

**Organization and Leadership Supports That Promote Teacher Collective Learning at the
School Level: A Case**

BY

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LIST OF ABBREVIATIONS

ACT	American College Testing
ANOVA	Analysis of Variance
AP	Advanced Placement
CRS	College Readiness Standards
CTE	Career Technical Education
EPAS	Education Planning and Assessment System
et al.	et alii; and others
IL	Illinois
IRB	Institutional Review Board
PE	Physical Education
PLC	Professional Learning Community
PSAE	Prairie Test Achievement Examination

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CHAPTER I. INTRODUCTION

A. Background

This study focuses on effective organizational support for collective learning processes as a means of improving teaching practices and building capacity for student success. The current research on teacher learning, often known as professional development, speaks to individualized learning opportunities tailored specifically to a given teacher or a group of teachers in the same content area. However, a growing body of research shows that teacher learning can be improved through collective learning. Structured collective teacher learning allocates time for the purpose of intentionally grouping teachers to investigate issues or practices related to their teaching content or student learning. There is no clear distinction to be made between collective teacher learning and collaborative teacher learning, as the two terms are used interchangeably in current research on professional learning communities, or PLCs. This investigation will use the term *collective teacher learning* to mean the learning that takes place in structured teacher learning groups within the school. The purpose of this study is to look at collective teacher learning that is structured within the school, with an emphasis on how it is provided and how school leaders who provide effective organizational support for this learning process can improve teacher practice.

B. Research Questions

The three research questions are posed within the framework of structured collective teacher learning and organizational support. Given a high school that has successfully implemented collective teacher learning, the research questions are designed to help identify possible solutions for developing a successful implementation framework.

- In a high school with a highly structured approach to collective teacher learning and sustained improvements in student learning over time, what does this teacher learning

look like, in terms of content, process, and outcomes such as teacher knowledge, skills, and dispositions?

- Given a detailed description of the multiple forms of collective teacher learning within the high school, to what degree have school leaders in this school initiated, developed, and maintained collective teacher learning, and how?
- What student learning outcomes can plausibly be attributed to this teacher learning, and why?

C. **Purpose of the Study**

There is evidence that schools where teachers share common goals and beliefs in student success can create an effective structured collective teacher learning environment. McLaughlin and Talbott (2006) identified beginning, intermediate and advanced stages in the development of such an environment. At the beginning stage, the school's goal is to set up the structure and manage adults for the buy-in process. At the intermediate stage, there is a developed process but the learning community is split between adults who are invested in the process and others who are not invested. The goal for the school organization is to move beyond this stage and prevent stagnancy. At the advanced stage, or the mature level, a developed school culture is focused on student achievement and common teacher learning language that is centered on curriculum and student performance. The current research on professional learning communities share common indicators of what a mature structure of collective teacher learning communities should be. However, there is limited research and case studies that gave literal definition of successful learning communities in different stages and provided a full description of what "mature or advanced" stage should be. The lack of existing research made it necessary to conduct this investigation and clarify the qualities for an advanced or mature PLC in a comprehensive high school.

Through this investigation, a conclusion can be drawn that effective organizational support that fosters a collective teacher learning environment sets a foundation by aligning the structure and language of that environment with the school's mission and vision. Even though the organizational structure may be different for elementary schools and high schools, a well developed learning process within the education organization can help school leaders support teacher learning and improve student achievement.

D. Development of the Theoretical Framework

Although there is current research on a structured collective teacher learning process referred to as Professional Learning Community, or PLC, no in-depth case study has been conducted on an advanced or mature collective teacher learning community. Therefore, the goal of this case study is to develop a framework for structured collective teacher learning outcomes by using Wenger's four-step process to address the research questions (Figure 1).

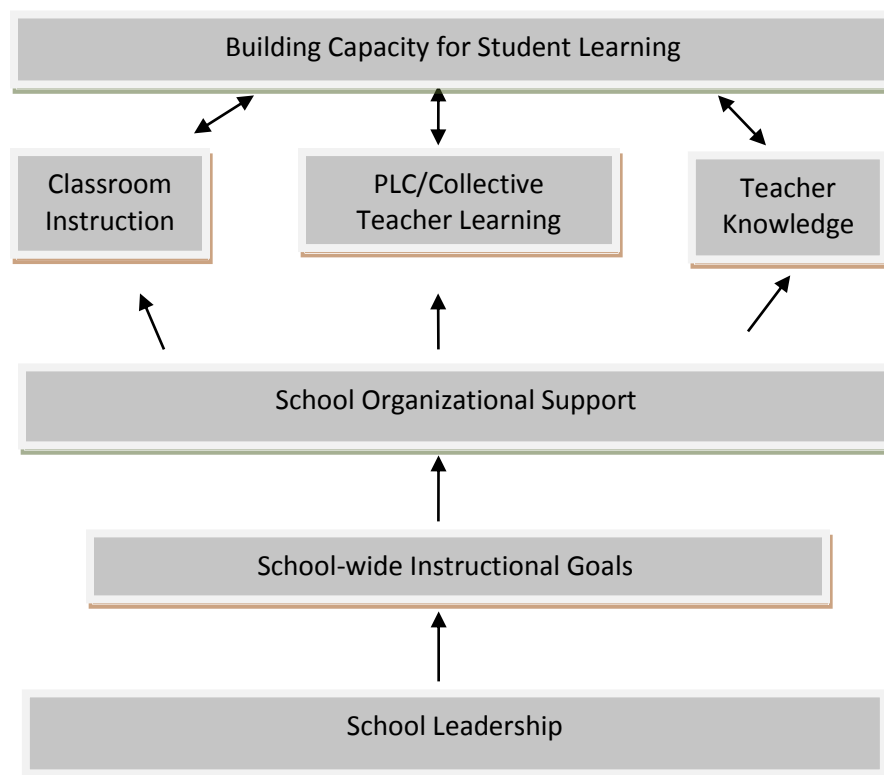


Figure 1. Structured teacher collective learning outcome framework.

The Structured teacher collective learning outcome framework was set to answer the following questions posed by Wenger when navigating the collective learning framework. The questions, according to Wenger (2000) are:

- a. What it is —A joint enterprise as understood and continually renegotiated by its members.
- b. How it functions—The relationships of mutual engagement that bind members together into a social entity.
- c. What capability it has produced—The shared repertoire of communal resources (routines, sensibilities, artifacts, vocabulary, styles, etc.) that members have developed over time.
- d. Most importantly, what is it that the school leaders are doing and not doing in shaping and supporting the learning?

Richard Dufour developed a framework for Professional Learning Community or PLC in schools with three big ideas: ensure that students learn, develop a culture of collaboration and focus on results (2004). The framework set the stage for teachers to come together and asked the questions that focus on student learning. The framework provides a standard for other case studies on collective teacher learning or PLC. These case studies integrated Dufour's framework as part of their premise on successful learning communities. The studies emphasize on forming a culture of learning, using student data to drive conversation on learning, teacher efficacy and leadership practices; but there no consensus was made in determining to what extent should the factors be developed that will lead to a successful or mature implementation of PLC. There is an agreement that in order for the collective learning to take place, there is a need for an intentional practice of top-down leadership as indicated in Figure 1. This process begins with the school leaders developing and maintaining a structure of professional learning community. The goal for this structure is to create a culture of learning for teachers that will lead to a culture of learning for the students (Wells & Feun, 2013). The structure is successful when it includes a working horizontal, vertical, diagonal, and administrative alignment.

E. Significance of the Theoretical Framework

The significance of this study is that it may facilitate an understanding of the framework for an advanced level of structured collective teacher learning and help provide a blueprint for maintaining a successful collective teacher learning environment. The literature reviewed in the following chapter offers some support for conducting an in-depth case study, as well as support for some of the emerging answers to the research questions. The literature review begins by defining learning and knowledge as applicable to the different needs of teacher learning. Understanding the similarities and differences between collective learning and collaborative learning within the organizational learning framework is a prerequisite for understanding the rationale for this study. The discussion of organizational and leadership support will provide the link to how a well developed structured collective teacher learning environment or professional learning community can foster a culture of student success. It is concluded that for structured collective teacher learning to be successful, the school leaders need to know how to support the structured collective learning within the organizational framework. The challenge for school leaders is to build a consistent, coherent and collaborative instructional community that integrates skill building with content alignment by providing and maintaining organizational support for the collective teacher learning process.

CHAPTER II. REVIEW OF LITERATURE

A. Learning Process

A variety of attempts have been made to provide categories to understand different kinds of knowledge and learning. For example, Paavola, Lipponen, and Hakkarainen (2004) differentiate between tacit and explicit knowledge. Tacit knowledge is personal knowledge that one learns, such as beliefs, ideals, values, schemata and mental models, and is not usually shared or taught to others. Explicit knowledge is learned knowledge that can be shared and taught to others. According to Rebernik and Sirec (2007), “People experience tacit knowledge mostly as intuition, rather than as a body of facts or instruction sets he or she is conscious of having and can explain to others. Tacit knowledge is obtained by internal individual processes, such as experience, reflection, internalization or individual talent.” Explicit knowledge is easily articulated and documented and can be found in organizational policies, procedures and processes, as well as in documentation, such as performance management systems and position descriptions (Rebernik & Sirec). This knowledge is embedded in standardized procedures, is easy to acquire and can be exploited quickly (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004). The knowledge is formal learned knowledge from an educational setting or from adults or peers. However, tacit knowledge is not easily defined or observed but is a process of activating knowledge. Tacit knowledge as conceptualized by Polanyi (1966) relates the accumulation of this knowledge to perception and scientific thinking. This type of knowledge comes from experience as an acquired process that is action oriented (Elliott, Stemler, Sternberg, Grigorenko, & Hoffman, 2011). Burbules (2008) further affirms that tacit knowledge is often related to practical intelligence, “know-how,” common sense, “street smarts,” or what Bourdieu calls

habitus—the experientially grounded capacities that allow us to navigate the choices and activities of everyday life.

Learning begins as knowledge creation through socialization, externalization, combination, and internalization, as stated by Nonaka and Takeuchi (Hegarty, 2000). *Socialization* is sharing of tacit knowledge and skills by transmitting them from more skilled to less skilled people. *Externalization* is the process of articulating tacit knowledge into explicit concepts. *Combination* is the formulation of theoretical knowledge, and *internalization* happens when an individual practices tacit knowledge through daily explicit behavior. In providing the direct link of collaborative learning as an effort directed toward developing knowledge, ideas, practices, and materials or concepts, learning begins as knowledge creation and is completed with knowledge transformation. Knowledge transformation through learning, according to Dreyfus and Dreyfus (2004) and Smith (2012), requires a taxonomy of levels of human skills that need to be developed, from novice to expert. In the context of teacher learning, the stages divide the taxonomy of human skills and change from knowledge creation to knowledge transformation as teachers learn the rules of teaching as a novice and move to learning practical skills or the “know-how” as a career teacher. A new learner or *novice* takes a collection of context-free rules to govern behavior. The *advanced beginner* is someone who has learned the rules and recognizes the global features but is not sure how the rules are learned. A *competent* learner, though constrained by the rules, begins to recognize which rule is important and which rule is not. The *proficiency* learner can spontaneously recognize the situation and make a judgment from prior learning. Finally, the *expert* learner is someone who does not make conscious decisions or solve problems but performs without conscious decision making or planning. Duguid (2005), who stated that “transforming” knowing *how* into knowing *that* is

transforming the tacit into its nearest explicit equivalent, is likely to agree that the transformation of learning is from learning *to be* to learning *about*.

Cochran-Smith and Lytle (1999) argue that there is a relationship between knowledge and practice. There are three stages of teacher learning that are necessary for effective practice. “*Knowledge for Practice* is the first stage, with the ‘image of practice as how, when, and what teachers do as they use the formal knowledge base.’ *Knowledge in Practice* follows the concept of teacher learning that depends on the assumption that the knowledge teachers need to teach well is embedded in the exemplary practice of experienced teachers. *Knowledge of Practice* describes the practice as practical, concrete, procedural, and specifically conveying a valence of action and activity guided by teachers’ judgments and ways of conceptualizing subject matter and classroom situations.” This framework, derived from various initiatives on teacher learning, supports the theory that teacher learning transitions from individual learning to collective learning and from propositional to practical learning. The goal of teacher learning is to move from gaining propositional knowledge (e.g., subject matter content, what makes good pedagogy, how children learn, etc.) to learning how to activate practical knowledge (how to plan effectively, how to adjust plans in the face of unforeseen events, etc.) during and especially after teacher preparation.

Effective teacher learning is embedded in and derived from practice. It focuses on student achievement, integrates with the school reform process, centers around teacher collaboration, and most importantly, is sensitive to teachers’ learning needs. Effective learning practices will occur when learning changes the perception of teacher knowledge and professional practice through teacher learning from knowledge creation to knowledge transformation or knowledge in practice. *Knowledge in practice* will take place when the professional knowledge base is improved

through the sharing of teaching experiences and embedding critical and specific incidents from knowledge for practice and of practice. It seems reasonable to assert that generally it is up to individual teachers to draw their own conclusions from another's description of an incident, not from some knowledge claim that is supported by generalizable statements based on reproducible events and experiences (Loughran, Mitchell, & Mitchell, 2010). Therefore, explicit knowledge is the propositional knowledge of the "know that" or concrete content knowledge, while tacit knowledge is practical knowledge or the "know how" which is the action knowledge. Beginning teacher learning is predominantly explicit in learning the "know that," or propositional learning, and gradually becomes more tacit in learning the "know how," or practical learning. The career teacher learning is reversed, with less of the propositional learning and more of the practical learning. Teaching is a profession where learning is a necessary process for both teachers and students. Teachers transfer the knowledge to their students. Teachers learn from "how to do" to "that needs to be done," and from "to be a teacher" to "about student learning." They progress from obtaining propositional knowledge to refining practical knowledge. The study of knowledge growth shows that teachers are lifelong learners. Further understanding of teacher learning requires an understanding of how teachers learn as individuals.

B. Teacher Learning Development

Collaborative learning is the term commonly used to designate learning by teachers together as a group during the school day as part of the school organization, or outside of the school day through informal organization. Collaborative teacher learning can be formalized when teachers learn together by investigating a specific problem in education of interest to the teachers. Helterbran (2008) proposes that teachers identify and engage in strategies that can reinforce the development of their professionalism. Teachers who are committed to self-

improvement investigate problems or issues of their own interest. In addition to conducting action research studies, teachers participate in formal collaborative learning groups, which usually occur within the school. Schools that foster a collective learning culture will group teachers based on common subject area or grade level in order to promote common cohesive discussions that focus on student learning or student mastery. Learning is evident when teachers focus less on site-specific issues, such as training and structure, and focus more on fostering productive relationships, problem solving, and decision making (Bobek, 2002). The existing research on collective teacher learning often uses the term “teacher collaboration” to describe teachers learning and working together, but there is a distinction between teacher collaboration and collective teacher learning. This study distinguishes between teachers collaborating together for learning and teachers learning together as a collective. This research will support the notion that collective learning is the process, and collaboration is the product of the process. The literature review begins with teacher learning and knowledge with the intended shift of learning from individual to collective learning.

Teachers learn as individuals when they are trained through teacher education programs, known as pre-service training. Researchers such as Bickmore and Bickmore (2010), Feiman-Nemser (2001), and Ingersoll and Strong (2011) have consistently supported the importance of pre-service teacher learning in teacher education programs. There are different perspectives on what teacher learning looks like once pre-service ends. How do schools keep up the momentum of teacher learning throughout a teacher’s career, and what support needs to take place within the school’s organizational structure to maintain the momentum of teacher learning? School districts, not unlike the university teacher education program, establish learning structures for teachers from within the district and through participating universities or professional development

providers. The Golden Teacher program for new teachers in the Chicago Public Schools, the National Board for Professional Teacher Standards (NBPTS), university graduate degree programs, and the College Board's Advanced Placement Institutes for teachers are all examples of programs designed to promote teacher learning. To date, there is limited research using a developmental framework to examine novice teaching to advance career teaching in addressing the teacher learning process. The following sections examine novice and career teacher development and establish commonalities to support how a collective learning process is necessary in all stages of teacher development.

1. Novice teacher development

Novice teacher development can be understood as including collaborative teacher learning, teacher mentoring, and explicit or propositional learning. Watzke (2004) describes in his "Concerns Theory" three developmental stages of teacher learning: concern for self as teacher, concern about the task of teaching, and concern about making an impact. Watzke's first stage of development speaks to common traits found in beginning teacher development. The first stage is concern for self, for self-adequacy, for receiving good evaluations by administrators, and for acceptance by students and colleagues. Novice teachers are in the first stage of development with a focus on self and on building an identity as a teacher. They need to be validated through receiving good evaluations by school leaders and receiving acceptance by students and colleagues. School leaders provide support to beginning teachers in the task of instruction delivery. One way to support beginning teachers, according to Smith and Ingersoll (2004), "is to provide beginning teachers with learning opportunities such as workshops, collaborations, support systems, orientation seminars, and especially mentoring."

Novice teacher learning is mostly propositional learning with the focus on self-development. Learning experiences include workshops, seminars, and school orientation with the focus on learning what to teach in the classroom. Feiman-Nemser sets forth the premise that beginning teachers have two jobs, “teaching students and learning to teach” (2001). The first years of teaching are years of survival, discovery, adaptation, and learning for beginning teachers. Teachers need to discover how their students learn and set goals, and how to establish expected outcomes for them. Teachers need to transition from students of teaching to teaching of students; workshops, seminars, and school orientations are processes designed to help beginning teachers shift from the formal learning process of what to teach to how to teach.

Novice teachers want to collaborate with their colleagues, but they tend to work alone and may or may not have the opportunities to discuss their teaching with others. When beginning teachers learn practices such as planning and teaching methods from their colleagues, the interactions help them to become better teachers. Despite current trends in education promoting collegial interaction and collaborative learning between teachers, beginning teachers still have limited opportunities to participate in collaborative learning with other teachers. Ingersoll & Strong (2011) argue that “the presence of a positive community and cohesion among families, teachers and students is important for the success of schools.” In addition, “the nature of teacher collaboration does have an impact on teacher learning and organizational learning” (Fletcher & Barrett, 2004). Teachers do collaborate and receive mentoring in the pre-service training of their teacher education program. The collaboration process is intended by most school districts to support beginning teachers in their transition from what to teach to how to teach. However, there is a difference between student teaching with a collaborating career teacher in the classroom and a novice teacher teaching alone without an experienced teacher in

the classroom for support. Existing research on successful teacher collaboration concludes that there is a need to implement a process that can promote teacher collaboration, including having experienced teachers support the novice teacher in the classroom in a form of collaborative teaching as a process of teacher learning.

Mentoring is one common form of individual learning through teacher collaboration. When a beginning teacher is paired with a career teacher in a mentoring relationship, the learning process is a collaborative two-way process for both teachers. Ingersoll and Strong (2011) find that mentoring has an impact on teacher learning. However, there are different processes of teacher mentoring across districts. Feiman-Nemser (2003) and Fletcher and Barrett (2004) believe that successful mentoring is not easy to implement. Mentor teachers should not provide only what the novice teachers want to learn, nor should the novice teachers observe and mimic what the mentor teachers do. Mentoring is a two-way process where mentors help the beginning teachers by providing opportunities to observe other teachers, encouraging the novice teachers to interact with the teachers in their district who work at their grade level or in their content area, and serving as a guide to help the novice interact with other teachers and administrators within the school. The novice teachers can help define the mentor's role and practice by helping the mentors to think of them also as learners. Good et al. (2006) believe that beginning teachers can learn successfully by taking on the responsibility for their own learning by treating mentoring as a form of collective learning.

Tang and Choi (2005) believe that mentoring teachers can be a vehicle for educational change. Additionally, Hobson, Ashby, Malderez, and Tomlinson (2009) stress that mentoring can help novice teachers improve their confidence and promote their problem solving skills. Teachers in their early career are motivated by both extrinsic and intrinsic factors to establish

themselves and begin to form identities as education professionals (Chong and Low, 2009).

Feiman-Nemser (2003) states that new teachers need three or four years to achieve competence and several more years to reach proficiency. Novice teacher learning support is important, since new teachers still need to learn what to teach before perfecting the craft of how to teach (Feiman-Nemser, 2001; Fletcher and Barrett, 2004). In conclusion, novice teachers learn what to teach, or propositional knowledge, for the first years of their career, and most of their learning takes the form of individual learning, with an introduction to collective learning by collaborating with mentors.

2. Career teacher development

Successful career teacher learning is similar to beginning teacher learning with an emphasis on collaborative learning. Teachers are encouraged to attend “professional development” training as an avenue of collaborative learning. Anderson and Olsen (2006) believe that the words “professional development” are a widely used catchphrase for career teacher learning. Examples of professional development include attending school-based meetings for staff development, attending college courses, and obtaining an added degree or certification. When learning is paired with mentoring for early career teachers, it helps the career teachers form their identity as teachers and enhance their propositional and practical knowledge. Late career teacher learning opportunities are more diverse and include mentoring and other traditional paths of learning. Attending professional development opportunities provided by schools or school districts, carving one’s own path of development, or changing teaching practices through corrective action or remediation processes are all examples of career teacher learning and how it can differ from beginning teacher learning.

The purpose of career teacher learning is to assist teachers who are improving their craft through propositional learning and to help them recognize the students' diverse needs, with a focus on improving practical knowledge. Like novice teacher learning, career teacher learning is effective when collaboration takes place in a collective learning environment, such as teacher mentoring or collective teacher learning teams. Career teacher learning, when it moves from what to teach to how to teach, will open up diverse learning opportunities for career teachers.

Worthman (2008) asserts that learning and identity are interrelated. He states:

Identities evolved not only because of changing experiences but also because of the interaction or dialogue that commonly took place around those experiences. Thus, the learners' experiences are resources for interaction and should not be a source of evaluation and correction or something to be assessed and surveyed. As teachers progress from beginning to career teachers, learning also changes from developing propositional knowledge or content knowledge to developing practical knowledge through identity affirmation. (p. 457)

Career teacher learning, as defined by Bakkenes, Vermunt, and Wubbels (2010), is learning in any of four quantitative ways: reproductive, meaning-oriented, application-oriented, and undirected learning. Beginning teachers are undirected learners who need support from mentor teachers or administrators to help narrow their focus and improve their craft. Early career teachers are reproductive learners who learn by studying thoroughly and memorizing or attempting to reproduce what they learn. Career teachers, however, are meaning-oriented and application-oriented learners.

Career teachers find meaning in what they learn and find ways to process and understand through the use of practical knowledge. Career teachers apply what they learn and think about how their learning can be useful in real life. The traditional route of learning for career teachers is to obtain additional certificates or degrees. This traditional route helps career teachers establish their specialty and allows them to design their own learning and development. Career

teachers have an opportunity to move out of the classroom by obtaining an endorsement as a school counselor or student service professional, or by entering mid-level school leadership. Sometimes career teachers move into administrative roles as school principals and assistant principals or into district offices as professional development providers or curriculum designers.

According to Hill (2007), teachers who remain in the classroom have learning opportunities that are varied but have little payoff. Successful teacher learning needs to have a long-term effect. Obtaining advanced university degrees, adding a teaching specialization, or completing a program through professional education organizations like the National Board for Professional Teachers Standards or the College Board are individualized learning processes that open up opportunities to teach other subjects or advanced courses and also to establish the teachers as experts in their endorsed fields. Teachers with National Board certification or Advanced Placement teaching experiences are utilized by school leaders to enhance the collaborative learning efforts as they transition from their individualized learning. Rhodes, Nevill, and Allan (2004) contend that administrators who value teachers who are willing to seek additional learning opportunities will also promote teachers' self-image and organizational efficiency. Having teachers who are National Board certified or who have the ability to teach Advanced Placement approved courses can build the school's reputation and build the teachers' skills, making them highly valuable to the schools.

Similar to novice teacher learning, mentoring is an effective avenue for a career teacher's individual learning. Career teachers usually take on the role of mentors for beginning teachers or remediated career teachers. This is seen as teachers leading teachers, which is effective in promoting teacher leadership, reducing the teacher turnover rate and helping new teachers avoid the pitfalls of the profession. Research supports mentoring as an opportunity for teachers to learn

collectively. Little (2003) believes that teacher leaders provide a voice of support for school administrators in expressing the importance of working together on issues of education and problems related to student learning. Mentoring is an additional responsibility, often without additional compensation. The process should be supported by the school leaders in order to prevent mentor frustration or burnout. For mentoring to be successful, mentors and mentee teachers work together and learn together so that mentored teachers can become better teachers with a focus on student achievement. Learning with other mentors and with school leaders is designed to improve the mentoring process and improve learning opportunities for the teachers involved. In summary, Athanases et al. (2008) believe that mentors who perform well can affect mentees in the schooling, teaching and learning of students, help retain teachers, and guide them to improve their teaching and affect student achievement.

There is limited research on learning by teachers who are in the process of going through corrective action or remediation. For these teachers school leaders dictate the learning process, which may or may not include collaborative learning processes as an effective intervention. The learning plan is tailored to the outcome intended by the administrators. There is an assumption that teachers who are going through corrective action or remediation have many instructional issues, and that school leaders have worked extensively with them. These teachers are considered “replaceable,” and when school leaders do not want to spend more time to “re-train” them, the effort becomes superficial. When school leader support becomes nonexistent, the goal of improving teacher learning through a collective learning structure will not be meaningful, especially to teachers in the remediation or corrective action process.

In summary, novice and career teacher learning both include observation, collaboration and mentoring. There is no assumption that novice teachers’ needs are more or less important

than career teachers' learning needs, but the common theme of learning from socialization is evident for novice teachers as well as for career teachers. There is an evident transition from individual learning to social learning that warrants additional research.

C. Collective Teacher Learning Process

The core of the collective learning model is to strengthen organizational learning by promoting the idea that changes in the organization occur as members of the organization acquire experience (Kane, Argote, & Levine, 2005). Collective learning within the organization occurs when there is a change in the organization's knowledge through cognition or behavior and the change includes both explicit and tacit learning. The framework focuses on the basic elements of organizations, such as their members, the tools used, and the tasks that need to be accomplished. Networks are developed within this framework and began with the "*task-task* and the *tool-tool* networks specify the interrelationships within tasks and tools, respectively. The *member-task* network, the division of labor, assigns members to tasks. The *member-tool* network maps members to tools. The *task-tool* network identifies which tools are used to perform which tasks. Finally, the *member-task-tool* network specifies which members perform which tasks with which tools" (Kane, Argote, & Levine, 2005). These elements of members, tools, and tasks and their networks are the primary mechanisms in organizations where learning occurs and knowledge is created, retained, and transferred. In the collective teacher learning process, the members come together with the tasks of structuring what to teach (curriculum) and how to teach (strategies) by using existing tools and developing new strategies together. The learning is evident because "knowledge can be embedded in the active context of members, tools, and tasks and their associated networks. Knowledge is embedded in the context and affects future learning. Within the organizational learning process, individual learning is necessary before

group and organizational learning, but individual learning is not sufficient for group or organizational learning. It is understood that for collective learning to be successful, the knowledge the individual has must be made available for others to access and use, review and revise through routine or practice” (Kane, Argote, & Levine, 2005).

1. Types of group learning

Lieberman and Pointer Mace (2008) describe teacher learning as both individual and social, and assert that it should be viewed as an organizational learning process with a combination of individual and collective teacher learning. Individual learning starts with knowledge acquisition, but in order for organizational learning to move from individual to collective learning, there must be a sharing of information and a collective use of stored knowledge that is applicable solely to the organization. When a school is seen as an organization of learning, it becomes a professional learning community, or PLC, for teachers. Raelin (1997) supports the development of professional learning community as a community of practice in obtaining knowledge, known as a model of work-based learning. He suggests that resources for learning are available within the school, and that the process of collective learning is developed to improve the organization through learning together in structured teams. In his book *The Fifth Discipline: The Art and Practice of the Learning Organization* Peter Senge stresses that the five disciplines necessary for a learning organization are personal mastery, mental models, shared vision, team learning, and systems thinking. The learning discipline starts with individuals practicing what they do and learning the essentials, which are the necessities prior to the mastery of the discipline. However, we know that individual learning begins with personal mastery; teacher learning needs to move beyond individual learning to team learning and system thinking.

Learning groups can have a variety of knowledge and learning characteristics, according to Bogenrieder and Nooteboom (2004). Using Wegner's 1985 framework, they assert that the

“goals of learning groups are based on distinct forms, content, scope, and aim.

Forms are more or less tacit learning process that can be procedural, context-specific, and decontextualized into parts. *Contents* are the professional expertise, skill,

work perception and attitude, operation of projects, organization, markets

(customers and competition), and the location and reliability of sources of knowledge.

Different *scopes* include generic knowledge (beyond specific applications) or specific knowledge (for a given project or practice). The *aim* of learning may be joint production, problem solving, the development of new practices or products, exchanging experience from different projects, sharing codified knowledge, or skills development, training, attitude development, management development or organizational change. Under the right conditions, people are willing and able to learn by exchanging, sharing, and jointly producing knowledge.”

Bogenrieder and Nooteboom (2004) further asserted that different types of collective learning teams have their own specific and distinct focus. According to their distinction, “project teams, expert groups and professional development groups are distinct collective learning teams, each with a different focus and intent.” First of all, project teams focused on project performance. The evidence of learning for project teams is *collective learning but* the scope is *project-specific*. The goal is to reduce behavioral ambiguity and to develop *shared norms of behavior* and there is stable membership during the project (*stability* and *closure*). When the project is finished, the members of the project team do not continued as a community of practice

(*limited duration of ties*). The team members in project teams learn *tacit knowledge* from each other.

The second community learning, or expert groups originate in a common content of *generic knowledge*. The common goal is to exchange *codified knowledge*. Participants meet *frequently* around a certain theme or content and participants do not expect the knowledge acquired to be directly related to daily work practices but is individually tailored. There is limited need for building intentional trust. Since there is no need for specific investments, mutual understanding, or trust building, there is no risk of *lock-in*, and no need for durable ties to recoup specific investments.

Lastly, in the professional development group, the group discusses *generic* themes of professional development, such as the norms and values, conflict resolution, and giving unsolicited advice. There is no pressure and no attempt to reach consensus on the issue at hand. Learning is *individualized* but there is interaction and feedback, which enables the group to exchange more *tacit knowledge*. Members use their own experience in practice as material to work with. Specifically, through discussion, feedback, and critical questions from colleagues, members are invited to explain some of their implicit assumptions and develop *open communication* and *competence trust*. In summary, collective learning groups can be an aggregate of Bogenrieder and Nooteboom's types of collective learning groups. School leaders will structure the learning teams by grade level or by content area with the assumption of common expert knowledge, with the goal of investment by learning together. Collective teacher learning groups in the structured organizational system will share commonalities among these three learning groups.

Team learning is considered as collective learning from a social constructive viewpoint, where learners link new knowledge to their prior knowledge, i.e., learning is a cumulative process. Using Boekaerts and Simons's 1995 theory on activating learning, de Laat and Simmons (2002) assert that "the learner personalizes new information by giving meaning to it, based upon earlier experiences. Meaning is rooted in and indexed by experience, and there is a distinction between *learning in social interactions* (with and from others) and *collective learning* (where the members consciously strive for common learning outcomes)." They coined the term "collective learning" in their attempt to explain group learning and organizational learning. The transition from individual learning to collective learning occurs when groups or organizations reflect upon common outcomes, when they reflect on or plan common learning outcomes, and when they define common plans to extend learning outside of the group. This is accomplished when learning can be distinguished among learning networks, learning teams and learning communities. Learning outcome is the obtaining of knowledge as explained by the implicit and explicit process from individual to collective learning. In addition to an individualized learning outcome, there is a collective organizational outcome that comes from the collective learning practice of the community of learners in working teams.

Before expanding on the premise of collective learning, a distinction must be made between collective learning and collaborative learning. Collective learning, as defined by de Laat and Simons (2002), is "the process of learning together for a common outcome. Collaborative learning is the act of performing activities that trigger specific learning mechanisms. The activities are performed by individual members within the group; they can include such interactions as explanation, disagreement, and mutual regulation, and they lead to knowledge elicitation, internalization, and reducing cognitive load." The argument can be made

that collective learning is the process that brings learning to the group, while collaborative learning is the product that results from the group learning through the performance of common activities.

Bidwell and Yasumoto (1999) believe that collective learning in a workplace consists of common activities performed together, or the engaging of the same domain of tasks. These activities do not have to be identical or be performed in lockstep, as long as there is a similarity, complementarity, or interdependence of tasks to be experienced by all of the participants.

Mittendorff et al. (2006) assert that learning together results in the formation of a community of learners, which presents the unique combination of three fundamental elements: “a domain of knowledge, which defines a set of issues, creates a common ground and a sense of common identity; a community of people who foster interactions and relationships based on mutual respect and trust, and who care about this domain; and a shared practice with a set of frameworks, ideas, tools, information, styles, language, stories, and documents that community members share. The collective learning outcome is made possible when learners develop a shared understanding of and meaning about the learning process, and new knowledge is developed after the formal process.” The learners explicitly share new insights or theories that are related to problems at work. The goal for an effective collective learning group is to make effective changes in work practice. A collective learning outcome is a goal that the group achieves, sometimes as a resolution to a problem.

In summary, collective learning practice outcomes bring new insights to the group’s working process and ensure that knowledge is produced within the team and spread throughout the organization. Schechter (2010, 2012) summarizes collective learning process as “(a) holding regularly scheduled learning workshops, (b) identifying and analyzing successful school

practices, (c) documenting the learning, and (d) identifying effective modes of collective learning.” These learning workshops (generally scheduled after regular teaching hours) are self-directed and oriented toward addressing issues at the heart of the school’s vision and development process. Schechter further stated that ‘the core characteristics are (a) reflective dialogue focusing on instruction and student learning, in which teachers reflect on instructional practices and examine tacit assumptions about teaching and learning; (b) feedback provided by teachers through networks of professional interactions and knowledge shared beyond their own classrooms (e.g., teachers become mentors); (c) peer collaboration, in which teachers collaborate on school projects that focus on professional reform and improvement initiatives; and (d) shared leadership and facilitative supportive actions on the part of the principal and the administration” (2010, 2012). All four of these core characteristics are interrelated and should be aligned to produce the capacity for a professional learning community, thus clearly defining the purpose and goal of the collective teacher learning group.

2. Collective teacher learning community

McLaughlin and Talbott (2006) provide a blueprint for different types of collective learning communities in educational organizations. For them, “collective learning occurs in a professional community where teachers work collaboratively to reflect on their practice, examine evidence about the relationship between practice and student outcome, and make changes that improve teaching and learning for the students in their classes. The collective teacher learning practice builds and manages knowledge to improve practice, to create a shared language, vision and standard for practice, and to sustain school culture.” In the process of change, McLaughlin and Talbott believed that:

- a. A teacher community of practice is developed through joint work on instruction, usually starting with a focus on one facet of instruction—subject content, students or assessment of student learning.
- b. An effective learning environment is created with the intent of teacher learning.
- c. Proactive administrator support fosters the culture of learning and promotes teacher leadership.

Furthermore, an effective learning environment for teachers is:

1. Knowledge centered: focusing learners on problems and practices designed to deepen their conceptual knowledge and skills in a content domain.
2. Learner centered: attending to individual learners' interests, cultural backgrounds, prior knowledge and skills in order to create effective bridges for learning new content.
3. Assessment centered: creating opportunities for learners to get ongoing feedback on their performance to guide their learning.
4. Community centered: involving peers in joint work that draws upon each person's knowledge and skills to build new understanding and practices.

Even though they may have outlined what is needed to promote an effective teacher learning community, most teacher learning communities remain in the beginning stage and can be considered weak learning communities. In a weak learning community teachers take a passive role in content learning, knowledge is based on text coverage, and the subject is based on text content. In addition, there is a school culture in which isolation is enforced by a norm of privacy, with expertise developed through private practice. Organizational policies award access to resources based on seniority and tenure. An understanding of other learning communities may help schools to move beyond the beginning stage. For example, in a strongly traditional community there may be passive roles in content learning but active roles in promoting advanced level courses such as honors and Advanced Placement courses. Subject topics and skills may be treated sequentially and hierarchically, and knowledge is conveyed as the didactic transmission

of learning by teachers. Expertise is dependent on discipline knowledge, and learning is tailored to student testing and assignment policies. The organizational policy dictates that teachers are tracked and resources are accessed according to teacher expertise.

A mature learning community or advanced collective teacher learning community, however, shares the belief that all students can achieve at high academic standards with active student learning, spiral core discipline-based concepts that bridge the subject with student knowledge. Collaboration takes place around teaching and learning, and expertise is considered as collective based on shared knowledge. Collective teacher learning falls into beginning, traditional or mature stages. Most schools that attempt to form teacher learning teams are stuck in the beginning or traditional stages and never move beyond them to the mature stage of teacher learning. The distinction for the mature learning community is that organizational policies include course rotation and sharing for learning, and collective definition of resource creation and sharing take place throughout the organization.

3. Teacher efficacy in collective teacher learning

In an effort to enhance teacher efficacy, Schechter focused on “conscious reflection on successful practices can nurture the gradual emergence of professional knowledge and result in enhanced teacher efficacy. Learning from success first occurs in the process when the learning group identifies the successes of staff and students, inquire into the actions that contributed to these successes, and documents the processes and products of these inquiries” (2012). In other words, collective teacher learning is effective when it reflects on school successes, discovers the tacit knowledge that contributed to the successes and formulates them into actionable terms as a basis for their dissemination. The idea is that “this reflection of learning can produce teacher efficacy and build on the foundation of collective teacher learning. Student learning may occur

when teachers learn in a team to focus on achievement and positive student outcome in a deliberate and purposeful process” (Schechter, 2010, 2012).

Related to teacher efficacy is a discussion of collective teacher efficacy belief by Goddard, Hoy, and Woolfolk Hoy (2000, 2004). The assumption of teacher efficacy is derived from studies by Bandura in 1977 on individual efficacy. For these researchers, “collective teacher efficacy is considered to be an important intellectual school property. Individual teacher efficacy may partially explain the effect that teaching has on student achievement within a class or classes; from an organizational perspective, collective teacher efficacy explains the summative effect that schools have on school-wide student achievement.” Collective teacher efficacy has the potential to contribute to the understanding of how schools increase student success. Bandura’s 1977 study identified four avenues of efficacy expectations where efficacy beliefs can be strengthened and promoted. The expectations stressed that “mastery is attained through various professional development initiatives, such as classroom experience and group discussions and contextual factors that are important in promoting the efficacy of pre-service and novice teachers” (Tschannen-Moran and Woolfolk Hoy, 2007) while “physiological states such as anxiety, stress, fatigue and mood similarly provide information about efficacy beliefs and their relevance” (Chong and Kong, 2012).

Goddard et.al believe that “within an organization, perceived collective efficacy represents the beliefs of group members about the performance capability of a social system as a whole.” It is important for education leaders to consider faculty both as a whole and as teams in order to take appropriate courses of action that will have a positive effect on students. They asserted that “collective efficacy affects the diligence and resolve of the groups in their pursuit of their goals. Collective efficacy is a potent way of characterizing the strong normative and

behavioral influence of an organization's culture. Knowledge about collective efficacy beliefs is critical to understanding the influence of school culture on teachers' professional work and student achievement. There is an understanding that organizational function depends on the knowledge, vicarious learning, self-reflection, and self-regulation of the individual" (2000, 2004). They conclude that the organization efficacy is expressed in two related domains: teaching task and teaching competence. Both domains are assessed in terms of whether the organization has the capacities to succeed in teaching students. They believe that the interactions of these assessments shape the collective teacher efficacy in a school. According to the researchers, "the consequences of high collective teacher efficacy will result in accepting challenging goals, increasing strong organizational effort, and striving for higher student performance. The consequences of lower collective efficacy lead to less effort, the propensity to give up, and a lower level of student performance"(Goddard et al., 2000, 2004).

Chong and Kong (2012) assert that collaborative learning structures typically involve teachers meeting on a regular basis to develop shared responsibility for their students' school success. They believe that "learning teams follow a cycle that begins with the teachers examining areas of student learning needs and identifying new teaching approaches and strategies to address these needs. Applying what they have learned in the team to the classroom, observing the processes and effect on student outcomes, and repeating the cycle for refinement further enhance the collective learning structure and member efficacy. Through shared participation and exchanges with peers in a supportive environment, these approaches open up opportunities for teachers to critically examine their classroom instruction as they work together to revise current practices." A study by Nielsen et al. (2008) develops three other conditions in collaborative structures that support teacher change. Teachers believe that they learned more

when professional development was embedded within their school and classroom contexts. The collective participation of teachers in the same school, subject, or grade does bring about greater connectedness and alignment of teachers' learning goals with school policy and goals. The result is a shared culture in which teachers can develop a common understanding of instructional goals, methods of teaching, problems of learning, and solutions. One conclusion from the study by Nielsen et al. is that the pooling of the teachers' collective wisdom and experience to problem-solve can reduce isolation, since individual change efforts are not sustainable in the long run. First of all, in order for teacher engagement to be effective, learning needs to occur in a working climate where mutual trust is encouraged and the preferred mode of interaction is one of collegiality. Second, teachers said they learned more when professional development focused on a limited number of clearly defined learning goals and provided opportunities for deep learning. The most productive collaborative undertakings are those in which the learning focuses on deepening teachers' content knowledge and instructional practices. These benefits can be acquired through opportunities for in-depth learning and active engagement of new teaching methods; teachers can then implement them independently with confidence. Active engagement includes meaningful discussions, planning classroom implementation, observing expert and experienced teachers, reviewing common student problems in learning, obtaining feedback in teaching through being observed, and engaging in reflective discussions about the learning processes. Third, at an organizational level, schools need to provide the structures and processes that support instructional change. Introducing changes to the classroom can be time-consuming and overwhelming for teachers who are already busy with daily teaching routines. The need to find common times to meet regularly and for a sustained period over the course of a year and, for

school leaders, the need to create a collaborative learning culture that allows teachers to block out time to come together are equally important.

Stanley (2011) notes that existing research on teacher learning communities points to six important considerations: “(a) the length and quality of participants’ commitment to the group; (b) the tension between the goals of improving content-area knowledge and pedagogical skills; (c) the way that teachers with varied goals for development participate and assume different roles within the group; (d) the group’s mechanisms for honest examination of teaching practices and its structures for conversation; (e) the teaching assignments represented within the group membership; and (f) support for classroom implementation of new ideas and skills.”

To measure group effectiveness, Conley, Fauske, and Pounder (2004), use Hackman and Oldham’s (1980) framework, which suggests that effective work groups are those “(a) whose output ‘meets or exceeds organizational standards of quantity and quality,’ (b) whose experience ‘serves more to satisfy than frustrate the personal needs of group members,’ and (c) whose ‘social process . . . maintains or enhances the capability of members to work together’ in the future—that is, does not “burn itself up”. Somech (2005) speaks to empowerment in personal and team relationships. This aligns with the case study he uses by Kirkman and Rosen (1997), which defines team empowerment in terms of four dimensions:

1. *Potency*, the personal empowerment construct of self-efficacy; the assessment of the team’s collective ability to perform job-related behaviors.
2. *Meaningfulness*, the team’s experiencing its tasks as important, valuable, and worthwhile.
3. *Autonomy*, the personal empowerment construct of autonomy; the degree to which team members experience substantial freedom, independence, and discretion in their work.

4. *Impact*, the personal empowerment construct of impact; the degree to which team members sense that the team produces work that is significant and important for the organization.

Empowerment as a motivational construct is an intrinsic need for self-determination and the belief in individual efficacy. For them, the perception that teachers are an integral part of a team will lead them to produce higher student achievement than measuring their accomplishments as individuals.

The impact of the collective effort on individual learning is greatest when the socialization aspect includes an emphasis on self-efficacy. In order to build the cohesiveness of the collective team, the organizational structure needs to focus on individual teacher self-efficacy as related to collective learning about curriculum and teacher practice. The empowerment will result in teachers blossoming in a safe environment by taking risks, making meaningful curriculum that affects student learning, and taking ownership of the collective work in the group.

D. Schools as Learning Organizations

Organizational learning is a structured learning process that is embedded in organizational studies and management. Organizational learning theory begins with individual learning theories taken from behavioral, cognitive and social psychology frameworks.

1. Organizational learning

The historical perspective of organizational learning, or OL, began in 1996 with Grant's premise that learning in the organization should produce knowledge that is shared by everyone in the organization, or the integration of knowledge. This initial perspective was adapted later in the same year by Spencer, who proposed that organizational knowledge is embedded in rules and routines. The concept of organizational learning first developed by Nonaka (1994) later

incorporated Polanyi's 1996 notion of tacit and explicit knowledge acquisition by proposing that "organizational knowledge is a continuous dialogue between tacit and explicit knowledge" (Chiva and Alegre, 2005). Argyris and Schon (1996) make the connection that "the theory of organizational learning is a product of organizational inquiry." This means that whenever an expected outcome differs from an actual outcome, an individual (or group) will engage in inquiry to understand and, if necessary, to solve this inconsistency. Through organizational inquiry, "the individual will interact with other members of the organization, and learning is the direct product of this interaction" (Frost, 2010). In their 1996 study Argyris and Schon identify "three levels of learning present in the organization: single loop learning, or error correction; double loop learning, or efficiency creation; and deuterolearning, or learning about improving the learning system itself." The focus is on deuterolearning, which includes structural and behavioral components that determine how learning takes place. Essentially, therefore, deuterolearning is "learning how to learn." It can also be a triple or continuous looping, and it will be the focus of this study on collective teacher learning.

Even though organizational learning frameworks originated in business organizations, the concepts within such frameworks become applicable in the field of education, especially in teacher learning. Deuterolearning, or learning how to learn, is the process of making teacher learning important in the connection of learning for improvement. The purpose of teacher development or teacher learning is learning for improvement. Teachers use professional development opportunities to improve their teaching skills and share their expertise with students in order to improve student achievement. Therefore, this literature review includes the concept of deuterolearning and describes the foundation of learning how to learn through collective teacher learning.

According to Elkjaer (2004), “organizational learning is a combination of skills and knowledge acquisition (product) and participation in communities of practice (process) and thinking is connected to action, and theoretical concepts and ideas act as ‘tools to think with.’” The organization as a system or as communities of practice is replaced by the organization as social worlds. Learning is a process of acquiring the product in an individualized process. The process shifts learning to consider individuals as “agents” to support the organizational learning process. According to Wang and Ahmed (2002),

Organizational learning occurs when individuals within an organization experience a problematic situation and inquire into it on the organization’s behalf. The root of organizational learning is to develop a learning shift from learning for improvement of self to learning for organizational improvement (p. 14).

Learning within the organization is not error correction but a process of environmental change within the organization. Even though there are different approaches to organizational learning, the outcome is still the same. For example, Parding and Abrahamson (2010) outline three approaches to organizational learning: pragmatic, cultural and creative. These three approaches are applicable to organizational learning because of the initial focus on the individual and the relationship to the organization. These three approaches to organizational learning are relevant for teachers because teacher development is transformed from learning as an individual to learning as a collective. Vera and Crossan (2004) suggest that organizational learning is a process of change in thought and action. They believe that both individual and collective learning are embedded in and affected by the institutions of the organization. Organizational learning is both an individual and collective process. Collective learning starts with the individual in order to focus on an individual’s development to create circumstances in which learning can take place. The collective learning process, according to Huber (1991), is multileveled and complex. Organizational learning has multiple levels; learning takes place at

the individual, group, and organizational levels. It includes inquiry, relies on shared (often tacit) understandings among members, involves behavioral and cognitive change, and embeds knowledge and practices in routines.

McCharen, Song, and Martens (2011) make organizational learning applicable to school organizational learning by proposing a research framework for school innovation and change. “The relationship between knowledge creation and departmental creativity indicates that the supportive learning culture has a statistically significant impact on shaping the creation of organizational knowledge. A supportive learning culture is a major influence on the three variables of knowledge creation, departmental creativity, and job autonomy, which leads to school innovation and change as an expected outcome” (McCharen, Song, and Martens, 2011). It is possible to apply the theoretical framework from management to education, since previous discussion indicated that teachers do learn collectively within the school. The implication of applying organizational learning theory is reinforced by an understanding of the structure necessary for learning as assessed along four dimensions: “(1) collaboration—staff regularly meet together to learn from each other and review program progress measures, (2) planfulness—staff set measurable outcomes to be achieved and make sure plans and activities link to outcomes, (3) diffusion—staff actively share their program successes with each other and with other schools or organizations, and (4) infrastructure—organizational resources and time are set aside to promote learning” (Sabah & Orthner, 2007). In summary, organizational learning prioritizes learning for all members by facilitating the dissemination (sharing) of knowledge, skills, and insights, attending to human relationships, fostering inquiry, and enhancing members’ self-fulfillment.

2. Collective organization learning development

Teacher learning within structured collective learning is a foundation of professional learning communities in schools. In order for teacher learning to be successful, schools need to become organizations where learning is evident for students and teachers. Relevant literature tells us that there are organizational characteristics of schools that can be effective in supporting ongoing teacher learning. Silins and Mulford in their 2004 article cite four dimensions for high schools as learning organizations: trust and collaborative climate, shared and monitored mission, ability to take initiative and risks, and opportunities for professional development. Even though the study is limited in its focus on high schools, these four characteristics or dimensions can be generalized to include elementary schools as organizations of learning. In order to produce a trusting and collaborative climate, a school organization must support collaborative work through the sharing of information and create an environment for open communication. The shared and monitored mission makes it possible to include teacher participation in all aspects within the school. This includes decision making, shared coherent sense of direction, and acknowledgement in the wider school community. The organization's support for teacher learning helps validate teachers as adult learners, establishes a common practice that is routine and student centered, and encourages high-standard teaching with evidence based on state and national learning standards. When an organization acknowledges that teacher learning needs to take place in order for student learning to take place, the direct evidence indicates that the school becomes a system of learning to help the school move forward to a culture of collective learners.

Little (2003) provides an optimistic conception of the learning community. The professional learning community, or PLC, is developed as structured collective learning. It is neither a formal working group nor an informal network or project team. It is clear that a PLC does affect teaching and learning by providing the support needed to establish a professional

community with which teachers can identify. The historical perspective of PLC comes from Wenger's 2000 research on community of practice. PLC is effective when it is built with collective teacher learning within the organization in mind. Anyidoho (2010) contends that the actions of teachers in the community of practice are important because the activities in the learning communities involve creating, maintaining, and participating in learning. Teachers participate in the professional learning community to define their own learning and use what they learn to make sense of how their learning can help students succeed. The evidence from Wenger's community of practice points to creation of a community of intentional learning. The intentional learning community invites participants to "contribute to and gain access to 'just in time' learning (solving immediate problems of practice) as well as grapple with problems in greater depth and complexity" (Cuddapah and Clayton, 2011, p.52). Little describes the intellectual, social, and material resources of the PLC, which starts as individual development but should result in a change of practice for a collective. This supports the premise that collective learning is designed to change teacher learning from an individual process to a communal process.

Hodkinson and Hodkinson (2004) and Horn and Little (2010) assert that there are varied levels of communities of practice. Teachers do belong to overlapping communities of practice in the school, as part of their profession, and outside of their place of work. Among the different levels of the communities of learning there is a shared goal of solving common problems and building student achievement or mastery. The design is for teachers to take charge of their own learning by collaborating with other teachers in developing a common language and practice. The existing literature demonstrates links between student achievement and teacher learning and

effective school leadership. School leaders are effective in establishing protocol and maintaining the energy needed to make the community of learning a part of school culture.

3. Stages of professional learning community development

Louis and Kruse (1995) believe that "the development of an effective school-level accountability system further strengthens the collective learning process or the professional community. At the beginning level, a limited professional community may allow teachers to agree on standards for assessing their individual performance. At an advanced level, teachers work as a unit, as members of a school who take on the joint responsibility for considering and monitoring the effectiveness of the school." This involves setting the informal or formal standards for student performance as related to instruction, pedagogy, and student learning, and confront and/or mediate poor performance of teachers in the school.

They further state that "conditions that support school-based professional community begin with structural conditions, such as the design of the school, in creating connections between different aspects of teachers' academic work. Issues of time, size of the school, physical conditions, coordination among teachers, communication and autonomy, and control over membership need to be resolved to promote effective conditions" (Louis and Kruse, 1995). For example, having the time to talk requires creating physical proximity and common working spaces. In addition, through interdependent teaching roles, opportunities are created for teachers to work together on matters like team teaching and integrated lesson design. The communication structure is important for encouraging the exchange of ideas within and across organizational boundaries. Regular meetings and agendas focus on teaching and learning. These conditions are vital in the development of teacher networks

within the school; they can also build collective teacher autonomy on what to teach and how to teach.

The availability of social and human resources is a condition that fosters openness to improvement and an environment that supports faculty risk taking. First of all, developing a culture of trust and respect that includes colleagues in the school, key members of relevant external communities, and the professional community is an important way to honor the expertise of others. Second, access to expertise, including the intellectual and practical grasp of the knowledge base and skills offered by peers, results in collaboration and construction of new knowledge. Third, supportive leadership can develop the core issue of shared purpose, continuous improvement and structural change. Supportive leaders will create meaningful interaction among faculty that focuses on a supportive environment and climate for learning. What leaders say and do expresses what they value for the organization and creates a set of behavioral expectations that are communicated on a daily basis.

Spillane and Louis (2002) believe that “a strong relationship among teachers within a school can have a significant effect on conversations about school improvement, classroom practice, and student achievement.” Schools must have high expectations for all students, and teachers need to believe that they have the capacity to teach all students; this ensures a focus on student learning with collective responsibility for student learning. Organizational learning is a bridge between research on teaching and research on school improvement. It is a process whose outcome is new knowledge skills or tools for increased learning.

In addition to distinguishing the types of collective learning communities or professional learning communities, McLaughlin and Talbott (2006) offer a process for how schools might move through the stages of professional learning community development. In order to

successfully transition to the advanced stage of collective learning, the schools need to address challenges for transition between them. The goal of establishing the professional learning community in the schools they investigated is attained through the teachers' practice of using evidence to weigh their instruction against student achievement and working together to make improvements. Instructional coherence becomes an explicit goal for the community, and it is important for organizational policies and structures to be established to enable teacher collaboration on instructional improvement. Those policies and structures establish a framework for developing the collective learning process. In the novice stage, the schools work initially to create systems and manage data to understand the value of inquiry for improving practice. The beginning stage is the fostering of knowledge building among teachers and school leaders to support the development of trust and collaborative norms. In the intermediate stage, teachers begin to use the cycle of inquiry process to build a teacher community that includes broad-based leadership. Schools gain comfort and competence when small improvements in student outcomes provide visible connections between inquiry and improved teaching and learning. The purpose is to work on clarifying shared goals for their students, building a common vision for the school, and developing a shared language so that teachers can come to a common understanding about teacher and learning. It is understood that teachers learn the process at different rates, and that some teachers advance to develop a learning community while others opt out and remain at the novice stage. In the advanced stage teachers incorporate into the work the process of developing questions, collecting and analyzing data, and taking actions based on the analysis. Faculty discussion probes deeply into the patterns of student outcomes and the use of inquiry to inform change in classroom discussion. This distinguishes schools at the stage of community development, with their shared language and selectivity in seeking outside sources. Discussions

of teaching and learning are grounded in evidence and analysis and open up the possibility of changing conventions of teaching. Finally, there is a sense of collective responsibility for students' success that is widely shared among teachers in this stage. McLaughlin and Talbott stress that the reason for wanting a school-wide professional learning environment is to increase collective responsibility, across individuals and departments, for performance (more broadly defined than increased student achievement), increased personal commitment of professionals to their work, increased willingness to work hard for the goals of the school, and empowerment of teachers as the reinforcement of these two points.

4. School culture and the learning community

McDonald, Mohr, Dichter, and McDonald (2007) believe that having protocols will force transparency in the collective learning teams. Protocols are developed to segment the elements of professional conversation and clarify the crucial differences between talking and listening. Karen Seashore-Louis and her colleagues (1996) argue that "the crucial components of professional communities of practice include the focus on student learning, de-privatization of practice, collaboration, shared norms and values, and reflective dialogue. These elements are crucial, and efforts to achieve a new and more genuinely accountable workplace for educators must be cultivated. In order to make sure that people throughout the organization can come together and learn collectively, organizations should gather colleagues together with a purpose, establish effective ground rules for gathering, enforce the ground rules by identifying behaviors consistent and inconsistent with them, enable the colleagues to share information freely with each other, help colleagues attend fully to each other's perspectives, and make a collective commitment to the choices the group may make." Jurasaitė-Harbison (2010) also stresses that maintaining the school culture of this learning process can create social affiliations and sense-

making norms that are crucial for innovation successes. Using Billett's 2006 study, Jurasaitė-Harbison concludes that "school culture as a social phenomenon can be a practice constructed through interactions and communications between the members within the operational contexts of an organization. Culture is an interactive web of meaning, and the continuously interacting parts include tacit and explicit knowledge, values and attitudes, propositions and theories, knowledge-in-practice and embodied knowledge." A school culture has five dominant facets that provide opportunities for informal teacher learning: "(a) a school mission that reflects the philosophy and collective values of the school community, (b) traditions that extend contexts for informal learning, (c) school buildings that provide or fail to provide spaces for teacher informal learning and an appropriate physical environment of classrooms, (d) organizational arrangements that feature diverse opportunities for teacher learning, and (e) professional relationships that provide or fail to provide colleagues with opportunities to learn from each other" (Jurasaitė-Harbison, 2010). Teachers are likely to engage productively when the space is conducive to interaction. Teacher collaboration is an explicitly stated purpose and process, and common and shared language is part of the school community. As a result, opportunities for outside collaboration are encouraged and supported by school leadership.

Penuel et al. (2010) found that in the successful school a cohesive advice network is aligned to the formal organization for developing grade-level teams, strong buffering by the principal from district pressure to adopt competing reforms, and appointing a coach who can play a central role within the advice network. The result will lead to information acquisition, information distribution, and information interpretation within the network. For them, "*Information acquisition* is the process of obtaining knowledge such as experiential learning (organizational experiments, organizational self-appraisal like action research) and vicarious

learning, in which organizations attempt to learn from other organizations' strategies and technologies, "grafting" or recruiting new members who possess knowledge that is not available to the organization. *Information distribution* is the process of sharing information through letters, memos, informal conversations, and reports to promote learning and the production of new knowledge. *Information interpretation* comprises sense-making activities to share and develop varied interpretations. It is an exchange of views and attitudes that can transfer individuals' tacit knowledge into organizational knowledge and assist in verifying, sorting, and filtering data from both inside and outside the organization' (Penuel et al., 2010). By sharing their individual experiences and comparing their opinions with those of their colleagues, members can gain a better understanding of the causal relationship between the actions required to execute a certain task and the performance outcomes produced.

5. School leader support of teacher learning

An effective school organization and structure needs the support of a strong leader in promoting teacher learning. Jackson and Marriott (2012) present several school leadership models. The Organizational Leadership Model (OLM) is the focus of discussion in this section. This model outlines principal and teacher influence over school instructional policies and begin with "leadership as an organizational quality can further clarify the mechanism through which organizational leadership affects attributes and behaviors of individuals within the organization." For Jackson and Marriott (2012), "personal resources as well as expertise and referent power support the currency and medium of leadership that pervades the organization." From this perspective, "individual behaviors and actions are viewed not as isolated phenomena but rather as part of the system. Inherently, this perspective affirms that leadership is not static; rather, all actors in the organization are at various times both the subject and object of leadership, which is

indicative of the distributive leadership model.” The idea is that distributive leadership organizes along three strands: performance of tasks or functions rather than a role-specific set of responsibilities, organizational quality and task-oriented, cognitive-based view (Spillane, Halverson, Diamond, 1999, 2001, 2004; & Louis, 2002).

Three components of school leadership address the relationship to organizational learning: the principal’s leadership practices as described in terms of transformational leadership behaviors; the leadership team’s behavior in terms of visibility, approachability, and extent of involvement in the core work of the school; and the distinction of levels and sources including students and community development. The school as a learning organization is defined by the level and quality of leadership, which characterizes the everyday work of the school organizational leadership and represents the total leadership that can be discerned in a school’s functioning at any one time. The hypothesis is that the level of total leadership is positively related to the level of organizational learning in a school, and that through involvement of teachers in the school and through their instructional work, organizational leadership and learning effects will affect the students in the school.

The influence of leadership on organizational learning also has two important dimensions that provide insights into the nature of the conditions that foster organizational learning: the leadership behaviors of the principal and the leadership team in the school, and the extent to which leadership is distributed throughout the whole teaching staff. A strong indirect influence of the leadership practices of the principal has an extensive impact on distributive leadership in the school, but the principal’s approach to leadership is not directly linked to the distributive leadership theory. It is the principal’s transformational behavior, together with the leadership

team's positive presence and involvement that will encourage leadership to emerge from different sources in the school and community.

Several factors are important for leaders in today's schools: "understanding how to support teachers so that they can do their work effectively, providing models of practice that promote student learning, and developing shared goals, identity, meaning, and purpose. School leaders should promote effective communication within a culture of shared knowledge, leadership, and responsibility for what happens. School leaders can also develop collaborative processes that foster better teaching and learning (e.g., designing and implementing the curriculum), recognize individual and school accomplishments, and foster individual and collective efficacy" (Schechter, 2011) This development will facilitate collective learning by establishing organizational structures, processes, and practices. Therefore, school leaders can effectively take on the role of facilitators and co-learners who guide stakeholders' collective learning, modeling learning and promoting learning for teachers to construct, refine, and negotiate meanings. They will also generate effective organizational learning structures and processes and create a shift in the principal's leadership role. Kofman and Senge (1993) advocate a shift from the leader at the center, around whom all organizational participants revolve, to a broader perspective of a leader as a designer, steward, and facilitator. Accordingly, "leaders are responsible for building organizations where people continually expand their capabilities to understand complexity, clarify vision, and improve shared mental models" Schechter (2011, p. 2422).

The major assumption of learning from success is that the expertise of educational practitioners in schools is a rich, barely tapped resource. School leaders can create a collective learning environment by relying on the expertise of teachers. As a result, a collective learning

process is developed through the transformation of the individuals' tacit knowledge into organizational knowledge, and teachers can explore their wisdom of practice through collective means.

It is important that leaders remain open to lessons learned from collective teacher learning without being too bound by rigid hierarchical rules. "School leaders can encourage teachers to collectively inquire into their successful practices, acknowledging faculty members as creative partners in a joint learning venture" (Schechter et al., 2008). Beyond nurturing a learning culture, school leaders can create institutionalized arrangements for collective learning from success by allocating time, space, and resources. The nurturing of a learning culture provides the evidence from organizational learning that schools can and should be learning organizations.

According to Hofman, Hofman, & Guldemon (2001), Mintzberg's organizational theory supports schools as learning organization by establishing six mechanisms of school effectiveness: (a) "Mutual adjustment" of various groups within the school, such as the school board, parent groups, teacher union, etc.; (b) "Direct supervision" by the school leader and the middle management leaders, such as the department chairs; (c) "Standardization of work process," including the standardization of teacher practice, classroom organization, and school rules and policies; (d) "Standardization of output," or what needs to be achieved, by measuring how school and department learning objectives and learning content are implemented; (e) "Standardization of skills," which is the site-based staff development of policy and practices used within the school and departments; and (f) "Standardization of norms," which is the focus of shared vision of teachers in education and instructional practices (Hofman, Hofman, & Guldemon). Uniform does not mean identical, but it does mean having a standard or set of

procedures in place to create a process in the development of teachers as collective learners.

Mintzberg's standardization of work process, standardization of skills, standardization of norms, and standardization of output are what is needed for schools to develop a structure for the collective learning process.

6. The role of school leaders in organizational learning support

There is strong evidence that effective school leadership is tied to school improvement and student success. Sebastian and Allensworth (2012) believe that school leaders can affect the process by focusing on the mission and goals of the school, building collaboration and trust in the building, and supporting instruction. School leaders are valuable in building an environment that is conducive to teacher learning. In their book *School Leadership That Works: From Research to Results*, Marzano, Waters, and McNulty (2005) examine four leading theories of school leadership: transformational/transactional, total quality management, situational and instructional leadership. Their conclusion is that in order to help teachers learn and make school work, the school leaders need to focus on three levels: the school level, the teacher level and the student level. At the school level emphasis is placed on a viable curriculum, challenging goals and effective feedback, parental and community involvement, a safe and orderly environment, collegiality and professionalism. At the teacher level, instructional strategies, classroom management and classroom curriculum design are important. Student level factors include home environment, building students' background knowledge and having the means to effectively motivate students.

Gurr, Drysdale, and Mulford (2006) define leadership as "those persons occupying various roles in the school who work with others to provide direction and who exert influence on persons and things in order to achieve the school's goals." Leadership is further described as

“having innate goodness and passion, demonstrated through honesty, and having empathy and commitment.” The definition of leadership is expanded to include both the school principal, who is the declared school manager, and mid-level leaders and teachers, who can be instrumental in helping the school principal to provide the leadership needed to achieve the school’s goals.

Paredes Scribner et al. (2007) employ a distributed leadership framework, in which “interaction between individuals plays a central role in accomplishing effective leadership.” For them, decisions are not made by a single individual; rather, decisions emerge from collaborative dialogues between many individuals engaged in mutually dependent activities. Teams are seldom hierarchically structured and group meetings are free-flowing, similar to a brainstorming session, for creative solutions to emerge. A teacher team might be particularly effective at solving a difficult problem that does not have an obvious solution and when a team is created with a problem-solving purpose, team members are able to focus jointly on particular information and ideas in order to solve a well understood problem. Neumerski (2012) believes that a “distributed perspective has two aspects: (a) the leader-plus aspect, and (b) the leadership practice aspect. The leader-plus aspect is an acknowledgment that multiple individuals in both formal and informal positions assume school leadership roles.” The leader-plus aspect is not a suggestion that individual leaders are unimportant. It merely states that we should consider the work of “all individuals who have a hand in leadership.” Knowing that student achievement increases when the principals foster collaboration around instruction does not tell us what happened inside those moments of collaboration. Cosner (2011) uses research by Gilley and her colleagues (2009), for example, to argue that it is important for leaders to communicate change, and that leadership behaviors supporting change can help predict the leaders’ effectiveness with organizational change. Leader communication is therefore a critical element of the sense-giving that leaders

provide with respect to reforms and reform enactment. The school leader's role within the organization is to understand adult learning theory and apply the theory in support of teacher learning. As teachers move from propositional learning to practical learning, there is a clear transition from learning what to teach to learning how to teach. The school leaders' understanding of adult learning is instrumental in helping teachers make the transition efficiently. Kelehear (2008) believes that principals who are effective instructional leaders can help teachers become better teachers. The direct relationship to student success is referenced by Newmann and Wehlage (1995), who assert that students learn best when teachers are engaged in authentic pedagogy design. In order for teachers to engage in authentic pedagogy design, they need to learn how to provide effective learning experiences. If school leaders are capable of providing these opportunities, the teachers will embrace the disciplined inquiry. Louis et al. (2010) and Drago-Severson (2012) point out that leaders who are successful in supporting teachers' improved learning create a learning-centered environment and follow a person-centered approach to teacher development. Some guidelines include treating the teacher as a whole person, establishing a school culture based on norms of technical collaboration and professional inquiry, and diagnosing the starting points for teacher development by recasting routine administrative activities into powerful teacher development strategies. The principles are similar to other existing frameworks for school improvement, including the one proposed by Leithwood in 1992, and are still applicable today (Drago-Severson).

E. Summary of Structured Collective Teacher Learning Development

The existing literature's focus on professional learning community ties teacher learning to student achievement, but there are not many learning communities that successfully link student achievement to teacher learning. The existing literature stresses explicit human factors

that tie professional learning communities to teachers' learning and acquiring knowledge. Existing research established a necessity in developing a culture of learning (Servage, 2008; Rose, 2008), using student data to drive conversation on learning and teacher efficacy and focusing on leadership practices (Thigpen, 2011) as working parts for successful collective teacher learning. There are gaps in the existing literature on transition from beginning level to advance level or mature PLC. Existing literature are explicit in describing what "must" be present in the PLC but are not explicit on how schools with beginning PLC can transition to mature PLC's or factors that are needed to make the transition possible. Louis and Kruse (1995) and McLaughlin and Talbott (2006) are two existing studies that provided case studies in describing different schools at different progressive levels from beginning stage to advanced or mature stage. Other research such as Little (2003), Anyidoho (2010), Hodkinson and Hodkinson (2004) were less descriptive in defining PLC as a relationship among teachers. McDonald, Mohr, Dichter, and McDonald (2007) established that structural protocols within the group for collective teacher learning is an integral part of the successful teacher learning process. In summary, teachers' acquiring knowledge is not a direct link to student achievement; it is a component of the development of a school culture of learning and represents teachers' investment of their own learning to help students learn, as defined in the community of learning process.

Future education policy will change teacher learning practices from individualized professional development to collective, interactive sharing of learning. As the teacher's learning process shifts from individual learning to collective learning, organizational learning becomes the dominant factor in supporting teacher learning, and the school is transformed from an organization of student learning to a learning organization where both teachers and students

learn. This forces schools to transform their organizational patterns to support teaching and learning as the next step in aligning practice with the important research strand on improving student learning outcomes in schools. By supporting individual and collective teacher learning, school leaders develop professional learning communities within the learning organization. The emphasis on organizational learning as a route to instructional improvement will then improve student learning outcomes. Teacher learning should not be a “one-size-fits-all” effort. The literature supports the argument that teachers’ learning needs appear to be fulfilled when teacher learning becomes a collective common goal instituted in the school culture. Learning and acquiring knowledge is mostly propositional learning to learn the “know that,” with some elements of “know how” and practical knowledge. Learning becomes more effective through a collective process, as teachers not only learn together but also learn from each other.

Supporting teacher learning is more important than ever as the role of teaching has changed dramatically. Valli and Buese (2007) state that role increase, role intensification, and role expansion guide the analysis of teaching as a profession. Teachers are asked to do more things with an increasing level of sophistication from year to year, especially with heightened expectations from district, state, and federal policies. The expansion and intensification of the workload create a shift in teachers’ professional roles. Although teachers’ instructional roles are consistently dominant, the increasing significance of their roles within the institution is unmistakable in shaping and subsuming all other roles. In short, teacher learning is a two-pronged process: from individual to collaborative to collective learning, as well as from propositional to practical learning. This proposal is designed to investigate whether successful teacher learning begins as an individualized process with collaborative support from mentor

teachers and school leaders and gradually moves toward a collective process as the learning within the organization moves from propositional to practical.

F. Literature Review Summary and Theoretical Framework

The literature in this chapter supports a theory of action for improving student learning. One important route to improved student learning is through the support of adults' learning. Adult learning is best supported when the schools are organized to support that learning. Effective school organization for adult learning requires effective leadership and a developed organizational structure for learning. The sharp differences in student performance among schools with similar demographics can be explained partly by such in-school factors as quality of instruction, quality of teacher learning, quality of organizational support for such learning, and quality of leadership that establishes and sustains such an organization.

There is a difference in organizational support between elementary and high school, but the goal for leadership practices is the same in promoting teacher learning. This proposal focuses specifically on high school, since there are multiple levels of leadership in high school that are not found in elementary schools. In elementary school, the principal and the assistant principal are the sole leaders or managers of the school. Even if the teachers are grouped by grade level teams, there is a central leadership team to which the teachers report directly. High school organization is very different from elementary school organization. High school is organized with multiple levels, where the top level is the school leadership, i.e., principals and assistant principals. There is also a middle management level of department chairs or coordinators who report directly to the school leadership and provide direct support to the teachers. The lower level of the high school structure is made up of classroom and non-classroom teachers. In elementary schools the school leaders have more direct interaction with

the teachers and are able to support the teachers directly. In the high school teachers are divided by departments and are more isolated within their departments. The role of the school leader is geared toward whole school support and driving the school toward the school's mission and goals. Each department in the high school is isolated and rarely works in collaboration. Therefore, the principal's job within the high school organization is more difficult.

The link to student learning success is traced back to teacher learning. The assertion that a community of learners has a direct impact on student success is supported through this literature review. The first section of the review looked at teacher learning through the developmental stages. As learning transformed from explicit learning to tacit learning and the focus shifted from individual to collective learning, the literature review also shifted from teacher learning to organizational learning and school leadership support. Organizational learning processes, especially in educational institutions, support the goal of effective teacher learning that leads to student success. Teachers move from individual learning to collective learning, and a system of educational organization learning support is developed to establish a common learning process. Teachers begin to speak a common language of learning that is similar across grade levels and between curricular departments.

The theoretical framework that informs the investigation what a PLC or collective teacher learning is should be termed an organizational learning framework. This theoretical framework is designed to shape what this study investigates, what it seeks to explain, what data are collected, and how the data are interpreted. First of all, leadership support is important in developing a structure for collective teacher learning or PLC. School leaders who are task oriented (Spillane, Halverson, Diamond, 1999, 2001, 2004; & Louis, 2002), who are designers, stewards, and facilitators (Kofman and Senge, 1993), and who form partnership with teachers

(Schechter et al., 2008) are successful in developing a structure of a working PLC. School leaders need to focus on the mission of the school (Sebastian and Allensworth, 2012) and ensure that everyone has a hand in leadership (Neumerski, 2012). The successful structure of collective teacher learning can be maintained by making PLC as part of the school culture is prevalent in the literature review from Spillane and Louis (2002) and Louis and Kruse (1995). Jurasaitė-Harbison (2010) believed that collective teacher learning is a culture of learning and it was up to the leaders to create a learning centered environment (Louis et al., 2010; Drago-Severson, 2012). The real goal of PLC is to create a culture of learning that started from the school leaders and included the teachers and students. In order for learning to take place in the schools, an established culture where every single stakeholder believed that he is responsible in making learning possible. Therefore, in order for PLC to function effectively, it must be considered as collective learning within an organization and involved everyone in the institution. This organizational learning framework paves the way for intentional support of the learning process in organizations, and leadership support is instrumental in setting up and achieving the related organizational goals.

CHAPTER III. METHODOLOGY

A. Study Focus

The purpose of this dissertation is to help researchers and practitioners improve their understanding of how structured collective teacher learning is created, supported and maintained in the school. Collective learning, as defined by deLaat and Simons (2002), is the process of learning together for a common outcome. Structured collective teacher learning emerges from the opportunity the school creates to bring content area or grade level teachers together for the purpose of learning for a common outcome: improving student learning.

Most collective teacher learning communities have difficulty moving ahead from the beginning stage and are considered to be weak communities; for teachers who take a passive role in content learning, knowledge is based on text coverage and the subject is based on text content. In addition, in the school culture isolation is enforced by norms of privacy and expertise developed through private practice. The organizational policies grant priority access to resources to teachers with seniority and tenure. However, in order for the schools to move to a strong teacher learning community—the advanced collective learning community as defined by McLaughlin and Talbott (2006)—the schools need a community with a shared belief that all students can achieve at high academic standards with active student learning; a spiraling core of discipline-based concepts that bridge subject areas with student knowledge; collaboration that takes place around teaching and learning; expertise that is considered within the collective and is based on shared knowledge; and organizational policies that include course rotation and collective learning resource creation that take place throughout the organization.

Teacher learning and development is conducted differently from district to district, from state to state, and from urban to suburban settings. The evidence indicates that effective learning

can be both an individual and a collective process. However, the connection of teacher learning to student achievement depends not only on what and how teachers learn but also on the support of school leaders for organizational learning. How this support should take place differs depending on whether the school organization is a high school or an elementary school. High school teachers are grouped by department according to their curricular expertise, while elementary school teachers are grouped by grade level. In elementary schools, learning is a school-wide focus and teachers engage their learning generically to cover all subject areas, because teachers in elementary schools teach all subjects within one specific grade level. Research in teacher learning for elementary school teachers must be focused on school and grade level learning; in high schools, teachers are grouped by department and teacher learning is usually content-specific and subject-specific within the content. With this distinction, this dissertation will focus on high school, especially on the goals and strategies that are used across curricular departments.

It is recognized that some schools produce better learning outcomes than others, and that some schools have more effective adult learning environments than others. But how is this achieved and sustained over time? There are limited examples of such schools; therefore, it is necessary to generate in-depth studies of examples of such schools in order to understand how they work and how other schools might learn from them.

One way to understand the process of building a successful PLC is to conduct a comprehensive case study of a single school that has established a successful collective teacher learning environment. Thomas (2011) describes “a case study as having two elements: (a) A ‘practical, historical unity,’ which is the *subject* of the case study, and (b) an analytical or theoretical frame, which is the *object* of the study.” This dissertation will be a case study of a

high school that has a comprehensive structure of collaborative organizational learning. The case study is a narrative description of collective learning process within the organization and the process the school leaders follow to create a system of support for the learning. The object of the study is the teacher learning support process and its components of support. Using Thomas's framework of case studies, a multiple-school case study was considered but found that there are limited examples of high schools with advanced PLC structure. A snapshot case study is the best way to produce the desired result. With the *snapshot*, "the case is examined in one defined period of time: a current event, a day in the life of a person, a month's diary of a marriage. Whether the study covers a month, a week, a day, or even a period as short as an hour, the analysis will be aided by the temporal juxtaposition of events. The snapshot develops the picture as it presents itself as a Gestalt over a tight time frame" (Thomas, 2011). This study intends to look at one high school for an entire year (2012-2013) in order to learn how an educational organization—in this case, a particular high school—supports and promotes collective teacher learning, and how using collective teacher learning can be effective in increasing student achievement.

B. Participating School Rationale

Once the topic of study was developed together with the framework and proposed questions, a research site was found that fit the needs of the study. With this topic, several considerations came up in the search for the appropriate site for the study. Items to consider included whether or not this study needed to focus on school or school district, high school or elementary schools, neighborhood or specialized schools such as magnet, IB, alternative placement, etc., and most importantly, schools that are developing their collaborative learning community or schools that have stable collective organizational learning in place. Several

possible sites were considered and after meeting with the major advisor and school level personnel, a proper placement was located to answer the research questions. This phase began with an existing contact from the major advisor, which made obtaining the school's permission to conduct the dissertation study an easy step to complete. Since the major advisor had the connection to the site, the entry process was facilitated by an introductory email from the researcher to the informant stating the purpose of the research. A meeting was set with the school personnel primarily responsible for initiating the development of the collective learning model from the beginning.

The school in this study is a mid-size suburban high school in the northwest suburbs of Chicago. It has about two thousand students and about two hundred school staff, including school administrators. The school is in one of the larger suburban high school districts, with six comprehensive high schools and two alternative high school learning centers. The school under study, which will be referred to as *Comprehensive High School* or *CHS* in this study, has a long history of student achievement and has the longest history of structured collective teacher learning practice in the school district. The use of the pseudonym for the school is to ensure anonymity and to conform with research protocol in protecting confidentiality.

C. **Design**

Case studies have a conceptual structure. According to Robert Stake,

A case study is organized around a small number of research questions which are issues or thematic lines that invite attention to ordinary experiences but also to the language and understanding of common disciplines of knowledge. ... qualitative case researchers orient to complexities connecting ordinary practice in natural habitats to the abstraction and concerns of diverse academic disciplines. (2005, p. 438)

The use of a case study is appropriate in an attempt to connect ordinary practice in a natural setting to the field of education. Researchers use case studies to interweave a story of real life experiences with common themes in order to help them answer their research questions. Case study is an appropriate qualitative methodology here, where the goal is to identify the specific strategies evident in the target school for improving student learning through collective teacher learning. In his contribution to Denzin and Lincoln's *Sage Handbook of Qualitative Research* (2011) Ben Flyvbjerg states definitively that case study not only offers "a detailed examination of a single example but can also provide reliable information about the broader class," which is the goal of this research. The qualitative methodology of case study includes appropriate research tools such as focus groups, observations, structured or unstructured interviews, and document reviews.

Angrosino and Mays de Perez (2003) believe that "observation in natural setting can be rendered as descriptions either through open ended narrative or through use of published checklists or field guidelines." Adler and Adler (2003) have suggested that "in the future, observational research will be found as part of a methodological spectrum," and that it will serve as "the most powerful source of validation for a methodological approach for case study." The principles of observation for researchers as described by Angrosino and Mays de Perez (2003) are:

1. Decision to take part in a social setting rather than react passively to a position assigned by others.
2. Assess behavior not in terms of its conformity to social or cultural norms.
3. Interaction is always a tentative process that involves the continuous testing by all participants of the conception they have of others' roles.
4. Validate the cues generated by others.
5. Assuming situational identities that enhance their own self-conceptions or serve their own needs.

These principles should guide the researcher in making decisions on whether or not to use observation as a methodology or as an approach.

Angrosino further elaborates what observation should be in his contribution with Judith Rosenberg (Denzin & Lincoln, 2011):

Observation based research is not simply a data-collection technique; it forms the context in which ethnographic field workers assume membership roles in the community they want to study. They do so in the process of negotiation with those who are already members and who might act as collaborators in the research process. (p. 675)

Quality opportunities to observe teachers are numerous: in department and grade level meetings, in Instructional Leadership Team meetings, within school professional development, and in follow-up meetings with the school leaders to discuss teacher learning and school support. Contrary to Rosenberg and Angrosino, as an observer the researcher would not be a member of the community, but would be observing as a collaborator in the process within the school community. Subjects of observation do not act naturally during the process unless a trusting relationship built with the observer enables them to act naturally in various settings.

Document reviews are important for providing additional information not otherwise found through observations and interviews. This includes reviewing school policies and procedures, teacher handbooks, meeting notes, peer evaluation, and administrator evaluation. The document review process is necessary to provide the researchers with the background information to support the study, and to help them find common themes that can be used in observation and in structured and unstructured interviews. The documents provide information that includes the school's vision and mission, the school's strategic plan and improvement plan, and the school-wide professional development plan. Documents facilitate the researcher's understanding of the school's goal for teacher development and the culture and climate of the

school, including what is implemented to meet the stated goal and how that implementation takes place. This provides the researcher with a framework to use in focus groups, observation, and interviews with stakeholders designed to identify gaps or connections in the organization that support the research questions. A complete document review of the professional learning community teams' agenda and notes, the department and grade level meeting notes, the leadership team meeting notes, and any individual teacher learning plans developed during teacher observation and conferences helps the researcher investigate how school leaders support collective teacher learning.

Meyer (2001) and Kvale (2006) stress relationship-building when conducting interviews, whether the interviews are structured or unstructured. The first concern is the sampling of interviewees. The second is the structure of the interview, such as use of recording devices, and involvement of other researchers. There are two types of interview process: structured and unstructured. Unstructured interviews provide a greater breadth of data than the other type. Unstructured interview process allows the researcher's personal feelings to influence and deviate from the "ideal" of a cool, distant, and rational interviewer (Fontana and Frey, 2003). In structured interviews, a questionnaire is usually helpful for researchers as a standardized script to follow. Instead of a survey for teachers to complete as a "checklist," the structured interview, with a set list of questions, helps the researcher organize the thought process and narrow the focus. The formal structured interview is seen as a task-oriented process where the researcher may perform an "automated" collection of information. The structured interview makes decoding and analyzing the data easier, because the data collected will be objective. Unstructured interviews are subjective and can be more time consuming. However, an unstructured interview is an interactive process where the researcher can also observe the

affective nature and behavioral cues of the subject interviewed. The unstructured interview provides more information for the researcher but can also take the interview process in a different direction. It is helpful in making the connection between the researcher and the teachers in the schools. In contrast, using a structured questionnaire survey to gauge the entire teaching and administrative staffs' perceptions of school support for teacher learning offers an alternative approach to the case study. Unstructured interviews with specific teachers within the school can be used to support the thesis that individual and collaborative learning occur in different stages of teacher development. Unstructured interviews are used as a way to gain entry to the school and establish a relationship with the school.

D. Participating School

This researcher gained entry by becoming familiar with the school and the collaborative learning process. Gaining entry was an important stage that began when the dissertation advisor introduced him to the contact person from the school. Fostering a working relationship was also part of gaining entry; it included meeting regularly with the contact person, attending the collaborative learning meetings on a weekly or biweekly basis to observe the process, allowing the school staffs to become familiar with the investigator, and meeting and observing school administrative teams. Gaining entry included finishing the dissertation proposal, obtaining approval for dissertation research from the university's Institutional Review Board, clarifying the methods of study, setting up consent forms for subjects, and setting up the research protocol (case study methodology to include baseline interviews or focus groups, observation, record review, structured and unstructured interviews, and possible survey instruments).

1. Setting

CHS is in one of the largest high school districts in suburban Chicago. The ethnicity of the students is about 75% White, 10% Hispanic, and 15% African American, Asian, and other minorities. The ethnicity of the teachers is about 75% White and 25% minorities, which is a reflection of the student population. The median income for families in the area is about \$70,000 per year, which is a reflection of a middle class neighborhood.

Successful school wide PLC process is a complicated structure at the high school level. It would not be ideal to observe every division's PLC process on a weekly basis in the data collection process. In order to find the model division that represents the whole school process, this researcher decided to focus on the English division PLC. The English PLC is the best choice because the division chair for English and Fine Arts is the informant that makes this study possible. The division chair is the person who brought the idea of skill focused collective teacher learning to the then principal thirteen years ago and began with the English division in revising the structure of how teachers look at curriculum to learn from each other and to help students learn. The collective learning structure for the English division fits McLaughlin and Talbott's parameter for a mature PLC. As a result, a direct inference can be made from observing one division and apply the traits to the entire school.

While using the one division as a representative sample for the entire school, it is necessary to collect additional data to support this premise. An extensive look at the English PLC, intentional observation of cross curricular PLC and random observations in the other divisions will be part of the observation protocol.

2. Selection criteria

CHS has a history of structured collective teacher learning. Their process began in 1999 with the goal of improving student achievement. In 1999 the school's first step was to revise the

curriculum alignment, starting with the English Department and continuing throughout the school. The collective teacher learning process began with quarterly professional development workshops and expanded into a once-a-week process for 2012-2013. This was an improvement over the beginning stage, and positive changes continue 14 years later. The collective teacher learning process has been successful, as shown by student achievement data, including the Advanced Placement and state ACT test scores. The data show that the students at this school have the highest percentage within the district for students scoring a “3” or better on Advanced Placement and ACT composite tests, surpassing district, state and national averages. The evidence shows that this process has been refined up to the current stage, with student data testifying to its success.

3. Selection strategy

In choosing the school, the dissertation chair was first consulted. The dissertation chair, who is the researcher’s major advisor, has worked with members of CHS in defining and establishing curriculum for the structured collective teacher learning process. The initial contact was made with the help of the major advisor through an introductory email from the researcher to the informant stating purpose of research. A meeting was set with the contact person, who was the English division chair or middle manager at the school. This was also the primary developer of the school’s collective learning model since it began there 10 years ago. The purpose of the meeting was to enable the researcher to discuss the purpose of the research, the goals to achieve, and the timeline, and to clarify any district and university procedure regarding research protocol. In addition, a meeting with the principal made it possible to secure permission to use this school as the study site.

In order to make this case study a comprehensive case study, a suggestion was made by the dissertation chair and the informant (division chair for the English and Fine Arts department) to look at another high school in the same district that was at the beginning stage of the collective learning process. A visit was scheduled and this researcher had the opportunity to speak to the the Science and English Language Arts division chairs at that school and observed several collective teacher learning or PLC during the visit. The PLC process observed at that school was prescriptive in nature. Every division in the school was required to conduct the PLC in similar structure and the division chairs collected the PLC meeting forms and reviewed the data from the process. This prescriptive model was tailored for the school because each division was reviewing the curriculum and in the process of revising the curriculum, unlike *CHS*, which was completed the revision process and implemented school wide strategies as part of the PLC process. The result from this visit was further discussed in the finding and analysis sections (Chapter IV and Chapter V).

4. Sample and size

The study sample was the entire teaching and school administration staff of the school. The sample size for the survey was 148 teachers and 12 school leaders. The researcher sampled about 10% of the certified staff, or about 15 school teachers and leaders. The researcher was able to interview 9 teachers from core curricular departments and 6 school leaders.

E. Instrumentation

Since structured collective teacher learning is a well developed process in the school and the school district, the researcher obtained preliminary information in order to make an assessment of the organizational structure. He then decided to collect general school data on the organizational structure and on school support. The researcher focused on the collective learning

process within the English Department in order to make the connection of the process to the entire school. The evidence collected showed that *CHS*'s PLC process was intentional, and that student success was the focus of the school's intentional vertical, horizontal, and diagonal alignment. The collected data came from school and district record review, observation of PLC, and structured interviews of school leaders and teachers. In order to narrow the focus on teacher learning, no individual or classroom student records were reviewed as part of the data collection process. The student records reviewed were limited to publicly published school and district test scores. The process of completing the case study included reviewing school documents, conducting structured interviews with teachers and school leaders, observing collective teacher meetings, and conducting an online survey of the entire certified teaching staffs and school leaders.

1. The school document review included the school's PLC organizational structure, the principal's complete school meeting notes and PowerPoints, and administrative team meeting notes and district and school data, including school report card, district report card, school improvement plan, student on-track rate, EPAS gains, and ACT/PSAE data through the years. These records were used to measure the impact of collective teacher learning on student success. In this school, there was no PLC agenda or meeting notes; however, if the researcher was observing another school or multiple schools, the PLC agenda and meeting notes became part of the school record review. The researcher did not review specific student or teacher class records pertaining to a specific student or group of students.
2. The researcher conducted structured interviews with selected subjects (two to four school leaders and two to four teachers). Structured interviews of school leaders were

- held with the Assistant Principal of Instruction, the informant (Division Chair of English), and other division chairs. There were structured interviews with teachers, with a minimum of one beginning teacher and one career teacher. The principal was not considered a suitable interview subject because this principal was new to the school. The researcher approached selected school leaders and asked them for their volunteer participation. The researcher asked the division chairs to recommend specific teachers who might be willing to participate in the structured interview (Appendices A and B). The researcher did not interview students as part of the study.
3. One additional data collection methodology used was a survey study (Appendix C). Analysis of survey results provided the researcher with quantitative data results to facilitate comparison of what was observed to what the teachers believed was happening at their school regarding the collective learning process. The survey results were analyzed quantitatively via statistical analysis using the Analysis of Variance (ANOVA) to determine whether certain factors supported or hindered the success of the PLC. ANOVA was the best quantitative methodology to use in analyzing the evidence from the collective learning process; it allowed the researcher to disaggregate the data from the survey and find the common themes in the collective learning process. Where previous surveys were available at the school, the choice was to use the available survey and analyze the data even if the surveys had been collected from previous years.

Prior to beginning the data collection process, the researcher created a timeline for data collection (See TABLE I).

TABLE I. TIMELINE ORGANIZATION CHART

Research question 1 — In a school with a highly structured approach to collective teacher learning and sustained improvements in student learning over time, what does the teacher learning process look like, in developing knowledge, skills, and dispositions?			
Methodology	Data Expected	Data Collection Activity	Timeline
1. Observation	PLC process, structure protocol	Four English PLC meeting observations monthly; 2 sessions with junior team, 1 session with freshman team, and 1 session with sophomore team	Weekly meetings on Thursdays: 02/2013–05/2013, 12–16 total observations.
2. School document review	PLC structure and organization, alignment with school goals	PLC organization chart from division chair; Principal’s school-wide PowerPoint; written expectation or recommendation for PLC process.	Ongoing, 09/2012–05/2013
3. Structured interview	Teachers’ and school leaders’ viewpoint on student learning outcomes resulting from PLC	Interview at least four teachers in various stages of teaching career and administrative team: Principal, Assistant Principal of Instruction, Division Chairs	Two months, 04/2013–05/2013 with IRB approval
4. Survey	PLC process, teacher experience and feedback on teacher learning and teacher practice	School-wide survey on PLC process and/or analysis of prior surveys	Two months, 04/2013–05/2013 with IRB approval

TABLE I. TIMELINE ORGANIZATION CHART (continued)

Research question 2— What student learning outcomes can plausibly be attributed to this teacher learning, and why?			
Methodology	Data Expected	Data Collection Activity	Timeline
1. School document review	Student growth data	ACT/EPAS, AP growth, graduation/on-track rate	
2. Structured interview	Teachers' and school leaders' viewpoint on student learning outcomes resulting from PLC	Interview at least four teachers in various stages of teaching career and administrative team: Principal, Assistant Principal of Instruction, Division Chairs	Two months, 04/2013–05/2013 with IRB approval
Research question 3— How have school leaders in this school initiated, developed, and maintained collective teacher learning?			
Methodology	Data Expected	Data Collection Activity	Timeline
1. School document review	PLC process, school goals, Admin. action plan	Admin. team notes, principal's PowerPoint, school organization chart	Ongoing, 09/2012–05/2013
2. Structured Interview	PLC structure, organizational support and leadership support	Administrative team: Principal, Assistant Principal of Instruction, Division Chairs	Two months, 04/2013–05/2013 with IRB approval

F. Protocols**1. Observation protocol**

There is no written observation protocol used in the study. An important consideration for the researcher was to minimize disruption and intrusion during the observation process. The researcher started the process by attending many of the structured collective teacher meetings in different core content areas in order to observe the norms, similarities and differences, and structure. After the process of gaining entry, the focus shifted to the English Department, where the researcher observed grade level collective learning teams for grades 9, 10 and 11, interdisciplinary meetings, and division meetings.

2. Interview protocol

One of the objectives was to interview school leaders and teachers who were extensively involved in the collective teacher learning process. The researcher interviewed the three core content division chairs. The researcher originally planned to interview every assistant principal, but after sending out preliminary emails to the assistant principals, the researcher found that only three assistant principals were actively involved and were knowledgeable about the collective learning process. The principal and other assistant principals had other job duties with minimum involvement in curriculum and teacher development. As a result, the researcher decided to interview the Assistant Principal for Curriculum, the Assistant Principal for Student Services and the Assistant Principal for Building Support, in addition to the three core division chairs.

Since the researcher did not know the teachers very well, the best way to recruit teachers for the structured interview process was to ask the division chairs to recommend teachers to interview. The rationale for recommending teachers for interviewing was the time constraint faced in completing the dissertation process. The results could produce bias favoring the

school's collective teacher learning process. But having the division chairs recommend teachers would also prevent from selecting teachers who would be less suitable interview subjects. Each of the three division chairs was able to provide the researcher with the names of at least three teachers to follow up, and the researcher was able to interview three teachers from each of the three divisions.

The researcher initiated contact with the potential subjects by sending an introductory email explaining the purposes of the interview. The subjects agreed to the interview, and the researcher arranged an interview time and provided each subject with a list of questions prior to the interview. Prior to and during the interview, the researcher followed IRB protocol related to subject rights and confidentiality. Each interview took 30 minutes to an hour, and the researcher recorded every interview for analysis (See Appendix A and Appendix B).

3. Survey protocol

The survey was developed under the direction of the major advisor. Prior to distributing the survey, the researcher obtained permission from the principal and the Assistant Principal of Curriculum. In order to facilitate completion of the survey, the researcher used the Web-based software "SurveyMonkey" to create the survey, collect responses and analyze the results. The purpose was to obtain optimal results from the survey and make it easy for the teachers and school leaders to respond to the survey. If there is a need to conduct advanced data analysis, he would convert the resulting data from an Excel file to an SPSS data file and analyze the result (Appendix C).

After the researcher obtained all the data, the next step was to describe and analyze the results from the data collected.

CHAPTER IV. FINDINGS

The school in this study is a mid-size suburban high school in the northwest suburbs of Chicago. It has about 2,000 students and about 200 school staff, including school administrators. The school is in one of the larger suburban high school districts, with six comprehensive high schools and two alternative high school learning centers. The school, which will be referred to as *Comprehensive High School* or *CHS* in this study, has a long history of student achievement and has the longest history of structured collective teacher learning practice within the school district. Their process began in 1999 with the goal of improving student achievement. In 1999 the school's first step was to revise the curriculum alignment, starting with the English Department and continuing throughout the school. The collective teacher learning process began with quarterly professional development workshops and expanded into a once-a-week process for the entire year. This was an improvement over the beginning stage, and positive changes continue 14 years later. *CHS* is in one of the largest high school districts in suburban Chicago. The ethnicity of the students is about 75% White, 10% Hispanic, and 15% African American, Asian, and other minorities. The ethnicity of the teachers is about 75% White and 25% minorities, which is a reflection of the student population. The median income for families in the area is about \$70,000 per year, which is a reflection of a middle class neighborhood. The use of the pseudonym for the school is to ensure anonymity and to conform with research protocol in protecting confidentiality.

A. Introduction

Comprehensive High School has a history of incorporating collective teacher learning as part of teacher professional development. Structured collective teacher learning is implemented as part of the school's bell schedule and is held every Thursday morning from 7:30 AM to 8:30 AM (School website). In order to make time for the teachers, students follow a late start

schedule every Thursday, and instructional time is cut short every period by about 5 minutes. This structure was put in place in 1999, with modification to achieve the current format in 2008. The purpose of the structured collective teacher learning, known as PLC (Professional Learning Community) time in this school, is to set aside time for teachers to work on horizontal, vertical and diagonal alignment of curriculum, create common teaching practice and assessment, and share best practices and learn from each other within the same content or grade level team (Interview with the English Division Chair, April 2013).

In this school all teachers participate in structured teams coordinated by departments, which are set up in this school district as divisions. In the English division teachers are placed in grade level teams from grade 9 to grade 11, while 12th grade teachers participate in writing or elective PLC teams. Teachers who teach more than one level or content area are asked to split their time in different teams. The English division's PLC is unique in that the team is structured by grade level, without distinctions among teachers who teach Honors, Advanced Placement or Prep (low level) courses (English PLC schedule). In other divisions, such as Math, Science, Social Science and World Language, teams are grouped by content area, and certain teams are further structured based on whether the teachers teach Advanced Placement, Honors, or Regular level classes (Math/Science and Social Science PLC Schedule). In non-core subjects such as Fine Art, Physical Education, and Career Technology, and in Special Education, teachers and School Counselors also meet in their respective content area teams during the PLC time. Each division has a different PLC structure for its teachers; clearly, because of the different structures in this school it was not possible to observe and collect data about every PLC team. To capture the school-wide PLC process, the English division's PLC was selected for in-depth study. The rationale is that the English division has the most advanced learning process and structure using

the framework in McLaughlin and Talbott (2006), and that this focus will provide supportive data to answer the research questions as applicable to the school-wide PLC process. Where there is evidence that the English division's practices are not representative of the wider school practices, this will be noted.

Prior to the observation of the PLC, research goals were set for the PLC observation and data collection. The established goals included observing the teams' intentional discussion of student work, understanding the format of the PLC, observing the collective learning process as aligned to school goals, and finding links of curricular coherence and consistency. This chapter will provide evidence that collective learning in this school is a developed learning format in which the collective learning groups maintain an intentional focus on student learning, and each content group works toward specific content-related goals within the spectrum of the goals.

Observations of different PLCs at the school and at a neighboring high school were conducted before narrowing the focus on the English division. The rationale to observe the PLCs at a neighboring high school in the district was that this school adopted a similar commitment to PLCs. The PLC teams are for the most part loosely structured, and most of the teams do not follow a prepared agenda during the PLC meeting. The structure of the team meeting depends on the PLC leader, a teacher assigned by the division chair to direct the meeting process. Some PLC team meetings are conducted loosely and members interact in a very informal fashion, while other meetings are conducted in a strictly structured format. The evidence shows that some teams are more focused and more task-oriented than others. For example, observation of a social science team showed a purposeful sharing of practice that indicated prior planning and follow-up with a set agenda for that meeting (PLC meeting on 11/29/2012). The focus of the meeting was tailored to content development with the intent of

horizontal alignment with teachers in other content areas. There was a deliberate focus on one specific section of the unit to ensure that what was developed for 2012-2013 was a modification based on student performance in the previous year. There was a purposeful review of curricular activities based on student performance in order to maintain a yearly coherent structure.

In another observed PLC in Science, there was evidence of teachers' sharing lesson plans and content materials during the meeting, but the process and interaction were informal and the meeting had no specific agenda (PLC meeting on 2/13/2013). At a neighboring high school's English PLC, the meeting was structured to align with a focus on school and district goals. The discussion during that meeting addressed college readiness skills in the English content, and the PLC leader for that meeting made available a set agenda. There is evidence that each PLC team within the division and across the school and district employs different meeting structures as long as the PLC focuses on the school or district goals, which is an indication that the flexibility of the structure is a district-wide practice. The flexibility allows teachers to take responsibility for their own collective learning process and accommodates variation in how each PLC produces learning results based on that individual PLC's needs. This provides flexibility for teachers in their collective learning process. While flexibility is a supporting factor that enables teachers to work within their PLC groups, the school and the district maintain that teachers must work within all PLCs towards a general consistency of practice across curriculum that is skills-focused. According to two division chairs at the neighboring high school in the same district, what is essential is that the process produce a common practice that is consistent, and that regardless of the design, there is a sense of accountability for and to all stakeholders in the school. This holds true for the school under study (PLC Meeting on December 12, 2012).

The PLC for the English division is organized in a way that is different from the other content areas, but there is one commonality in structure: Teachers who teach more than one grade level participate in more than one PLC team. The English PLC structure is divided solely by grade level, not by ability level, i.e., Honors, Academic, or Advanced Placement. This structure of team placement allows teachers to align their content with the previous year's content, with the emphasis on vertical and diagonal alignment. The diagonal alignment facilitates the transition of students from a lower academic level to a higher level in the school year. The 9th and 10th grade PLCs focus on skills and transition of skills. The transition is vertically aligned, so that skills taught in the 9th grade can be scaffolded and expanded in the 10th grade, with the focus on achieving the higher spectrum of the ACT College Readiness Skills in the 11th grade. Teachers in the 12th grade will transition students from high school skills to the basic skills needed to succeed in the first year of college (PLC Schedule, meeting with English division chair).

The PLC team leader in this school is a classroom teacher coached by the division chair as the teacher leader in the process. The early version of the collective learning process for *CHS* took place once a month during professional development days and during the summer for one week. As the process matured and teachers began to believe that the collective learning team helped teachers learn from each other to help students, the process was established by the school leaders and built into the 2012-2013 schedule. Since the collective learning process is intentionally built into the calendar as a year-long professional development process, the PLC goal is to review and continue alignment of the team's current curriculum. Alignment includes unit mapping as part of the meeting agenda, interdisciplinary connection to produce a quarterly culminating activity known as the forum for thematic connection, and synthesis of the individual

teacher's own curriculum within the PLC team to produce common assessments and instructional material as part of the collective process. The curriculum synthesis is drawn from analysis of the previous year's student learning and the analysis of student data collected by individual teachers. The English PLC was observed for an entire 2012-2013 school year, including the division PLC once a month and grade level PLC on a bi-weekly basis. The observation data contains no intentional analysis and discussion of individual student data, but there was evidence of collective discussion as to whether students had met the goals of the lesson or unit from the previous year, and what changes needed to be made based on the results from the previous year. Collective discussion in the PLC meetings often focused on student engagement and on building student analytical and critical thinking skills while incorporating the goals in the process.

In the examination of the English division, four core features will be discussed in detail: (1) The alignment of goals is a top-down alignment from district to school to department to PLC to individual teachers; (2) The process of introducing goals or school-wide initiatives follows the steps Plan, Monitor, Analyze; (3) The two main components of the PLC are Content and Skills Alignment, and Critical Thinking Skills for Students; (4) The focus of the department, in this case the English division, is the writing program that extends from the department to the entire school. In the course of in-depth study, the four features was observed at work in the processes of PLC, forum development, vocabulary initiative and curriculum alignment.

B. Question 1—Collective Learning Team, or Professional Learning Community (PLC)

The structured collective teacher learning for *Comprehensive High School* is built into the school schedule as a school-wide teacher learning process. To answer the first research question, the following artifacts were collected: observation notes from collective teacher learning

meetings in the English division and other divisions, interviews with school leaders and teachers, and school documents provided by the English division chair and other school leaders. There were at least ten PLC meetings of various grade levels in the English division and five different PLC meetings of other divisions attended in order to make connections to the entire school's PLC process. The observation of the collective teacher learning is the focus of the first research question:

In a high school with a highly structured approach to collective teacher learning and sustained improvements in student learning over time, what does this teacher learning look like, in content, process and outcomes such as teacher knowledge, skills, and dispositions?

Observation of the English PLC provided the evidence of three-way alignment—vertical, horizontal and diagonal—that could be extended through the entire school. Vertical alignment was evidenced by the fact that the student skill set addressed in the 9th grade PLC is the foundation for the skill set students learn in the 10th grade, which in turn serves as the foundation for the 11th grade's ACT College Readiness Standards (Meeting with English division chair).

The evidence to support this research question comes from the observation of the PLC meetings. Not only were data from the observed English/Fine Arts division PLCs were included to support the research but also PLCs from other content areas and interdisciplinary PLCs. The first PLC observed, on October 25, 2012, was the 11th grade English PLC. In this PLC the leader did not follow a scripted agenda, but the topic covered was the assessment of the Writing rubric and the school-wide focus on Vocabulary. The PLC leader was observed to check in with every member of the PLC before diving into the PLC agenda. Instead of keeping the members together, the PLC leader assigned each member a task and allowed teachers to meet with each other based on their focus: Writing rubric or school-wide Vocabulary. There was a new teacher

in the 11th grade English PLC, and the new teacher was integrated into the process and given the task of working with more experienced colleagues. On November 1, 2012 and November 8, 2012 in the observed 9th grade and 10th grade PLCs respectively, different leadership styles in the PLCs were noted for the study. The 9th grade PLC meeting was regimented with a specific agenda, and had an end goal to work toward by the end of the session. The 10th grade PLC was less regimented, and the process was similar to that of the 11th grade PLC. In both PLCs the day's agenda was to review the school-wide Vocabulary push from the October 18 yearly all-school PLC.

While observing other PLCs in other content areas the researcher collected additional evidence to support the research question. One of the PLCs observed was the Human Geography (9th grade History class) PLC on November 29, 2012. In this PLC there were four teachers working on horizontal alignment. The discussion was on the current unit and how the current unit was aligned to the school goals. In this PLC the teachers referred to previous year student performance in the same unit as the foundation for keeping certain activities and adding new instructional strategies to improve current year student performance. In the Spanish PLC on December 6, 2012, the teachers were observed to focus on grammar and speaking strategies as part of the students' cultural heritage. The teachers in the PLC were observed to share practices and collaborated to come up with a unit plan that was aligned with the school goals. Teachers reviewed the unit plan to ensure common alignment to school goals and collaboration in the PLC process. There is evidence that teachers reviewed previous year student data, which they used as a foundation for modifying current lesson plans.

Evidence of horizontal alignment is seen in the interdisciplinary and cross curricular work produced by interdisciplinary PLCs and other formal and informal cross curricular

collaboration. The result is classroom evidence, confirmed by the division chair and teachers, that units in one content area are relevant to what is presented in another area. The interdisciplinary PLC is an example of a formal collaboration in the school at a designated time, when core teachers can meet with each other to share information on a common curricular area and build on existing practices through a culminating activity, known at this school as a forum. A forum is a discussion of a topic of interest that is initiated by any of the core content teachers from each of the grade levels and produced in collaboration with other content teachers. This is an opportunity for teachers to brainstorm and to exchange ideas in an area that is interdepartmental and has a common theme. One of the interdisciplinary PLCs observed began with an idea that was initiated by the Science Department—the topic was electricity—and ended with Social Science and English connections that teachers in both divisions could use within their content. As the result of the PLC a forum was set as an end product of learning for the students in the given grade level (Interdisciplinary PLC on January 31, 2013).

Diagonal alignment is evident when students in prep classes (lower level) are taught topics and units similar to those taught to students at other academic levels. The thinking is that if students can move from one level to another within the year, they may be able to catch up to what other students are doing in the advanced classes. The diagonal process is made possible because teachers are able to produce common curriculum in the PLC team, and because they have the time to consult with each other during the meeting to make the transition happen. Even if students do not move across levels, there is a common curriculum that enables students to learn together.

While focusing on the English division team, the researcher found some noteworthy similarities and differences in the PLC processes for this school. One similarity, for example,

was that there was no uniform protocol set by the school, and each team ran the PLC differently. Some teams were very structured, with an agenda that never varied, while other teams often had no formal agenda and their meetings were free flowing. Another similarity was the alignment of the meeting to the school's goals. Every meeting set out to look at the curriculum and make sure that curriculum commonality and alignment existed for that team. One observed deviation from this goal was that in some PLCs teachers developed common assessment and instructional activities but gave themselves the freedom to implement the activities based on their own schedules; other teams found that teaching in lockstep promoted uniformity and enabled the teams to readily analyze student data to refine curriculum (Interview with PLC leader for 9th and 11th grade).

Based on the PLC data collected, the assessment is that *CHS* is in fact a comprehensive high school with a mature structured PLC. The mature PLC has a set protocol, automatic process/ interactive roles, an established comfort level, developed trust, a focus on student learning and goals, and established member roles. It is different from a beginning or a stagnant PLC. A beginning PLC is in the early stage of developing protocol, trust, procedures, and agendas. It is still developing consistency and notes to follow up. It needs to develop school-wide goals and familiarize its leaders and members with roles. A stagnant PLC may have set protocol but does not follow it. It lacks trust. Procedures are established but there is no buy-in (McLaughlin & Talbott, 2006). School goals may be set but there is no curricular alignment. The evidence collected shows that *Comprehensive High School* has a set protocol for the PLC: It is set in the school calendar as a time designated specifically for teacher development. There is a process by which a PLC leader is appointed by the division chair to guide the meetings. Teams have flexibility to structure individual team meetings as long as they follow an intentional

process of building coherence to produce skill-based curriculum and building continuity in skills year to year from 9th grade to 12th grade, with the focus on ACT College Readiness Skills.

Teams also seek consistency, not necessarily working in lockstep, by using common instructional material, assessment and rubrics.

1. School document review

CHS's school documents support the responses to the three research questions. Support can be found in the first document reviewed, the "*CHS* Staff Development Philosophy." One definition of staff development is "a continuous process through which staff members grow professionally and personally." Staff development is a form of professional development that is geared toward individual staff learning. However, at *CHS* the goal is "to increase student learning by providing a positive school climate, effective classroom instruction and opportunity for staff members to develop and share ideas relating to curriculum and instruction." This shows that the school believes in collective teacher learning through the development of professional learning community teams. The evidence is the culture the school established through alignment with the school's mission and principles. In addition to the school goals, there are seven principles that this school follows. The data from the previous principal's PowerPoint to outline the seven principles:

1. Rigorous college prep, common core curriculum
2. Student centered instructional design
3. Content based interdisciplinary curriculum
4. Cross curricular skills development
5. Conflicting interpretations and controversy
6. Faculty collaboration in PLC setting
7. High school is a learning community

These seven principles are the foundation for establishing the school culture of learning; they provide evidence of how the collective teacher learning environment is established. The

content of the collective learning fosters an environment of common core curriculum. Here, common core curriculum does not mean alignment to federal guidelines but a horizontal alignment in which students will experience the same topic in English as in Science, Social Science or Math; teachers can refer to learning topics in other subjects, and students can infer a commonality.

The *process* is the establishment of the school as a learning community in which teachers in their collective teams review curriculum to ensure vertical, horizontal and diagonal alignment, while students benefit from the teacher learning through a coherent curriculum. Furthermore, interdisciplinary summary integration through a teacher-led forum is an outcome, the culminating activity from unit or quarterly activity.

Another school document that supports the development of teacher learning is the current school principal's opening PowerPoint for the school-wide meeting in October. By tradition, the principal defines the school goals and opens the year with a school-wide PLC meeting. In 2012-2013, the instructional goals were:

PLCs

1. Skills (primarily focused on College Readiness Standards)
2. Coherence in the student's experience

Cross curricular "literacies"

1. Reading
2. Vocabulary (targeted strategy)
3. Writing
4. Discipline-specific "literacies"

In 2012-2013 the PLC and Skills goals were:

CRS Standards-based as relevant to core and extra-core courses

1. English
2. Social Science
3. Science
4. Math
5. CTE courses, Health and PE courses

Intersects with “Literacies” goal

1. Course specific contexts (core and extra-core)
2. Advanced Placement

Cross curricular goals for 2012-2013 were:

*Literacy skills as defined for PLCs**Reading Across the Curriculum*

1. Standards-based: sustain and improve current focus
2. Vocabulary Initiative

Writing

1. As relevant to PLC
2. Standards-based
3. Advanced Placement and AP “Drive down”
4. Rubrics: Clarity of Purpose and Expectations

Vocabulary Initiative

The rationale supporting the *content* and *process* included:

1. Accountability to Students and Their Achievement
2. Accountability to Each Other: Required for collaborative instruction and maximizing our effect on student achievement.
3. Coherence is the key in the student’s experience; not control of the teacher.

Throughout the meeting the principal consistently referred to the seven principles in connection with the culture of learning community for instructional improvement. To clarify the alignment process, *CHS* established a purposeful alignment to include: (1) vertical alignment, i.e., course-to-course alignment within and through core course sequences; (2) horizontal alignment, i.e., course-to-course alignment within a given year; and (3) diagonal alignment—skills, content, and critical thinking in courses aligned to promote student advancement. This framework was important for the school in establishing instructional coherence, the foundation for the collective learning. The goal was to promote purposeful scope, sequence, and interdisciplinary connections in standards-based instruction to allow teachers to focus on skills in

the instruction, define and connect subject content, and encourage critical thinking as a pervasive instructional goal.

2. English division

One curricular division was chosen as a point of study to find out how the collective teacher learning was developed, how the learning team functioned, and how learning was filtered throughout the rest of the school. In answering the question about collective teacher learning, focus on the English division's collective teacher learning process provided the opportunity to break down the pieces of the school-wide collective teacher process. In the English division, the collective learning structure is based on grade level, not on curricular subject. Teachers are divided into teams for 9th, 10th, and 11th grade and electives for the 12th grade. The teachers within the grade level teams teach a combination of Honors, Regular and Advanced Placement (AP) courses, and there are no distinctions or separate meetings for Honors and AP teachers. This PLC structure is different from the other content core areas, such as Social Science, Math and Science, which schedule their PLC teams by subject rather than by grade level. However, there is an alignment. For example, 9th grade English aligns with the Social Science course on Human Geography, which is taught to almost all of the 9th graders, with the Science course on Biology, and with the Math course on Algebra. From an organizational study standpoint, therefore, the English department is useful in showing how PLC works within and among the departments, the entire school and the district. In addition, interdisciplinary work is possible within the grade level, because the course alignment is relatively stable.

3. Student focus for PLC

An intentional practice at *CHS* purposefully structures the collective teacher learning teams to align with the school's seven principles. In observing the teams in the English division,

there is a consistency of focus on student-centered instructional design, content-based interdisciplinary curriculum and cross curricular skills development. For example, student learning opportunities are created with conflicting interpretations and controversy, which enables students to use higher order thinking and analytical skills. Additional evidence shows that the principles do guide the interdisciplinary collective learning meetings. For example, there were opportunities to observe interdisciplinary planning meetings, one at the end of the Fall semester and one at the middle of the Spring semester, to observe how the planning leads to the forum that is tailored for the 9th grade students. At the end of each school year there is an interdisciplinary forum on the history of the school founder. The forum, initiated by the English division, demonstrates the collaborative planning between the English and Social Science teachers. The student-centered instructional design is evident in the forum as the students learn about controversies surrounding the school's namesake. The school was named for a journalist and author who had written on controversial topics throughout his extensive career. In the forum students are able to learn about this writer's unpopular views on World War II and his interpretation of the activities during that period through the writer's fictional and historical accounts. There is evidence of interdisciplinary discussion in the forum's integration of historical analysis and published work by the subject. There is also evidence of purposeful alignment, with teachers from different core content areas meeting both formally during the PLC and informally to align their units and front-load the unit knowledge prior to the forum. Through this observation, it was possible to discern the interdisciplinary process taking place and see the connection between one department's collective team and the entire school (Interdisciplinary PLC on January 31, 2013; 9th Grade Forum on May 2, 2013).

4. Department focus

The writing program rubric focused on the goal of learning four separate writing styles during the four years of the program: Argumentative, Informational, Discipline, and Research-based). Rubrics were developed for each of the writing styles; the rubrics were uniform across departments and within the school and originated in the English division. An example of the writing rubric (Appendix G: Sample Writing Rubric) indicates that the English division used the MEL-Con writing strategy as the core of its writing program. The strategy steps in formulating a cohesive paragraph included Main idea, Evidence, Linking statements, and Concluding statement. This is an example of the division's integration of writing strategy within a writing rubric that extended to the entire school. Other divisions adapted the writing strategy and used the rubrics developed by the English division for their own content writing assignments, which established the coherence needed for the success of the school.

The Vocabulary initiative undertaken in 2012-2013 focused on vocabulary through reading of literary and informational texts, standards-based vocabulary for critical and analytical reading, and cross curricular vocabulary. This initiative was started by an English teacher and became an interdisciplinary team process. The team collaborated to produce a document of commonly used vocabulary across content disciplines. The document was given to teachers as a guide for using vocabulary and integrating it into the lesson plans. The goal of the initiative was to find common vocabulary terminology that could be used across disciplines and grade levels for vertical, horizontal and diagonal alignment to improve student learning. Training was provided by the team during school meetings, and teachers could also seek out the team for assistance in integrating the vocabulary into their lesson plans (School-wide meeting 10/2012).

5. Structured school leader interview

In the section of the interview protocol “Collaborative Learning and Shared Practice” school leaders were asked the following question:

- *How is the school leaders’ approach to structured teacher collaboration connected to [CHS’s] mission and vision?*

School leaders agreed that that the connection between teacher collaboration and school mission and vision is fluid and natural. The school leaders believe that collective teacher learning works because of the culture; the understanding is that every teacher owes fellow teachers a share in the knowledge and experiences connected with student experience. Student achievement is the focus, curriculum is student driven, and the goal is to have an impact on kids.

- *Describe the interaction among the members of the structured collective teacher learning group (within the department or grade level, across department or grade level, and in the whole school or district).*

Reliance on the school leaders allows the teams to work together and find out what works best for them. There is no set structure for the collective teacher learning or PLC. When the process first began in 1999, the team leaders would fill out forms. Although the forms were completed, neither the PLC leaders nor the school leaders reviewed the forms to follow up. Eventually the forms were no longer needed, as the culture in *CHS* fostered a natural follow-up process that required no strict monitoring. According to the school leaders, teachers enjoy autonomy to develop strategies. This autonomy results from school leaders’ trust that teachers will develop their curriculum with the school’s goals and principles in mind. The school leaders know that not all teams function in the same way. Some teams are comfortable teaching in lockstep, while other teams are not. The division chairs are responsible for allowing the PLC leaders and members of the PLC team to influence each other. By a natural process, the team focuses on working on skills to succeed and on looking at data as a team. There is a diagonally

driven process to see whether students can move up a level during the year. Discussions often take place in the PLC, but after the structured meetings follow-up will continue through informal discussion, exchange of emails, and revising the teaching activities of other members of the group.

- *How thoroughly does CHS as a school share a common view of collective teacher learning and how did the process of teacher buy-in develop?*

According to the school leaders, the process began more than a decade ago with a few teachers who were invested, and gradually more teachers followed after they saw the result. Even in a school with an advanced collective learning team organizational structure, there was not 100% buy-in. However, new teachers tended to buy into the process faster than older teachers, and school leaders used this opportunity to guide and support new teachers. In the words of the Assistant Principal of Building Services, “I think new teachers value it immensely. They want to meet, and they realize how vital it is when we ask them to put forth a new initiative. It is developed to a strong, shared belief, because it is so valuable and they see results. If the result is not there, I don’t think there will be a lot of buy-in.” For CHS, the process developed from within, and teacher retirement provided opportunities to build support from new teachers. Not all teachers buy in, but they understand that it is a required process and that the data provide evidence of the success of that process. As new teachers are hired into this set of collaborative routines, they have become cemented as school “culture.”

- *How have formal and informal teacher collaboration affected teacher learning?*

School leaders share the belief that by setting the structure and providing coherence, teacher collaboration can have a great impact on teacher learning. As the result, the school leaders are confident that a grade given in one teacher’s class means the same as a grade given in

another teacher's class, regardless of whether the classes are Honors, Advanced Placement or regular level.

- *Is there a specific protocol followed by the structured collective teacher learning team—for example, giving and receiving feedback, risk taking, challenging each other's ideas, sharing of instructional practice experiences for improvement?*

There is no specific protocol, but there is an established norm. The process norm is that the team meetings are skills-focused, student-focused, and learning-focused. Because team leaders have the autonomy to structure the meeting, they will often discuss the focus topics with division chairs. This process allows teachers to speak freely and to disagree with each other. The structured outcome is that teachers share with each other and produce content artifacts through learning. Division chairs learn which team is strong and which team is weak, and they will make changes when needed.

- *Does CHS have coaching and mentoring set up to support teachers, in addition to the structured collective teacher learning team? How are coaching and mentoring relationships developed in your school (criteria, meeting expectations, duties of mentors/coaches)?*

The district has a formal mentoring program with set criteria, but the division chairs implement the informal mentoring. Mentoring is an added bonus for teacher support but does not take place as part of the meetings from the collective learning process. Division chairs will strategically place mentors and mentees on the same team whenever possible.

- *What would you change, if anything, regarding the collective teacher learning structure?*

There is a consensus that the school leaders want to find ways to strengthen the collective teacher learning structure. It is evident that inconsistencies exist, especially between teams in the same division and from one division to another. The school leaders hope to retain the focus and allow more interdisciplinary process, more time for meetings, and possibly an extension to district-wide alignment.

6. Structured teacher interview

Using the questions from the structured interview (Appendix A: Structured Interview Questionnaire), a summary of collective responses was compiled by consulting with the division chairs to acquire subjects to participate in the structured teacher interview. Teachers in each of the core subject areas—English, Math, Science, and Social Science—were selected for the interview, and a total of 8 teachers participated in the interview. As in the structured school leader interview, the sections are divided according to the three research questions. The interview process started with questions about the historical development of the collective teacher learning.

The first section of the interview protocol “Historical Context” was devoted little time to obtaining historical information. Historically, development of the collective teacher learning was structured by the school leaders, and the teachers did not have intimate knowledge of the process. Despite this, some teachers shared some of their knowledge and views about the historical context. Teachers believe that the structures have been more collaborative. The regular schedule changed from staff development days to twice-a-month development sessions to weekly sessions. Teachers attended the team meetings based on what they taught. Some attended one team; others attended more than one on a rotating week.

The second section, “Collective Learning and Shared Practice,” begins with the following question:

- *How is the school leaders’ approach to structured teacher collaboration connected to CHS’s mission and vision?*

School and district goals such as ACT and AP targets are connected to the school’s mission and vision. There is general agreement that these goals are purposeful, student-driven, and meaningful for students. Common curriculum and common tests are the focus of the

collective learning team. One teacher noted, “My division chair and the English division chair push for normative coherence.” Another stated, “Collective learning is for the benefit of the students.”

- *How are formal and informal collective teacher learning conducted? Describe the interaction among the members within your structured collective learning group(s) (within the department or grade level, across department or grade level, in the whole school, or within the district).*

PLC institute days are considered to be formal collective teacher learning. Email follow-up and opportunities to observe each other are part of the informal process. One teacher pointed out, “We have an integrated unit. Right now we devise new units across topics a few times within the year, and we work with English and Social Science. Informally, we talk throughout the day—‘Hey what do you think about this?’” Other teachers believe that “we meet by starting to discuss the goals and objectives of a unit. We agree to those things, and we agree to common assessment. We write to modify unit assessment and let it drive... our content. We attach modifications via email or upload materials to our servers.”

- *[To what extent] does CHS as a school share a common view of collective teacher learning, and how did the process of teacher buy-in develop?*

The consensus is that in the early stages of the process there was not a lot of teacher buy-in; the buy-in started slowly, with just a few teachers. The teams worked together with the intention of building common assessments before developing common curriculum. There was more buy-in after the teachers saw the results. Having a strong common goal was one way of increasing buy-in by teachers. The English division made the change first, then Social Science. Math and Science came around more slowly, according to the teachers. “Some take it slowly and don’t know how it fits into their curriculum, like art or music. They are more detached about it. I don’t think it is a fault of their own, but they do not get it, or it’s not appropriate for them.”

Teachers, like administrators, feel that teacher retirements or teachers who voluntarily leave the school or the district because they do not believe in the process also help make collective learning successful.

- *In what ways have you collaborated with other teachers (1:1, groups, formal, informal) and how has this collaboration influenced your learning?*

The teachers interviewed believe that there are multiple ways to collaborate with other teachers, including one-on-one, in groups, and in formal and informal ways. They believe that collaboration strongly affects their knowledge as teachers and allows them to bounce ideas off each other. It can be inferred that the process allows teachers to try new ideas and helps them be better teachers. The process furnishes an opportunity for them to learn what other teachers do in their classes.

- *In particular, how has the collective learning process affected your knowledge, skills and values as a professional educator?*

One teacher responded, “I want to collaborate and enjoy doing that, but if the structure is not there, I would just close the door. In fact, because it is such a strong value here, it strengthens my values, and I will consult, collaborate and observe others... It builds my own skills as an educator.” Another stated, “To me the team is much stronger than the individual... It helps me as a teacher, in the sense of how to teach and what to teach. For me, it is, ‘Why not be in a team of collective learning rather than being isolated?’” It is evident that learning together is a pervasive norm in *CHS*’s culture.

- *Is there a specific protocol followed by your structured collective teacher learning team, for example, giving and receiving feedback, risk taking, challenging each other’s ideas, sharing instructional practice experiences for improvement?*

The ability to provide or accept feedback is a norm for the teams. There is a common understanding that if the teachers in the team are willing to take on the revision and distribute it

back to everyone, the feedback is better received by the team. Some teams follow a specific protocol, other teams do not. The PLC leader uses an agenda, but it is not always written. The agenda is focused on the district and school goals, common curriculum and common assessment. Some teachers do not talk much in the team, but within the team there is a welcoming and accepting culture. Some groups use PLC meetings to ensure coherence to the point of lockstep, while others use PLC meetings as time to refine curriculum.

- *Does CHS have coaching and mentoring set up to support teachers in addition to the structured collective learning team? How are coaching and mentoring relationships developed in your school? (criteria, meeting expectations, duties of mentors/coaches?)*

Most teachers do not like the formal mentoring provided by the district. Informal mentoring set up by the division chairs is more helpful, especially when the division chairs use PLC leaders or experienced teachers in the same team for the informal mentoring.

- *What would you change, if anything, regarding the collaborative teacher learning structure or PLC process?*

Teachers want more specific protocols, especially relating to coherence and structure, including directives from division chairs or PLC leaders. One teacher observes, “Many people belong to different teams and are working on different goals. Some people feel like their team does not work well; other teachers teach more than one class, so that they are not consistent and they have to be in many teams. You have to pick which team is a priority.” Juggling multiple teams seems to be an issue for all teachers because of the difficulty it creates when team members need to follow up with each other.

7. Collective learning team survey

Appendix C: Collective Teacher Learning (PLC) Survey contains the survey on the collective learning process. The survey was developed using questions similar to those in the structured interview and aligning those questions with the three research questions. The purpose

of the survey was to measure beliefs about the collective learning process. With the help of the Assistant Principal for Building Management, the survey was distributed to about 160 certified teachers and administrators. Out of 160 school staffs, there was a response rate of about 40%. It is important to note that the results of the survey were used as supporting artifacts; although the responses are valid, they are not reliable since the survey response result does not reflect the certified school staffs for the entire school.

Of all respondents, 50% were core classroom teachers who taught English, Math, Science or Social Science. Fifteen percent were non-core teachers (Physical Education, Art/Music, or other Elective teachers), 13% were Special Education teachers, 12% were non-classroom teachers—i.e., social workers, school counselors, school psychologists, etc., and 10% were school leaders, including the principal, assistant principal, and division chairs.

The second section of the survey focused on collective teacher learning. In this section, the questions were aligned with collective teacher learning as professional learning communities in *CHS*. While most of the respondents agreed that collective teacher learning in this school was a positive process and was beneficial for both the students and the school, there were questions as to how the process was carried out within the team and among the members. For example, when asked about the statement “Teachers provide feedback to peers related to instructional practices during the collective learning process,” 35% of the respondents disagreed that there was feedback during the process, even though over 90% of the respondents agreed that teachers do formally and informally share ideas and suggestions for improvement of student learning. This evidence suggests that the teachers in collective learning teams do share information and ideas but raises the question to what extent teachers share ideas: If one teacher brings an idea to the group, do the other group members make suggestions to improve on that idea or offer

constructive criticisms? This is an important point. Results from the two follow-up questions related to feedback show that over 30% of the respondents believe that disagreements are not discussed in depth in the collective learning team, and that the collective learning teams avoid emotionally charged subjects or difficult conversations. These results suggest that although most collective learning groups are mature groups whose members feel comfortable discussing difficult topics or disagreeing freely with each other, some groups and some members are not ready for the mature stage of learning groups. At *CHS* this could be an issue that warrants future program evaluation by the school leaders.

C. Question 2—School Leader Support of PLC

PLC observation notes, school artifacts, surveys and interviews from school leaders and teachers helped support the second research question.

- *Given a detailed description of the multiple forms of collective teacher learning within the high school, to what degree have school leaders in this school initiated, developed, and maintained collective teacher learning, and how?*

1. Skills alignment

One supporting document was produced by the English division chair. It is a typed summary of the 2012–2013 principal and district goal was shared by the Assistant Principal of Curriculum. The document focuses on the goals of skills alignment, content alignment, and critical thinking for the school. The process is to tie the alignment with interdisciplinary forums and integrated units. This document provides an action plan, starting with monitoring to identify targets, analyzing effectiveness, and strengthening and expanding what is working while addressing what is not. Skills alignment is detailed to include the Vocabulary Initiative, Reading for CRS (College Readiness Standards) delivery and Writing. The content alignment focuses on integrated units and common core content sequences or vertical alignment. The critical thinking

piece is connected by defining content, Advanced Placement (AP) and Honors drive down or planning lessons with the AP skills in mind, and using the writing program to focus on discrete skills. The process of using the collective teacher learning to focus on interdisciplinary teaming and forums to tie cross curricular content is the plan for the year. The document supports the answer to the research question on school leaders' support of collective learning. Developed internally, it is evidence of top-down school leader support.

One aspect of the principal's school-wide instructional message for the year is cross curricular alignment by grade level (Appendix E: Examples of Cross-Curriculum Alignment). For example, in 9th grade the Biology topic of Evolution covers evidence for evolution and natural selection. In the same year the English topic is belief and morality, partially covered through the book *Inherit the Wind*, while in Social Science (Human Geography) the discussion focuses on Population and Migration, including gender issues, population policies, and immigration issues that are tied in with Evolution. This alignment is the result of interdisciplinary meetings and discussion on content. The integrated alignment is a goal for this 2012-2013 school year.

To provide some historical context—the beginning of the structured learning process involved the creation of structured forms detailing what needed to happen with the Professional Learning Community (PLC). One example is the PLC Action Form (Appendix F). Completed by the PLC team every week during the PLC meeting, this form allowed the school leaders to track the progress of the PLC and determine the work needed to ensure alignment with school goals and appropriate follow-up. Once the process became systemic, the forms were discontinued and the alignment and communication became more open. Teams initiated the discussion during the

PLC meetings, but follow-up continued through email communication and formal and informal collaboration among teachers.

2. Goals development

The district goals were set in three major areas: (1) increasing the number of students taking AP courses and AP tests; (2) improving ACT test scores; and (3) reducing D/F. *CHS* took the district goals as the framework for setting up its school goals and the school's seven principles. Like the district goals, the school goals and seven principles do not change from year to year but provide consistency for each department to develop its own goals on a yearly basis. When the division meeting notes are reviewed, the English division goals are reviewed and revised on a yearly basis. For example, in Spring 2011, one of the goals was to develop "An argumentative essay in all core courses that include all of the 7 principles; emphasizing the alignment across core courses of skills, content (civic purpose; interdisciplinary) and critical thinking." In developing its goals, the English division met on scheduled department meeting days to update its progress while utilizing PLC time to meet and collaborate on making the assignments, assessments and rubrics coherent and aligned with the stated department goals. The January department meeting included a departmental discussion on placing the essay in the core courses in grades 9–11 and also scheduling the essay within the curricular context. Further evidence of goal alignment was seen in the development of a universal rubric through a division discussion on what needs to be taught at each grade level, and at what time period within the school year. The resulting classification was to be included in the overall scope and sequence for the course, grade level and division. Once the skeleton was developed, the individual grade level PLC could fill in the placement within the core grade level, and the specific skill components in the rubric within the grade level.

Goals are set at the beginning of the school year but are developed in the Spring semester of the previous year. The division goals for 2012-2013 were set during the department meeting in August. For example, the projected building goals for 2012–2013 were: (1) Skills and Coherence in PLC; (2) Cross Curricular Reading and Vocabulary; and (3) Cross Curricular Writing. The timeline was set in the process of implementing the building goals from Admin meeting to PLC leader to Department to PLC. The PLC goals were focused on coherence and skills; collaborative goals for evaluation; department goals for argumentation; and revision of courses for continuity and coherence (August 2012 meeting). The English department goal was to “develop and deliver one argumentative writing assignment that will align all school and department principles in all core courses: Principles-Common Core, Vertical, Horizontal, Diagonal Alignment, Content defined, CRS Skills Spine, Critical Thinking; Collaborative and accountable staff; and Community and civic purpose.” The overarching goal was the “Achievement of value of student learning through a purposeful coherent curriculum in a common culture of instructional practice; and making the best better.” The extended purpose and practice was to analyze current courses and revise them to ensure tighter alignment that would provide continuity and coherence to engage students more directly in their learning, resulting in their greater qualitative and quantitative achievement. Purpose and practices should be evident in staff goals and collaboration on both macro- and micro-level alignment.

3. Monitoring, analyzing and planning

This is the process the English division chair uses to evaluate every component of the division or school program. In 2012-2013, the English division reviewed and evaluated the division’s writing program, beginning in May 2012, by taking an inventory of the writing program and its content, structure and assessment (Monitoring). The division used the same

process to look at how the yearly summer workshops' time could be more effectively spent to align content and skills from the division level down to individual PLC teams (Analyzing). For example, within the department one goal was to develop a Core PLC workshop on collaborative analysis of vertical alignment. For core content PLC, the steps were inventory, analysis and alignment of core courses in looking at other programs, such as Advanced Reading, Professional Communication, Creative Writing, and AP classes. This indicates that the steps are evident in all aspects of Departmental programming and analysis (Planning). The English division uses the three processes each year to improve the content and delivery through intentional discussion in the PLC.

4. School leadership team

The school leadership team for this school met every Wednesday. The meeting was coordinated by the school principal, and the team included the assistant principals and other middle management leaders, such as the dean of students and the division chairs. *CHS*'s school leadership team meeting discussed building management and teaching and learning. During the discussion of teaching and learning the leadership team included only the principal, the assistant principal for curriculum, and the division chairs. There was an opportunity to observe a school leadership meeting and was able to obtain a calendar year of school leader meeting notes as evidence supporting possible answers to the research questions.

Some of the evidence gathered from the meeting notes includes the following:

- a. There was a Math curriculum meeting in the district which was brought to discussion in the administrative team to streamline the time frame for implementation. (February, 2012)
- b. A Fall Forum was discussed to determine the logistics of responsibility, student participation, and goals and outcomes for the forum. (May, 2012)
- c. The RtI (Response to Intervention) goals for the school year were discussed (academic success, minimized D/F, proper evaluation and intervention). (August, 2012)

- d. There was a discussion of the grading scale and alignment with community college. (September, 2012)
- e. A dual credit course at Robert Morris University and the topic of curriculum change were determined as the focus of the upcoming PLC. (October, 2012)
- f. PLC was deemed the proper venue to discuss how the school could effectively establish a tardy table for teacher referrals. (October, 2012)

These action items discussed by the school leadership team provide evidence that the school leaders made decisions that were communicated down to the individual collective learning team meetings, and that issues discussed in the collective learning team meetings were communicated from the bottom up to the school leaders.

Evidence supporting answers to the above question includes the following:

- a. A Math curriculum meeting in the district was brought up for discussion in the administrative team to streamline the time frame for implementation. (February, 2012)
- b. Summer workshop funds were discussed to give the division chairs some parameters in providing teacher learning in the summer. (January and February, 2012)
- c. New teacher evaluation was not to involve test scores, which could help new teachers continue to focus on student learning. (February, 2012)
- d. An AP workshop day was discussed to strengthen the AP drive down. (February, 2012)
- e. There was discussion of a Special Education related program. (April, 2012)
- f. AP and college credit were discussed. (May, 2012)
- g. School leaders developed smart goals for teachers and a unified evaluation model for division chairs. (September, 2012)
- h. In the Fall semester teacher participation in a Human Geography summer workshop was discussed. (September, 2012)
- i. Resources for a Calculus collaboration group were discussed in order to give the Calculus collective teacher learning group a focus in the PLC. (October, 2012)
- j. School administrators discussed a Writing program and coherence of skills. (February, 2013)

The evidence gathered demonstrates that the school leaders made efforts to support the teacher learning process by providing opportunities for teacher learning outside of the collective learning teams. They made school-based decisions that provided directions for teachers and shared curricular decision making among school leaders and teachers in collective learning teams.

5. Structured leadership interview

Using the questions from the structured interview protocol (Appendix B: Structured School Leadership Interview Questions), the researcher compiled a summary of collective responses that supported answers to the second research question. The principal was left out of the interview process because he was new to the school. Even though the principal had made an earlier in-depth study of the process, he has not been directly involved in the process. The summative responses collected from the structured interviews of school leaders (the assistant principal of instruction, the assistant principal of student services, the assistant principal of building management and division chairs from English, Math/Science and Social Sciences) were accepted as evidence to support the findings related to the research questions.

The structured interview was divided into four sections. The first section asked the respondents about their knowledge of the historical development of the collective teacher learning process. The second section focused on the research question on organizational and school leader support of the process. The third section addressed the collective teacher learning process. The last section focused on the effect of collective teacher learning on student success.

The collected responses first addressed the following question:

- *To what extent has CHS implemented the practice of collective teacher learning in how the school operates? Please explain.*

Common themes in the answers included “culture,” “DNA,” “framework,” and “transparency.” The current framework, for example, has a structure that is relatively flexible compared to that of an earlier process of accountability and documentation. One respondent, the school leader, stated “...If we collaborate, we work together purposely, we can affect student achievement.”

- *What are some examples of the formal or informal collective teacher learning, and how was the structure put in place? What is the rationale behind the development (historical perspective)?*

The formal process began with the English department meeting over the summer on curriculum alignment. There was a consistency, clarity and focus. The focus was on the teachers' skills and aligning the skills within the curriculum to work together in collaboration. The formal structure was put into place later. The informal process took place within the department or between teachers, but without the focus on building the skills or purposeful collaboration.

- *How has the CHS approach to collective teacher learning changed or evolved in your time at the school?*

Collective teacher learning has become more formalized, and there are regular Thursday meetings. Every department is scheduled to meet as a PLC. The structure is flexible and left up to the department and the individual team. There is more focus on skills and less on content and teaching. There is a desire to bring disconnected approaches in the division back into the whole, with a common focus within the content area or division. There is general agreement on building coherence to promote teacher collaboration.

In the interview section titled "Organizational Structure and Values" the first question was:

- *What are some examples in your school that demonstrate school leaders sharing power in decision making?*

Wednesday school leader meetings provide some coherence for the school leaders' collective decision making. The administrative team is more focused and decides as a team how to proceed on school issues. Collective teacher learning takes place at smaller administrative meetings with the assistant principal of curriculum, the principal and the division chairs. School

leadership extends to teacher leadership with PLC leaders, and the flexibility of the administrative team allows the PLC teams to work together to dictate a curricular process that falls within the scope of school and district goals, skill building, etc. Within the PLC there are opportunities for school leaders to delegate teachers to implement and spearhead forums. As one school leader indicated, there is a “top-down distributive model” of school leadership.

- *Which school leader(s) seems to be more influential in supporting the learning process? (principal/ assistant principal/ division chairs, etc.)*

There are two different responses to this question. The assistant principals feel that every school leader in the building has an equal but different role in supporting the process. The common feeling about the assistant principals is that “each of the admin are influential but at different times. We are influential in different ways.” Division chairs are at the front line and have intimate working relationships with the teachers, while the assistant principals function more behind the scene, as problem solvers who break down barriers to support the teachers and division chairs. Division chairs feel that they are more influential than other school leaders because they direct the collective learning process and have close relationships with, and direct supervision of, the teachers in their division. The division chairs know which teachers have leadership ability and which teachers need direct support from the division chairs or from mentor teachers. The common thread among responses to this question is that the assistant principals and the division chairs agree that the division chairs operate on the front lines, while the principal and assistant principals function more behind the scene.

- *How do you as the school leaders promote a unified effort to embed change in your teachers’ practice in the school?*

There are different ways school leaders promote embedding change. *CHS*’s leaders responded that the professional development committee in the school sets the tone for various

teacher learning activities outside of the collective learning teams, such as summer development, staff meetings and district workshops. In addition, school leaders observe PLC meetings and use teacher evaluation as a time to promote teacher learning and changing teacher practices.

- *What explicit or implicit messages do you, as a school leader (principal/ assistant principal/ division chair, etc.) give teachers about teacher collaboration and collective teacher learning?*

Explicit messages include collecting products, encouraging teachers to attend professional development, conferences or Advanced Placement workshops, checking in with teachers during conferences or meetings, encouraging peer observation, and encouraging teachers to use the PLC time to share and seek feedback in promoting openness and honesty. There is also an explicit PLC vertical alignment from district goals to school mission to the school's seven principles. The school leaders ensure that the teacher learning teams' discussions do revolve around district, school and division goals, with student outcomes as the focus of conversation. One school leader stated that "the explicit message, in no uncertain terms, is that your choices as a teacher need to be aligned to the principle of being especially mindful of the student's day and how the student day is affected. In your mind, your teaching has to be adapted to the student's day and its relationship to the instructional day."

Implicitly, the school leaders provide time and space for the collective teacher learning to take place every Thursday, without interruption. The assistant principals actively seek out teachers to learn what barriers they can help remove for the teachers or the team so that teacher learning becomes productive and teachers are able to do their jobs effectively.

- *What would you change about the way CHS provides support to teacher learning?*

School leaders agree that CHS could improve technological support for teachers, improve management style, avoid taking teacher learning for granted, and continue to review the process.

6. Structured teacher interview

To begin the interview protocol section “Organizational Values and Structure,” the following question provided data for the second research question:

- *What are some examples in your school that demonstrate school leaders sharing power in decision making?*

The teachers feel that initiatives are top-down directives from the school leaders, but that they do have the flexibility to design the curriculum and work together on the initiative. In this school year (2012-2013), there are interdisciplinary meetings and forums. The PLC leaders guide the teams.

- *Which school leader seems to be more influential in supporting the collective teacher learning? (principal, assistant principal, division chairs, etc.)*

All of the teachers feel that the division chairs are influential, because it is with the division chairs that the teachers have closest contact. Some teachers have little or no contact with the principal or the assistant principals. However, they believe that the principal or the assistant principals are directing the process behind the scenes.

- *How do the school leaders promote a unified effort to embed change in your teachers' practice in the school?*

A commonly held belief among teachers is that such efforts are advanced through division meetings or top-down directives or initiatives. Teachers appear to agree that district and school goals are the driving force in changing teacher practice. Other ways school leaders promote the effort to embed change include discussing evaluation and incorporating College Readiness Standards skills into the curriculum.

- *What explicit or implicit messages do your school leaders (principal, assistant principal, division chairs, etc.) give teachers about teacher collaboration and collective teacher learning?*

The evidence is that school leaders communicate explicitly through division-wide or school-wide meetings, emails or verbal praise. School leaders do drop in at the meetings. Implicitly, the school leaders support teacher attendance at summer workshops, give teachers time to work together, and allow teachers freedom to try new things.

- *What would you change about the way CHS provides support to teacher learning?*

Some teachers want more explicitly stated short-term and long-term goals for the PLC. One teacher noted, “I would like something explicit long term set for me, such as what we expect to have by the end of the semester. I like to see what... goals or task we have to reach, such as an end goal.” Time is another factor, especially for teachers who teach more than one subject and participate in more than one PLC. This is a common response among the teachers interviewed. It is apparent that in every team there is at least one member who teaches more than one subject within the curricular division.

7. Collective learning team survey

The first set of questions focused on school leader and organizational support. Most of the respondents agreed or strongly agreed that organizational and school leader support exists in the school. The responses about decisions concerning teacher practice and its alignment with the school’s vision and mission showed that over 90% of the respondents agreed or strongly agreed with that statement. This suggests that in order to ensure the success of any school program, there needs to be alignment with the school’s vision and mission. It is relevant that the collective teacher learning process is an intentional development that began with, and continues with, alignment with the school’s mission.

Although over 80 % of the respondents chose Agree or Strongly Agree for the prompts in this section, it is interesting to note that over 17% of the respondents believed that leadership was not promoted and nurtured among all teachers, and that there was no collaborative process to

develop a sense of values among teachers. A relatively small number of teacher-respondents did not agree with the two statements about nurturing leadership with teachers and teachers' developing a sense of value. But if the 17% is accurate, it could motivate the school leaders to consider how they might more effectively support and nurture teachers engaged in collective teacher learning.

D. Question 3—Student Achievement

- *What student learning outcomes can plausibly be attributed to this teacher learning, and why?*

Observation notes, interviews with a district education researcher, district and school data, surveys, and interviews with school leaders and teachers provided evidence for student learning outcomes and supported the responses to this research question. The first data analyzed was the principal's PowerPoint for the instructional community. The instructional community would become a "culture of instructional practice with a product of forum experiences for students to come together to learn through an authentic learning community." As one school leader stressed, "The goal of learning for students is to develop a civic purpose; [it] defines the character of the school for students... and [promotes] identification with the school."

1. District document review

District documents are the best to use in addressing the question "What student learning outcomes can plausibly be attributed to this teacher learning, and why?"

The first document reviewed contained the three district goals:

1. Reduce our D/F levels.
2. Increase successful AP course completion and test taking.
3. Increase the ACT scores.

These three district goals are the building blocks for *CHS*. They underlie the evidence in the district data that this school's PLC structure, based on those goals, resulted in student achievement that surpassed that of other schools in the district. As a result of this school's success, the entire district incorporated PLC into its teacher learning initiatives. Some of the data points that provide the link are indicated below:

1. Over the past six years, D's and F's are down 22.5% for the Fall semester and 20.1% for the Spring. Over the same period, F's are down 29.7% for Fall and 26.4% for Spring.
2. In only 5 years AP course completions are up 87.6%, from 4,394 to 8,242. Over the past 9 years the number of students taking one or more tests is up by 148.3%, from 1,624 to 4,033, and over the past 11 years the number of tests taken has increased by 234.5%, i.e., more than tripled, from 2,105 to 7,041.
3. AP pass rates dropped only 2.6% from 2010–2011 to 2011–2012 and increased 2.4% since 2011–2012. Over the past school year (2011–2012), average AP scores dropped only .6% (.02 points), and they increased by 1.4% since 2011–2012.
4. The number of successful AP tests taken per 100 students has increased by 209.3% , well over 3 time as many successful tests per student as were taken eleven years ago, and that number increased by 15.6% from 2011–2012.
5. The District 214 composite score mean, at 23.3 for the Class of 2012, decreased by .1 point the previous year, 2011–2012, and then increased by .2 points in 2012–2013.
6. The composite score growth for the Class of 2013, based on the junior year ACT scores, reached another all-time high of 6.9 points. This is an overall 28.0% increase over the Class of 2003.

The document reviewed was titled “Overview of AP Performance for the Past Twelve Years.” For the 2012–2013 school year, the district's pass rate increased from 76.7% to 78.6%, noted by the assessment department as its “first increase since 2006.” The evidence shows that *CHS* and other schools in the district increased their pass rate in the 2–3% range.

In the section titled “Mean Scores—2001 through 2012” (p. 7), the graph of the average scores shows a district-wide increase from 3.40 to 3.44 (Advanced Placement score range from 1

to 5). The passing rate changes reflected changes in the school, especially with the increase in the number of students taking the Advanced Placement tests.

In the section titled “Number of Tests Taken—2001 through 2012—District 214” (p. 8), the summary indicates that the district had its second largest increase ever, a feat made more difficult because of past increases. The 816 additional tests represented a 13.1% increase from 2010–2011 and a 234.5% increase since 2001 (most of which occurred since 2005). Incidentally, official total enrollment at the six schools offering AP courses was up by only 28 students (.2%) since 2010–2011.

In the section titled “Number of Tests Taken—2001 through 2012—Schools” (p. 9), the summary indicates that all schools again reached new high levels of AP test-taking. *Graph 1: 2006 to 2012 District Wide AP Course Completion* showed an increased from 4,394 in the 2006–2007 school year to 8,242 in 2011–2012. In 2012 the district experienced its largest increase ever on the most important measure of AP performance, up 15.6% since 2001; with an increase of 209.3% since 2001, the district more than tripled the number of successful tests per student. Most of this increase occurred in the last seven years. The data supports the conclusion that capacity for student success improved in the district and in individual schools, including *CHS*.

The Report on the Final ACT Scores for the Classes 2002 through 2012 indicates that in 2011–2012, the district’s mean composite score, at 23.3, decreased by .1 point after increasing by .2 in 2010–2011. Mean scores in English, reading, and science decreased by .3, .2 and .1 point, respectively, while math was unchanged. The PSAE ACT growth report for the Class of 2013 shows that although most subject area ACT scores increased or stayed the same, the .7 decrease in reading scores brought our average ACT score down by .2 points. There is evidence that the overall decrease in scores was due mainly to substantial decreases at two schools.

According to the data, the district's Composite ACT score over the past 12 years, beginning with the first year of state testing in 2001–2002, is 21.9, while the state's ACT mean is 20.1 and the national mean is 20.3. Over the 10-year period covered in the document, this district's composite scores increased from 21.9 to 23.3 while remaining at least 2 points above both the national and Illinois composite scores. ACT subtest scores for the district are given in Table 2:

TABLE II. DISTRICT ACT SUBTEST SCORES

<u>Subtests</u>	<u>2001–2002</u>	<u>2012–2013</u>	<u>IL 2012</u>	<u>National 2012</u>
English	21.3	23.2	20.5	20.5
Mathematics	22.5	23.8	21.0	21.1
Reading	21.7	22.7	20.7	21.3
Science	21.7	22.9	20.8	20.9
Composite	21.9	23.3	20.9	21.1

Another district document reviewed is the EPAS indicator for the district. The EPAS review from the document “ACT Growth-Class of 2003-2013” showed significant trend growth of the GEM score for the district and with *CHS*. The district's Explore composite score was a 16.9 and the ACT composite score was 22.4 in 2003 with a growth of 5.4 in 2003. By 2013, the Explore composite score was 16.5 and the ACT composite score was 23.4 with a growth of 6.5. For *CHS*, the 2003 Explore composite score was 17.1 and the ACT composite score was 22.9. By 2013, the Explore composite score was 17.0 but the ACT composite score rose to 24.9, with a growth from 5.8 in 2003 to 8.0 in 2013. The average national score was a 20.9 composite and the average state score was a 20.6. Even though there was no data available on state or national ACT Explore composite scores, but it was evident that the students from *CHS* started the 9th

grade year at a higher composite Explore score than the national and state average. Despite this evidence, an assumption can still be made that there is a significant growth indicated from the district data that can support the link of student achievement through the collective teacher learning process.

In addition to reviewing the ACT and AP testing data, a report from the district focusing on placing incoming high school students in appropriate 9th grade classes was also reviewed. This document is important because in order to build capacity for student success, a foundation must be laid from 9th grade on, including placing students in appropriate classes that reflect their ability across all content areas. Therefore, when reviewing data for student placement and student success, it is important to look at overall data, including grades, attendance, and standardized testing data that provide the most accurate information. The current district practice is to use middle school grades and test data when placing students in 9th grade classes. The high schools in the district place students by using recommendations from 8th grade teachers and ACT EXPLORE scores. The district's report on 9th grade placement states that the district found instances of students whose test scores were much higher than their grades. If test scores are assumed to be representative of student ability, and students who show low classroom performance have high test scores, how do we place those students? While the test might indicate that the student was underperforming ("might" because we cannot assume that the test is always omniscient), placing that student in higher level classes is not likely to work unless an intervention is conducted to change those past patterns of classroom behavior. The district report indicates that the strongest predictor of success in all subject areas is the composite score. This echoes the contention that overall GPA is the strongest predictor of student success on the ACT standardized test and the strongest predictor of Advanced Placement potential. This report

supports the district assessment report claim that “... although test scores are much weaker than grades for predicting individual student performance, they are much more accurate predictors of overall school performance.”

Additional evidence to support student outcomes can be found in *CHS*’s rate of Advanced Placement (AP) course completion. A summary of each school’s change in AP course completions from the 2006–2007 to the 2011–2012 school year (for students who complete the course and earn an A, B, C, D, F, or WF, P, or audit) shows that in 2006–2007 AP Course completion stood at 1154 for *CHS*, but by 2011–2012 the AP completion was 1644. For AP tests taken, *CHS* showed 85% of the students scoring 3 or above, the best school record in the district. District-wide, course completions increased 12.0% from 2010–2011 and 87.6% from 5 years earlier (see Graph 1: 2006 to 2012 District Wide AP Course Completion). The average un-weighted AP grade at all schools remains around 4.0. This is aligned with the district goals.

The school’s mean ACT score rose steadily from 2002 to 2012. For example, the sub-score rose in English from 21.9 in 2002 to 26.3 in 2012; in mathematics from 22.7 in 2002 to 24.9 in 2012; in Reading from 22.0 in 2002 to 24.5 in 2012; in Science from 21.7 in 2002 to 24.6 in 2012; and in the Composite from 22.2 from 2002 to 25.2 in 2012. For a comparison with other schools in the district, see Table 3: Final ACT Score Summary for 2012 , and Graph 2: District Comparison of AP Scores. A review of the EXPLORE and ACT scores for *CHS* and other schools within the district showed that entering 9th grade EXPLORE scores in the subtests were similar for students in *CHS* and in other schools in the district. But when the students in *CHS* took the ACT in their junior year, the growth was significantly higher than at other schools in the district. Of course, if the district’s ACT scores are higher than the state or national average, and the scores for the school are higher than the average score for the district, then the

school's scores are higher than the state or national average. The scores cannot be directly linked to student success, but they are an indicator that the curriculum work within the school, i.e., the collective teacher learning, has an impact on student ACT growth (Table 3: Final ACT Score Summary for 2012)

TABLE III. FINAL ACT SCORE SUMMARY FOR 2012

<u>School</u>	<u>English</u>	<u>Math</u>	<u>Reading</u>	<u>Science</u>	<u>Composite</u>
District	23.2	23.8	22.7	22.9	23.3
CHS	26.3	24.9	24.5	24.6	25.2
School B	23.4	23.9	22.8	22.9	23.4
School C	22.1	23.5	21.7	22.5	22.6
School D	24.4	24.6	24.5	23.8	24.4
School E	21.9	22.3	21.8	22.0	22.1
School F	20.6	23.0	20.6	21.4	21.6

2. School leadership meetings

Evidence that supports answers to the question on student learning outcomes includes the following:

- a. A January discussion addressed RtI and staffing in the context of PD and targeted intervention due to decline of Special Education students and transition from 9th to 10th grade and proposed implementation of a Strategies for Learning class. The administrative discussion was part of the ongoing discussion of school improvement. (January, 2012)
- b. There was an 8th grade orientation involving teachers, division chairs and counselors. This implementation was an improvement from previous orientations. (January, 2012)
- c. Recognition of students scoring 30+ on the ACT has been implemented as a new tradition. (January, 2012)
- d. There was discussion of a two-tier intervention program for RtI, transitioning students out of Academic Performance Lab, and developing an intervention program for grades 9–11. (February, 2012)

- e. A sophomore intervention program was discussed for the sophomore teachers to further discuss in the PLC. (February, 2012)
- f. The school was well rated in a climate survey that was the result of the school improvement plan. (May, 2012)
- g. Leaders discussed suspension and make-up work for students and acknowledged that summative knowledge was considered important. (November/December, 2012)

These items discussed during the school leader team meetings offer further evidence of school leaders' belief that teacher development and teacher learning are vital to student success.

3. Structured leadership interview

The last section of the survey provided support for "Capacity for Student Success."

- *Do you think that the collective teacher learning process has a positive impact on student learning? How?*

The school leaders believe that student success can be measured both quantifiably and in terms of quality. The division chair for Social Science stated, "Students see the relevance in what they are doing and the teachers see the relevance in what they teach. They know the teachers are continuing to learn and especially in the forum and out of the forum." According to the assistant principal of instruction, evidence of positive impact emerges from a cross curricular effect; what is discussed in one content area is referenced by a teacher in another content area when applicable. There is a team approach to sharing responsibilities and building on individual teachers' strengths. As a result of this alignment, the students see the connections and the relevance of their learning.

- *One of the goals for teacher learning is to build student capacity for success. How do you define "student success," and how do you, as a school leader, build the capacity for student success?*

In addition to test scores and grades, students should understand the connections between learning the content and the skills to understand the content, meet their own and adult expectations, and grow socially, emotionally, and behaviorally. Having the opportunity to

succeed because of the skills they have learned and developed at this school is a uniform definition of student success. School leaders build the capacity by providing opportunities for teachers to meet in PLC, discuss student data, and implement strategies for teaching and re-teaching, which translates from teacher learning to student learning.

- *How do you see collective teacher learning in the overall picture of connecting to the school-wide instructional goals and improving teacher instruction?*

A structure that focuses on skills, content and alignment offers evidence that teacher learning is connected to school-wide instructional goals and improving teacher instruction. Systematic programming is integrated as part of a school culture in which the process involves strategic discussion about the team and not about individual teachers.

4. Structured teacher interview

The last teacher interview section focused on “Capacity for Student Success.”

- *As a teacher, do you think that your learning in the collective teacher learning process has a positive impact on student learning? How?*

Teachers believe that the collective learning has a positive impact; as a whole, teachers are more focused on critical thinking and teaching students problem solving skills. Collective learning also provides an opportunity to glean best practices from other teachers. One teacher responded, “I would think that if I have five brains instead of one, how could it not be better? We would talk and share our knowledge, and I don’t know how it could not benefit the students.”

- *One of the goals for teacher learning is to build student capacity for success. How do you define “student success,” and how do you as a teacher build the capacity for student success?*

Both teachers and school leaders believe that student success is measured not solely by grades or tests but by confidence level, the ability to work with others, and the ability to use

higher order thinking skills. Improvement over time is evident: Students are better readers and writers, and teachers can see the growth from 9th grade to 12th grade. Social-emotional maturity and social-emotional development can be seen as a measure of growth. The school leaders support teacher intervention and allow teachers to do what they do best in the classroom. The school leaders may give district- or school-wide goals but allow the teachers to carry out the goals through individual, content, and interdisciplinary collaboration.

- *How do you see collective teacher learning in the overall picture of connecting to school-wide instructional goals and improving teacher instruction?*

One teacher's analogy aptly defined the process: "The goals are the skeletal structure. The... muscle is the teachers coming together to put things together." The instructional goal of critical reading and thinking is the focus for collective teacher learning. The purpose is to provide students with the connection to the real world. The result fosters teacher focus and helps students see connections from one grade level to the next.

In summary, shared beliefs are evident in the similar responses of the structured interview. The theme of coherence through alignment is evident in the respondents' answers to the interview questions. There is an intended focus for the collective teacher learning that is prevalent in the school culture.

5. Collective learning team survey

The third section of the survey focused on building student capacity. There was an apparent discrepancy between the response summary and the school's established values. Over 40% of the respondents disagreed that the school's goals as stated and in practice focused on student learning beyond test scores and grades. This discrepancy was especially apparent when the question was asked "How do you define student success?" during the structured interview. The subjects who participated in the structured interviews stated a belief that student success

extends beyond test scores and grades. But according to the survey respondents, although teachers believed that test scores and grades are not the only indicators of student success, focusing on those test scores and grades was part of the school culture. It is reasonable to conclude that almost 25% of the teachers did not believe that they were an integral part of the process to build high expectation for the students.

Another issue that emerges from this section of the survey is the effectiveness of the collective learning team's focus on student learning goals. A large percentage of respondents—over 60%—did not agree that at least 80% of the meeting time was devoted to student learning goals. Thus, even within a mature collective teacher learning school, a focus on student learning goals was not always present during the PLC meetings. This conclusion could be supported by the responses to the next question, on common assessment and assessment results. Twenty percent of the respondents did not believe that common assessment and common assessment results were discussed extensively in the collective learning team.

In summary, the survey results was compiled to provide evidence of discrepancies between the school's seven principles, school-wide goals, mission and vision, and actual practice. It is important to understand that the survey responses are analyzed not for their reliability or validity since the response rate was less than 50%. They do not constitute a complete picture of the school, but they do help the researcher draw connections between what is evident at the school and what supports the answers to the dissertation questions. The survey responses were not used as the sole source of support data but turned to it, along with PLC observation notes, district and school documents, and interviews with school leaders and teachers, to draw connections which will support the analysis and discussion in Chapter V.

E. Skeptical View of the Finding

The evidence from this section supports the rationale that *CHS* was chosen because of strong teacher learning and strong student learning. In reviewing the data collected, there are aspects of the finding that are unexpected. First of all, this school did not use a prescriptive model of a structural PLC. During the observation of multiple collective teacher learning teams in the English division, the PLC leaders did not pass out agendas or complete a PLC meeting document. Instead, evidence was collected to show that the PLC leaders in the English division conducted the PLC meetings with certain unspoken protocol. The contradiction from the finding came from the other content, especially the Math and Science content, the division chair for the content required the PLC leaders to turn in a standardized PLC form to the division chair. The completed forms was not reviewed since the focus was on the English division. However, when interviewed this division chair, it was evident that the Math and Science division teachers needed more structure and support in the collective teacher learning process. This was a contradiction because it was assumed that the entire school's collective teacher learning process are similar across all content. Instead, the evidence suggested that even in a mature school wide PLC, individual learning teams may need additional support similar to a beginning process.

In the review of this in depth case study, the school leadership team was consistent in maintaining the collective learning structure. The existing literature pointed to school leader support and provided a generic framework of support such as having time, place, structure in place. However, in this study, the evidence showed that the division chairs were the backbone of the PLC structure. The division chairs were the middle level school leaders who directly supervise the teachers and reported directly to the building school leaders including the principal and assistant principals. Middle level school leaders such as the department chairs were

important part of the leadership support that are not mentioned in existing literature. Since the division chairs had the close relationship with the content teachers they supervise, they did have the powerful impact on the outcome of the collective teacher learning. In *CHS*, the division chairs made visits to the PLC teams during the collective teacher learning time. The division chairs would either conducted the observation of the PLC process or integrated themselves as a member during the meeting. The division chairs did not take over the PLC from the PLC leaders nor interrupted the PLC process.

The collective learning process for *CHS* had multiple layers even within the school leadership. The school leaders including the principal and assistant principals set the school wide expectations and school goals from the district. The mid-level school leaders such as the division chairs were important in setting up the structure of the PLC and appointing the PLC leaders for their content area or division. The division chairs made sure that teacher learning took place in the collective learning process by supporting the PLC leaders. The PLC leaders for each collective learning team set the tone for the weekly meeting and incorporate the district and school goals for the year and apply the goals to their content learning in the PLC. Every single layer of the structure are interdependent with each other and the success of the process impact student learning. This process forced the teachers, PLC leaders, division chairs and the principal/assistant principals to look at how the collective teacher learning process affect the content curriculum, student learning, skills acquisition, and standardize testing.

F. Summary

The findings section produced several big ideas that supported this study. The findings that emerged from this school case study lend support to the assertion that *CHS* established and

maintained a consistently high rate of student success, as evidenced by Advanced Placement tests and ACT test results. The four themes that underpinned that success are:

- Consistency, coherence, and collaboration
- Horizontal, vertical, diagonal alignment
- ACT/College readiness skills aligned to the content as part of the student learning goals
- PLC structure with a common focus

These themes were found through the case study, which supported the contention that *CHS* had a well developed PLC that supported student learning.

Consistency, coherence and collaboration are a recurring theme among the findings. At the start of 2012-2013, in the school-wide professional development session in October 2012, the principal outlined the school's mission. That mission was aligned to the school's seven principles and based on the concepts of consistency, coherence and collaboration. For *CHS*, consistency means that teachers who teach the same grade level and content will work together to come up with similar lesson plans to deliver similar instruction. In order to ensure the consistency of instruction for all teachers in the same content area, teachers meet on a weekly basis for structured collective teacher learning. The collective teacher learning provides the opportunity for teachers to collaborate and align the skills students need to master the content. The difference between what *CHS* does and what other schools do with PLC is that *CHS* has a coherent mission that means that all teachers focus on teaching skills that will enable their students to master the content. This mission is outlined at the beginning of every school year by the school leadership team, and *CHS* has not deviated from this mission since the process began in 1999. The alignment of the skills may seemed to be simply curricular revision, however, the process extended beyond curricular revision. Through the investigative process, curricular revision is the first step of change that makes *CHS'* collective teacher learning look at student achievement as the root of the process. The school, especially the English division, reviewed

their curriculum ten years ago and look at the skills needed to master each standard in the content. The goal for the curricular revision shifts from teacher centered to student centered. The underlying premise is to look at specific skills that students need to master including critical thinking skills. The long term goal is to help students transition seamlessly from 9th grade to 12th grade. Therefore, the collective teacher learning process for *CHS* can be described as extension beyond curriculum revision but aligning the curriculum with skill based instruction. This long growth of this process has helped maintain the school's momentum as it focuses on skills within the content and aligns the content with the ACT/ College Readiness Standards.

Coherence of mission also allowed every content PLC to work on horizontal, vertical, and diagonal alignment, which is the second recurring theme in this section. The alignment process enabled teachers to work together within the content area and within the grade level (horizontal alignment). It also provided opportunities for the teachers at the same grade level to work with other content area teachers. Within the year, each grade level from 9th to 12th grade worked together to develop a “forum” for the students. The forum was designed as a culminating activity for the end of semester or the end of the unit for all four content areas: English, Math, Science and Social Science. Teachers worked together to create cross curricular units and end the unit with a forum. This horizontal process was led by teachers and supported by school leaders. The vertical alignment came within the content across all grade levels. The school leaders underlined the expectation that teachers develop a learning outcome for each grade level to prepare students for the next grade level. As teachers developed learning outcome for each grade level in the collective learning process, the evidence showed that teachers do learn in the PLC. Teacher learning is evident even when teachers came together to review the curricular content and review data that demonstrated student mastery. Teacher learning was

affirmed when strategies that work in different classrooms to affecting student learning became a dominant topic of the collective learning conversation. Teacher learning was demonstrated in collective learning process when teaching students critical thinking skills and applying school wide strategies such as school wide vocabulary in their content or implementing school wide writing rubric in evaluating content writing was the norm of the conversation.

The horizontal and vertical alignment provided opportunities for diagonal alignment. Diagonal alignment occurred when students were able to move from basic level classes to advanced level classes in the same year. In order for that to happen, teachers within the same content area developed the curriculum in the PLC or in collective teacher learning so that units could be taught in a consistent manner. Therefore, teachers teaching basic level classes taught the same skills and covered much of the same content as teachers teaching advanced level classes.

PLC structure at *CHS* stressed a common focus: aligning the skills in the content area with those from the College Readiness Standards. The process for every PLC was different but the goal for the PLCs at *CHS* was the same. Each PLC from each content area conducted the PLC differently. The English division was the most advanced group for the school and the teachers. In the English division PLCs spent their time looking at the previous year's student data and revising the previous year's curriculum to incorporate different strategies and teach different skills. The Science division PLCs were at the beginning stage, where the PLCs for each Science content area met regularly to align the skills to the content. The Science teachers were still at the stage of creating curriculum, while the English teachers were at the stage of revising curriculum. Despite the difference, both content areas were representative of the PLCs throughout the school.

These are some of the connections from the Findings section that will support the syntheses and conclusions in the next chapter, Analysis and Discussion.

CHAPTER V. ANALYSIS AND DISCUSSION

A. Introduction

1. Review of research study

Most existing research on collective learning is found in relation to business organizations. In education, teacher learning has always been first and foremost an individualized process. There is only limited research on how teacher learning is organized in the schools and how teacher learning affects the school as an organization.

This qualitative case study focused on the three components of collective teacher learning: structured collective teacher learning, school leader support of teacher learning, and student success as a direct result of collective teacher learning. For this in-depth single school case study, the school year 2012-2013 was spent embedded in a high school with highly structured collective teacher learning and collected various types of data during this time, including (1) observations of the meetings that make up the structured collective teacher learning framework, with a focus on one specific content area, (2) interviews of teachers and school administrators on collective teacher learning, and (3) artifacts, such as meeting notes, school curriculum, school and district student achievement data, and anecdotal records. The result of the data collection process provided the answers the three main research questions for the study.

2. Rationale for the study

In successful schools that place primary focus on teacher learning, the following conditions are evidenced by the findings of this study:

- Teachers collaborate and learn with each other within and across disciplines by drawing on teaching practices developed from their own individual experiences and sharing them under highly structured conditions that involve clear routines and opportunities for teacher learning.
- Teachers believe that the collective learning process is centered on student success and focused on improving student learning.

- School leaders engage in identifiable practices to support a culture of teacher learning with the intent to improve coherence, consistency, and student success.

The case study demonstrated that well developed organizational support of collective teacher learning can positively affect student achievement. A principal finding from this case study is that organizational support is important in promoting successful teacher learning. A more extensive discussion of the benefits of collective teacher learning within the school will follow in this section.

As with any research study, this one has limitations that need to be addressed. First of all, the narrow focus of this study means that it will probably not yield the same results if replicated elsewhere. Researchers and practitioners should understand that this is an in-depth case study of a single suburban high school that cannot be generalized to all K-12 institutions. This study provides other researchers with the possibility of conducting further qualitative studies, such as studies of multiple schools at the elementary or high school level, or single school studies in an elementary school, and identifying layers and factors of collective teacher learning and organizational support within the schools. In this narrowly focused study, the focus is on one curricular department (division) in order to make the connection to the school-wide collective teacher learning structure. The intentional narrowness of the study will enable researchers to expand on the detailed investigation in this school and to conduct further inquiries in teacher learning, school leadership, and student achievement in other K-12 settings.

Another limitation that needs to be addressed with this case study is the tendency for researcher bias. There was a predisposed belief that *CHS* had the structure in place to be considered as a mature PLC. The researcher was introduced to the school by the dissertation chair and both the researcher and the dissertation chair were familiar with the school. This connection with the school resulted in the researcher to have some predisposed notion of what to

look for in this study. Even though no assumptions were made in this study and the data were collected with the intention to be bias free, the study was done to ensure that data collected were in support of providing proof to the three research questions.

B. Research Questions

This study focuses on the following three research questions:

- In a high school with a highly structured approach to collective teacher learning and sustained improvements in student learning over time, what does this teacher learning look like, in content, process and outcomes such as teacher knowledge, skills, and dispositions?
- What student learning outcomes can plausibly be attributed to this teacher learning environment, and what are the reasons behind them?
- How have school leaders in this school initiated, developed, and maintained collective teacher learning?

1. Theoretical framework

The research questions are designed as a framework for conducting a single case study of one school with a highly structured approach to collective teacher learning. The guiding questions posed by McLaughlin and Talbott (2006) are used to investigate these three research questions. Their questions begin with “Why do we want the members within the school of study to...”

- Increase collective responsibility across individuals/departments for performance (more broadly defined than increased student achievement).
- Increase personal commitment of professionals to their work; increase willingness to work hard for the goals of the school.
- Empower teachers, which may reinforce the first two points.

The questions above informed this investigation and helped formulate the research questions. The purpose was to define collective teacher learning as an organizational learning

framework and explain why the study is needed, what data are collected, and how the data are interpreted. This framework suggested the ways in which organizations intentionally support their internal learning processes; leadership support is instrumental in setting and achieving the goals of these organizations.

In brief, the three components of the organizational learning framework as applied in education are as follows:

- Component 1: Understanding all aspects of teacher learning, from the individual to team learning (Understanding Teacher Learning)
- Component 2: Transforming the emphasis of collective teacher learning through teacher collaboration with the focus on student achievement (Transforming the Focus of Teacher Learning).
- Component 3: Providing organizational support for individual and collective teacher learning by school leaders (Organizational Leadership Support for Teacher Learning).

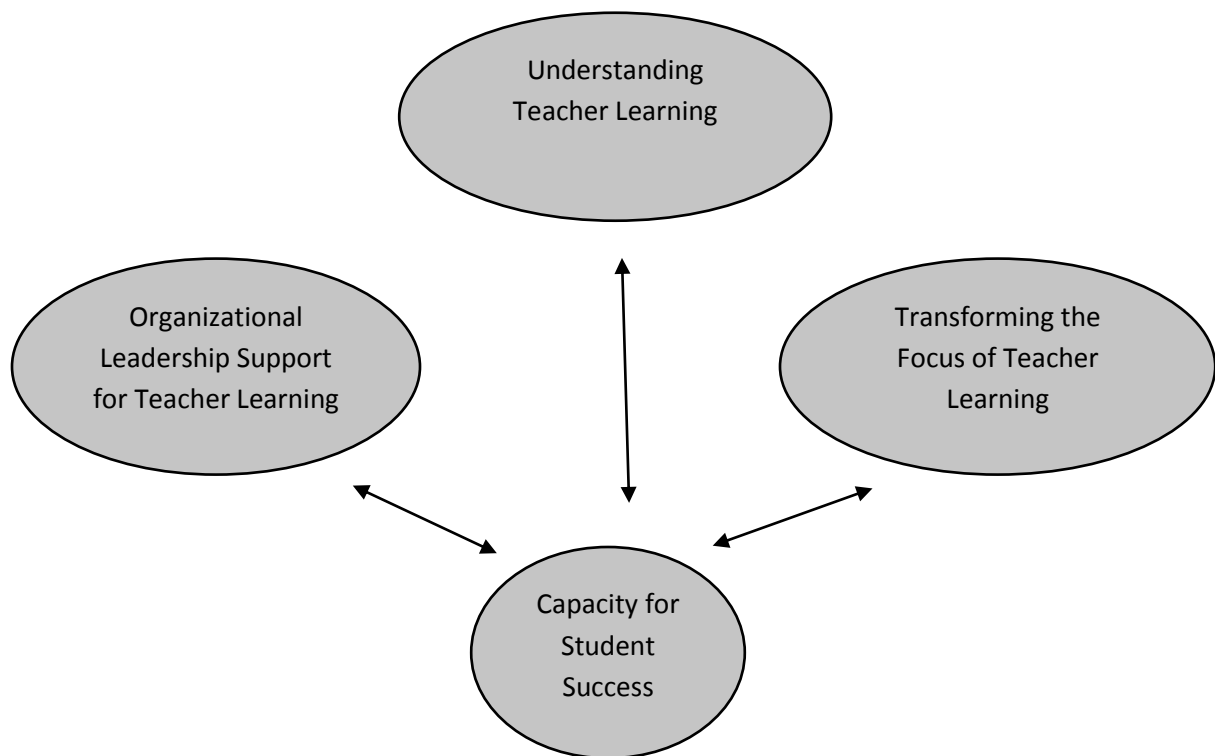


Figure 2. Three components of the organizational learning framework

2. Rationale

The extensive review of literature on education and organizational learning was used to develop this framework from the case study. With respect to Component 1, the belief is that novice and career teachers can improve their teaching through the collective learning process. In *CHS* novice teachers received the mentoring that came with the collective learning from teachers who taught similar content areas, and they were able to use teaching strategies and materials shared by other teachers in their team. This connection will help novice teachers feel supported by their colleagues and their immediate supervisors and prevent feelings of isolation or alienation. The connection, or sharing knowledge, is supported by the literature review's distinction between tacit and explicit knowledge. As stated, tacit knowledge is personal knowledge that one learns, such as beliefs, ideals, values, schemata and mental models, and is not usually shared or taught to others. Explicit knowledge is learned knowledge that can be shared and taught to others (Paavola, Lipponen, and Hakkarainen, 2004). There is evidence collected that defined the process of the PLC in *CHS* as obtaining both tacit and explicit knowledge. As a result, this connection also enhanced teacher learning by changing the teacher learning framework from individual learning tailored to enhance the teacher's individual knowledge of what to teach and how to teach (gaining implicit and explicit knowledge) to collective learning, where the group learning focus is on students grouped by grade level or content area. The study provided evidence of teacher learning in the PLC through curricular revision and collaborating on strategies. Evidence of teacher learning was documented in the observed 9th grade interdisciplinary PLC when Social Science teachers provided the background on inventions for the Science teachers during the evolution unit and the English teachers introduced the theme of morality in their short story unit (Interdisciplinary PLC, January 2013). The product developed within the learning group is designed to benefit the group and not just the

individual. While the evidence from this study showed that there is an organizational learning change from individual teacher learning for self-improvement to collective teacher learning for student improvement, there was no concrete evidence that student success was a direct result of collective teacher learning. There is only supportive evidence for the researcher to draw a link between collective teacher learning and student success.

There was evidence in several themes to support collective teacher learning, or Component 2 of the framework. The focus of the collective teacher learning groups was to develop coherence and consistency. The development of coherence and consistency begins with teacher learning, and teacher learning begins as knowledge creation through socialization, externalization, combination, and internalization, as stated by Nonaka and Takeuchi (Hegarty, 2000). *Socialization* is sharing of tacit knowledge and skills by transmitting them from more skilled to less skilled people. *Externalization* is the process of articulating tacit knowledge into explicit concepts. *Combination* is the formulation of theoretical knowledge, and *internalization* happens when an individual practices tacit knowledge through daily explicit behavior. The school leaders in *CHS* understood the process of learning and used the process of socialization, externalization, combination and internalization to help develop consistency and coherence through the PLC. The coherence that the teacher learning developed led to the scope and sequence for their content or grade level curriculum. The goal for coherence was to provide a common core curriculum for teachers who teach the same content, whether or not a teacher is teaching a support class, a regular class, or an Honors level class. The process of developing a common core curriculum included sharing common thematic units, teaching activities and common assessments. The collective learning team began the curriculum work with Advanced Placement (AP) drive down in the process of creating the scope and sequence. The team used the

AP core skills as the basis for the common core curriculum. Having a common core curriculum provided a consistent learning environment for the students, allowing them to acquire the same set of skills and to move from a lower level of academic ability to a higher level. The common core curriculum was built on a set of skills and made possible the shift from individual to collective teacher learning. The product was a cultural shift that led to student success. Student success derived from collective, not individual teacher learning. As evidenced by this study, the student learning process was dependent on how teachers learn and share strategies collectively, how teachers maintain consistent content delivery with common curriculum, and how teachers align skill learning that is consistent across grade level, content, and academic ability.

Component 3 spoke to leadership support to promote collective teacher learning. At *CHS* it involved a top-down process in which the principal assigned support for teacher learning to the assistant principals and the division chairs. The support took the form of setting a meeting time every Thursday from 7:30 to 8:30 AM throughout the year; structuring the meeting schedule along content, grade level, whole department, or interdisciplinary lines; providing meeting space and career teachers to serve as collective learning team leaders; aligning the content of the meeting to school instructional goals and school/district goals; and clearing other topics, such as student supervision and school and district agendas, from the collective learning time. The structure of the collective teacher learning was based on the district and school goals, school mission and vision, the seven pillars of support, and division and content goals.

School leader support also included organization and structural support. First of all, the principal delegated the collective learning structure to the division chairs and gave the division chairs the primary responsibility for managing and supporting the learning process within the division. Some division chairs took more intensive action by requiring written agendas and

written products of tasks and goals from each of the learning team leaders. Other division chairs delegated the agendas and products to the team leaders to influence the direction of the weekly learning process. As a result, some division learning teams focused on evaluating the yearly curriculum alignment for the content taught, and reviewed the common unit and assessment, while other divisions spent the collective learning time aligning the content with college readiness skills or working on cross curricular alignment of the content and unit skills. The school leaders understood how to apply group learning process to the collective teacher learning in ways that would allow flexibility of structure and accommodate the different levels of curricular needs among the divisions.

C. Findings

This section explains how the impact on teacher learning was assessed potentially on students. Examination of specific themes, such as teacher efficacy and teacher experiences, supports the claim that teacher learning does have a significant impact on student learning. In order to establish the possibility of a link, the outcome framework was referred and discussed in the first chapter of the dissertation (See Figure 1 on page 3).

1. Outcome framework

This study found a connection between collective teacher learning and student learning. Evidence from the study indicates that a collective learning process that promotes coherence of curriculum and consistency of instruction is connected to the building of student capacity for learning. However, before this process can be developed, a school leadership team needs to believe that the mission of collective teacher learning is necessary. The model in Figure 1 shows a bottom-up alignment, with the school leaders near the bottom as the initiators of the process and of the support needed to ensure that the process is carried out throughout the entire school.

The school leaders developed an organizational framework; in this case study, it was the English division chair who developed the framework focusing on skill-based instruction through the reframing of the content curriculum. In the late 1990s, when the state of Illinois implemented a statewide ACT exam as its standardized test measurement, the school district found that its high schools, especially the high school of study, showed a decline in standardized test performance. With the school in danger of not meeting the NCLB (No Child Left Behind) criteria and possibly facing state and federal sanctions, the principal of the school at the time brought the news back to her new administrative team, including the current English division chair. The English division chair proposed a change of curriculum framework focusing on the skills students needed to succeed and, with the blessing of the principal, started the process of structured collective teacher learning with the revamping of the English division curriculum.

Throughout the decade-long process, the English division restructured the curriculum, and English teachers met on a regular basis to improve the curriculum with two goals in mind: (1) embedding the required skills in the curriculum, and (2) developing a common coherent curriculum that included vertical sequencing from 9th grade to 12th grade, horizontal sequencing of common curriculum with the teachers who teach the same subject and same grade level, and diagonal sequencing, where the content is driven down from a higher level, i.e., Advanced Placement or Honors, and students from all levels can access the same curriculum. As a result of the curricular re-alignment, Reading and English sub-scores from the ACT improved dramatically and resulted in a school-wide implementation of the curricular re-alignment and teacher learning. The initial process of curricular revision forced the teachers to come together in content teams and created a natural school wide teacher learning process to share strategies as applicable to the curricular unit and infuse critical thinking skills for student learning and content

mastery. The goal for the collective learning process was not to revise curriculum but to embed critical thinking and content area skills into the curriculum. The curricular revision is the first step since it forced the teachers to look at the curriculum they use, their delivery of content, and their strategies to help the students learn. This process forced the teachers to collaborate with the other teachers and evaluate the content curriculum as a team. Through the process, the teachers meet every week and analyzed each part of the curriculum or units and deciphered as a team what content skills was needed to be embedded into the unit and what critical thinking skills needed to be taught to help students master the content. The teachers came together to discuss different strategies and investigated best practices from outside sources to be shared during the collective learning time. The implementation was reinforced by every member of the administrative team, and curriculum meetings were focused on the two tasks of collective teacher learning and curriculum alignment for skills reinforcement.

With this process, this school saw the instructional goals as constant, and even though new strategies or new ideas might be implemented in the school from the district level, the school maintained the same instructional goals of teaching students the necessary skills and developing a school-wide curriculum coherence (level two). In order for teacher learning to be successful, the school needed to provide a structured process for teacher learning. The structured process began with the alignment with the school's and the district's instructional goals. The alignment of the school and district goals is similar to Cochran-Smith and Lytle's (1999) process for learning in its recognition of a relationship between knowledge and practice. Three stages of teacher learning are necessary for effective practice. In this school, the Knowledge for Practice stage is evident since the teachers practice on how, when and what they do as the formal knowledge base." Knowledge in Practice is evident when the teachers in the PLC follows the

assumption that the knowledge teachers need to teach well is embedded in the exemplary practice and shared practice. Knowledge of Practice occurs when each PLC team develop practical, concrete, procedural, and specific practices and activity guided by teachers' judgments and conceptualizing subject matter and classroom situations. At *CHS* the school leadership team established seven principles derived from the district's instructional goals. These seven principles, detailed in the previous section, provided the foundation used by the school principal to establish yearly instructional goals. In the end, there was a consistency of instructional goals that came from the district down to the school and then to the department and to individual teachers.

Above the school leader support and instructional goals was the school support needed to keep the instructional goals going (Knowledge for Practice). School support included regularly scheduled collective teacher learning meetings, yearly assessment of curriculum, and the accumulation of collective best practices for the teachers. In this school, teachers met on a weekly basis for one hour each week with their content area team to look at current curriculum and instructional resources and to align the curriculum in order to bring uniformity. For example, 11th grade English teachers used the collective learning time to review 11th grade curriculum, update instructional materials within each unit, and improve common unit assessment by using the previous year's student performance data from the assessments. The job for the teachers in this collective learning team was to ensure alignment of curriculum, including vertical, horizontal and diagonal alignment of student learning. This meant that the 11th grade English teachers worked together to make sure that every unit within the curriculum was consistent for students taking basic/remedial classes as well as regular and Honors classes. In order to ensure consistency and diagonal alignment, the teachers in the team used the Advanced

Placement English curriculum as a starting point to develop the scope and sequence for the 11th grade. Working together as a team, the teachers began by reviewing at the beginning of the year the skills students had been expected to learn in the previous grade, adding the skills students expected to achieve in the current grade throughout the year, and introducing the skills needed for the next grade level at the end of the year. This process of vertical alignment was necessary to bring about coherence of the departmental curriculum. It was an indicator that the department intentionally scaffolded the skills by providing opportunities for students to review prior learning, integrate the prior knowledge with new learning, and build a foundation for advanced training. The horizontal alignment process came in when the English teachers in the 11th grade met and collaborated with the teachers in the other content area teams to provide a consistent link in student learning. The consistency was evident when teachers could refer to topics students learned in other classes and make them applicable to their own content.

The evidence of alignment was also linked to the next level of the framework, which included classroom instruction, teacher knowledge, and collective teacher learning. With the support of the school administrators and the availability of time, resources, and space to carry out the goals, classroom instruction success was evidenced by students' movement diagonally from general education to Honors/Advanced Placement level, or from resource classes to general education level. A consistent indicator of improvement is evident in the results of the state-mandated ACT testing.

Alignment is a big part of *CHS*' collective teaching process. In reviewing collected data for the in depth case study, there is not a direct link between collective teacher learning and student learning outcome but the "intention" behind the collective learning process allows the link to be made. There are evidence collected in this case study to show that the intention behind

the collective teacher learning process is to align the curriculum in all content. Through the ten years period of the collective learning process, the English division's horizontal, vertical and diagonal alignment at *CHS* became a school wide process. The intention was to build critical thinking skills for students and build the capacity for improving student learning outcome. It was the belief of *CHS* that restructuring the content curriculum was the first step in changing into skill based curriculum. The teaching of content and critical thinking skills were the "core" of the collective learning process. Knowing the core of the process paved the way for future studies that can connect observable classroom teaching with observable collective teacher learning or observable classroom teaching with collected student objective mastery data.

CHS applied the alignment in each content division and spiral the curriculum to incorporate different skills with different units within the content. As the students transitioned from one grade to the next or move from one academic level to the next, the skills within the content will spiral with the students through grade or academic level. Teachers in *CHS* met and learn together to teach the skills to the students, not just the content. The teachers did not label students based on their academic levels but focused on the students' individual learning needs. The conversation within the collective learning process also became student learning centered and not student tracking oriented.

2. Impact of the study

In reviewing the student data, including the supplied Growth Entry Metric, or GEM, from the school district's research department, there is a strong relationship between the collective learning structure and student achievement. Highly structured collective teacher learning, as seen by the research data collected from this school, resulted in students' gaining the capacity to acquire and maintain knowledge. The evidence lies in the student outcome data showing that this

school's ACT scores are consistently above the average for the state of Illinois and the nation. There is no explicit correlational relationship between collective teacher learning and student achievement, but the benefits of applying collective teacher learning to implement skill-based instruction in the curriculum are evident.

According to the student data collected from the district, the school of study has consistently demonstrated strong student performance in state-mandated ACT testing. Over the past 10 years the composite scores and the individual sub-scores for this school were higher than those of other high schools in the district. The data showed that in 2003, during the first year of the state-mandated ACT testing, this school's baseline growth from the 9th grade Explore test to the 11th grade ACT test was 5.6 points. This growth was not the highest in the district; the school of study was not known for high caliber academics. However, the trend from 2003 to 2013 showed that the school of study, *CHS*, had the most consistent growth during the past 10 years and the highest growth rate of all the schools in this district. When the scores were examined, especially the ACT Composite and ACT sub-scores, *CHS* showed a consistent average growth of 8 points for English and Reading subtests, 5 points for Math and Science subtests, and 7 points for the Composite score. An in depth examination of the EPAS growth rate further provided support that *CHS* organizational structure of collective learning demonstrated student academic success. By 2013, the Explore composite score was 17.0 but the ACT composite score rose to 24.9, with a growth from 5.8 in 2003 to 8.0 in 2013. The growth proved that 11th grade students who took the ACT in 2013, showed an 8 point score improvement from their 9th grade year when they took the Explore test three years earlier. The improvement was the evidence that make the direct link of collective teacher learning to student achievement.

Another type of student data reviewed was the Advanced Placement tests. Among schools in the district, *CHS* did not have the largest number or the largest growth of Advanced Placement test takers. However, compared to other schools in the district, *CHS* showed consistent Advanced Placement growth through the period of the data analysis. The data indicated that from 2001 through 2012, 85% of the students from *CHS* consistently received a score of 3 or better on the Advanced Placement examinations given at the end of the year. The mean score for *CHS* was also consistent with the mean score of 3.6, which is the most stable figure for schools in the district.

3. Implication

The student data finding suggests that there is a relationship between collective teacher learning and student learning. At the school of study the collective learning focused on ACT College Readiness skills, and teachers spent the entire year embedding the ACT skills in their content area. The alignment from 9th to 11th grade resulted in substantial growth for students who took the ACT Explore in the 9th grade and the ACT in the 11th grade. As mentioned earlier, in reviewing the Explore to ACT scores from 2003 to 2013, there was a substantial increase from 5 point growth in 2003 to 8 point growth in 2013 for *CHS*.

Another implication from the data collected was the effect of the collective learning process as part of the school culture. In 2003, the curriculum was revised with the focus on student learning in mind. The English division made the revision by looking at what skills students need to master which unit in each of the grade level curriculum. The English division used ACT College Readiness Skills standards as the guide to infuse skills into the curriculum. Through the ten years, what started in the English division spread to the entire school and was implemented to different degrees within the district. The collective teacher learning process

became part of the school culture and teachers would be overt in discussing their learning process as part of their process in engaging student learning.

D. Discussion

1. Common themes

The goal for establishing a successful collective teacher learning was to create a structure that could be easily facilitated. Contrary to some research on professional learning communities, there is an observed a process that supports *CHS*'s long history of success. Research on professional learning communities has generally focused on specific processes or formats that produce effective learning communities. In this investigation, it is not the process or format of the learning community that drives *CHS*'s professional learning community but common goals. This study has adopted the term "the three *C*'s" to refer to three elements evident in teacher learning: collaboration, consistency, and coherence. The three *C*'s pave the path to effective teacher learning.

The first "*C*" focused on teacher collaboration in the structured collective teacher learning process. The foundation is the research indicating that collective learning within the organization occurs when there is a change in the organization's knowledge through cognition or behavior, and the change includes both explicit and tacit learning. Kane, Argote, & Levine (2005) see the framework focus on the basic elements of organizations, such as their members, the tools used, and the tasks that need to be accomplished. The collective learning in developing common structure and process led to collaboration in creating and revising the curriculum for scope and sequence alignment. In order for teachers to collaborate, they need to know how to work together. The school in this study structured the learning group by placing the teachers together according to the content subject they taught. Teachers who taught common content had the understanding of the skills within the content that students need, or the "what to teach"

common knowledge. Even though the statistical analysis of the quantitative data was not considered with the survey, there were some key findings that support collective teacher learning versus individual teacher learning in this study. The organizational structure for the PLC provided opportunity for collective teacher learning instead of individual teacher learning. The results from the survey show that over 70% of the respondents favor collective teacher learning and believe that collective learning structure do support teacher learning. Individual teacher learning was a part of the school culture and the expectation was for teachers to grow from the collective learning process. Teacher learning at *CHS* was not limited to weekly PLC. Teachers attended summer workshops and outside professional development including within the district and local and national conferences along with university learning. However, there was a difference between individual learning and collective learning since these learning opportunities were tailored to the individual needs and though teachers may choose their individual learning that align to the school and district goals, the weekly collective teacher learning was specific and considered as a non-negotiable for the school. The collective teacher learning time was set aside for teachers to work together in learning teams or PLC and as a result, school leaders did not schedule department meetings, morning announcements, or outside learning during this weekly collective learning time.

Having this common knowledge helped teachers speak the same language and share strategies, or the “how to teach,” with each other. This commonality enabled teachers to work together and to develop common assessments, since the goal of collective teacher learning was to improve not only teacher learning but also student learning. Developing common assessments helps teachers look at student learning the same way and pinpoint what students have learned as well as what they still need to learn. It is important to note that collaboration took place within

the same grade level and the same content. For example, 9th grade English teachers met during the collective learning time to develop common assessments and common scopes and sequences within the content.

The alignment built through collaboration helped the collective learning group move to the second *C*, consistency. When there was similar scope and sequence and common assessment, teachers were consistent in evaluating student performance and student understanding of content. To return to the example of the 9th grade teacher group, the 9th grade teachers were able to discuss student performance because they developed common assessments allowed the teachers to assess their students' understanding in the same way. Students in teacher A's English I class took the same end-of-unit assessment as students in teacher B's English I class. The common assessment helped the teachers know which content skills students were missing. Having the same activities within the same scope and sequence was instrumental in allowing teachers to learn from each other and incorporate similar strategies within a lesson or unit. Although this school's collective learning structure advocated common assessments and common strategies with common scope and sequence, this did not mean that teachers were required to teach in lockstep. Teachers collaborated to develop common learning activities for certain units within the scope, but they had the flexibility to move the sequence of the units around, or to use some or all of the strategies within the unit. This could be compared to having a toolbox of effective strategies that were developed and tested by the teachers within the group, since this group of teachers had created and refined the scope and sequence and common assessments for a period of over 10 years.

The goal of establishing coherence—the third *C*—comes from the development of horizontal and diagonal alignment, which is a priority for the school. For example, the 9th grade

English teachers built school coherence by collaborating with other 9th grade content teachers.

In this collaboration, the culminating unit activity was the interdisciplinary forum. The interdisciplinary forum provided a showcase where the grade level teachers could integrate learning for the students and provide the students with a summary of the unit from across disciplines. In the example of the 9th grade English team, the English team planned a third quarter forum introducing the students to the journalist for whom their school was named.

Planning an interdisciplinary forum as a collective team was an example of teacher learning.

The planning of the forum was part of the interdisciplinary PLC process where English teachers can plan learning together with Math, Science or Social Science teachers. The third quarter forum was aligned to the 9th grade English and Social Science curriculum and was thus developed collaboratively by the two content areas. Teachers from both departments met during the collective teacher learning time and during their off periods to put the forum together. This forum was an event that matched the Spring semester timeline, introducing the historical context of the early 20th century for Social Science and the early 20th century novels for 9th grade English. The evidence demonstrated horizontal alignment between disciplines within the same grade level and diagonal alignment in making the unit accessible to 9th grade students across all levels.

In summary, and as noted in the literature review, in the collective teacher learning process the members come together with the tasks of structuring what to teach (curriculum) and how to teach (strategies) by using existing tools and developing new strategies together. The learning is evident because knowledge can be embedded in the active context of members, tools, and tasks and their associated networks. Knowledge is embedded in the context and affects future learning. The evidence supports the premise that within the organizational learning

process, individual learning is necessary before group and organizational learning can occur, but individual learning alone is not sufficient for group or organizational learning. Collaboration, consistency, and coherence were the common themes found in the data collected from observations, interviews and document review. However, it was the intentional language of the school leadership team in support of these three *C*'s that ensured a vital understanding: For collective learning to be successful, the individual's knowledge must be made available for others to access and use, review and revise through routine or practice.

2. Organizational pattern (vertical, horizontal, and diagonal alignment)

In order to validate this dissertation study, it is necessary to review the analysis of support for the three research questions. Organizational pattern data were essential to support Question 1. In each of the following areas conclusions can be drawn from the organizational pattern analysis.

a. PLC (professional learning community)

The PLC structure differed from group to group. Newer PLC groups aligned curriculum and broke down skills to CRS (College Readiness Standards) for scope and sequence and aligned content curriculum for AP drive-down. More experienced groups assessed current curriculum and reviewed the effectiveness of the strategies within the unit. The goals for every PLC included adopting an interdisciplinary approach to curriculum alignment and streamlining school goals and initiatives in accordance with content or curricular process, e.g., writing skills or vocabulary skills (including horizontal, vertical and diagonal alignment).

b. Team structure

De Laat and Simmons (2002) believe that “the learner personalizes new information by giving meaning to it, based upon earlier experiences. Meaning is rooted in and indexed by

experience, and there is a distinction between learning in social interactions (with and from others) and collective learning (where the members consciously strive for common learning outcomes).” The authors coined the term “collective learning” in their attempt to explain group learning and organizational learning. The transition from individual learning to collective learning occurs when groups or organizations reflect on common outcomes, when they reflect on or plan common learning outcomes, and when they define common plans to extend learning outside of the group. This is accomplished when learning can be distinguished among learning networks, learning teams and learning communities.

In *CHS* the structure of the team was designed to transition from individual to collective learning, and collective learning began with the support of the PLC leader, who was assigned by the division chair. The team structure was aligned with the district goals in its use of a top-down approach within the school, starting with school goals and moving on to division and individual teacher goals. The team goals permitted common curriculum and common assessment. The purpose of developing team or PLC goals was not to create a lockstep process but to build collaboration among the members of the team and build cohesion within the department and the grade levels.

c. Leadership support

The principal was the head of the administrative leadership team. Within the leadership team, the principal’s job was to support and meet with the leadership team on a weekly basis. The principal guided the Professional Learning Community (PLC) process and aligned the entire process within the school. For example, the assistant principals were designated by the principal to coordinate with division chairs and provide support to the teams. The assistant principal of curriculum and the assistant principal of operations were the two school leaders in charge of

ensuring that teachers were actively aligning their content curriculum in the PLC. The assistant principal of curriculum set the process and structure for the PLC with the help of the division chairs. The division chairs scheduled the PLC based on similar content areas, e.g., English I teachers formed one PLC, and Biology teachers formed another PLC. Teachers who taught more than one subject rotated between the PLCs and supported the teachers by sending strategies, lesson activities, and resources to teachers who had a single subject area. A PLC leader was appointed by the division chair to guide the PLC process. The PLC leader planned the weekly meetings, helped the team align curriculum standards and classroom instruction, met with the division chair to update progress, and connected curriculum to department and school goals.

The school leaders at *CHS* met on a weekly basis with two goals in mind: to improve instruction and to build a positive school community. In order to build a positive school community, the principal entrusted to the school leadership team tasks in areas ranging from curriculum to school operation to pupil services. The school principal held a weekly school administrative team meeting to check on updates, delegate tasks and ensure clear two-way communication. The weekly administrative meeting had two areas of focus: daily school routine and quality teaching in the classroom. The first part of the meeting involved the entire school leadership team—including the assistant principals, division chairs, dean of students, athletic directors, and school engineer supervisor—to make sure that the school day was running smoothly and without issues. The second part of the meeting focused on instruction. During this school leader PLC, the division chairs reported on what the teachers are working on in their content and the principal and assistant principals reviewed how the collective learning was promoting school and district goals for the year. The focus was on PLC and how the discussions during the PLC translated to the division, grade level and individual teacher's classroom.

The PLC structure in *CHS* was seen as a structured collective learning process of the type designed by Schechter (2010, 2012). It included the following factors: “(a) holding regularly scheduled learning workshops, (b) identifying and analyzing successful school practices, (c) documenting the learning, and (d) identifying effective modes of collective learning.” These learning workshops (generally scheduled after regular teaching hours) were self-directed and oriented toward addressing issues at the heart of the school’s vision and development process. The core characteristics were:” (a) reflective dialogue focusing on instruction and student learning, in which teachers reflect on instructional practices and examine tacit assumptions about teaching and learning; (b) feedback provided by teachers through networks of professional interactions and knowledge shared beyond their own classrooms (e.g., mentoring); (c) peer collaboration, in which teachers collaborate on school projects that focus on professional reform and improvement initiatives; and (d) shared leadership and facilitative supportive actions on the part of the principal and the administration.”

The evidence showed that *CHS* was intentional in maintaining a collective teacher learning structure and provided the consistency for the past ten years. As a result of this consistency, the school developed a process to integrate new teachers into the collective learning process. Teachers new to the school were paired with a mentor, usually the PLC leader in the same grade level and content area. The PLC leader provided individual support to the new teacher to learn the *CHS* way of incorporating critical thinking and skill based instruction into the curriculum and also provide the support during the collective learning process. The mentoring process not only supported new teachers but taught mentor teachers how to maintain the collective teacher learning process even with changes of memberships within the PLC team.

d. Student success

Measuring student success was based on state ACT tests that all 11th graders in the state of Illinois take in April of each year. *CHS* used the rubric in the ACT Explore test to teach 9th grade students the foundation skills in Reading, English, Science and Math; it used the ACT Plan for 10th grade and the ACT for 11th grade. The goal in using the rubric from ACT-based tests, ACT's Educational Planning and Assessment System (EPAS), was to create a horizontal, vertical and diagonal alignment in which students acquired basic skills in 9th grade and then built on these skills in 10th grade and again in 11th grade. The horizontal alignment ensured that all teachers within the same grade level (same or different content) reinforced the same skills for the students. The vertical alignment provided support so that students would not lose the skills they had learned in previous grade levels; teachers would scaffold previously learned skills with new skills and support the students in applying basic skills in the content areas. The diagonal alignment provided students with the ability to make a smooth transition from support or remedial classes to Honors or Pre-AP/AP courses, because the unit goals were the same whether the students were in a support/remedial section or a Pre-AP/AP section. The alignment developed for *CHS* evidently worked: When this study employed the state ACT composite score as a measurement of student success, it was found that composite scores at *CHS* consistently measured above state and national standards.

E. Limitations

There are several limitations to the single-school study, including the following:

- Single school study/ high school study
- Single department focus as applicable to the entire school
- Low return rate on survey data
- Curriculum work began in the summer
- No classroom observation
- No observation of special education or other non-classroom teacher PLC

- No feedback from all stakeholders
- No school record of PLC agenda or PLC forms
- No focus group or district interview

1. Single school study/ high school study

The biggest limitation of this study is the fact that it is an in-depth single school case study. There appears to be no previous research on a school with a successful professional learning community; therefore, there was no school to which this one could be compared. Given the absence of previous research, there was a link of observations, interviews, and a review of school artifacts and documents and use this evidence to build support for possible answers to the three research questions. As a single school case study, the study did not compare this school with other schools within or outside the district. In answering the research questions, this study was limited by collecting data from the single school only.

In addition to the focus on a single school, this study had another limitation—its focus on a high school. The literature review revealed that collective teacher learning, or Professional Learning Community, differed among elementary, middle and high schools. Elementary school teachers form learning communities based on grade level, since in elementary schools teachers have the students for all content areas except electives. In middle school the structure is similar to that in elementary schools, but teachers are grouped also by content area, since some middle schools are structured like high schools. High schools are departmentalized; teachers are grouped by departments, and the collective learning process is dependent on this grouping by common content area.

Because this research focused on a single high school, the specific findings of this study cannot be generalized to elementary or middle schools, and conclusions from this single case study must make clear that the findings come from a single high school case study.

2. Single department focus as applicable to the entire school

In this case study, the researcher collected extensive data from one department or division and used the data collected to analyze the collective teacher learning process for the entire school. Although data was collected from the district, other divisions and the school leadership team, the observation mainly took place within the English division. The rationale for the emphasis on the English division was that the chair of this division was the instructional leader who developed the blueprint for the school's collective teacher learning process. That blueprint, which was detailed in this study, focused on defining the skills students needed to master the content area by grade level and shifted the school's focus through horizontal, vertical and diagonal alignment. It is evident from the collected data that the end product of the current collective learning process was defined by the English division.

Several limitations of this study resulted from its sole focus on the English Language Arts division. First of all, the researcher cannot generalize conclusions about the collective learning or PLC across all divisions in the school. What was observed was that the English division had the most advanced PLC structure, while the other major content areas, e.g., the Social Science, Mathematics and Science divisions, were developing their own content PLC.

Another limitation was the fact that the collective learning process for electives was not observed and therefore was unable to make the generalization that the structure was similar among all divisions within this school. The overall PLC structure is complex because PLCs for the school are grouped by specific content area, such as English 1, English 2, etc., and by levels: Regular, Honors and Advanced Placement. In the English division Regular, Honors and Advanced Placement teachers met in the same PLC to promote diagonal alignment. In other content areas, however, there were separate PLCs for teachers teaching Regular, Honors or

Advanced Placement level. As a result of this PLC structure it was impossible for the researcher to spend a large amount of time at any one PLC and thus make meaningful generalizations or explain the differences between PLC processes in different content areas. Instead, other generalizations about the PLC process, such as how each division related its PLC to the school-wide PLC goals can be made.

3. Low return rate of survey data

The goal of the single school case study was to use as many methodologies as possible to conduct a comprehensive case study. One of the methods used was to collect data through a survey designed by the researcher and aligned to the dissertation questions. However, a limitation of the survey was its low response rate. Out of 150 teaching staff members, only 54 responses were received, a return rate of just 36%. The return rate was low enough to prevent this study from using the data collected from the survey to conduct quantitative data analysis. Thus, a statistical analysis of the quantitative data from the survey was not considered.

4. Curriculum work began in the summer

In the process of conducting the study, another limitation hindered the ability to produce a comprehensive single school case study. In this district the school leadership team set aside professional development money for teachers to work in their content PLC team in the summer to align skills to curriculum and curriculum to the state standards. In fact, most of the curricular work for the school was done in the summer. The work done in the summer of the observed school year (2012–2013) or the work done in the summer after the observed year (2012-2013) was not documented for this study. As a result, the data collected during the study came from the middle and end of the yearly PLC cycle and did not include the beginning of the cycle.

5. No classroom observation

In a complete and general comprehensive single school case study, one of the typical components of the study involves conducting classroom observation. This constituted a limitation because this study focused on teacher learning that leads to building capacity for student success. When teachers met in a Professional Learning Community, the focus was on aligning the curricular standards and implementing activities in the classroom to teach students the skills needed to succeed. This study was designed to observe teachers in the PLC and observe teachers brainstorming strategies, aligning standards to content, and collecting and interpreting student data. It would have been beneficial if there were opportunities to conduct classroom observations before and after each PLC in order to make connections to what was discussed in the PLC regarding student learning, and to see how teachers at different grade levels influence their students' learning as a result of their participation in the PLC. Due to time constraints and the need to obtain student and parent consent for classroom observation in accordance with the university's research guidelines, it was decided to forgo classroom observation and concentrate on the collective teacher learning process.

6. No observation of special education or other non-classroom teacher PLC

Another limitation arose from the relatively narrow scope of PLC observations. In this single school case study the focus was on the English division, but the case is made that a similar PLC structure is present in other content areas. One specific area that was not investigated was PLCs for teachers of electives, such as Music, Technology or Physical Education, and for non-classroom teachers, such as Special Education teachers, or school counselors. If there were time and opportunities to observe the elective and non-classroom teacher PLCs, understanding of the process of how teacher learning improves student learning would be enriched.

It is evident that the content area PLCs (English, Mathematics, Science and Social Science) focused on curricular standards and skills as aligned with the College Readiness Standards from ACT and from EPAS. In contrast, non- content area PLCs did not have their content aligned with the standard. However, the school leadership team designed the PLC process so that the non-content teachers could support the content area teachers by implementing school initiatives, such as the Vocabulary Initiatives and standardized Writing Rubrics. In the Vocabulary Initiative all classroom teachers came together in their curricular area to develop common vocabularies in their content and then group all vocabularies together with other content by grade level. The purpose of the Vocabulary Initiative was to help the school develop and teach grade level common vocabulary and help students build their vocabulary knowledge each year as they progressed from 9th to 12th grade. The Writing Rubric initiative was implemented when the English division created a writing rubric for different types of writing, from descriptive to research essay. These rubrics were designed to be user friendly across all content areas, from English to Science to Physical Education and Art. Having the opportunity to observe non-content area PLCs, e.g., for school counselors or Art teachers, would have given additional data that could support the implementation of a school collective teacher learning process and perhaps demonstrate how the process for non-content teachers aligned with the student learning success.

7. No feedback from all stakeholders

In order to have a successful school it is important to elicit feedback from all stakeholders, including teachers, students, parents, and community members. This was an extensive study of collective teacher learning but had limited time and resources for the data collection process. The attempt to obtain data on what teachers thought about the collective learning process was evident in the interview question protocol. The collected structured

interview data and teacher survey provided support on how collective teacher learning built the capacity for student learning.

However, obtaining interview data from students, parents and community members would have enriched the study. The data from these resources could have lent additional support to the premise that collective teacher learning has a direct impact on improved student learning, and that the purpose of teachers' learning together is to provide students with skills and the capacity for success. Without these pieces of data, assumptions can only be made using the limited data collected from school leaders and teachers.

8. No school record of PLC agenda or PLC forms

When the collective teacher learning, or PLC, first began at this school ten years ago, every PLC leader was required to complete a PLC meeting form detailing the topic of discussion, assigned roles for each member, and the end product of the meeting. When the school first implemented the process, the meetings were held during professional development days. The frequency of the meetings increased to once a month, and now they are held on a weekly basis. As the PLC meetings became part of the school culture and teachers became familiar with the process, the meeting forms were no longer a requirement. Some divisions used the forms as a guide to keep the members on task, while others did not. Meeting notes were kept with the PLC leaders and were not required to be part of the school process.

As a result of changes in the process, the PLC at this school became free-flowing and allowed the leaders to structure the PLC according to the needs of their content areas. For example, the 11th grade PLC focused on ACT readiness, while the 12th grade PLC focused on college readiness. Likewise, English PLCs focused on skills and college readiness standards, while Fine Arts or World Language PLCs focused on student mastery of content standards. Since

each division had 10–15 PLCs, a full analysis would have been beyond the resources available. *CHS* may not have a written structure and agenda for the collective learning process but the evidence showed that a formalized process for collective teacher learning was prevalent in the school. The formal process began with the alignment with the district and school goals. Every year, the principal began with a school wide meeting to make sure that the PLC meetings for the rest of the school year will focus on the school goals. For example, the principal's meeting on October 2012 outlined the three types of goals for the school: instructional, PLC, and skills goals. The formal process is embedded within the *CHS* culture. The limitation for this study is that the process is not part of the school handbook to be reviewed and also that the weekly PLC meetings do not have the documentations available for review. However, despite this limitation, the formal process is observable because it is part of the process that is understood by everyone in the school. During the PLC meeting time, students know that they are not allowed in the classroom for the specified time, support staffs such as the security staffs and teacher assistants serve as hall monitors to assist with monitoring the students. School leaders from the principal and assistant principals to the division chairs made the rounds in the meetings and every teacher, including teachers who taught in more than one content area would know which PLC meetings they are attending. This formalized process was embedded in the school culture and is prevalent through the school so that even when teachers and school leaders leave the school and new teachers and school leaders come in, the process and structure would be part of the school culture and not changed with new administration.

9. No focus group or district interview

One of the most obvious limitations of this study was the fact that it was impossible to collect a set of baseline data at the beginning of the dissertation study. Research shows that

focus groups may have three primary functions: pedagogical, political, and inquiry, as described by George Kamberelis and Greg Dimitriadis in their piece in the 2011 *Sage Handbook of Qualitative Research*. They describe the rationale for using focus groups in terms of these three functions. The pedagogical function promotes dialogue and a higher level of understanding of issues critical to the development of the group's interest and/or transformation of condition of existence. The political function builds on the pedagogical function by transforming these conditions of existence for particular stakeholders so that the conditions are more democratic and raise consciousness. Last, the inquiry function makes reality and knowledge a priority or explains, predicts, and controls both natural and social phenomena.

A focus group is useful for understanding the big picture within the school with a diverse group of stakeholders. The focus group in this study was conducted with teachers in respective departments, school leaders, and mid-level administrators, i.e. department chairs, dean of students, counselors, etc., in order to help investigate the whole school's organizational support and collective teacher learning group support. It allowed the researcher to develop a blueprint for aligning the school's collective learning plan with the overall strategic plan. This study investigated the process of how teacher development is carried out by the school leaders down to department chairs and how it is utilized by teachers in the respective departments.

To make the study more comprehensive, ideally, the first step would be to conduct a focus group study of teachers who had been involved in the process since the beginning, as well as new teachers who had come into the process. In addition, other focus groups, especially focus groups conducted with teachers and administrators at other schools within the district, would have provided the researcher with additional information to direct the study. The baseline data

collected through school or district based focus group may have helped better design the study and tailor the research questions based on the baseline data.

Without the baseline data, this study relied solely on the informant for background information. Even though that informant was the person who had initiated the entire collective teacher learning process at the school and transformed the process for the entire district, the results of future research are not likely to match the data collected.

F. Summary of Findings

The three premises are validated by the data collected in this case study.

- Teachers collaborate and learn with each other within and across disciplines by drawing teaching practices from their own individual experiences, and sharing them under highly structured conditions that involve clear routines and opportunities for teacher learning.
- Teachers provide specific evidence that they believe that the collective learning process is centered on student success and results in improved student learning.
- School leaders engage in identifiable practices to support a culture of teacher learning with the intent to improve collaboration consistency, coherence and student success.

Working from these premises, this investigation offered answers to the three dissertation questions.

1. Organizational support

- How have school leaders in this school initiated, developed, and maintained collective teacher learning?

A major benefit of this case study is the finding that well developed organizational support can promote professional learning communities that contribute to improved student learning. This investigation found two levels of organizational support. The first level was the immediate school leader support that allowed collective teacher learning to take place. Narrowly construed, this was the support provided by the division chairs directly to the PLC leaders, the

PLCs, and the weekly school leadership meetings that focused on curriculum. The second level was the organizational support provided by the leadership team as a whole.

At the first level of support, the division chairs appointed the PLC leaders and met with them to designate an agenda and end product of curriculum alignment. Most of the collective teacher learning that took place in the PLC focused on content curriculum, skills and student data. The division chairs had a blueprint of each division's path related to content alignment with ACT College Readiness Skills or Illinois state standards. Sometimes the division chairs were instrumental in directing school-wide implementation of skills, such as the use of a standardized writing rubric or the implementation of a uniform, department-generated content vocabulary list. After interviews and observation, it was concluded that the best division chair support occurred when the division chairs allowed the PLC leaders to direct and implement strategies that fit with the grade level and content, even with school-wide mandates. The trust between the PLC leaders and the division chairs resulted in a free-flowing alignment (horizontal, vertical and diagonal) instead of a top-down process.

The second support was more generic. It came from the school leadership team and focused on how collective teacher learning affected the organization. For example, the leadership team made sure that each PLC had a leader who was an experienced teacher able to create agendas, and that all members worked together as a collaborative team. The leadership shared resources with the team. In addition, the leadership team was responsible for a meeting schedule designating the meeting time, place, date and room for all PLC teams. They also set up school goals and designed routines and procedures for the PLC to follow. In the early stages of the school-wide PLC process this school utilized summer professional development days and after-school times for the meetings. As the process matured, the school leadership team set aside

regular monthly meeting times. Currently, the school leadership team uses a school calendar that sets aside time for the PLC teams to meet every Thursday for one hour.

It is evident from this case study that organizational support for the collective teacher learning process occurred at both the macro level (school-wide) and the micro level (within individual divisions and within individual PLC teams).

2. Productive patterns of teacher learning

- In a school with a highly structured approach to collective teacher learning and sustained improvements in student learning over time, what does this teacher learning look like, in process and outcomes such as teacher knowledge, skills, and dispositions?

The productive patterns of teacher learning were the result of organizational structure and of teachers' working together toward a common school goal. The evidence came from curricular alignment patterns, management support, and team cohesion to build coherence within the curriculum. It is evident from observations within and across divisions that teachers did learn together in teams. Alignment of content and skills were evident in every PLC meeting. There is research support for the existence of a highly structured PLC at *CHS* in the work of McLaughlin and Talbott (2006), who provide a blueprint for different types of collective learning communities in educational organizations. Collective learning occurs in a professional community where teachers work collaboratively to reflect on their practice, examine evidence about the relationship between practice and student outcome, and make changes that improve teaching and learning for the students in their classes. The collective teacher learning practice builds and manages knowledge to improve practice, to create a shared language, vision and standard for practice, and to sustain school culture.

a. Alignment of content

The teachers met as a PLC by content and by grade level. Teachers met to look at what the team taught, and how well students mastered the content, by reviewing quizzes and exams in the PLC. Teachers shared the same curriculum and ensured that all teachers who taught the same content were consistent in starting and finishing the unit at the same time. Teachers who taught the same content also collaborated on common assessments and met as part of a team to determine what the students were able to master and what gave them difficulties. Teachers who taught more than one content area switched between the PLCs. While they did not assume the biggest role in helping align the content, they provided support to ensure alignment and help maintain consistency.

b. Sharing of teaching practices

Teachers did share strategies during the collaborative teacher learning. The evidence from this study shows that teachers met during the PLC and reviewed the content alignment with the standards and by units. As an existing collective teacher learning school, *CHS* had a set procedure on sharing of strategies. Every year the PLCs met to discuss content alignment and, as part of the discussion, looked at previously implemented strategies and at whether or not those strategies had been effective in helping the students meet the learning objectives. The PLC team looked at “what works and what does not work” and used the PLC time to review and revise the lessons and strategies. There was an emphasis on what the students learned in the year before, what the students should be learning in the current year, and what they would learn next year. This supports the ideas of Goddard Hoy, and Woolfolk Hoy (2000, 2004) concerning collective teacher efficacy. Data collected show that individual teacher efficacy may partially explain the effect that teaching has on student achievement within a class or classes taught by that teacher;

however, from an organizational perspective, the summative effect that schools have on school-wide student achievement can be attributed to collective teacher efficacy. Collective teacher efficacy has the potential to contribute to the understanding of how schools increase student success.

c. Alignment with school goals

At *CHS*, a school with a mature PLC, teachers understood that their planning and collective teacher learning might not be overt, but it was focused on school goals and made these goals explicit throughout the planning and sharing process. Every October the school principal held a school-wide staff meeting to outline the school goals and set the tone for the PLC for the year. While the collective learning was free-flowing and different from one PLC to another, alignment with school goals remained one of the non-negotiables that all PLC teams had to keep in mind. Teachers used the instructional practices and the previously discussed seven principles of the school to review their curriculum.

d. Structure

What worked for this school was the fact that there were no strict guidelines or protocols concerning how PLCs should operate. The PLC was viewed as an opportunity for teachers to learn with and learn from each other, and each team structure was free-flowing. An agenda could be set by the PLC leader, but it was the content/unit that drove instruction. Some PLC teams needed more structure, and the PLC leader had the flexibility to incorporate additional structure. Other PLC teams had experienced teachers who had worked together as a team for many years; their PLCs were more free-flowing and self-directed. The only structural feature that was evident in all PLC teams was the fact that all the teachers worked together in their

respective content groups to review the curriculum, align curriculum and skills with standards, and review strategies implemented for the set unit within the curriculum.

e. Review of curriculum

Chong and Kong's (2012) study focused on "collaborative learning structures as teachers meeting on a regular basis to develop shared responsibility for their students' school success." They believe that "learning teams follow a cycle that begins with the teachers examining areas of student learning needs and identifying new teaching approaches and strategies to address these needs." Each collective teacher learning team reviewed its content curriculum every year. Beginning with the first PLC, the team looked at the opening unit from the previous year and took out what was not working and kept what worked. Within every PLC, the team reviewed the unit plan and revised the unit plan as they collectively saw fit. The team also reviewed previous test data from students who had taken the same test and analyzed how the test aligned with the unit and with the standards. The first step is the curricular revision to embed skills into the content. The second step is the collection and sharing of strategies to teach content based and critical thinking skills. Mature PLCs looked at their work every year, while the new PLCs spent the first year aligning skills with the curriculum standards for the content.

f. Similar process across all content

For the collective teacher learning to be effective, school-wide implementation was necessary to ensure similarities across all content. The goal for the school was for all teachers to use the collective teacher learning process to align the skills in their curricular area with their content. Collective teacher learning was incorporated as part of the school culture as time, space, and resources were set aside for teachers to come together and learn together. The process did

not allow for any school business except instruction and curriculum. During the scheduled time all teachers were expected to meet together and collaborate as a team.

For this study, the collaboration found at *CHS* supported Vera and Crossan's (2004) contention that organizational learning is a process of change in thought and action. Vera and Crossan believe that both individual and collective learning are embedded in and affected by the institutions of the organization. Organizational learning is both an individual and collective process. Collective learning starts with the individual focusing on his development to create circumstances in which learning can take place. It is clear that there is a highly structured school-wide collective teacher learning, but it should be understood that despite a culture of collective teacher learning in the school, the success of the school-wide collective teacher learning should still be linked to how individual teachers learn within the group or "community."

3. Evidence of student learning

- What student learning outcomes can plausibly be attributed to this teacher learning, and why?

Student learning outcomes included ACT test results, AP test results, and student performance in the class. For this study the researcher reviewed the ACT scores and Advanced Placement test data, including the scores for the entire district. *CHS*, the study school, had the highest ACT sub-scores and the most consistent growth over the past 10 years. While *CHS* did not produce the highest Advanced Placement test results, most of the students scored 3 or higher on those tests.

Student performance in the classroom was gauged through observation of the PLC and structured interviews with the teachers and school leaders. Student performance was measured by the skills taught in the 9th grade to prepare students for 10th grade, and so forth. According to the teachers and school leaders, aligning the skills from the ACT College Readiness

Standards was instrumental for the vertical alignment from 9th grade to 11th grade. In addition, adapting the skills from the college readiness standards across all content areas further connected student performance at the school level. Some of the skills included school-wide writing, where the entire school adapted the same rubric for use in writing assignments in all content areas. In addition, a standardized vocabulary initiative required that each content area come up with a set of commonly used vocabulary within the content.

Another influence on student learning that was affirmed by the teachers and the school leaders was the ability of each content area to align diagonally. Diagonal alignment allowed students in the low level classes to learn the same content as Regular or Honors level students. This alignment allowed students to make an easy transition from a Support or Regular level class to an Honors or Advanced Placement class. There were no differences in the content of units and activities, which were designed to prepare students regardless of their academic level.

G. Implications for Research

One of this study's important implications for research is that the distinction between developed learning and undeveloped learning should be recognized and preserved. Developed learning is group learning with set guidelines and structure, while undeveloped learning is individualized learning with no guidelines. This study was designed to differentiate the two and stress that collective teacher learning is developed learning.

In this study, the developed learning was focused but not rigid. According to Hodkinson and Hodkinson (2004) and Horn and Little (2010), there are various levels of communities of practice. Teachers do belong to overlapping learning communities—in the school, as part of their profession, and outside of their place of work. Among the different levels of the communities of learning, there is a shared goal of solving common problems and building

student achievement or mastery. The goal is for teachers to take charge of their own learning by collaborating with other teachers in developing a common language and practice. At CHS the focus in the collective teacher learning was to provide students with the skills needed to learn the content. Collective teacher learning was focused on aligning the units in their content with this set of skills. In their PLC teachers worked on the curriculum every year and the school leadership team ensured that the collective teacher learning goals were horizontally, vertically and diagonally aligned. The PLC goals were focused on the school and district goals, but each PLC had the freedom to work together in a developed learning process to meet the school and district goals.

Developed learning has the intentional focus of student learning. In this study the evidence from the observations and interviews showed that teachers and school leaders believed that developed learning at *CHS* had one overarching goal: helping students learn. The PLCs revolved around student learning of skills and content. Emphasis was also given to how the students the team was working with learn in other content areas and at other grade levels. Louis and Kruse (1995) believe that the development of an effective school-level accountability system strengthens the collective learning process or professional community.

Content area with school-wide goals in mind was another feature of developed learning at *CHS*. Each PLC focused on the unit, activities and skills students needed, and the PLC worked within the framework that emerged from the seven principles and the yearly school goals. This was a top-down and bottom-up process in which the top-down goal was established by the district and cascaded to the school, to the division, to the PLC team, and to teachers, while the bottom-up goals were refined by the individual teachers and moved up to the PLC team, to the division, to the school, and to the district.

Undeveloped learning, in light of the literature review and what was investigated, was manifested in the individual learning process. Individual teacher learning was not focused on student learning but was tailored to the needs of the teacher. The undeveloped learning was not evident in the case study of *CHS*. The evidence showed that the PLC teams were focused on student learning, not teacher needs, and there was a common pattern of group learning with the intent of building student skills, not teacher skills. During the PLC observation some discussion of strategies and teacher implementation of strategies. However, teacher implementation and teacher capabilities in the classroom were not the focus of the PLC. The school leaders provided other needed support, such as teacher mentoring and teacher evaluation and development that focused specifically on teacher capabilities and narrowed the focus of the PLC to student learning.

H. Conclusion

Collective teacher learning is a process that works best, according to the literature, when fully embedded as part of the school culture. A central goal of collective teacher learning is to improve student learning. In this case study, the researcher cannot make a direct link between collective teacher learning and student success. However, having a structured process as part of the school culture helps teachers focus their collective learning process, or PLC, on student learning. Teachers in the PLC meet to review and revise their curriculum on a yearly basis and integrate ACT College Readiness skills and school goals as part of the meeting. The end products, such as Interdisciplinary Forums at the end of the grading period or semester, and assessment data from ACT and Advanced Placement exams, suggest that collaboration among teachers in the PLC can result in student success. Certainly the teachers themselves believe there are important links between their collective learning and the students' learning outcomes.

According to the Structured Collective Learning Outcome Framework, (see Figure 1), the school leaders developed a framework that is applicable for the entire school. Within the framework, teachers work together on a weekly basis to look at the curriculum and align the goals within the content with the skills students need to set and meet learning goals. School leaders and teachers work separately and together to ensure that the collective teacher learning process or PLC support the school and district goals. Student success data were used to guide teacher learning in the PLC and help the teachers assess student learning.

According to McLaughlin and Talbott (2006), there is a process for how schools might move through the stages of professional learning community development. In order to successfully transition to the advanced stage of collective learning, the schools need to address challenges for transitions between stages. The goal of establishing a professional learning community in the schools that McLaughlin and Talbott (2006) investigated is attained through the teachers' practice of using evidence to weigh their instruction against student achievement and working together to make improvements. Instructional coherence becomes an explicit goal for the community. It is important that organizational policies and structures be established in order to enable teacher collaboration on instructional improvement. Those policies and structures help establish a framework for developing the collective learning process.

Karen Seashore-Louis and her colleagues (1996) argue that the crucial components of successful professional communities of practice include a focus on student learning, de-privatization of practice among teachers, collaboration, shared norms and values, and reflective dialogue. These two studies provide theoretical support for the claim that the advanced PLC structure at CHS and the school leaders' support of the PLC process contributed to student learning, as evidenced by the school's student achievement data. This in-depth single case study

indicated that when a collective teacher learning process is structured with support from school leaders and incorporated as part of a school culture, the evidence of improved student learning outcomes is difficult to ignore. While the reference from existing research showed that a mature PLC would occur once the PLC met the accompanied steps, this case study of *CHS* provided results of the contrary. Instead, a mature school wide PLC is an interactive process that began from the school and district leadership with the overarching goal for the collective teacher learning. The school wide collective learning process should align the learning with the goals of the district and the school. The school leadership team know what the teachers are discussing during the PLC and know what support is needed. The PLC leaders are the core of the PLC because they are instrumental in driving the collective teacher learning to focus on skill based instruction. This interactive process is the continuous open exchange among the teachers in the PLC, between the PLC leaders and the school leaders, and among the school leaders with the purpose of looking at curricular revision, interdisciplinary and content skill mastery, and critical thinking skills alignment; all of which prove to be successful for this school. There is a structure for the school's collective teacher learning where every stake holder knows that teacher learning takes place on a weekly basis but there is not a prescriptive structure where every team learn the same way.

This in-depth single case study provides support for the contention that when collective teacher learning process is structured with support from school leaders and incorporated as a part of school culture, the result is improved student learning. The school leadership support is needed in order to maintain the structure of the collective teacher learning process. The school leaders are instrumental in creating and maintaining the structure of the collective teacher learning process. In the history of *CHS* collective teacher learning success, the building

principal, the assistant principals and the division chairs are all on the same page in providing PLC support. The evidence collected shows that there is an ongoing dialogue between the division chairs and the building school leaders and as one assistant principal pointed out, “It is like the school leaders are having their own PLC on a weekly basis.” The consistency that takes place promote collective teacher learning as part of the school culture. There is overt discussion on what PLC is within the content in each grade level as well as interdisciplinary PLC across content at each grade level. School leaders are responsible in establishing norms and protocols within the school that promote collective teacher learning. The established norms are understood by teachers, support staffs and students in the school which set the protocol to maintain the successful collective teacher learning. What is learned from this investigation is that collective teacher learning is a cultural norm within the school and the established norms and protocol ensured that collective teacher learning is a process conducive for student learning. The evidence collected showed that in order for the school to have a functional or mature PLC process, collective learning needs to be embedded into the school culture and open discussion about the learning process needs to be evident and interactive with the school leaders, the teachers and the students. Future research is needed to provide evidence that discussion about learning occurs within the classroom, between students and among other stakeholders. Potential longitudinal research on collective teacher learning will affirm that embedding learning in the school culture is a process that needed to be supported by the school leaders in order to be maintained by the stakeholders over time. The conclusion from this study is that *CHS*’s collective teacher learning process is an interactive process that is inherent as part of the school culture characterized by school leader support and by the primary goal of improving student learning over time.

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APPENDICES

APPENDIX A. Structured Teacher Interview Questions

*Demographics**Age/Race/Sex*

Years of teaching experience at *CHS*: ____ Years of total teaching experience: ____

Historical Context

- To what extent does *CHS* implement the practice of collective teacher learning teams in relation to how the school operates? Please explain.
- How has the *CHS* approach to collective teacher learning changed or evolved in your time at the school?

Organizational Values and Structure

- What are some examples in your school that demonstrate school leaders sharing power in decision making?
- Which school leader seems to be more influential in supporting the collective teacher learning? (Principal/Asst. Principal/Division Chairs, etc.)
- How do the school leaders promote a unified effort to embed change in your teachers' practice in the school?
- What explicit or implicit messages do your school leaders (Principal/Asst. Principal/Division Chairs, etc.) give to teachers about teacher collaboration and collective teacher learning?
- What would you change about the way *CHS* provides support to teacher learning?

Collective Learning and Shared Practice

- How is the school leaders' approach to structured teacher collaboration connected to the *CHS* mission and vision?
- How are formal and informal collective teacher learning conducted? Describe the interaction among the members within your structured collective learning group(s) (within the department or grade level, across department or grade level, whole school, or within the district).
- How thoroughly does *CHS* as a school share a common view of collective teacher learning, and how did the process of teacher buy-in develop?
- In what ways have you collaborated with other teachers (1:1/groups/formal/informal), and how has this collaboration influenced your learning?
- In particular, how has the collective learning process affected your knowledge, skills and values as a professional educator?

APPENDIX A (continued)

- Is there a specific protocol your structured collective teacher learning team follows—for example, giving and receiving feedback, risk taking, challenging each other’s ideas, sharing of instructional practice and experiences to promote improvements?
- Does *CHS* have coaching and mentoring set up to support teachers in addition to the structured collective learning team? How are coaching and mentoring relationships developed in your school? (criteria, meeting expectations, duties of mentors/coaches)
- What would you change, if anything, regarding the collaborative teacher learning structure or PLC process?

Capacity for Student Success

- As a teacher, do you think that your learning in the collective teacher learning process has a positive impact on student learning? How?
- One of the goals of teacher learning is to build student capacity for success. How do you define “student success,” and how do you as a teacher build the capacity for student success?
- How do you see collective teacher learning in the overall picture of connecting to the school-wide instructional goals

APPENDIX B. Structured School Leaders Interview Questions

*Demographics**Age/Race/Sex*

Years of leadership experience in this school:____ Years of total leadership experience:____

Historical Context

- To what extent has *CHS* High School implement the practice of collective teacher learning in how the school operates? Please explain
- What are some of the kinds of formal or informal collective teacher learning, and how was their structure put in place? What is the rationale behind the development (historical perspective)?
- How has the *CHS* approach to collective teacher learning changed or evolved in your time at the school?

Organizational Structure and Values

- What are some examples in your school that demonstrate school leaders sharing power in decision making?
- Which school leader(s) seems to be more influential in supporting the learning process? (Principal/Asst. Principal/Division Chairs, etc.)
- How do you as the school leaders promote a unified effort to embed change in your teachers' practice in the school?
- What explicit or implicit messages do you, as a school leader (Principal/Asst. Principal/Division Chairs, etc.), give to teachers about teacher collaboration and collective teacher learning?
- What would you change about the way *CHS* provides support for teacher learning?

Collaborative Learning and Shared Practice

- How is the school leaders' approach to structured teacher collaboration connected to the *CHS* mission and vision?
- Describe the interaction among the members in the structured collective teacher learning group (within the department or grade level, across department or grade level, whole school, or within the district).
- How thoroughly does *CHS* as a school share a common view of collective teacher learning, and how did the process of teacher buy-in develop?
- How has formal and informal teacher collaboration affected teacher learning?

APPENDIX B (continued)

- Is there a specific protocol the structured collective teacher learning team follows—for example, giving and receiving feedback, risk taking, challenging each other’s ideas, sharing of instructional practice and experiences to promote improvements?
- Does *CHS* have coaching and mentoring set up to support teachers in addition to the structured collective teacher learning team? How are coaching and mentoring relationships developed in your school (criteria, meeting expectations, duties of mentors/coaches)?
- What would you change, if anything, regarding the collective teacher learning structure?

Capacity for Student Success

- Do you think that the collective teacher learning process has a positive impact on student learning? How?
- One of the goals for teacher learning is to build student capacity for success. How do you define “student success,” and how do you as a school leader build the capacity for student success?
- How do you see collective teacher learning in the overall picture of connecting to the school-wide instructional goals and improving teacher instruction?

APPENDIX C. PLC Survey

Demographic (Check one) ____ Classroom Teacher ____ Non Classroom Teacher ____ School Administrator

Please put a check on an applicable block. (SD- Strongly Disagree; D- Disagree; A- Agree; SA- Strongly Agree; N/A)

Questions	SD	D	A	SA	N/A
<i>I. Organizational values and structure</i>					
The school leaders in my school are proactive and address areas where support is needed.					
The school leaders in my school share responsibility and rewards for innovative actions.					
Leadership is promoted and nurtured among teachers.					
Opportunities are provided for teachers to initiate change.					
Shared values support norms of behavior that guide decisions about teaching and learning.					
Decisions are made in alignment with the school's values and vision.					
A collaborative process exists for developing a shared sense of values among teachers.					
A variety of opportunities and structures support collective learning through open dialogue.					
<i>II. Collective Learning and Shared Practice</i>					
Teachers work together to seek knowledge, skills, and strategies and apply this new learning to their work.					
Teachers engage in dialogue that reflects a respect for diverse ideas that leads to continuous inquiry.					

APPENDIX C. PLC Survey (continued)

Questions	SD	D	A	SA	N/A
Teachers provide feedback to peers related to instructional practices during the collective learning process.					
Teachers formally and informally share ideas and suggestions for improving student learning.					
In our collective teacher learning time, at least 80 percent of the time is spent on tasks related to student learning goals.					
In our collective teacher learning time, when team members disagree about ideas or practices, we tend to discuss those disagreements in depth.					
In our collective teacher learning time, we try to avoid emotionally charged or difficult topics or conversations.					
In our collective teacher learning time, we regularly discuss common assessments for students (all students complete the same assessment) and assessment results.					
<i>III. Building Student Capacity</i>					
I adjust the instructional practices in my classroom based on my students' performance on common assessments.					
The school goals focus on student learning beyond test scores and grades.					
Stakeholders are actively involved in creating high expectations that serve to increase student achievement.					
Collegial relationships exist among staff reflect commitment to building student capacity for success.					
Teachers plan and work together to search for solutions to address diverse student needs.					
I believe that my students' learning outcomes have benefited as a result of the collaborative teacher learning in this school.					

APPENDIX D. Sample PLC Structure

Group 1			
Honors Biology Rm 242	Regular Chemistry Rm 237	Regular Physics Rm 229	AP Chemistry Rm 241
Teacher A	Teacher A1	Teacher A2	Teacher A3
Teacher B	Teacher B1	Teacher B2	Teacher B3
Teacher C	Teacher C1	Teacher C3	
	Teacher D1		
Prep Biology Rm 228	Human Phys. Rm 224	AP Physics Rm 232	
Teacher A4	Teacher A5	Teacher A6	
Teacher B4			

Group 2			
Regular Biology Rm 228	Honors Chemistry Rm 239	Honors Physics Rm 231	Prep Physics Rm 229
Teacher A7	Teacher A8	Teacher A9	Teacher A10
Teacher B7	Teacher B8	Teacher B9	Teacher B10
Teacher C7	Teacher C8	Teacher C9	
Teacher D7			
Teacher E7			

APPENDIX D. Sample PLC Structure (continued)

Group 2		
Prep Chemistry Rm 233	AP Biology Rm 226	APES Rm 237
Teacher A11	Teacher A12	Teacher A13

APPENDIX E. Examples of Cross Curricular Alignment

Qtr	BIOLOGY TOPICS		WRITTEN ORAL TOPICS		HUMAN GEO TOPICS		Current Forums
	UNIT NAME	SPECIFIC CONTENT	UNIT NAME	SPECIFIC CONTENT	UNIT NAME	SPECIFIC CONTENT	
1	Cells & Cell Transport	Levels of Organization, Cell Organelles, Plasma Membrane & Types of Transport	Communication/ MEL-Con Writing	MLA	Intro to Geography	5 Themes, Globalization, Maps	MLA
1	Cell Division & Cancer	Mitosis, Cancer Causes, Symptoms, & Treatments	Political Issues/ Freedom Box	Various NonFiction Reading	Political Spectrum/ Freedom Box	Conservatism, Liberalism, Voting, Citizenship, Electoral College	Freedom Box (SS/ENG/SCI)
1	Stem Cells	Characteristics of Stem Cells, Adult vs. Embryonic, Application of stem cells	Political Issues/ Freedom Box	Political Issues Speech			Controversy 10/17 (ENG)
2	Evolution	Evidence for Evolution, Natural Selection, Graduated vs. Punctuated Equilibrium, Primate Evolution,	Belief & Morality	Inherit the Wind	Population/ Migration (not concurrent in all levels)	Overpopulation, Demographic Concerns, Gender Issues, Population Policies, Immigration Policies/Issues	
2	Classification	6-Kingdoms, Classification System	Belief & Morality	Inherit the Wind	Culture		
2	Bacteria & Virus (CP)	Structure of Bacteria & Virus, Diseases, Antibiotics, Vaccines, and Uses	Belief & Morality	Inherit the Wind/ Belief Essay	Church and State		

APPENDIX E (continued)

Qtr	BIOLOGY TOPICS		WRITTEN ORAL TOPICS		HUMAN GEO TOPICS		Current Forums
	UNIT NAME	SPECIFIC CONTENT	UNIT NAME	SPECIFIC CONTENT	UNIT NAME	SPECIFIC CONTENT	
3	Genetics	Meiosis, Laws of Inheritance, Types of Genetic Problems, Genetic Disorders, Mendel	Identity	To Kill A Mockingbird	Identity		Apartheid 2/7 (HG)/ Identity 1/29, 1/30 (ENG)
3	DNA	Replication, Transcription, Translation, Mutations	Identity	To Kill A Mockingbird		Israeli-Palestinian Conflict	Race (ENG), Israel-Palestine (HG)
3	Biotechnology	Gel Electrophoresis, Restriction Enzymes, Gene Therapy, GMO's, Genetic Counseling, Bio-Informatics	Identity	To Kill A Mockingbird/ Identity Essay			World Religions (CP only)
4	Ecology	Food Pyramids Competition, Predator/Prey Relationship, Environmental Issues, Endangered Species	Global Issues & Survival	Hiroshima	Urbanization (not concurrent in all levels)		Urbanization (CP only)
4	Animal Interaction	Animal Phylums, Body Systems	Global Issues & Survival	Hiroshima	Environment (CP/PREP ONLY)		
4	Thinking Scientifically	Logical Fallacies	Global Issues & Survival	Call to Action Speech			Organ Donation 4/9 (Bio)- Call to Action?

APPENDIX F. Consent Form

University of Illinois at Chicago

Research Information and Consent for Participation

Organization and Leadership Supports That Promote Teacher Collective Learning at the School Level: A Case Study

You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

Principal Investigator Name and Title:	Franklin Chang, PhD Candidate
Department and Institution:	UIC College of Education—Policy Studies in Urban Education
Address and Contact Information:	1040 W. Harrison M/C 147; Chicago, IL 60607
Sponsor:	N/A

Why am I being asked?

You are being asked to be a subject in a research study about teacher learning within a professional learning community. The research study is designed to help the researcher understand how teachers learn as individuals and within an educational organization in a high school setting. In addition, the study will explore how organization leaders support the collective learning process. You have been asked to participate in the research because your place of employment, *CHS*, District 214, has volunteered the school as the main site of study. Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future dealings with the University of Illinois at Chicago. **If you decide to participate, you are free to withdraw at any time without affecting that relationship.**

This research will be performed at your school with the permission of your principal. The research study is a case study about how collective learning happens at your school. I will collect observation data and school records as part of the process. In addition, I will conduct formal interviews and a survey of teachers and school administrators about the relevance and impact of collective teacher learning. I will use audio and/or video recording of all interviews and observations and I will also review team meeting notes, school performance data, and non-sensitive, non-personnel school related information. Your principal and/or division chairs will be the only people who know that you have volunteered to participate to the study. Your individual responses to the structured interview question will not be identifiable to anyone in or outside your school because all identifiable information will be removed and responses will be treated in the aggregate and used solely for research purposes.

What other options are there?

You have the option to not participate in this study. The people who will know that you are a research subject are members of the research team (the researcher and the dissertation committee of the researcher) and the school serving as the site of study. Your individual responses to the structured interview question will not be identifiable to anyone in or outside your school because all identifiable information will be removed and responses will be treated in the aggregate and used solely for research purposes. The information about you will only be disclosed to others with your written permission, or if necessary to protect your rights or welfare or if required by law.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. Study information which identifies you and the consent form signed by you will be looked at and/or copied for checking up on the research only by the researcher and the University of Illinois at Chicago Education Policy Studies in Urban Education Dissertation Committee.

Contact the researchers Franklin Chang at fchang6@uic.edu:

- if you have any questions about this study or your part in it,
- if you have questions, concerns or complaints about the research.

If you feel you have not been treated according to the descriptions in this form, or if you have any questions about your rights as a research subject, including questions, concerns, complaints, or to offer input, you may call the Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu about your participation in the research.

Signature of Subject or Legally Authorized Representative

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

Signature

Date

Printed Name

Signature of Person Obtaining Consent

Date (must be same as subject's)

Printed Name of Person Obtaining Consent

APPENDIX G. Sample Writing Rubric

NAME:		PERIOD:	DATE TURNED IN:
MEL-Con Paragraph Rubric			
WRITING: 5-6		READING: 16-19	ENGLISH: 16-19
ENGLISH SKILLS			
NONE			
WRITING SKILLS			
CRITERIA	CRITERIA DETAILS	DEDUCTIONS & COMMENTS	
Main Idea (Focus & Position) /5	• Writer's main idea sentence clearly demonstrates an understanding of the prompt.		
	• Writer's main idea establishes clear focus and purpose for the paragraph.		
	• Writer includes the author of the article and the article title or source of evidence in the main idea sentence as needed.		
Evidence (Development) /15	• Writer includes specific, appropriate, and accurate evidence to support his/her main idea.		
	• At least one direct quote from the article (A.W.E.) is used.		
Links (Development) /20	• Writer logically and directly explains the connection between the evidence and the main idea.		
	• Writer effectively utilizes movement from general to specific arguments.		
Concluding Sentence (Organization) /10	• Writer effectively restates the main idea of the paragraph and summarizes the evidence.		
	• Writer's concluding sentence effectively maintains purpose and focus on the main idea.		
	• Writer adds an effective <u>CLINCHER</u> statement at the end.		
TRANSITIONS (Organization) /10	• Writer effectively adheres to the MEL-Con format.		
	• Writer uses clear and sensible transitions between each piece of evidence.		
	• Writer effectively groups evidence and links to better fulfill the purpose of his/her paragraph. Transition includes a source if applicable.		
Using Language (Communication) /10	• Writer effectively uses audience appropriate vocabulary, grammar, mechanics, and expression in order to enhance his/her message and to fulfill the purpose of his/her paragraph.		
	• Writer effectively tailors his/her message to fit the audience.		
	• Writer does not use YOU or YOUR.		
	• Good sentence variety.		
Assignment Requirements /5	• Double space, 12-point font, heading.		
	• Format all sentences: <u>underline</u> main idea, bold evidence, plain links, italicize concluding sentence, highlight transitions.		
SUBTOTAL /75	ATTACHMENTS (peer eval., rough draft) /20	WRITING SKILLS SCORE (subtotal + attachments) /95	ENGLISH SKILLS SCORE NONE

VITA

Franklin K. Chang

EDUCATION

University of Illinois at Chicago, Chicago, IL (Summer 2014): Ph.D. in Education Policy Studies. **Dissertation: Organization and Leadership Supports That Promote Teacher Collective Learning at the School Level: A Case Study**

Northeastern Illinois University, Chicago, IL (August 2005): M.A. in Education Leadership

University of New Orleans, New Orleans, LA (December 1995): M.Ed. in Counselor Education

University of Houston, Houston, TX (December 1992): B.S. in Psychology

PROFESSIONAL EXPERIENCE

Assistant Principal, Houston Independent School District (2013–present)

Lead Teacher/ Department Chair, Chicago Public Schools (2001–2012)

Part Time College Advisor/Adjunct Teacher, Truman College, Chicago (2005–2011)

Social Studies/Vocational Teacher, IYC Chicago (2000–2001)

PRESENTATIONS AND RESEARCH EXPERIENCE

Teacher Learning Through Collective Process: Does Professional Learning Community Work?
Presentation, DePaul University Day of Research (Spring 2012).

Empowering Underprivileged Youth in Social Education Through Instructional Improvement Coaching for Teachers. Presentation, National Association of Multicultural Education National Conference (Fall 2011).

Research Assistant with Professor Kevin Kumashiro, University of Illinois at Chicago (2008–2009).

VITA (continued)

Franklin K. Chang

LICENSE AND CERTIFICATION

- General Administration (Illinois and Texas)
- School Counseling (Illinois and Texas)
- Secondary Social Science and ESL (Illinois and Texas)
- National Board Certified Teacher
- Illinois Master Teacher Certificate
- ESL Special Education approval
- Licensed Clinical Professional Counselor (Illinois)

RESEARCH RELATED COURSES

- Essentials of Qualitative Inquiry in Education
- Essentials of Quantitative Inquiry in Education
- Rating Scales and Questionnaire Design and Analysis
- Approach to Analyzing Rating Scale Data
- Education Program Evaluation
- Education Research Design

PROFESSIONAL STRENGTHS

- Extensive education experience as a school teacher, school counselor and administrator in the K–12 school setting
- Extensive experience teaching professional teachers and providing staff development workshops for teachers in education related issues
- Extensive experience in coordinating school-wide programs, including collecting data, analysis of data and interpretation of achievement and standardized testing
- Extensive experience in mentoring and supervising teachers and school counselors

LANGUAGES

English—primary language; Chinese—speak fluently and read with high proficiency.

SOFTWARE

Familiarity with Microsoft Office Suites, school district based software and programs, and education measurement software, such as SPSS, Winsteps, and Facet.