was considered with considerations to the annual structure including pre-planning, the two week institute, and follow-up structures and forums.

Action research must be relevant to the real-world activities of practitioners (Mills, 2011). This action research study was conducted with the intent of developing a plan to increase teacher participation in professional development by 200% over two years while revising delivery and support structures. Findings and conclusions of this study were used in making changes for the following school year. The result of this action plan was: (a) alterations of messaging to teachers and administrators about PBL, (b) advanced project planning time before the two week institute, (c) modifications to the professional development plan and activities, (d) a revision to annual support structures for PBL teams which now includes scheduled support meetings, (e) inclusion of educational technologies and staff to more rapidly execute professional development consistently and rapidly through an online social networking platform, and (f) reorienting

the planning process to start at the year-end presentations and activities to provide new instructors with empirical evidence and observation time.

Implications for Further Research

Action research contributes to the improvement of practice by contributing to an ongoing body of research (; Mills, 2011; Plano Clark & Creswell, 2010). While this study met the purpose of the research question additional areas of inquiry were raised. There remains a gap in the literature reviewed in the area of challenges in implementation. Two areas for future consideration might be on the role of extrinsic motivators and on leadership characteristics in guiding teachers to a change of practice.

For example, Smith-Sebasto (2007) found that successful practices known to teachers still required extrinsic pressures for their participation. With a high percentage of extrinsic motivators found to contribute to the change of teacher practice in this study, future research might consider why extrinsic factors may play a predominant role for a change of practice to PBL. Both Ravitz (2010) and Rhodes et al. (2011) found that developing a comprehensive PBL program required a team of teachers and supportive leadership. This study examined attendees of the PBL Summer Institute while future research might consider what leadership attributes of administrators and peers might influence a teacher initiated change to a practice such as PBL.

Action research involves a reflective practice that is part of a cycle of improvement (Plano Clark & Creswell, 2010). The instruments and practices of this study have been added to the administration's planning, execution, and improvement cycle. The quantitative instruments developed for this study were implemented as part of regular

practice. The qualitative questions were adopted as a reflective exercise as part of the PBL institute. Information gathered from these instruments will be used to guide future practice.

Sharing the Results of the Project

The results of this study were shared with administrators, senior district leadership team members, attendees of the 2012 PBL summer institute, and research participants in the forms of the literature review, quantitative and qualitative results, and triangulated findings. Full copies of this study were made available for research participants, senior district leadership, and administrators. Discussions on findings were held with the Superintendent of Public Education of the district where the study was conducted and used as a guiding reference during program review and planning. Findings were presented in written format, during meetings, and formal presentations. A presentation of this study was scheduled for the National University Spring Symposium for spring 2014.

Responses to this study have been favorable and helped to provide guidance for planning and additional explorations. The identified research problem was in the area of increasing the number of teachers that would implement PBL. This problem was framed with increasing participation in PBL professional development while being in a collective bargaining agreement that does not have a stipulation that calls for professional development in this area. This study found that participants did not provide responses that were inside of the scope of contract language. This placed a focus on the expansion of the program on the administration's planning and implementation. This study was used for a change in program practice, structure, and offerings.

On Reflection

Action research is based upon a cycle of improvement that involves reflecting, collecting data, and taking action (Mills, 2011; Plano Clark, & Creswell, 2010). This practice is similar to those outlined by Senge (2006) and the Deming cycle (Deming, 1986). Facilitation and implementation of aspects of the practice of action research have been accomplished by changing regular practice to be inclusive of: (a) discussing recent research as part of regular activities, (b) requiring data gathering and examination to the extent possible, (c) requesting observations that are triangulated and member checked, and (d) identifying a clear problem of practice to be addressed. In the implementation of continuous improvement the author has found that the following required changes: (a) shifting the organizational culture to one that welcomes critical feedback, (b) refocusing the organization on substantive and continuous change rather than quickly implemented stop-gap solutions, (c) establishing guidelines for discussions that focus on the evolving science pedagogical practice rather than on the topic of the teacher as an employee and/or teaching as a static function, and (d) developing the organizational capacity and discipline of strategic planning and execution to ensure that changes are supported with allocations of time and resources.

Reference

American Management Association (2010). *Critical Skills Survey—Executive Summary*. Retrieved from http://www.p21.org/storage/documents/Critical%20Skills%20Survey%20Executive%20Summary.pdf

Anderson, L. W., Krathwohl, D. R., & Bloom, B. (2001). *A taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives / editors, Lorin W. Anderson, David Krathwohl; contributors, Peter W. Airasian ... [et al.]*. New York, NY: Longman.

Alfeld, C., Bhattacharya, S. (2012). Mature programs of study: A structure for the transition to college and career? *International Journal of Educational Reform, 21(2),* 119-137.

Baumbartner, E., & Zabin, C. (2008). A case study of project-based instruction in the ninth grade: A semester-long study of intertidal biodiversity. *Environmental Education Research, 14(2),* 97-114. doi:10.1080/13504620801951640

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House, 83,* 39-43. doi:10.1080/00098650903505415

Bell, B., Kozlowski, S. (2002). A typology of virtual teams: Implications for effective leadership. *Group Organization Management, 27(1),* 14-49. doi:10.1177/1059601102027001003

ChanLin, L. (2008). Technology integration applied to project-based learning in science. *Innovations in Education and Teaching International, 45(1),* 55-65. doi:10.1080/14703290701757450

Daggett, W. (2012). *The Daggett system for effective instruction: Alignment for student achievement.* Rexford, NY: International Center for Leadership in Education, Inc.

Deming, W. E. (1986). *Out of the Crisis*. Cambridge, MA: Massachusetts Institute of Technology.

Dewey, J. (1916). *Democracy and Education.* New York, NY: Macmillan.

Dewey, J. (1938). *Experience and Education.* New York, NY: Macmillan.

Drucker, P. (2008/1973). *Management, Revised Edition.* New York, NY: HarperCollins.

Gordon, H. (2007). *The History and Growth of Career Technical Education in America: Third Edition.* Long Grove, IL: Waveland Press, Inc.

Geier, R., Blumenfeld, P., Marx, R., Krajcik, J., Fishman, B., Soloway, E., & Clay-Chambers, J. (2008). Standardized test outcomes for students engaged in inquiry-based science curricula in the context of urban reform. *Journal of Research in Science Teaching, 45 (8),* 922-939.

Lattimer, H., & Riordan, R. (2011). Project-based learning engages students in meaningful work. *Middle School Journal, 43*(2), 18-23.

Leung, A. (2008). Teacher concerns about curriculum reform: The case of project learning. *The Asia-Pacific Education Researcher*, *17*(1), 75-97.

Main, K. (2009). "Mind the gap": Cultural revitalization and educational change. *School Effectiveness & School Improvement*, *20*(4), 457-478. doi:10.1080/09243450903251481

Mills, G. (2011). *Action Research: A Guide for the Teacher Researcher, Fourth Edition*. Boston, MA: Pearson.

Mills, N. (2009). A guide du routard simulation: Increasing self-efficacy in the standards through project-based learning. *Foreign Language Annals, 42*(4), 607–639.

Ornstein, A. C., Hunkins, F. P. (1998). *Curriculum: Foundations, principles, and theory (3e).* Boston, MA: Allyn and Bacon.

Park, S. H., & Ertmer, P. (2007). Impact of problem-based learning (pbl) on teachers' beliefs regarding technology use. *Journal of Research on Technology in Education, 40(2),* 247-267.

Plano Clark, V. L., & Creswell, J. (2010). *Understanding Research: A Consumer's Guide*. Boston, MA: Pearson.

Postman, N. (1995). *The end of education: Redefining the value of school*. New York, NY: Vintage Books.

Ravitch, D. (2000). *A century of failed school reforms.* New York, NY: Simon & Schuster.

Ravitz, J. (2010). Beyond changing culture in small high schools: Reform models and changing instruction with project-based learning. *Peabody Journal of Education, 85,* 290-312. doi:10.1080/0161956X.2010.491.432

Rhodes, R., Stevens, D., & Hemmings, A. (2010). First year implementation of project-based learning approach: The need for addressing teachers' orientation in the era

of reform. *International journal of Science and Mathematics Education, 9,* 893-917.

Roberson, S. (2011). Defying the default culture and creating a culture of possibility. *Education, 131(4),* 885-904.

Rodgers, M., Cross, D., Gresalfi, M., Trauth-Nare, A., & Buck, A. (2011). Creating positive culture in a new urban high school. *The High School Journal, Spring,* 82-94.

San Diego Unified School District (2012). *Active Enrollment.* http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/5/2012-official-enrollment.pdf

San Diego Unified School District. (2012). *Budget Book 2012.* San Diego: San Diego Unified School District.

Senge, Peter M. (2006). *The Fifth Discipline: The Art & Practice of the Learning Organization, Revised.* New York: Doubleday.

Schaffer, S., Chen, X., Zhu, X., & William, O. (2012). Self-efficacy for cross-disciplinary learning in project-based teams. *Journal of Engineering Education, 101(1),* 82-94.

Smith, R. (2010). A case study in project-based learning: An international partnership. *Journal of Teaching International Business, 21,* 178-188. doi:10.1080/08975930.504464

Smith-Sebasto, N. (2007). A reinvestigation of teachers' motivations toward and perceptions of residential environmental education: A case study of the New Jersey school of conservation. *The Journal of Environmental Education, 38(4),* 34-42.

Stearns, L., Morgan, J., Capraro, M., & Capraro, R. (2012). A teacher observation instrument for PBL classroom instruction. *Journal of STEM Education, 13(3),* 7-16.

Stipanovic, N., Lewis, M., Stringfield. (2012). Situating programs of study within current and historical career and technical educational reform efforts. *International Journal of Educational Reform, 21(2),* 80-97.

Strobel J., van Barneveld, A. (2009). When is PBL more effective? A meta-synthesis of meta-analyses comparing PBL to conventional classrooms. *Interdisciplinary Journal of Problem-based Learning, 3(1),* 44-58.

Summers, E., Dickinson, G., (2012). A longitudinal investigation of project-based instruction and student achievement in high school social sciences. *Interdisciplinary Journal of Problem-based Learning, 6(1),* 80-97. http://docs.lib.purdue.edu/ijpbl/vol6/iss1/6

Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century*. Cambridge, MA: Harvard University. Retrieved from http://www.gse.harvard.edu/news_events/features/2011/Pathways_to_Prosperity_Feb2011.pdf

Walker, A., & Leary, H., (2009). A problem based learning meta analysis: Differences across problem types, implementation types, disciplines, and assessment levels. *Interdisciplinary Journal of Problem-based Learning, 3(1),* 6-28. http://docs.lib.purdue.edu/ijpbl/vol6/iss1/6

Wiggins, G., & McTighe, J. (2006). *Understanding by design: Expanded 2nd edition.* Upper Saddle River, NJ: Pearson, Merrill Prentice Hall.

Wilhelm, J., Sherrod, D., Walters, K. (2012). Project-based learning environments: Challenging preservice teachers to act in the moment. *The Journal of Educational Research, 101(4),* 220-233.

Withington, C., Hammond, D., Mobley, C., Stipanovic, N., Sharp, J., Stringfield, S., & Drew, S. (2012). Implementing a statewide mandated career pathways/program of study school reform model: select findings from a multisite case study. *International Journal of Educational Reform, 21(2),* 138-158.

Appendices

Office of the Institutional Review Board

11255 North Torrey Pines Road, La Jolla, CA 92037-1011
(858) 642-8136 fax (858) 642-8759

DATE: November 19, 2012

TO: Shawn Loescher
FROM: National University Institutional Review Board

STUDY TITLE: [387918-1] Environments for Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning
IRB REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS
DECISION DATE: November 19, 2012

Shawn Loescher:

Thank you for your submission of New Project materials for this research study. National University Institutional Review Board has determined this project is EXEMPT FROM IRB REVIEW according to HHS Policy for Protection of Human Research Subjects 45 CFR 46.101(b). A determination that research is exempt does not imply that you have no ethical responsibilities to subjects in such research.

Exemption Category # 2 - Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

This decision is based on the following assumptions:

1. The application you submitted to the NU-IRB provides a complete and accurate account of how human subjects are involved in your project.
2. You will carry on your research according to the procedures described in this application.
3. If any substantive changes are made, you will resubmit the project for IRB review.
4. You will immediately report to the NU-IRB any problems that you encounter while using human subjects.

You may begin your research immediately.

If you have any questions, please contact Mary Hazzard at (858) 642-8361 or mhazzard@nu.edu. Please include your study title and reference number in all correspondence with this office.

Thank you for your cooperation in this process. The NU-IRB looks forward to your successfully completing your research.

REQUEST FOR PERMISSION TO CONDUCT ACTION RESEARCH FORM

INFORMATION ABOUT: Environments of Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning
RESPONSIBLE INVESTIGATOR: Shawn T. Loescher, sloescher@sandi.net, (619) 384-5045

Under the direction of Dr. Wayne Padover in the School of Education at National University, the investigator(s) is conducting a research study and is inviting you to participate in it.

The purpose of this form is to provide information that may affect your decision about whether or not you will provide permission to conduct this study in your division. If you choose to approve this study, please sign in the space at the end of this form to record your consent.

Project Information
This study is being conducted in as part of graduate course requirement for EDA 637 Action Research. The study's question reads as follow—what motivators and pedagogical values within our immediate control might encourage teachers to self-initiate a change in their instructional practice to Project-Based Learning? The desired start date is November 2012 with a maximum duration of two weeks.

Participants
A limited sample size of approximately 25 teachers that have participated in professional development on Project Based Learning as offered by the Office of College, Career & Technical Education (CCTE) of the San Diego Unified School District (SDUSD).

Brief summary of this study's design, including procedures for data analysis:
This study is using an Action Research approach to help facilitate a continuous cycle of improvement. Information will be gathered through anonymous surveys and interviews of teachers that have completed a professional development program on Project-Based Learning offered by CCTE. The survey has been designed to be completed in less than 15 minutes. Interviews questions are designed to take less than 30 minutes. Surveys and interviews are already regularly scheduled as part of improvement processes for CCTE. Therefore, this does not represent any intrusive time to regular practice. All information will be gathered within a two week window, but may be completed in as little as three days. Data analysis will be conducted using standards and practices consistent with a mixed-method study including statistical analysis, grouping of common themes, and triangulation.

Potential Risks:
There are no known potential risks associated with the study. Surveys will be conducted anonymously and interviews will not record personal information. Descriptive statistics used are currently published through the School Accountability Report Card.

Potential Benefits:
The identification and promotion of positive adult motivators to stimulate self-initiated change of practice to Project-Based Learning may result in an increase of teachers that utilize the instructional practice.

Instruments to be used:
This is a mixed method study. Quantitative data will be gathered through an online survey to gather information on the teachers' observations on school culture and desired learning outcomes. Qualitative information will be a purposeful sample with a series of open ended questions to explore motivational factors that may have contributed to the teachers' participation in Project-Based Learning professional development.

Additional Information:

There are no costs associated with this study. Participants will not be paid.

WHAT HAPPENS IF THE RESEARCHER GETS NEW INFORMATION DURING THE STUDY?
The researcher will contact all participants and site if the researcher learns new information that could change the decision about participating in this study.

HOW WILL THE RESEARCHER PROTECT PARTICIPANTS' CONFIDENTIALITY?
Should the results of this study be published the names or identities will not be revealed.

WHAT HAPPENS IF A PARTICIPANT DOESN'T WANT TO CONTINUE IN THE STUDY?
Participation in this study is voluntary. If individuals choose not to participate or if you choose to terminate the study, this may de done at any time. There will be no penalty.

WILL PARTICIPANTS BE COMPENSATED FOR ILLNESS OR INJURY?
You are not waiving any of your legal rights if you agree to participate in this study. But no funds have been set aside to compensate you or participants in the event of injury. If anyone suffer harm because due to participation in this research project, please contact the Office of the Institutional Review Board, National University, 11255 North Torrey Pines Road, La Jolla, CA 92037; Telephone (858) 642-8136.

VOLUNTARY CONSENT
By signing this form, you are saying (1) that you have read this form or have had it read to you and (2) that you understand this form, the research study, and its risks and benefits. The researcher will be happy to answer any questions you have about the research. If you have any questions, please feel free to contact *Shawn Loescher* at *619-384-5045.*

If at any time you feel pressured to participate or if you have any questions about your rights or this form, please call the Office of the Institutional Review Board at (858) 642-8136.

Note: By signing below, you are telling the researcher "Yes" you want to participate in this study. Please keep one copy of this form for your records.

Your Name (please print): Sid Salazar

Your Signature: Sid Salazar

Title: Assistant Superintendent, Instructional Support Services

Date: 1/31/13

INVESTIGATOR'S STATEMENT
I certify that this form includes all information concerning the study relevant to the protection of the rights of the participants, including the nature and purpose of this research, benefits, risks, costs, and any experimental procedures.

I have described the rights and protections afforded to human research participants and have done nothing to pressure, coerce, or falsely entice this person to participate. I am available to answer the participant's questions and have encouraged him or her to ask additional questions at any time during the course of the study.

Investigator's Signature: 
Investigator's Name: Shawn Loescher

INFORMED CONSENT FORM

INFORMATION ABOUT: Environments of Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning

RESPONSIBLE INVESTIGATOR: Shawn T. Loescher, sloescher@sandi.net, (619) 384-5045

Under the direction of Dr. Wayne Padover in the School of Education at National University, the investigator(s) is conducting a research study and is inviting you to participate in it.

CONSENT TO PARTICIPATE: The main purpose of this form is to provide information that may affect your decision about whether or not you want to participate in this research project. If you choose to participate, please sign in the space at the end of this form to record your consent.

WHAT DOES PARTICIPATION IN THIS RESEARCH STUDY INVOLVE?
Your participation will involve a thirty minute interview comprised of a series of open-ended questions. These questions will be on the topics of motivational factors that encouraged you to attend your first Project-Based Learning Institute.

WHY ARE YOU BEING ASKED TO PARTICIPATE?
All participants of the Project-Based Learning Summer Institute from the summer of 2012 are being contacted. Our records indicate that you were a member of this group.

ARE THERE ANY RISKS INVOLVED IN THIS STUDY?
There are no known potential risks associated with the study. The interview is anonymous.

ARE THERE ANY POSSIBLE BENEFITS TO PARTICIPATION?
The identification and promotion of positive adult motivators to stimulate self-initiated change of practice to Project-Based Learning may result in an increase of teachers that utilize the instructional practice.

WILL IT COST ANYTHING TO PARTICIPATE IN THE STUDY? WILL I GET PAID TO PARTICIPATE?
There are no costs or payments associated with your participation.

WHAT HAPPENS IF THE RESEARCHER GETS NEW INFORMATION DURING THE STUDY?
The researcher will contact you if the researcher learns new information that could change your decision about participating in this study.

HOW WILL THE RESEARCHER PROTECT PARTICIPANTS' CONFIDENTIALITY?
Should the results of this study be published or shared your name and identity will not be revealed.

WHAT HAPPENS IF A PARTICIPANT DOESN'T WANT TO CONTINUE IN THE STUDY?
Participation in this study is voluntary. If you choose not to participate or if you choose to withdraw from the study, you may do so at any time. There will be no penalty.

WILL PARTICIPANTS BE COMPENSATED FOR ILLNESS OR INJURY?
You are not waiving any of your legal rights if you agree to participate in this study. But no funds have been set aside to compensate you in the event of injury. If you suffer harm because you participated in this research project, you may write or call the Office of the Institutional Review Board, National University, 11255 North Torrey Pines Road, La Jolla, CA 92037; Telephone (858) 642-8136.

VOLUNTARY CONSENT
By signing this form, you are saying (1) that you have read this form or have had it read to you and (2) that you understand this form, the research study, and its risks and benefits. The researcher will be happy to answer any questions you have about the research. If you have any questions, please feel free to contact *(principal investigator)* at *(phone number).*

If at any time you feel pressured to participate or if you have any questions about your rights or this form, please call the Office of the Institutional Review Board at (858) 642-8136.

Note: By signing below, you are telling the researcher "Yes" you want to participate in this study.
Please keep one copy of this form for your records.

Your Name (please print): _____

Your Signature: _____

Date: _____

INVESTIGATOR'S STATEMENT
I certify that this form includes all information concerning the study relevant to the protection of the rights of the participants, including the nature and purpose of this research, benefits, risks, costs, and any experimental procedures.

I have described the rights and protections afforded to human research participants and have done nothing to pressure, coerce, or falsely entice this person to participate. I am available to answer the participant's questions and have encouraged him or her to ask additional questions at any time during the course of the study.

Investigator's Signature: _____
Investigator's Name: Shawn Loescher

Date: _____

ONLINE SURVEY
INFORMED CONSENT FORM

INFORMATION ABOUT: Environments of Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning

RESPONSIBLE INVESTIGATOR: Shawn T. Loescher, sloescher@sandi.net, (619) 384-5045

CONSENT:
I have been asked to participate in a research study investigating motivational factors in teachers choosing to attend professional development on Project-Based Learning. All participants of the Project-Based Learning Summer Institute from the summer of 2012 are being contacted and being asked to participate. The identification and promotion of positive adult motivators to stimulate self-initiated change of practice to Project-Based Learning may result in an increase of teachers that utilize the instructional practice.

In participating in this study you agree to take this anonymous online survey of 31 multiple choice questions and 3 areas to freely contribute your thoughts. The survey collects background information, addresses your observations on school culture, and addresses your desired outcomes for curriculum and instruction. You can choose not to answer any question or leave the survey at any time.

In participating in this study I agree to complete the survey submitted along with this message and I understand that:

a) my participation is voluntary and I may refuse to participate in or I may withdraw from this study at any time without any negative consequences;

b) the investigator may stop the study at any time;

c) no information that identifies me will be released without my separate consent and that all identifiable information will be protected to the limits allowed by law;

d) if I have any questions, comments, or concerns about the study or the informed consent process, I may write or email the Office of the Institutional Review Board, National University, 11255 North Torrey Pines Road, La Jolla, CA 92037, or (858) 642-8136.

e) the extent, if any, to which confidentiality of records identifying the subject will be maintained.

By answering the survey, I acknowledge that I have received a copy of this consent message.

Online Survey

Background Questions (Multiple Choice Format)
Instructions: There are 10 multiple choice background questions. Please select the answer that best fits your understanding. For questions 3 and 8 please select all that apply.

1. At what type of school are you teaching?
   - Small Career Themed School
   - Comprehensive High School with one or more Small Learning Communities or Career Academies of *which I am* a part of
   - Comprehensive High School with one or more Small Learning Communities or Career Academies of *which I am not* part of
   - Traditional Comprehensive High School

2. What is the primary curriculum area in which you teach?
   - CTE
   - ELA
   - Military Sciences
   - Physical Education
   - Social Sciences
   - Science
   - Math
   - VPA
   - Other/Elective

3. If you are teaching in multiple curriculum areas, please select the other area(s), outside of the one that you have indicated is your primary, which you teach.
   - CTE
   - ELA
   - Military Sciences
   - Physical Education
   - Social Sciences
   - Science
   - Math
   - VPA
   - Other/Elective
   - I teach exclusively in my primary curriculum area

4. How many years teaching experience do you have?
   - 1-2
   - 3-4
   - 5-9
   - 10-14

- 15+

5. What was the first year that you attended the PBL Summer Institute?
   - 2012
   - 2011
   - 2010
   - 2009
   - 2008 or before

6. How many years have you been utilizing Project-Based Learning?
   - 1-2
   - 3-4
   - 5-9
   - 10-14
   - 15+

7. How many times have you attended the PBL Summer Institute?
   - 1
   - 2
   - 3
   - 4
   - 5+

8. What grade levels are you teaching this year? (Click all that apply)
   - 7-8
   - 9
   - 10
   - 11
   - 12

9. What is the highest degree that you have received?
   - Associate/Technical
   - Bachelors
   - Masters
   - Doctorate
   - Other

10. How did being paid for the PBL Summer Institute factor in your decision to attend <u>for the first time</u>?
   - Not Important
   - Somewhat Important
   - Important
   - Very Important
   - Essential

School Culture Part I: Teacher Culture

Instructions: The following four questions are about teacher culture at your school. Please select the answer that best fits your observations. Begin each question with the following phrase*: Last semester, teachers at my school . . .*

1. Had regularly scheduled meetings that focused on instructional practices and students' learning.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

2. Took a major role in shaping the school's norms, values, and practices.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

3. Had instructional coaching or critical friend visits between teachers.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

4. Were involved in school leadership, setting policies, or making important decisions for the school.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

Other things you would like to express about teacher culture at your school:
(Free writing contribution)

School Culture Part II: Student Culture

Instructions: The following seven questions are about student culture at your school. Please select the answer that best fits your observations. Begin each question with the following phrase*: Last semester, how often <u>did most of MY STUDENTS</u> do the following . . .*

1. Met individually with me to reflect on their progress and receive support.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

2. Formed close academic advising or mentoring relationships with me or another teacher.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

3. Had an individual statement of learning goals that they periodically reviewed with me.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

4. Made their own decisions about what to learn or how to learn it.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

5. Encouraged and supported their peers as learners.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

6. Gave their best effort and made the most of the opportunities to learn.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

7. Demonstrated that they were striving for in-depth knowledge, not just superficial learning.

1	2	3	4	5
Never	Rarely	Sometimes	Frequently	All the time

Other things you would like express about student culture at your school:
(Free writing contribution)

Pedagogical Outcomes

Instructions: The following 10 questions are on the topic of pedagogical outcomes. Please select the answer that best fits you. Begin each question with the following phrase: *It is important to me that my curriculum and instruction . . .*

1. Have well defined outcomes.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. Contain rigorous content in the course content subject area that leads to higher-order thinking skills.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. Lead to a student being able to demonstrate a continuum of knowledge and understanding.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. Assess subject/grade level standards.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. Include items on state standardized tests (STAR and CAHSEE).

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. Are interdisciplinary/cross-curricular.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. Contain high functioning activities requiring students to work in organized groups.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. Have assessments that are continuous and varied.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. Engage students based upon their prior knowledge.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

10. Engage students around their cultural diverse contexts.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Other things that are important to you about your curriculum and instruction:
(Free writing contribution)

Focus Groups and Individual Interviews

Question 1. *Type, Open-Ended*

What motivational factors, categorized as either intrinsic or extrinsic, made you decide to attend your ***first*** PBL Summer Institute?

Question 2. *Type, Forced Choice Sequence and Open-Ended*

Based upon the motivational factors that you have identified, please place those items in sequential order in your journey to decide to attend your ***first*** PBL Summer Institute. Do you think that the sequential order was an important part of your decision to attend your first PBL Summer Institute? Please explain why.

Question 3. *Type, Forced Choice Ranking and Open-Ended*

Based upon the motivational factors that you have identified, please rank order those items in terms of importance in your decision to attend your ***first*** PBL Summer Institute. Why did you rank the highest and lowest items that way?

Question 4. *Type, Open-Ended*

What would have helped you to decide to attend your ***first*** PBL Summer Institute earlier in your career?

Institutional Review Board
IRB Study Closure Form

Researcher's Name:	Shawn T. Loescher
Researcher's Email Address:	sloescher@sandi.net
Faculty Sponsor's Name:	Dr. Wayne Padover
Faculty Sponsor's Email Address:	wpadover@nu.edu

Study Title:	Environments for Change: Identification of Factors for a Teacher Initiated Move to Project-Based Learning
Date of Closure Form:	April 29, 2013
Date of Last Approval:	November 19, 2012

Instructions for Using This Form

1. Complete this Study Closure Form **when you have finished data collection and data analysis.**
2. Fill out all of the items on this form **completely. Please enter your responses in the boxes under each free-standing question.** Double-space between paragraphs of your answer.
3. When completing "yes" or "no" and certain other questions, type an X in the center of the box next to items that apply to your study.
4. If an item does not apply to your proposed study, please type N/A. **Do not delete any questions or items.**
5. Upload your signed informed consent forms and signed site permission forms. (If you have more than 20 participants, please upload a sample of the signed documents.

STATUS OF THE STUDY	
X	**Please type an X in the column next to the appropriate response.**
	Select the designation that applies to your study.
	a. Never commenced Please state the reasons the study never commenced; then upload this document in IRBNet.
X	b. Completed (Data collection and analysis are complete.)

HUMAN PARTICIPANTS		
Numbers		**Items**
24		1. How many participants were approved for this study?
10		2. How many participants have you enrolled since the last IRB review?
10		3. How many participants have you enrolled since the study's inception?
Yes	**No**	**Please type an X or your response in the appropriate blanks.**
	X	4. Have any participants withdrawn from the study prior to completion?
		If yes, please provide the number that withdrew and the reasons, if known. Reasons:
	X	5. Have there been any participant complaints during this period?

Version Date: 2010
Form adapted with permission from Capella University

Institutional Review Board
IRB Study Closure Form

Researcher's Name:	Shawn T. Loescher
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STATUS OF THE STUDY	
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HUMAN PARTICIPANTS		
Numbers		**Items**
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	X	5. Have there been any participant complaints during this period?

Version Date: 2010
Form adapted with permission from Capella University

IRB Study Closure Form

The qualitative (interview and observations) section of the research involved open ended question, timeline sequencing, and rank ordering. The purpose was for the participants to self-identify intrinsic and extrinsic motivational factors that led to their decision to change and reflect on what might have initiated that change sooner in their career.

From interviews conducted participants (n=9) generate a total of 31 motivational factors with 15 as being extrinsic and 16 being intrinsic. Motivational factors were able to be categorized into six topics: (a) environmental, (b) improvement, (c) compensation, (d) beliefs, (e) peer interactions, and (d) compliance. The most common identified topic was environmental which had six mentions as an intrinsic motivator and six as extrinsic. The second most identified topic was compensation and identified as being extrinsic. There were four submission for the intrinsic motivators categorized as being based on improvement. An additional four submissions were under the topic of peer interactions with three being labeled intrinsic and one extrinsic. Three additional submissions were associated with the intrinsic motivator identified with the subject's belief in PBL. Finally two submissions were on the topic of the extrinsic topic of compliance.

Participants placed the identified motivators into a time sequence. All but one of the participants indicated that the sequence of events was important in helping them to choose to attend their first PBL summer institute. In sequence all participants reported that their first step involved an intrinsic motivator with the most frequent topic mentioned being environment. Participants placed the identified motivators into a rank order. All of the participants indicated that the top ranked item was important in helping them to choose to attend their first PBL summer institute. In ranking seven of nine participants indicated that an intrinsic motivator was important. This broke down to three intrinsic motivator for participant beliefs, two intrinsic and one extrinsic for environment, one intrinsic for improvement, one intrinsic for peer interactions, and one extrinsic for compensation.

On the topic of what might have helped you to decide to attend your first PBL summer institute earlier in your career, there were 14 responses given with participants identifying 11 as being extrinsic and 3 being intrinsic. Answers were given around the topics of (a) peer interactions, (b) compensation, (c) environmental, and (d) communication. The most frequently listed topic was on peer interactions with five extrinsic and one intrinsic, three were on communication as being an extrinsic motivator, thee were on environment with two extrinsic and one intrinsic, two on compensation as being extrinsic, and one on improvement as being an intrinsic motivator.

Finds suggest that teachers that are engaged in PBL have a more personalized relationship with their students, have aligned common pedagogical outcomes, and are motivated to start their change in practice based upon intrinsic motivators that can be supported by extrinsic motivators within our control. As this is an action research process, findings are applicable for local improvement.

PUBLICATIONS AND/OR PRESENTATIONS

Have there been any presentations or publications resulting from this study?

	Yes
	If yes, please describe and cite references. Upload a copy of the abstract in IRBNet.
X	**No**