THE PERCEIVED IMPACT OF PRE-SERVICE STUDENT TEACHERS ON THE OPTIMAL LEARNING ENVIRONMENT OF THE STUDENTS THEY TEACH AND THE TEACHERS WHO MENTOR THEM

By

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B.S., Kansas State University, 1994
B.S., Kansas State University, 1995
M.S., Kansas State University, 1998

AN ABSTRACT OF DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Curriculum and Instruction
College of Education

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Manhattan, Kansas

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Abstract

This study was designed to examine one component of impact within a High School Professional Development School (PDS) partnership. The purpose of this study was to explore the perceived impact of pre-service teachers on the students they teach and the cooperating teachers who mentor them. More specifically, this study was designed to explore the impact on the learning environment of high school students who were taught by pre-service teachers and the cooperating teachers who mentored them from the perspective of 8 pre-service teachers, 130 high school students, and 8 cooperating teachers.

The theoretical framework for this study was based on the concept of an Optimal Learning Environment (National Research Council, 1999). The overarching question for this study was: In what ways do pre-service teachers impact the learning environment of the PDS in which they complete their final clinical experience? Survey and interview data were gathered from participants to explore the perceived impact of the pre-service teachers on the (a) learner centered learning environment, (b) assessment centered learning environment, and (c) knowledge centered learning environment of the high school students and cooperating mentor teachers. The data collected were focused on what the high school students, pre-service teachers and cooperating mentor teachers perceived based on their personal experiences and understanding.

The results of this study indicated a perceived positive impact on the learner centered, assessment centered, and knowledge centered learning environments of the high school students and the cooperating mentor teachers from the perspectives of the high school students, pre-service teachers and cooperating mentor teachers. The researcher thus concluded that the pre-service teachers positively impacted the perceived Optimal Learning Environment of the PDS in which they completed their final clinical experience.

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Dedication

I dedicate this final dissertation to my family and friends who supported me. I am thankful for my husband, Gregory Joseph who always supported me and learned to live the bachelor life during this process and always brought me chocolate and chai tea. I am thankful for the women in my family, Jennifer, Dawn, Vanessa, Jolene and Meredith who supported me with notes, text messages and kudos. I am also thankful to my sons, Ben and Nathan, who said I just needed to "do it" and seemed to think I could.

Chapter 1 - Introduction

Almost three decades ago The Holmes Group grew out of a series of meetings among deans of education from leading universities regarding the problems associated with low quality education in the U.S. (Holmes Group, 1986). Participating deans determined that lax standards and weak accreditation policies and practices associated with teacher education were contributing to a decline in K-12 education and that change was needed. Their initial report focused on *Tomorrow's Teachers* (1986), while follow-up reports focused on *Tomorrow's Schools* (1990), and *Tomorrow's Schools of Education (1995).* The Holmes Group determined that university - school partnerships were needed to simultaneously reform the education of educators and K-12 schooling (1986). The influence of this call to change can be seen in the national Professional Development School movement, an example of which is the Kansas State University Professional Development School Partnership. Nearly 30 years after the release of the first Holmes Report (1986), educators continue to question if simultaneous reform in teacher education and K-12 schools has been realized through the national implementation of Professional Development Schools (Teitel, 2001; Neapolitan & Tunks, 2007). This study was designed to explore one component of this complex reform agenda, the impact of the partnership on the Professional Development School. More specifically, the purpose of this study was to investigate the perceived impact of pre-service teachers on the learning environment of the Manhattan High School Professional Development School in which they are placed for their final clinical experience.

The Call for Simultaneous Reform

The Holmes Group (1990) suggested that Professional Development Schools structured similarly to medical schools would provide ideal sites to prepare better teachers and would

simultaneously impact the teachers and students within these schools. The Holmes Group recommendation focused on the need for a partnership between the cooperating teachers in the practicum setting who mentor pre-service teachers and the university faculty who teach and supervise them. This partnership would benefit the mentor teacher by the mutual exchange of ideas between researchers and practitioners, allowing and encouraging mentor teachers to try new forms of practice and pedagogy. This would also provide support, structure and opportunities for mentor teachers to implement new ideas based on study and validation and finally in the commitment to a broad range of teaching strategies to reach students of all diversities. In order to meet these previous goals, classroom educators would need professional development of high quality from the time they entered their pre-service programs and throughout their careers. According to the Holmes Group (1995) "the only way each future generation can be better educated than the last is to have educators continuously engaged in quality learning" (p. 14). Quality learning for educators is student focused, job embedded, relevant to the educators' goals, content rich, and includes practice with feedback, collaboration and reflection.

John Goodlad (1994) also addressed the issue of change in schools and colleges of education through the enhanced education of both pre-service and experienced teachers and professional relationships between the colleges of education, school districts, faculty and students. He wrote that the renewal of schools and colleges of education should occur simultaneously through university partnerships and true collaboration with schools. Goodlad issued nineteen postulates to direct and support the creation of school – university partnerships. These partnerships might be deemed uncomfortable but always necessary. He also maintained

that all parties involved in the partnership would benefit through this collaboration. He stressed that schools could do much better and student learning also should improve.

The recommendations of Goodlad (1994), the Holmes Group (1995) and others have led to the renewal of teacher education. These seminal pieces have led to restructuring pre-service teacher education programs through the implementation of university – school partnerships and the expansion of Professional Development Schools.

Loucks-Horsley, Hewson, Love and Stiles (1998) also advocated for professional development as a critical and necessary component of change and renewal in educational systems and teacher education. Before these changes can occur, professional development must be linked to student learning, pre-service teacher education and ongoing teacher education for experienced teachers. Although the focus can be on the individual teacher and learning, the community and partners of the system must also be included (Loucks-Horsley, Hewson, Love & Stiles, 1998).

In recent history there have been trends to look at and evaluate not just teacher education programs, but also teacher effectiveness as related to the education of children in the United States. Some studies have focused on student learning in the classroom and some more specifically examined the effectiveness of teachers and pedagogy. There also have been studies devoted to teacher education program effectiveness and the effectiveness of traditionally trained teachers (American Educational Research Association [AERA], 2005; Holmes, 1995; National Council for Accreditations of Teacher Education [NCATE], 2010).

As educational research progressed, the literature began to focus on meeting the needs of the individual learner and understanding how people learn. An analysis of some of this research

showed that an optimal learning environment would improve learning. Students (people) learn best when they are in an environment that is learner, assessment, knowledge and community centered (National Research Council [NRC], 1999; NRC, 2000). The classroom teacher helps establish the classroom learning environment for the students. The pre-service teacher might also have a role in creating an Optimal Learning Environment and may impact student learning by providing another knowledgeable adult in the classroom.

Educational research has yielded greater insights into student learning and teachers' work. And expectations for teachers have changed significantly; schools are under greater pressure than ever to achieve results with all students. Everyone, from policy makers to practitioners, recognizes the importance of good teaching. In professional communities or schools that are affiliated with Teacher Education Schools, teachers continue their search for how to develop instructional skills through professional development or teacher learning (Danielson, 2007). They seek to learn and practice new research-based pedagogical skills and use resources to meet the needs of all of their students. Stakeholders in this endeavor include not only mentor teachers and pre-service teachers and students but also the educational system and the teacher education schools as well (National Staff Development Council [NSDC], 2001).

Professional Development Schools

Most Professional Development Schools which prepare new teachers provide them with authentic classroom experiences within the school setting. In a Professional Development School placement, pre-service teachers are usually assigned a mentor or cooperating teacher in the classroom with whom they work closely. They are also, in most cases, provided some type of university support in a partnership agreement (Hammerness, Darling-Hammond, Grossman, Rust

and Shulman, 2005). These Professional Development Schools are preparing pre-service teachers using research-based practice.

Key goals of the functions of a PDS are: to prepare pre-service educators, to provide ongoing professional development for practicing teachers, to support student learning and to encourage inquiry and research in classrooms and schools (NCATE, 2001). Professional development (teacher education) for the school faculty can result also from the partnership and the implementation of new teaching methods. Exposure to new teaching ideas and strategies can lead to expanding the repertoires of experienced mentor cooperating teachers (Teitel, 2001).

> In theory, professional development in the PDS does not only apply to school faculty, but to administrators and to university faculty as well. For university faculty, the opportunities to work more intensely and in context with pre-service and in-service teachers can provide substantial professional development, along with the chance to integrate their teaching and research, and to take leadership in shaping the direction of the PDS. Similarly, administrators at both institutions are theoretically gaining professional development, although the fact that much less is written about them mirrors the lower priority this has for many. (p. 9)

Due to this early research on change and education renewal, many university teacher pre-service education programs have formed Professional Development Schools to partner with accessible school districts. The Holmes Group (1995) specifically referred to:

> Kansas State University's College of Education and the Arts and Sciences have entered a partnership with the Manhattan-Ogden School district to transform teacher preparation and the district's elementary schools. The venture is based on the premise that education should be viewed as a continuum from kindergarten through university and that

improvement in one part of the system is not possible without improvement throughout. (p. 8)

Researchers in the field of teacher education have dissected and analyzed the skill sets of an effective teacher and how best to educate and train new teachers. There is quantitative research data that has been collected over time related to student learning and assessment scores when a pre-service teacher is placed with a group of students and a cooperating mentor teacher (Wilson & Youngs, 2005). When a collaborative approach is used during the pre-service teacher placement, all stakeholders work to improve the experience. In a collaborative environment all the stakeholders in the learning community learn from one another including: the cooperating mentor teacher, pre-service teacher and the school liaison (Pepper, Hartman, Blackwell, & Monroe, Spring, 2012). When the mentor teachers work closely with the pre-service teacher in a Professional Development School they decide together which strategies and tools to use to best enhance student learning. As they work together they both continue to learn how to teach (Holmes Group, 1995).

One of the most important forms of professional teacher learning, and problem solving occurs in group settings within schools and school districts. Collaborative, organized groups provide the social interaction and support that often deepens learning necessary for solving the complex pedagogical problems of teaching and learning. It is important that professional teacher learning be directed at improving the quality of job embedded collaborative work (NSDC, 2003).

The assignment of a pre-service teacher with an experienced cooperating mentor teacher is a venue conducive to collaborative work. All learning for the pre-service teacher from the mentor teacher during collaborative work time could be considered professional learning related

to pedagogy (Holmes Group, 1995). These same collaborative interactions might also serve as professional learning or teacher education for the experienced mentor teacher.

Drago-Severson (2011) suggested that Learning Design Standards for educators should include: the application of learning theories, research and models, selection of learning designs, and promoting active engagement. Following these standards can lead to professional learning in which teachers learn by engagement with others. Pre-service teachers and their assigned cooperating mentor teachers can work collaboratively in an Optimal Learning Environment actively engaged in the standards. Drago-Severson (2011) contends that feedback from colleagues is an integral part of learning for adults with different ways of understanding. As the pre-service teacher and the mentor teacher plan and teach together, both are recipients of feedback and support. As both are receiving feedback from one another during these dialogues, the (classroom) students can benefit from these collaborative discussions and teacher reflections. Students can benefit when teachers use researched based pedagogical tools for teaching. These new strategies can be learned by the pre-service teachers from the university programs and shared with the mentor teacher.

Professional Development - Teacher Education

The pre-service teachers who are trained within a traditional professional development school setting are required to plan lessons and teach within the classroom. As part of this planning it can be assumed that the cooperating mentor or expert teacher will collaborate with the novice pre-service teacher. It is through these interactions that the expert mentor teacher might come to evaluate his or her own teaching through discussion and justification of why he or she chooses to use a particular method or strategy (Teitel, 2003). The cooperating mentor

teacher may be exposed to more research-based strategies as the pre-service teacher shares research-based pedagogy learned from the university.

Darling-Hammond (2006) believes that educators value and appreciate professional development or teacher learning if it is meaningful to them and can be integrated within their own classroom, thus benefiting their students. The placement of a novice pre-service teacher with an expert cooperating mentor teacher allows and maybe requires the mentor to reflect on his or her practice. This scenario also may be repeated as the pre-service teacher is encouraged by the university supporting entities to use "quality practice" with which the cooperating mentor teacher may not be familiar. The mentor teacher learns from the interactions with the novice and with university support across the Professional Development School partnership.

Student Learning

The ultimate beneficiary of enhanced teacher education programs for novices is the classroom student. The professional development or teacher learning focus for the expert teacher is the student also. Professional teacher learning should include collaboration to support adult learning and improve the learning of all classroom students (NSDC, 2001).

Quality Teaching can be defined as teaching that improves the learning of all students using researched based instructional strategies and the use of various appropriate assessments (NSDC, 2001). The partnership between a school and a College of Education Professional Development School encourages the use of researched based strategies by the pre-service teacher leading to more effective teaching. A critical feature of effective teaching is that it elicits from the students their existing understanding of the subject matter and provides opportunities to build on or challenge their initial understanding (NRC, 2001a). However, a mentor teacher may or may not be familiar with how using these research-based strategies impacts student learning.

Quality teaching and student learning are the main focus of the KSU Professional Development School preparation of pre-service teachers. The use of research-based teaching strategies by these same pre-service teachers may impact learning of the students while completing a student teaching practicum. Marzano, Pickering and Pollack (2001) have cited research showing a relationship between specific, timely feedback to the students and increased student achievement. There is another component of what students think about their learning and how they make sense of the content material. Interactions within the classroom environment are crucial to student learning and understanding. When students are encouraged to question and participate in discussion, more learning occurs. It is through individual and group responses and classroom discussions that students as novice learners receive feedback from the pre-service or the mentor teacher. Both the pre-service teacher and cooperating mentor teacher can provide feedback when a response or group discussion is naïve or off track. This provides the student with access to more feedback and responses to his or her questions or misunderstandings (Bransford & Donovan, 2005; Wilson &Youngs, 2005). Marzano, Pickering and Pollack pointed out "In general, the more specific the feedback is, the better [student learning]" (p. 99).

Background and Rationale

The College of Education at Kansas State University uses a nationally recognized Professional Development School (PDS) model to prepare pre-service teachers through a traditional four year teacher education program (KSU, 2012a). It is based on the premise that education must be viewed as a continuum and that significant improvement in one part of the education system is not likely without improvement throughout (Holmes Group, 1995). The pre-service teachers enrolled in this program complete a program of study that is aligned throughout all educational courses and course work (see definition at the end of chapter 1). The course work,

assignments and placements are aligned to build upon and increase pre-service students' understandings of pedagogy prior to the final clinical practicum. This program includes clinical experiences paired with classroom assignments and supportive feedback from multiple supervisors. The final clinical experience is a sixteen week practicum required of the pre-service teachers along with the completion of a professional *Kansas State University Teaching Portfolio* ([KSU], 2012c) (see Appendix A). This portfolio is based on the Kansas Performance Assessment and is aligned with the Charlotte Danielson (2007) "Framework For Teaching" model (see Appendix B).

The KSU PDS has established partnerships with three school districts and twenty-one local schools. Included are: fourteen elementary, five middle and two secondary schools. Pre-service teachers are placed in schools within the partnership according to the content areas they will be licensed to teach. Clinical instructors are identified and trained within the PDS program to monitor, supervise, provide feedback and evaluate the pre-service teachers regarding their lesson planning, teaching and completion of the required *KSU Teaching Portfolio* (2012c). The clinical instructors teach seminars related to the *KSU Teaching Portfolio* (2012c) and quality researched based practice for the pre-service teachers placed in their buildings. The clinical instructors are current or recent classroom teachers who have been trained by and work closely with the faculty at the KSU College of Education and as such participate in ongoing professional development (teacher learning). Clinical instructors are liaisons between the school and the university to problem solve issues or conflicts and to monitor and improve the functioning of the PDS.

A cooperating mentor teacher, who is a classroom teacher, is assigned to mentor each pre-service teacher within the classroom setting for the final practicum placement. A University

supervisor also is assigned to collaborate with the mentor teacher and clinical instructor to monitor and provide feedback to the pre-service teacher (KSU, 2012a). The university supervisors teach some of the course work required for the pre-service teachers and may also observe the pre-service teachers teaching in the classroom. The pre-service teachers are supported by professionals in the school including: faculty and administration (teachers and principals acting as unofficial mentors), clinical instructors and university supervisors.

Teacher education programs and professional development (teacher learning) have focused on the requirements and expectations for student achievement which also has been a point of focus for communities and made public in the local, state and national media. State assessment scores for the Manhattan-Ogden School District, USD 383, a PDS district, are routinely published for the community. Parents received student scores from the schools and the local newspaper and state has published each school's "report card". Some in the local and school community have questioned whether it is beneficial to allow pre-service teachers to "practice" in the schools. Some parents have questioned whether novice (pre-service) teachers should be allowed to teach their children. Some teachers who are unwilling to work with or mentor a pre-service teacher also question whether there is a benefit to mentoring a pre-service teacher or if there is an impact on the high school students' learning.

Statement of the Problem

Due to legitimate questions from these stakeholders it is logical that data would be collected relevant to the role that the pre-service teacher plays within the school community and that the KSU Professional Development School should be concerned with the quality of the teacher education program they offer. According to the Holmes Study (1995), "the quality of the teacher, of course, is tied to the quality of their (the teacher's) education" (p. ii). A community

which is concerned with school improvement or school renewal and student achievement is also concerned with the quality of teachers and student learning. This is a problem for the researcher and KSU Professional Development School partners to investigate.

Is there is an impact when pre-service teachers are placed within the classroom during their final practicum experience? More specifically, do the pre-service teachers impact the learning environment of the students or mentor teacher with whom they work during this time?

Darling-Hammond (2006), wonders, "This debate found in teacher education programs drives the question, will helping teachers to think systematically about the complexities of the classroom and teaching and learning result in metacognition and reflection on pedagogy to support improvement" (p. 359)? The continuing education (professional development) of classroom teachers should be an exercise in lifelong learning. Due to time constraints teachers face, learning must occur from his or her own practice (National Academy of Education [NAE], 2005). But how do teachers learn from interactions just which strategies to use and which content is important? Does it occur in the classroom between the mentor teacher and pre-service teacher? Is the educational experience gained in partnership with a Professional Development School impacting the high school students' or mentor teachers' learning environment? Does the pre-service teacher impact the learning environment of the mentor teacher and thus the students they jointly teach?

Purpose of the Study

The purpose of this study was to investigate the perceived impact of pre-service teachers on the learning environment of the Manhattan High School Professional Development School in which they are placed for their final clinical experience. More specifically, this study was

designed to explore the perceived impact on the learning environment of the students who were taught by the pre-service teachers and the cooperating teachers who mentored them.

Data collection and analysis strategies were based on the perceptions of participants and did not include the analysis of student work, assessment data or test scores. The data collected were focused on what the high school students, pre-service teachers and mentor teachers perceived based on their personal understanding.

Research Questions

Because the implementation of the Kansas State University Professional Development School Partnership (PDS) calls for regular program evaluations to determine what if any impacts are occurring, and the theoretical framework for this study was based on the concept of an Optimal Learning Environment as delineated by the National Research Council (NRC, 2000), the questions for this study became:

In what ways do pre-service teachers impact the learning environment of the PDS in which they complete their final clinical experience?

a. In what ways do the high school students who are members of the classroom in which a pre-service teacher is placed perceive their learning environment is impacted by the pre-service teacher?

b. In what ways do pre–service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the highs school students they teach?

c. In what ways do cooperating teachers who are mentoring a pre-service teacher perceive their learning environment is impacted by the pre-service teacher?

Theoretical Framework

The theoretical framework for this study was adapted from a synthesis of the research on *How People Learn* (NRC, 1999; NRC, 2000). This NRC synthesis was based on a two year research project which focused on teaching and learning in the classroom and has implications for both teaching and lesson design. It provided a framework for the researcher which to interpret or view the other sources investigated in the literature. This framework when identified focused on the Optimal Learning Environment for the learner, including both the student and cooperating mentor teacher (NRC, 1999). As stated in *How People Learn* (NRC, 2000):

> The principles of learning and their implications for designing learning environments apply equally to child and adult learning. They provide a lens through which current practice can be viewed with respect to K – 12 teaching and with respect to the preparation of teachers in the research and development agenda. . . . (p. 27)

The framework found in the research for *How People Learn* (1999) includes four crucial Optimal Learning Environment components that should be in place for optimal learning to occur. Three of these four components are appropriate for both the high school student learner and the mentor teacher learner when investigating the impact of a pre-service teacher. These three components that comprise this Optimal Learning Environment include: learner centered, assessment centered and knowledge centered. The learner centered environment considers how the student learns, the assessment centered environment considers the ongoing feedback provided during learning and the knowledge centered environment considers the appropriate knowledge that is taught and learned at a deeper level (see figure 1.1 below). The fourth component found in the Optimal Learning Environment is community centered. This component includes the use of collaboration but not solely within the classroom. This collaboration is

recognized as occurring between educators, family and the local community. The pre-service teachers do not usually determine these types of interactions. For this reason the fourth component was not investigated separately, but element of collaboration is found under the other three components Since Manhattan High School is a secondary partner school with the Professional Development School in the College of Education at Kansas State University, there have been data collected to evaluate and improve the PDS partnership. These data are and have been collected in an ongoing cycle and analyzed by the clinical instructors, faculty in the College of Education at Kansas State University and in the Office of Teaching and Learning in the Manhattan-Ogden School district. Multiple sources of data have been collected for research documentation and publication and for use in school improvement in the elementary, middle and secondary schools. Other data also have been collected as to the impact of pre-service teachers as related to student assessment scores in the school district. The data collected in this study were sorted into major categories of the perceived impact on the learning environment from the perspective of: the high school students, the pre-service teacher, and the cooperating mentor teacher.

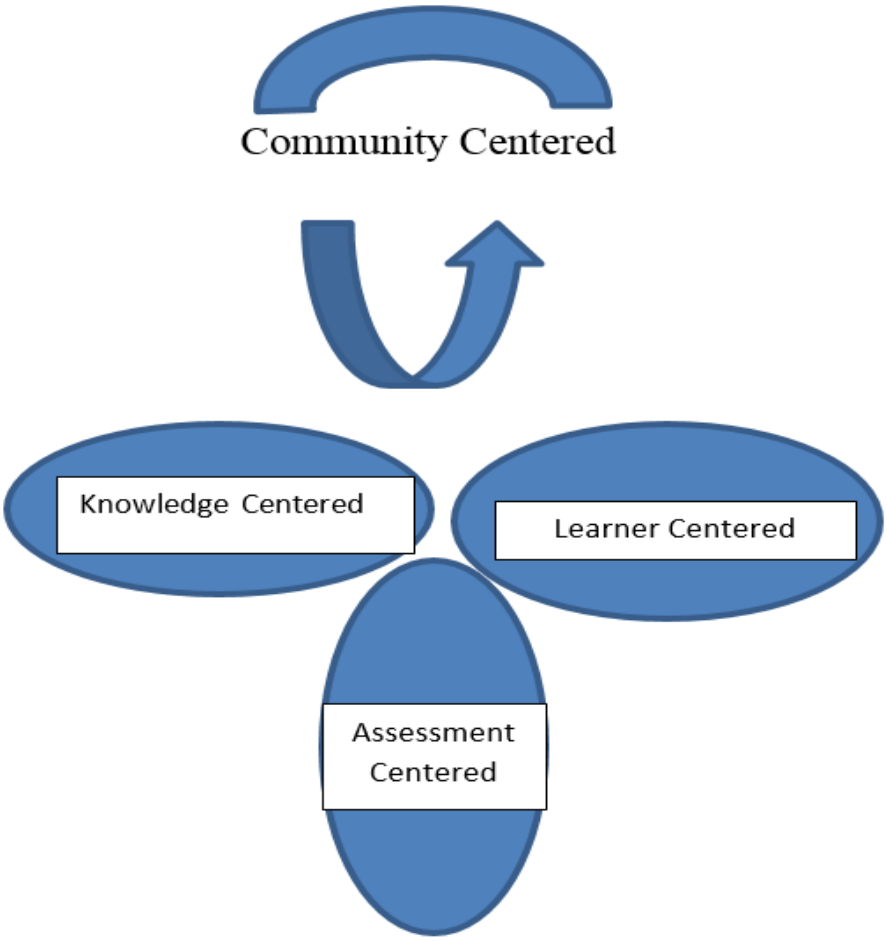

Figure 1 The Optimal Learning Environment Components

Note: Adapted from *How People Learn* (2000a), p. 134.

Summary of Research Design

This 2013 within site case study (Creswell, 2007) investigated the perceived impact of pre-service teachers on the learning environment at Manhattan High School. There were 130 high school students, eight pre-service teachers and eight cooperating mentor teachers who participated in this study. The high school students completed one survey each, the pre-service teachers completed one survey and one interview and the cooperating mentor teachers completed two surveys and one interview.

The classroom teachers included in this study were approved to work as cooperating mentor teachers before being assigned a KSU pre-service teacher. The cooperating mentor

teachers were identified through conversations between the principal, clinical instructor and university partners seeking to identify those teachers using quality practice (KSU, 2012a; Danielson, 2007) or earning a positive evaluation from the principal. These cooperating teachers were asked if they would mentor a pre-service teacher and all agreed. They were not required or expected to participate and their acceptance or denial of a pre-service teacher was not related to their evaluations or salary. They were awarded ninety professional development points (for mentoring a pre-service teacher) upon completion of a short survey for the Manhattan-Ogden School District.

The pre-service teachers included in this study were not chosen by the cooperating mentor teachers, or clinical instructor or principal, but were placed based on content and sometimes proximity to Manhattan High School to complete the required semester practicum. All pre-service teachers had satisfactorily completed the required pre-requisite course work, both content and education courses, with acceptable grades and performance.

The high school students involved in his study were included because they were in the "focus" class that the pre-service teachers had chosen to feature in their Student Teacher Portfolio. All high school students within the "focus" class, who were present on the day the surveys were distributed, were asked to complete a survey.

Multiple sets of qualitative survey and interview data were collected from the participants to determine the perceived impact of the pre-service teachers. One set of survey data was collected from the high school students and used to analyze the perceived impact on the student learning environment when a pre-service student was placed in the classroom. These data were from the high school students' perspective. This was a paper pencil researcher designed survey completed by the individual students with space for comments or explanations.

Two sets of data were collected from the participating pre-service teachers and used to analyze the perceived impact of the pre-service teacher from his or her own perspective as to the impact on the learning environment of the cooperating mentor teacher and the students. These were researcher designed electronic surveys with room to include additional explanatory responses. The next data were collected from researcher designed interviews with pre-service teachers. These interviews were designed to expand on and provide a deeper understanding of the survey data.

Three sets of data were collected from the participating cooperating mentor teachers to explore if the cooperating teachers perceived an impact on their learning environment from the mentoring of a pre-service teacher. These data were collected through a voluntary electronic researcher designed survey with room to include explanatory responses. The cooperating mentor teachers also responded to an online survey required by the USD 383 school district from all cooperating mentor teachers to earn professional development hours. And finally data were collected during researcher designed interviews with the cooperating mentor teachers to determine their perception of impact from mentoring a pre-service teacher on their own learning environment (see Table 1.1 below).

Table 1-1 Types of Data Collected and Number of Participants Responding

Participants	Total Number
High School Student Surveys	130
Pre-service Teacher Surveys questions about students and questions about the mentor teacher	8
Pre-service Teacher Interviews questions about students and questions about the mentor teacher	7
Cooperating Mentor Teacher Surveys	4
Cooperating Mentor Teacher Interviews	8
Cooperating Mentor Teacher Mylearningplan.com survey	7

Note. Not all participants completing the surveys responded to all of the prompts.

The data sources in this case study were qualitative. Participants were asked about their own personal perceptions. The responses were based on what the students, pre-service teachers and cooperating mentor teachers perceived to be the impact of the placement of the pre-service teacher in the classroom. Some of the prompts on the researcher designed surveys were similar to previous surveys collected by the Manhattan High School clinical instructors in previous years. Other prompts were similar to the performances required in the *KSU Teaching Portfolio* that was completed by the pre-service teachers. But these questions were aligned with the researcher's theoretical framework of *How People Learn* (1999, 2000) and the 3 optimal learning environments identified by the researcher as most appropriate for this study.

Each data set was analyzed and coded separately (Creswell, 1998) using qualitative pattern analysis from a "qualitative point of view" (Krathwohl, 1998). The data from each group of participants (high school students, pre-service teachers, cooperating mentor teachers) were analyzed by the researcher to check for trends or patterns. The analysis results from the groups were then compared with one another to provide triangulation of data (Creswell, 2007) and to check for similarities and differences.

Assumptions of the Study

The main assumption about the data collected through of this study was that students, pre-service teachers and cooperating mentor teachers would answer truthfully on the surveys and during the interviews. Since the data were qualitative, the responses reflected what the participants perceived. It was assumed that some of the high school students might respond with "silly" answers and that some of the pre-service teachers, being novices, might not fully appreciate or comprehend their own impact. It also was assumed that the mentor teachers would respond truthfully since their survey and interview responses were not considered in the final evaluation of the pre-service teacher. Cooperating mentor teachers do evaluate the pre-service teachers they mentor and would have been aware that the responses were not a part of the pre-service teachers' final evaluation. The data were collected to explore what the participants "perceived" it was not an assessment of learning that could be measured on formal testing. It was also assumed that the pre-service teachers were fully prepared to begin their practicum experiences and that the cooperating mentor teachers would be supportive and willingly mentor them.

Limitations of the Study

There were several limitations to this study. The number of pre-service teachers placed at Manhattan High School for the 2013 fall semester numbered only eight. The pre-service teachers and the cooperating mentor teachers only completed the surveys if they were so inclined. The high school students surveyed might have been intimidated or felt pressured to respond. But they were not required to complete the survey. They were asked to complete the survey anonymously; but in some cases they wanted to write their comments specifically for the pre-service teacher and thus included personal comments. There was no quantitative data

collected and student scores were not used to evaluate pre-service teacher performance or change in the learning environment. There was no method to determine if the collaborations between pre-service teacher and cooperating mentor teacher actually occurred or if new learning actually took place in the classroom. During the structured interviews, the researcher attempted to be objective and display no body language or verbal comments to direct or distract or influence the interview subject. However, in some cases the researcher asked additional questions during the interview to elicit additional or more detailed responses.

The researcher in this study also was the clinical instructor for Manhattan High School. This may have influenced her perspective while sorting and analyzing data. She did have a heightened awareness of proper research protocol during the collection and interpretation of the data. She did not nod or use other body language to encourage a particular participant response. She asked the mentor teachers to distribute the student surveys when high school students' grades would no longer be affected by the pre-service teacher and affect their responses. The pre-service teachers and mentor teachers were allowed to complete the surveys and participate in the interviews in private. They were interviewed in familiar surroundings and shown the questions in advance so they would not be intimidated. The interviewer said little during the interviews and also transcribed the taped interviews later so as not to cause a distraction. The researcher began with showing the interview participants how she would record and also provided the questions in hard copy during the interview (Creswell, 2007).

Significance of the Study

The results of this study were intended for use by the College of Education at Kansas State University, Manhattan High School and the Manhattan-Ogden USD 383 School District. Others who might be interested in this study or the use thereof are: district or building

administrators, university supervisors, clinical instructors, future and past cooperating mentor teachers and possibly the local community. This study was not intended or designed to be generalized to other schools or districts; the focus was only on Manhattan High School. This study may be transferable to other KSU PDS partner schools or to a broader PDS audience. The data collected, however, was specific to Manhattan High School students, pre-service teachers and cooperating mentor teachers. The results of this study will be used by the researcher who is the clinical instructor at Manhattan High School to aid in improving the practicum experience and seminars and to support the pre-service teachers and cooperating mentor teachers. The results of this study also will be shared with the Kansas State University Professional Development School educators for research purposes and future improvement efforts.

Definitions

This section is to provide the reader with definitions of specific terms used throughout this document and found in the Professional Development School literature. Some definitions may or may not be generalized to other programs or research models. These definitions apply to the Kansas State University (KSU) College of Education Professional Development Schools (PDS) and specifically the partner school, Manhattan High School. The National Council for Accreditation for Teacher Education's *Standards for Professional Development Schools* (2001) provides a working definition for a PDS.

> Professional development schools (PDS) are innovative institutions formed through partnerships between professional education programs and P–12 schools. PDS partnerships have a four-fold mission: the preparation of new teachers, faculty development, and inquiry directed at the improvement of practice, and enhanced student achievement. PDSs improve both the quality of teaching and student learning. PDSs are

> often compared to teaching hospitals. As practicing professions, both teaching and medicine require a sound academic program and intense clinical preparation. The teaching hospital was designed to provide such clinical preparation for medical students and interns; PDSs serve the same function for teacher candidates and in-service faculty. Both settings provide support for professional learning in a real-world setting in which practice takes place. (p. 1)

In this study the researcher has used the terms cooperating mentor teacher to designate the classroom teacher with whom the pre-service teacher is placed for the final practicum. The researcher has used the term pre-service teacher to designate the student teacher who is placed with a cooperating mentor teacher for his or her final practicum. Due to the necessity of preserving some direct quotes from participants and the literature review, the term "student teacher" maybe found and used interchangeably with pre-service teacher. The literature base commonly uses the term "pre-service teacher" or "intern" but at MHS the term "student teacher" is normally used by the cooperating mentor teachers, the pre-service teachers and the high school students. The definitions provided below are associated with Manhattan High School which is a PDS School within the Manhattan-Ogden School District, USD 383, and is a partnership school within the KSU PDS Partnership. See Appendix C for a schematic diagram on the placement levels and expectations of the Kansas State University PDS.

> Block I Student: This is a pre-service student who has successfully completed the required Teacher Aide course and other requisite courses successfully. Block I students simultaneously enroll in Core Teaching Skills, Education Psychology and the Exceptional Student. This is a required course prior to Block II and the Block I student has already been accepted into the College of Education. Assignments are related to the

KSU Teaching Portfolio. This student is assigned to a cooperating mentor teacher who supervises him or her in the school classroom at Manhattan High School. The clinical instructor and university supervisors also support the Block I student. He or she is required to complete assignments related to the classroom as well as coursework within the on campus class.

Block II Student: This is a student who has successfully completed the Block I course work and practicum successfully and attends classes on campus as well as being placed in a classroom at Manhattan High School. He or she has been accepted into the College of Education. This is a required course prior to student teaching. Block II students are required to complete assignments related to the classroom as well as coursework within the on campus course. Assignments are related to the *KSU Teaching Portfolio*. The Block II student is simultaneously enrolled in a content methods course (learning strategies to teach in a specific content), Interpersonal Relationships, Teaching in a Multicultural Society, and Content Literacies and Diverse Learners while also experiencing a practicum in the school. This student is assigned to a cooperating mentor teacher who supervises him or her in the school classroom. The clinical instructor and university supervisors also support the Block II student.

Clinical Instructor: This is a teacher from Manhattan High School selected by the USD 383 district and supported jointly by the district and the College of Education to supervise all KSU pre-service teachers placed there for practicums. This person works closely with the cooperating mentor teacher, the KSU supervisor and the pre-service teacher to ensure a successful practicum experience. He/she also plans and teaches seminars for the pre-service teachers, observes and provides feedback to pre-service teachers, supports

other pre-service teachers and cooperating mentor teachers during the practicum. The clinical instructor also assists pre-service teachers as they complete their KSU Student Teaching Portfolio, and then scores these portfolios. The clinical instructors are seen as liaisons between the university and the partner school.

Cooperating (Mentor) Teacher: This is a qualified classroom teacher who accepts a pre-service teacher into his/her classroom. He or she monitors and supervises the KSU student as he or she completes the required course work and assignments for a given placement at Manhattan High School including: Teacher Aides, Block I and Block II students and pre-service teachers. The cooperating mentor teachers evaluate these KSU students on their performance in the classroom and work closely with the clinical instructor and KSU supervisors.

KSU Supervisor: This person is a representative of KSU and is the supervisor for Block I and Block II students and also collaborates with the clinical instructor to support pre-service teachers during their final practicum in a classroom at Manhattan High School. He or she works closely with the clinical instructor and cooperating mentor teacher to ensure a successful practicum and he or she observes and provides feedback to the pre-service teachers.

Practicum: This is a placement that occurs with the KSU PDS partner school, Manhattan High School, in which pre-service teachers gain experience in a regular classroom setting. Practicums are associated with the following courses: Teacher Aide, Block I, Block II, and Student Teaching. The pre-service students are supervised by the building clinical instructors and other university supervisors (practicums also are known as clinical or field experiences).

Pre-service Teacher (Intern or Student Teacher): This is a student who has successfully completed the required Teacher Aide, Block I and Block II coursework and associated practicums and is placed in a classroom at Manhattan High School for a full semester (16 weeks) of student teaching with a mentoring cooperating teacher. The pre-service teacher is required to complete portfolio assignments, plan and teach in the classroom and attend seminars taught by a building clinical instructor. The pre-service teacher will co-teach and assume the duties of a full time teacher under the guidance of and collaboration with the cooperating mentor teacher, clinical instructor and university supervisor.

Professional Development School (PDS) – KSU, USD #383 Manhattan High School: Manhattan High School is a public school in the Manhattan-Ogden School district which is in partnership with the College of Education KSU PDS. Pre-service teachers are placed within this high school for the sixteen week practicum or internship of student teaching. The USD 383 district and schools partner with KSU to provide practicums and support for pre-service students. The university provides support to the district or school by funding professional development opportunities, providing educational experts, and supporting the placements of pre-service students. Manhattan High School provides placements for secondary pre-service teachers only.

Seminar: This is a regular small group participatory learning experience that is planned and taught by the clinical instructor in each building. Only the pre-service teachers are required to attend. The focus of the seminars at Manhattan High School is research-based practice as identified by Kansas State University. The seminars also include information related to the completion of the *KSU Teaching Portfolio.* The topics discussed at the

seminar build upon learning in previous courses and experiences in the teacher education program at KSU.

Teacher Aide: This is a student who is currently enrolled in the course Teaching as a Career but is not yet accepted into the College of Education professional courses at KSU. This student is assigned to a cooperating mentor teacher who supervises him/her in the school classroom at Manhattan High School. The clinical instructor and university supervisors also support the Teacher Aide student. The teacher aide is required to complete assignments related to the campus course as well as assignments given within the classroom field experience (practicum). This is a required course prior to acceptance into the College of Education and Block I courses. Assignments are related to *the KSU Teaching Portfolio.*

Summary

The purpose of this study was to investigate the perceived impact of the pre-service teacher on the learning environment of the Manhattan-Ogden High School Professional Development School in which they are placed for their final clinical experience. More specifically, this study was designed to investigate the perceived impact on the learning environment for the students who were taught by the pre-service teachers and the cooperating mentor teachers who mentored them.

The theoretical framework for this study was based on the synthesis of the literature on how people learn (NRC, 1999). The researcher selected three components of the Optimal Learning Environment as identified by the NRC as an overall framework for the study. These three key components were: learning centered, assessment centered, and knowledge centered environments. Although the NRC (1999) identified a 4th component of the Optimal Learning

Environment, the community centered environment, it was not included as part of the theoretical framework because pre-service teachers are placed in the classroom of a mentor teacher and do not make decisions relating to the broader community (homes, community centers, after school programs, and businesses). The mentor teacher sets the tone or classroom norms for the community learning centered environment before the pre-service teacher is placed in his or her classroom. However the pre-service teacher does decide, through collaboration with the mentor teacher, how to provide assistance and feedback to individual students, the assessments to be used the knowledge or content to be taught. The community centered learning environment also includes an emphasis on collaboration which is included in the learner centered environment and thus collaboration was included as a component of the theoretical framework.

The study was conducted during the fall 2013 semester at Manhattan High School. Qualitative survey and interview data were collected from high school students, pre-service teachers and cooperating mentor teachers regarding their perceptions of the impact of the pre-service teacher. Chapter Two will focus on a literature review related to the Optimal Learning Environment for classroom students and the cooperating mentor teacher. Chapter Three will explain the design of the study and methods of data collection and analysis. Chapter 3 also describes participants and the research setting. In Chapter Four the data and responses from all participants will be presented and analyzed for patterns. Chapter 5 will report the conclusions, implications, and suggestions for future research.

Chapter 2 - Review of Relevant Literature

History of Reform in Teacher Education

The history of the most recent reform movement in teacher education programs began when political leaders and university teacher educators along with members of the communities in the U.S began to analyze student test scores K – 12. These test scores were disappointing; some felt they were not indicative of an educated citizenry needed for the work force of the future. Major reforms in teacher education began in earnest in the hope that student performance would improve with improved teacher education programs (Goodlad, 1994; Holmes Group, 1986; National Commission on Teaching and America's Future [NCTAF], 2013).

The reform movement in teacher education leading to major changes in education began in the 1980s. Although there had previously been studies on teacher effectiveness and quality, the federal government, states and teaching universities began to investigate how best to educate pre-service teachers at this time. It was in 1983 that *A Nation At Risk* (United States Department of Education [USDE]) was published. This was a report issued by the National Commission on Excellence in Education for the USDE (1983). The commission members were appointed by the Secretary of Education to look at the quality of teaching and learning in the U.S. It was an 18 month study which found that the standardized test scores of students were failing and the state of education was in poor shape. The consensus was that American schools were failing to produce an educated work force. This report looked at different studies that focused on American students. The report stated that average SAT scores for these students had decreased in the verbal and math sections between 1963 and 1980. These studies showed that scores dropped more than 50 points on the verbal section and almost 40 points on the mathematics section.

A Nation At Risk (1983) also provided a comparison of test scores of American students to students in other countries. The study (1983) referenced tests in the 1970s to show students test scores within the United States did not compare favorably to those outside the United States. The Indicators of Risk published in *A Nation at Risk* (1983) included:

> The educational dimensions of the risk before us have been amply documented in testimony received by the Commission. For example:
>
> - International comparisons of student achievement, completed a decade ago, reveal that on 19 academic tests American students were never first or second and, in comparison with other industrialized nations, were last seven times.
> - Some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and comprehension.
> - About 13 percent of all 17-year-olds in the United States can be considered functionally illiterate. Functional illiteracy among minority youth may run as high as 40 percent.
> - Average achievement of high school students on most standardized tests is now lower than 26 years ago when Sputnik was launched.
> - Over half the populations of gifted students do not match their tested ability with comparable achievement in school.
> - The College Board's Scholastic Aptitude Tests (SAT) demonstrate a virtually unbroken decline from 1963 to 1980. Average verbal scores fell over 50 points and average mathematics scores dropped nearly 40 points.
> - College Board achievement tests also reveal consistent declines in recent years in such subjects as physics and English.

- Both the number and proportion of students demonstrating superior achievement on the SATs (i.e., those with scores of 650 or higher) have also dramatically declined.
- Many 17-year-olds do not possess the "higher order" intellectual skills we should expect of them. Nearly 40 percent cannot draw inferences from written material; only one-fifth can write a persuasive essay; and only one-third can solve a mathematics problem requiring several steps.
- There was a steady decline in science achievement scores of U.S. 17-year-olds as measured by national assessments of science in 1969, 1973, and 1977.
- Between 1975 and 1980, remedial mathematics courses in public 4-year colleges increased by 72 percent and now constitute one-quarter of all mathematics courses taught in those institutions (NCTAF, 2003, para 10)

The findings of the study (USDE, 1983) were made public and concerns were voiced, "The educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people (para. 1) " and "If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war (para. 2)". President Regan stated that the American education system "needed more prayer, more charter schools and the abolition of the Department of Education" (para. 5).

Tomorrow's Teachers: A seminal report of the Holmes Group (Holmes Group 1986) was written by the Holmes Group a consortium of deans and academic officers from the major universities in each of the fifty states who were concerned with the state of low quality and inconsistency found in teacher education programs. The goal of this group was to improve the quality of teacher education programs by preparing more expert educators of teachers, and to

include expert teachers in the education of these novice teachers. After the first publication from the Holmes Group, many universities sought out and formed relationships or collaborative partnerships with public schools to allow for experimentation, reflection and communication between the teachers, administrators and teacher educators (1986).

Also published in 1986 was the *Report of the Task Force on Teaching as a Profession, A Nation Prepared: Teachers for the 21st Century* (Carnegie Corporation, 1986). This report argued that in order to have a vibrant economy, U.S. schools needed to graduate the vast majority of students with achievement levels traditionally seen only in the privileged white middle and upper class. With an increasing demand for high quality teachers and in particular minority teachers, a plan to restructure schools and redefine teaching as a profession was presented. This plan would raise the standards for teachers through the creation of the National Board for Professional Teaching Standards (National Board for Professional Teaching Standards [NBPTS], 2001) and increase the requirements to include a bachelor's degree in the arts and sciences as a prerequisite leading to a Master in Teaching degree. This plan also included revamping the compensation system to make teacher salaries competitive with other professions and stated that teachers should become responsible for meeting the goals for student achievement. Furthermore, it was suggested that some teachers should be identified and selected by the administration as leaders and also trained to work with or mentor other teachers. These Teacher Leaders in the schools should help support their colleagues, and support the redesign of education including the preparation of more minority teachers (Carnegie, 1986).

It was after this report that the National Board for Professional Teaching Standards was created in 1986 as a nonprofit, nonpartisan, independent organization. NBPTS was formed to

design professional standards for the classroom teacher. The board identified high and rigorous standards for what an accomplished teacher should know and be able to do (NBPTS, 2001).

In the Holmes Group's second report, *Tomorrow's Schools: Principles for the Design of Professional Development Schools* (Holmes Group, 1990), Professional Development Schools (PDS) were identified as a vehicle to provide necessary reform in teacher preparation. The Holmes Group described a PDS as a new organization that "develops novice professionals, continues and enhances the development for experienced educators, and researches and develops teaching as a profession" (Holmes Group, 1990). The Holmes Group believed that the education of pre-service teachers and experienced teachers would occur through the collaborative relationship between a public school and an institution of higher education. The Holmes Group (1990) stressed the belief that universities "don't have any business telling the community what kind of schools it should have, but have a right to say how teachers should be prepared"(p. 5). The Holmes Group believed that the PDS approach could address the goals of improving teaching and elevating its status as a profession.

Goodlad (1994) published more recommendations for educational change in *Education Renewal, Better Teachers, Better Schools*. He proposed collaborative teacher education reform in which the ties between schools and universities would be stronger. He listed nineteen postulates that provided guidance to the renewal of teacher education programs and the evaluation of programs already in place. These postulates included expectations for both the pre-service teachers and the university faculty. The postulates mentioned the morality of teaching and the continuation of teacher learning. Goodlad also mentioned, as found in the Holmes Report (1990), that collaboration between the university and schools is important and that it should be modeled throughout the partnership (Goodlad, 1994). He stated "the various

combinations of technology, interns, teacher aides, career teachers, head teachers, and university personnel working together in partner schools have scarcely been explored conceptually and this is a rich area for inquiry, research, and creative practice" (p. 170). Also mentioned was the need to evaluate teacher education programs and gather feedback on the quality of these programs.

The Holmes Group (1995) published again in *Tomorrow's Schools of Education*. In this third report the Holmes Group outlined how teacher education might be re-designed to benefit the needs of the schools, universities, pre-service teachers, cooperating mentor teachers and students. This group believed that educational reform within the schools and universities would need to occur along with a change in pre-service teacher preparation. This study focused on what changes would need to be implemented at the university to improve the quality of pre-service teachers.

The Holmes reports and other research resulted in the creation of the Professional Development Schools model to prepare pre-service teachers. The Holmes consortium became organized around two major goals: the simultaneous reform of teacher education and the reform of schooling. The five goals identified and committed to by this consortium included:

> 1. to make teaching intellectually sound, 2. to recognize a difference in teachers' knowledge, skill and commitment, 3. to create relevant and intellectually defensible standards of entry into teaching, 4. to connect schools of education to the schools (create Professional Development Schools), and 5. to make schools better places for practicing teachers to work and learn. A subset of the fifth goal was continued learning by teachers, teacher educators and administrators within the professional development school. These Professional Development Schools were to become places where novice teachers would

learn to teach and university and school faculty members would together investigate questions of teaching and learning (Holmes Group, 1995, p. IV – VI).

Henrietta Schwartz (National Resource Council [NRC], 1996) Senior Editor for the Department of Health Education and Welfare National Institute of Education addressed the issue of education renewal and previous research on teacher education and maintained that teacher educators could not just allow the status quo. She asserted that education renewal must prepare pre-service teachers with the tools they will need, doing so under the tutelage of university supervisors and school mentors, and that those involved must communicate with one another about teaching knowledge. She also proposed the following questions related to teacher education for future study. "How can Professional Development Schools be persuaded to focus more on pre-service education as well as in-service staff development? How can technology be truly integrated into teacher preparation programs in innovative and meaningful ways? How can more collaborative research and development be generated within faculties and with colleagues in the public schools across institutions of higher education to achieve more data-based structural changes?" (p. 11).

Cassandra Book (Handbook of Research on Teacher Education, 1996), Associate Dean Emeritus in the College of Education Dean's office at Purdue University, is a specialist in communication, education, and instructional communication, and teacher education. In her writings from "Professional Development Schools". She identified several reports, commissions, and entities that began to call for school settings

where pre-service teachers would learn to teach during internships. Some of these were called "induction schools" where pre-service teachers would complete an internship and the teacher educators, teachers, and researchers would collaboratively research about teaching practices. The *American Federation of Teachers Task Force on Professional Practice Schools* (Guadarrama,

Ramsey & Nath, 2008) described what professional practice schools as providing support for student learning, pre-service teacher education, and professional practice and inquiry. The goals of all of these entities were remarkably similar. "They are striving to improve the quality of instruction for K – 12 students, prepare pre-service teachers, provide continuing education for professional educators, provide for a research-base that informed the teaching profession, and encourage the school to undergo a structural reform that allowed for collaboration between the schools and university faculty to support changes in teaching and learning" (Book, 1996, p. 195).

Professional Development Schools

While many entities are interested in teacher education reform and improving education, all participants including students are impacted in the process of this education renewal. Professional Development schools were created to train pre-service teachers and improve the educational system. Professional Development Schools have been described as entities which align with specific standards as described by the Holmes Group (1990). They must all include a commitment to: 1. Teach for understanding rather than factual recall so that students learn or understand for a lifetime. 2. Organize schools and classrooms into learning communities. 3. Establish high goals for all children. 4. Set up an environment that supports continuing learning for all adults as well as children. 5. Require reflection and inquiry as a central feature of the school and 6. Invent a new organization for the benefit of participants (Holmes Group, 1990).

According to the National Council for Accreditation of Teacher Education [NCATE] (2001), Professional Development Schools are described as:

> Typical schools working in partnership with institutions of higher education. They have distinct characteristics. They are learning environments that support the training of pre-service teachers, the professional development of PDS and university faculty and are

committed to improving student achievement. PDS partners are guided by a common vision of teaching and learning which is based on research and best practice. PDS partners share responsibility for professionals and students. Members of the partnership blend their expertise and resources to meet shared goals. PDS partners hold themselves accountable and are accountable to the public for maintaining high standards for PreK-12 students, pre-service teachers, PDS and university faculty, and other support personnel. In order to accomplish their goals, PDS partners create new roles, responsibilities and structures and utilize their resources differently. Finally, PDS partnerships are committed to providing professional development for PDS and university faculty to meet the needs of diverse student populations. Professional development school partners work together over time, building relationships and commitment to their shared goals. They develop new strategies, roles and relationships to support their work. Together, they move to institutionalize their partnership so that it is supported and becomes a part of the expectations of their institutions. At the most advanced stages of development, PDS partnerships contribute to policies and practices at the district, state, and national levels. (NCATE, 2001, p. 1)

Due to publications such as a *Nation at Risk* (National Commission on Excellence in Education,1983), the Holmes' reports and Goodlad's *Educational Renewal* (1994), as well as work by the National Council for Accreditation of Teacher Education (NCATE, 2001), it was deemed important for standards to be written as guidelines for these emerging Professional Development Schools (PDS). These standards helped to define the implementation and direction of PDS schools, which were designed to meet the needs of standards based school reform at the K – 12 levels and also to train teachers who demonstrate quality research-based practice. The

standards were based on the assumption that a PDS could meet the needs of both entities (teacher education programs and community schools), bridging the gap between research and practice. In this way, students, pre-service teachers, faculty and schools would benefit from this type of partnership (NCATE, 2001).

NCATE (2001) asserted that standards were important for a PDS for several reasons. Many schools of teacher education had come into existence and had identified PDSs before the standards had been established, but they lacked common expectations. Some were brick and mortar schools, some online, and some a hybrid of both. These schools may not have had the same expectations or experiences for the pre-service teacher, nor the standards to provide and require rigorous programs. Some schools may have had more authentic assessments, some more or less time in the classroom and the expectations for classroom performance may also have differed. Therefore these standards were meant to support a developing partnership as the partners within the PDS moved from one stage of development to another. As the PDS moved from beginning to leading stages of advancement, the development of the standards' expectations should be increased between the Beginning PDS, Developing, Standard and finally the Leading stage of teacher education program. The NCATE (2001) standards were designed to provide common expectations for all PDSs (see Table 2.1 below).

The NCATE PDS standards were developed by various constituencies through inquiry, reflection, and discussion, followed by data gathered through a national survey, focus groups, interviews and a comprehensive literature review. Field testing also was completed to determine if the standards reflected the real world of professional development schools through the different levels or stages of development. Sixteen PDS schools hosted a site visit and completed extensive documents of self-study and evaluators at a site visit also collected extensive data from

these PDS schools. Revisions of the standards and the assessment process were then made (NCATE, 2001). These sites were visited and data was collected and analyzed from all participants to evaluate the teacher education programs. The site visits included observations, surveys and interviews. Manhattan High School, in partnership with Kansas State University, was one of the pilot sites during this extensive process (see table 2.1 below)

Table 2-1 NCATE Standards for Professional Development Schools

Standard I Learning Community	The PDS is a learning community that supports the learning of P-12 students, pre-service teachers, and partners through inquiry-based practice. PDS partners believe that teaching and learning should be research-based. They believe children and adults learn best in the context of practice. This community results in improved practices of the partnership institutions. The PDS partners agree to collaborate. Members include: university, school district, teacher union, university faculty, family members and community.
Standard II Accountability and Quality Assurance	The PDS partners are accountable to themselves and the public for upholding professional standards for teaching and learning. They define clear criteria for the partner individual and institution. Partners collaborate to collect data, design assessments for use to examine practices and determine goals for P-1 students, pre-service teachers, faculty and other professionals. The PDS partnership impacts teaching and learning at the local, state and national level.
Standard III Collaboration	Partners in the PDS move from independent to interdependent practice by committing to engage in joint work focused on the PDS mission. Partners design roles and structures collaboratively to support the individual and institution. PDS partners use their shared work to improve outcomes for P-12 learners, pre-service teachers, faculty, and other professionals. The PDS recognizes the contributions of each partner.
Standard IV Diversity and Equity	The PDS and partners design and demonstrate knowledge, skills, and dispositions resulting in learning for all P-12 students. Partners ensure that the policies and practices of the PDS institutions result in equitable learning outcomes for all PDS participants. PDS partners include students and adults of diverse populations and diverse learning communities for PDS work.

Standard V Structures, Resources and Roles	The PDS partnership communicates its mission and establishes governing structures that support the learning and development of P-12 students, pre-service teachers, faculty, and other professionals. The partners ensure that structures, programs and resource decisions support the mission. They create new roles and modify existing roles for P-12 students, pre-service teachers, faculty and other professionals to achieve this PDS mission. The partnership effectively uses communications with the school district, university, and other constituencies and to inform the public policy makers and professional audiences of its work.

Note. Paraphrased by the researcher from NCATE (2001) Standards for Professional Development Schools

The standards offer guidelines from which to evaluate the programs and partnership entities. It was anticipated that policy makers at the local, state and national level would use the standards as a guideline in pursuing an agenda of teacher quality through preparation. It also was expected that research associated with a PDS partnership would be framed by the PDS standards. The standards provided an agreed upon set of conditions that would allow one study or research project to be more easily compared to another (NCATE, 2001).

A blue ribbon panel provided additional guidance for teacher educators regarding field experiences in a report released nine years after the NCATE PDS standards (NCATE, 2010). A report on teacher education (NCATE, 2010) lists suggestions for what a teacher needs to know and understand to be well prepared for the classroom. These include: an understanding of curricula, knowledge of communities, knowledge of child growth and development and use of assessments to engage students in learning. Other needs mentioned were: teacher collaboration, communication, and problem solving skills to keep pace with changing learning, curricula and new technology. The report once again mentions the importance of forming partnerships with mentor schools and assigning faculty (cooperating teachers) to work with and mentor pre-service

teachers (NCATE, 2010). These skills apply to the experienced classroom teacher and also to the preparation of pre-service teachers.

The report addresses the knowledge and skills to be developed and assessed through partnership field experiences (NCATE, 2010).

> The Blue Ribbon Panel also urges NCATE to define areas of expertise to be evaluated, including content knowledge and the skills of teaching specific content areas, and clinical skills of practice such as pedagogical expertise, the ability to analyze and make changes to one's own practice, problem solving, interpersonal and communication skills, professional decision making and collaboration (p. 5).

As a professional development school, the KSU College of Education represents an example of the collaboration suggested by the NCATE Blue Panel according to the informational page for the Kansas State University College of Education (KSU, 2012a):

> The PDS Model is based on the belief that teacher preparation and school reform are the joint responsibility of institutions of higher education and school systems. All teachers and principals from the PDS are now collaborative PDS partners. The PDS and their faculty are involved in all phases of the KSU teacher preparation program. Teachers, administrators, and KSU faculty jointly serve as co- planners, teachers and evaluators of methods courses and field experiences, on-site PDS seminar leaders, and supervisors and mentors of practicing teachers. Teachers, administrators and faculty are also jointly involved in school improvement efforts, curriculum development, program evaluation, professional development activities, and collaborative action research projects. Each PDS has identified at least one clinical instructor and KSU faculty member who, in

conjunction with the building principal, coordinate all PDS activities and experiences. (KSU, 2012a)

Most Professional Development Schools that prepare new teachers provide them with authentic classroom experiences. In a Professional Development School pre-service teachers are usually assigned a mentor or cooperating teacher in the classroom with whom they work closely. They also are, in most cases, provided university support of some type through a partnership agreement (American Educational Research Association [AERA], 2005; Darling-Hammond 2006; Hammerness et. al, 2005).

While the pre-service teachers are learning to teach they require feedback and support. This usually occurs through collaboration (Hollins, 2011). This essential collaboration will occur between the pre-service teacher and the cooperating mentor teacher as well as with other educational professionals including university teacher educators and pre-service teacher supervisors. Learning and reflection occurs with multiple conversations and voices. When teachers converse and discuss they learn from one another. When more voices are added to the conversation, more perspectives are brought to the table. Teachers also need pre-planned scheduled time for collaboration and reflection. Working with a pre-service teacher requires the cooperating mentor teacher to find and schedule time for collaboration (Gray, Stockdale, and Monti, 2012; NCATE, 2001; Sirotnik, 2001).

According to Hollins (2011), the collaborative practices, reasoning and actions that pre-service teachers learn in a PDS are representative of the discourse among a team of practiced teacher educators who trust one another. Guided practice occurs when the pre-service teacher is supported by the cooperating mentor teacher while practicing teaching. During guided practice, candidates are supported with feedback from the cooperating mentor teacher specific to their

teaching. During guided practice, candidates are supported in expanding their responsibilities in the classroom as they gain confidence and expertise in planning learning activities with increasing levels of relevancy. This collaboration occurs between the pre-service teacher and the mentor teacher to improve pedagogy and practice.

Sirotnik (2001) also stressed the importance of collaboration in a Professional Development School partnership. In the *National Network for Educational Renewal,* he states that renewing collaboration and trust among the several educational cultures and institutions is a concern and continued focus. According to Neapolitan and Tunks (2007), Professional Development Schools can also be described as centers for reflection and inquiry. "Purposeful preparation, mindful practice, critical reflection, mutual discourse, and continuing inquiry are the normal practices for a Professional Development School, not the exception" (p. 9). The Professional Development School resembles a medical school where faculty, administrators and university come together to discuss how to improve the practice of pedagogy to benefit student learning (Neapolitan & Tunks, 2007).

To study Professional Development Schools is to inquire as to the effectiveness of the pre-service teachers' preparedness to teach students to learn. But how do you measure "increased student learning" in ways that are credible to all the stakeholders? Answering this question often causes problems because while many outside stakeholders, for example school boards and legislators, rely heavily on standardized test scores, many educators object to having a single measure used as the sole outcome for their work with students. As Teitel (2001) has noted:

> Similarly it is hard to get consensus on assessing how to, for instance, see if professional development has led to better teaching by school and university faculty members or how

> to measure "good teaching" as an outcome for pre-service teachers. In the absence of widely accepted and credible methods of assessing teacher quality, researchers use data sources ranging from self-report to assessments by cooperating mentor teachers, university faculty or hiring principals to test scores on teaching exams to an assessment based on a teaching rubric done by trained observers (p. 2).

The researcher's synthesis of the research on teacher education has suggested the benefits for the pre-service teacher when they learn within the confines of a Professional Development School (Darling-Hammond, 2006; Holmes Group, 1995; NCATE, 2001). Many of those researching teacher education or education renewal argue that when pre-service teachers learn the art of pedagogy within a professional development school they receive support from both the university faculty and the teaching faculty of the partner school. And that within this setting the pre-service teacher gains the advantage of learning about research-based practice and theoretical understanding as well as guided practice with supportive experts which are critical to the practice. The pre-service teacher can also learn how to reflect on student learning and effective lessons through conversations with the university supervisors and cooperating mentor teachers (Darling-Hammond, 2006; Holmes Group, 1995; NCATE, 2001).

But Neapolitan and Tunks (2007) have called for more research to determine if Professional Development Schools are having an impact on teaching and learning. Even though Professional Development schools have been in existence for more than twenty years and research has been conducted, they believe this research has not utilized or studied the "impact" of the partnership as called for in the NCATE standards. They believe there is a need for research that is collaborative in nature between the partners involved and associated with a PDS to determine the "impacts" of the programs.

Community of Learners - The Students

The *How People Learn* (NRC, 1999) framework which focuses on Knowledge-Centeredness, Assessment-Centeredness, Learner-Centeredness and Community-Centeredness provides a framework for both student and teacher learning (NRC, 1999). The PDS partnership, while educating pre-service teachers, is also focused on student learning.

> The ultimate goal of any Professional Development School partnership is enhanced student learning for P – 12 students. This may be a result of the increased numbers of adults in classrooms, the collaboration between faculty and university participants in the school, or classroom teaching teams and other forms of school or class restructuring. It may also come about as a direct result of the improved initial and continuing professional development (teacher learning) of educators and the inquiry focused on improved student learning" (Teitel, 2001, p. 10).

In the past it was believed that schools did not have much impact on student achievement. *The Equality of Educational Opportunity* often referred to as the Coleman Report (Coleman, et al., 1966), analyzed data on 600,000 students and 60,000 teachers in more than 4,000 schools. The data collected included questionnaire responses from teachers and principals and test scores and questionnaire responses from first, third, sixth, ninth, and twelfth-grade students across the United States. This report was commissioned by the United States Department of Health, Education, and Welfare in 1966 in response to the Civil Right Act of 1966. Data on students included age, gender, race and ethnic identity, socioeconomic background, attitudes toward learning, education and career goals, and racial attitudes. Scores from teacher-administered standardized tests also were included. The findings of this report

concluded that the quality of schooling a student received accounted for only 10% of the variance found in student achievement (Coleman, et al., 1966).

While the studies of Coleman (Coleman, et al., 1966) were conducted early in the education renewal process, research conducted since the Coleman Report shows that individual teachers can have a significant impact on students. Marzano, Pickering and Pollack (2001) clarified that Coleman (1966) studied different schools but did not look at the teachers using different instruction methods or strategies Wright, Horn and Sanders (1997) analyzed a different set of data. They looked at and analyzed the effect of the classroom teacher specifically and found data showing teachers do have an impact on student learning.

Wright and colleagues found that the most important factor affecting student learning was the teacher. In addition the results showed a wide variation in effectiveness among teachers. "The immediate and clear implication of the finding was that seemingly more can be done to improve education by improving the effectiveness of teachers than by any other single factor" (Wright, et al., 1997, p. 63).

Marzano and colleagues (2001) at Mid-continent Research for Education and Learning (McREL) conducted research specific to determine which strategies used by individual teachers were the most effective in increasing or enhancing student learning. They identified, through meta-analysis, several strategies that effective teachers use in the classroom that increase student learning. They also identified a positive effect size or gain (in standard deviation) in student achievement when using these strategies. This study compared the student achievement of two different groups. One group received the treatment or identified strategy and the control group did not. The percentile gains were calculated and compared between the two groups comparing student growth in learning over time (Marzano, 2001).

The teaching strategies which affected student achievement with the highest percentile gains are shown in the Table 2.2 below (Marzano, 2001). Some of these strategies have been shown to be more effective than others, but Marzano's research has shown that all impacted student learning to a significant level. Strategies were used with students in different classrooms and the growth over time in student achievement was measured. These instructional strategies impacted student achievement (learning) positively and were statistically significant. Statistical significance in this study was a mathematical calculation that the probability of an effect observed, the achievement (student learning), is occurring because of chance. The smaller the P-value, the less likely it is that the results are due to chance.

Table 2-2 Marzano's Categories of Instructional Strategies that affect Student Achievement

Category of Strategy	Effect Size of Treatment	Descriptor
Identifying Similarities and differences	1.61	Comparing, classifying, creating metaphors, creating analogies
Summarizing and Note Taking	1.0	Summarizing, note taking
Reinforcing Effort and Providing Recognition	.8	Reinforcing effort and providing recognition
Homework and Practice	.77	Homework and practice
Representing Knowledge	.75	Nonlinguistic representations
Learning Groups	.73	Cooperative learning
Setting Objectives and Providing Feedback	.73	Setting objectives and providing feedback
Generating and Testing Hypothesis	.61	Systems analysis, problem solving, decision making, historical investigation, experimental inquiry, invention
Questions, Cues and Advanced Organizers	.61	Cues and questions, advance organizers
**Specific Types of Knowledge	.59	Vocabulary, details, organizing ideas, skills and processes

Note. From Marzano, et al. (2001)

These strategies found in *Classroom Instruction that Works* were again mentioned in the second edition (Dean, Hubbell, Pitler, & Stone, 2012).

> These nine categories of instructional strategies are "best bets" for developing 21st century learners because they help students set personal learning goals, self-check for understanding, access tools and resources for enhancing their own understanding and use what they have learned in real-world contexts. By using these strategies teachers can move beyond "teaching content" to teaching students how to learn – that is, find and evaluate content, connect with prior knowledge, and use that knowledge to solve authentic problems. (Dean et al., 2012, p. XIX)

The KSU PDS Student Teaching Portfolio requires that pre-service teachers use a variety of research- based teaching and instructional strategies as they plan and teach their units (see Appendix A). The strategies must be documented in the lesson plans and written about in responses to prompts found in the portfolio. The pre-service teachers also receive training on these strategies at various levels in the Professional Development School course experience and also during pre-service teacher seminars (KSU, 2012c).

Directions for the unit plan found in the KSU PDS Student Teacher Portfolio include the encouraged use of multiple teaching strategies and accommodations for diverse students. The directions include:

> Based on your knowledge of students, the subject matter to be taught, home, school, and community resources, and instructional technology, design and teach a multi-week instructional unit. You will identify the objectives and state standards, and list the instructional strategies/activities you will use. Within your unit, you are required to show the use of technology, reading strategies, integration of content across and within content

> fields, and community resources. You will also describe factors to consider, adaptations/differentiations for the whole group and for your two "focus" students. Consider the questions and prompts below as you plan your instructional design. 1. Learning Strategies: Include multiple learning strategies to address the diverse cognitive, physical, emotional, and social needs of all students. Progressively sequence these strategies (KSU, 2012b, p. 16).

Because pre-service teachers are expected to complete the KSU Student Teacher Portfolio according to the rubric designed by the KSU PDS, they should incorporate learning strategies that will impact the student learning environment. They are expected to include strategies to meet the needs of the individual learner as well as groups of learners (learner centered). It is expected that they will design learning with appropriate assessments (assessment centered) as well as teach important content (knowledge centered) related to the state, common core or next generation science standards.

While the findings of Marzano and colleagues (2001) point to strategies that teachers can use to increase student achievement (learning) we must also consider how the students are learning. Three key findings identified in *How People Learn* (NRC, 1999) published by the National Research Council include: 1. Students come to the classroom with pre- conceived ideas about how the world works. If their initial understanding is not engaged they may fail to learn new ideas and concepts or revert to previous preconceptions after the test. 2. To develop competence in an area of inquiry, students must (a.) have deep foundation knowledge, (b.) understand facts and ideas of the learning framework, and (c.) organize knowledge to apply it to other areas. 3. A "metacognitive" approach to teaching and learning can help students take control of their own learning by monitoring their own progress. These findings in *How People*

Learn (1999) provide the framework which describes the Optimal Learning Environment in the classroom. This is centered on the individual learner, the assessment process and the knowledge learned (NRC, 1999). The Optimal Learning Environment is learner centered, assessment centered, knowledge centered and community centered.

The following suggestions from the literature for creating a positive learning environment that enhances student learning are also found as requirements in the KSU Student Teaching Portfolio for Entries Two, Three and Four (see Appendix A). Considering the teaching strategies used and *How Students Learn* (2001b), a classroom with an Optimal Learning Environment will be learner centered. In this environment the teacher will be attentive to the progress of individual students and design tasks or use strategies that are appropriate for the students' knowledge, skill level and interests. This environment also is assessment centered where the teacher designs learner friendly ongoing assessments that allow students to revise with supportive feedback to improve and see their own progress. This optimal learning environment will also be knowledge centered. The knowledge centered classroom is focused on in depth learning and not just memorization. The teacher designs and teaches lessons and the students use metacognitive strategies that facilitate learning. The optimal learning environment in a classroom also includes a community centered approach to learning. Teachers design lessons that promote intellectual camaraderie and a sense of community. In this community of learners, students would help one another and generate questions to clarify their own thinking. The greater community includes: the other classrooms, the schools and faculty, the parents, and the local community.

Students are able to learn more, retain knowledge and generalize to their surroundings, if they are in a comfortable learning community of sharing and collaboration. Learners need to feel

safe to contribute to conversations and activities readily without fear of being made fun of or laughed at. The classroom should feel like a community or family with conversations directed around learning. Students should be encouraged to bring their "history and experiences" to the classroom to share. Students learn by "telling" others about their ideas and understandings. Other students learn by listening and discussing the similarities and differences of each student's beliefs or understanding. But in order for learners to share they need to feel safe to make mistakes and understand that they can learn from those mistakes. Students need to receive feedback that is supportive of their learning (Mendler, 2000; NRC, 1999; NRC, 2001a; Payne, 2002; Sutton & Krueger, 2002).

Mendler (2000) suggests that educators can do five things to motivate student learners. They can emphasize effort, create hope, respect power, build relationships and express enthusiasm in the classroom. Student effort can be recognized and incorrect answers dignified. Educators can provide critical feedback for revision or correction promptly. They can design curriculum that the students can relate to real life experiences. These same educators can ask for student opinions and empower students by allowing them to teach the content to other students. Multiple strategies can be implemented during lessons that address different learning styles and ways of knowing. Relationships can be nurtured with the students; they can be taught that they are important and have a voice in the classroom. These expectations for teaching and learning strategies can be found in the KSU portfolio as documented experiences of a pre-service teacher in a PDS (KSU, 2012 c).

While Marzano and colleagues (2001) identified strategies that increase student achievement significantly and other research has shown the need for safety and motivation in the classroom, in some cases the research shows that students' learning is enhanced through the use

of different strategies that relate well to a specific content. For instance in a mathematics class, Sutton and Krueger (2002) suggest the learning is maximized when students are encouraged to ask questions, and the teacher responds with frequent and timely feedback. This type of classroom encourages students to work in groups and includes discussions and interactions between the teacher and the students and among or between students. An effective math teacher asks many types of questions during lessons and students respond. Students are better able to reflect on their own learning and understanding when they are engaged in classroom discussions. This classroom of community learners can be collaborative and yet argumentative as they discuss (Glynn, Yeany, & Britton 1991b; Lave & Wegner, 1991; Marzano, 2007; NRC, 2001b; Vye, Goldman, Hmelo, Voss, Williams, and Cognition and Technology Group at Vanderbilt, 1998).

There also are strategies that can be implemented, from which students demonstrate a deeper understanding of science (NRC, 2001a). There are three identified principles in the process of how people learn science in the classroom. They include: addressing preconceptions, knowledge of what it means to do science, and metacognition. One study (Bransford & Donovan, 2005) related to metacognition and was focused on college students learning science. Observers were in the college classroom as college students were learning new science concepts. As one group of the students was working towards self-directed learning they were asked periodic questions to elicit thinking about what and how they were learning. The questions by the observers specifically asked some students to explain what they were learning or doing and why. The observers did not ask the other group of students about their learning. After students were presented with the new content in the classroom they were tested to see how effectively they could transfer the new content to other contexts. The students who were asked about their

own metacognition by the observers during learning performed better than those who were not asked.

When a student can generalize or transfer learning from one area to another it demonstrates a deeper understanding. Feedback can be valuable in encouraging students to think about their learning and metacognition (Mendler, 2000; Sutton & Krueger, 2002). This feedback can be given by a pre-service teacher providing another adult in the classroom with content knowledge and expertise to ask and respond to student questions providing valuable feedback and to check for deeper understanding.

Glynn, Yeany and Britton (1991a) believed that students respond to learning science best in a problem solving environment or classroom that includes questions, observations and conclusions. The student creates relatedness among the new learning in his or her working memory and derives questions also tied to long term memory. Teachers can counteract misconceptions and facilitate conceptual change when they encourage students to question findings. However the teacher must connect the demonstrations or new learning to the students' personal models and real world experiences. Pre-service teachers provide another supporting adult within the learning environment to encourage these student questions, make connections and correct for misunderstandings.

Based on previous findings, teachers (pre-service, experienced, and expert) should design relevant learning activities or lessons with feedback which engage students while allowing students to generate their own questions (Champagne and Bunce, 1991; Glynn, et al., 1991a; Sutton and Krueger 2002). Often the teacher gains insights into student deficiencies as a result of observing them during group discussion. Teachers and curriculum designers are not the only source of instructional tasks or activities; students can generate questions for themselves. As

students work on a task, they generate new questions and expand the narrowly defined task presented by the teachers (Champagne and Bunce, 1991). The teacher (pre-service, experienced, and expert) must be listening for questions to arise and redirect learning while providing feedback. Designing these relevant learning activities requires providing feedback. Teachers must teach students how to pursue learning, to teach themselves. During relevant learning activities the teacher also should find time to work individually or selectively with students. This individual feedback is an essential part of teaching and is also a way to differentiate instruction (Reeves, 2011).

Learning within the classroom should not just be focused on the whole group or class but also individualized for the individual learner. Differentiated learning is a way to design lessons or learning activities that meet the needs of all learners at all levels. Students come from different backgrounds and cultures and find different things interesting or relevant. Students construct knowledge differently because of these differences and also the levels of achievement they possess. Learning can be individualized by differentiating lessons, scaffolding and making accommodations for the individual learner (Tomlinson and McTighe, 2006). Quality teachers understand how to design learning, making accommodations and meeting the needs of all learners in the classroom. The KSU PDS Student Teacher Portfolio requires that the pre-service teachers differentiate and accommodate within the classroom for individual learners. This requirement is found in the actual planning and teaching in the classroom as they collaborate with cooperating mentor teachers, clinical instructors and university faculty. This requirement, in addition to others cited, may impact student learning (see Appendix A).

Due to the large numbers of KSU Professional Development School pre-service teachers placed within the partner schools, there are increased numbers of people and support to help

more students be successful at different levels of academic achievement. Evidence of this improved student learning has been collected and analyzed since the inception of the KSU Professional Development School which has shown that mean state assessment student scores have increased in partner schools over time (Shroyer and Yahnke, 2012). However, the No Child Left Behind ACT was signed by President Bush and took effect in 2002. This ACT required public schools to show growth over time in student achievement during the time period that the KSU PDS was also collecting student achievement data. But perceptions from the individual students, pre-service teachers, and cooperating mentor teachers are needed to more deeply understand the pre-service teachers' impact on student learning.

Pre-service Teacher Impact

How People Learn (NRC, 1999) focuses on Learner-Centeredness, Assessment-Centeredness, Knowledge-Centeredness, and Community-Centeredness to enhance the Optimal Learning Environment that provides a framework for both student and teacher learning. The PDS partnership, while educating pre-service teachers, should be focused on student learning and teacher education for the pre-service, experienced and expert teacher. The following studies investigating the impact of pre-service teachers placed in the classroom all contain one or more components of this Optimal Learning Environment.

Optimal Learning Environment for Students

In a study focused on elementary students' perceptions of enjoyment and student teacher confidence (Murphy; Beggs; & Carlisle, 2003), it was shown that pre-service teachers did have an impact on students. The researchers (Murphy, et. al., 2003) found that collaborative planning, teaching and evaluation did enhance pre-service teacher education and improve elementary students' positive experiences in science. Murphy and colleagues (2003) found that children who

were involved in the SSIPS project were significantly more positive about science lessons. This significance (difference between the norms) was calculated using t tests. Since the children were given the survey related to perception of enjoyment of science almost six months after the lessons, it is likely that there was a long term effect based on the pre-service teacher's level of confidence in science. The findings suggest that the work carried out by the elementary students that was investigative was more enjoyable and enhanced their learning. "The effect of more than one teacher (mostly female) teaching science as investigations appears to have significantly increased girls' liking for the physical science topics" (p. 5).

The overall findings from this study (Murphy, et al., 2003) imply that the investigative science work carried out by children, that involved a science pre-service teacher co-teaching with the classroom teacher, was more enjoyable for the elementary students. The qualitative evidence collected from the pre-service teachers shows significant confidence development as a result of working as equal partners with classroom teachers. "The pre-service teachers in this model appear to have acted as a catalyst in the classroom, providing a lasting positive influence on the teaching and learning of science, although unlike catalysts in many chemical reactions, the (pre-service) students did not remain unchanged by the experience – their confidence levels indicated measurable increase in many aspects of teaching science" (p. 12).

Another study (Dunn, & Rakes, 2009) explored the relationship between pre-service teachers' focus on learner centeredness in the classroom and their concerns related to how learner centered education affects students. Learner centered classrooms move from the traditional classroom that is teacher centered and instead focus on optimal learning with differentiation and meeting the needs of all students as individuals. One hundred eighty eight pre-service students from two mid southern universities completed and returned surveys,

including: The Stages of Concern Questionnaire [SoCQ], and also The Teacher Beliefs Survey [TBS]. The relationship between participants' perceptions of learner centeredness and consequence concerns were analyzed by examining the correlation between scores on the learner centered beliefs subscale (TBS) and consequence subscale (SoCQ). Dunn and Rakes (2009) found that as pre-service teachers' learner centeredness increased so did their concerns for outcomes or student learning. As the pre-service teachers worked to make the classroom more learner centered they also became more concerned that the students meet the established learning outcomes. Dunn and Rakes (2009) suggested that experienced (cooperating mentor) teacher beliefs may either promote or impede the design of learner centered classroom but since pre-service teachers have not yet established their own classrooms, their learner centered beliefs are the best indicators of their use of learner centered classrooms and meeting (learning) outcomes in the future.

Burnett (2003) investigate the relationship between student self-talk and the feedback they received from their teachers in a study involving 747 students from rural elementary schools in New South Wales, Australia. While this study did not involve pre-service teachers, the findings are important for pre-service teachers because they respond to student questions, provide feedback and offer help and assistance to increase student learning along with the classroom teacher.

Burnett (2003) used a scale which was developed to measure teacher feedback (types and amount to the student) and the students were asked to report their perceptions of the frequency of different types of feedback they received from the teacher. A self-talk scale also was designed to measure student self-talk, both positive and negative. Ability feedback is the perception from the students that they are being praised for their ability (you are good at this). Effort feedback is the

perception of the student that he or she is being praised for trying (you are really trying hard on this). This survey was administered to the students by an experienced research assistant.

The results of this study (Burnett, 2003) showed that students who perceived that their teachers provided a lot of effort feedback (for instance, you are really trying hard) related to reading and mathematics had a higher level of reading and mathematics negative self-talk, (for instance, I am not good at this). The students who perceived that their teachers provided a lot of ability feedback (for instance, I can tell you understand) had a higher level of positive self-talk (for instance, I am good at this). Students may internalize effort feedback as being an indicator that they are not good at a particular subject. They may then blame their lack of success on lack of ability (Burnett, 2003). Pre-service teachers can assist the classroom teacher and provide ability feedback.

High school teacher responses have been collected (The, Smith Research Center, n.d.) in reference to the video "The Power of 2 making a difference through co-teaching". These responses included both negative and positive comments from cooperating mentor teachers about mentoring a pre-service teacher. The mentor teachers responded that a pre-service teacher in the classroom allowed for individual attention and this was most useful when students were working in a lab setting. They also felt that having a pre-service teacher in the classroom allowed for students who would not ask questions in a group setting to do so and receive individual responses. In contrast, however, some teachers found this concern and felt that students would expect to have too much one on one help.

Optimal Learning Environment for Teachers

Wilson (2006) investigated the impact on pre-service teachers, clinical master teachers and university supervisors, when an alternative model of supervision was used with pre-service

teachers. This study was completed to investigate the impact of those supervising pre-service teachers in a collaborative group located within the schools. This model included a clinical master teacher (CMT) in the observations. The clinical master teachers mentored and collaborated with the pre-service teacher but did not observe the pre-service teacher as the university supervisor does in the traditional program.

The results of the study (Wilson, 2006) showed that collaboration between the pre-service teachers, the clinical master teacher and the university liaison was seen as a benefit for all. The collaboration during supervision was preferred by the supervisors and the pre-service teachers. "This notion of collaboration was observed by the student teacher who felt it enhanced the student teaching experience" (p. 27). Along with collaboration, community was also mentioned, "The teamwork that developed in this model seemed to lead to a community built by the participants…The student teachers felt that the community formed thought the CMT model was different from the relationship which developed as a part of a triad (pre-service teachers, cooperating mentor teachers, university supervisors)," (p. 27). The collaboration and community that were a part of the CMT model were key to the findings. The results of this study (Wilson, 2006) indicated that the pre-service teachers considered the CMT model more positively than the traditional triad model. Wilson recommended that teacher education programs include collaboration and time for reflection in design between the university supervisors, cooperating mentor teachers, and the pre-service teachers.

Optimal Learning Environment for Students and Teachers

Participants in the KSU College of Education Professional Development School routinely collect data in an ongoing evaluation of its teacher education program. As a PDS, the university has identified and trained numerous teachers within the school to serve as clinical instructors to

supervise the pre-service teachers placed within the schools. The clinical instructors meet twice monthly for professional development and other partnership updates and provide evaluative feedback related to the teacher education program. One such evaluative tool was a KSU PDS Survey (2012d); completed by small groups of three to four in which a total 15 of 18 clinical instructors brainstormed the benefits of the PDS partnership. The clinical instructors identified the benefits related to the placement of the pre-service teachers and the learning support provided for both the students and cooperating mentor teachers. The prompts related to the impact from the KSU PDS included: a. what is the impact on student learning, b. what is the impact on teachers' professional development (teacher learning), c. what are the financial benefits, and d. what are the institutional benefits?

The researcher sorted and analyzed responses from the prompts into categories that occurred naturally while looking at the data. Only the responses from the first two prompts were analyzed. Not all responses were directly related to the prompts and more than one response was generated from each group of participants. Some responses were too general to be sorted into the categories. The responses related to impact on students were categorized by the researcher and summarized in the Table 2.3 below. The responses related to the impact on professional development or mentor teacher learning were categorized by the researcher and can be seen in the Table 2.4 below.

Table 2-3 Impact on Student Learning Perceived by Clinical Instructors KSU PDS Survey

Total Number of Responses N = 34	More Types of Assessments or Learning Activities	More Help for Students
Number of Responses	10	21

Note. The researcher sorted responses into categories that appeared naturally.

Table 2-4 Impact on Teacher Learning Perceived by Clinical Instructors KSU PDS survey

Total Number of Responses N = 36	Professional Learning with Feedback	Increased Knowledge of Pedagogy, Content	Individualized Teacher Learning
Number of Responses	4	24	4

Note. The researcher sorted responses into categories that appeared naturally.

The researcher's analysis of the data above shows that the placement of pre-service teachers within the classrooms was perceived by clinical instructors to have a positive impact on both students and cooperating mentor teachers.

Professional Development and Teacher Learning

Teacher Education or Teacher Learning is an umbrella that covers or defines learning for all teachers. It is frequently viewed as a continuum starting with pre-service teachers, and then continuing to novice teachers and experienced teachers, and ending with expert teachers. Pre-service teacher education is therefore on the same continuum as in-service professional development. In some cases this learning occurs within a Professional Development School and is highly structured with multiple entities and partners involved. In some cases it may occur within the school district or department. It also may occur as teachers talk and share ideas and suggestions to improve practice. For the experienced or expert teacher it may occur during periods of intense reflection during processes like national board certification. But in all cases learning can occur for teachers at every stage in their careers (Holmes Group, 1995; Loucks-Horsley, et al., 2010; National Board for Professional Teaching Standards [NBPTS], 2002; NSDC, 2001;).

However important, most school districts spend only between one and three percent of their operating budgets on teacher education/professional development for practicing teachers,

even with salaries figured in the equation (NRC, 2001a). There is much research on planning and offering quality professional development for teachers but also a disconnect between what is happening in planning and practice and what is actually effective (Rogers, Abell, Lannin, Wang, Musikui, Barker, and Dingman, 2006). Teachers often seek out their own intellectual professional learning through collaboration with their colleagues, professional conferences, or course work. Teachers who are cooperating mentor teachers practicing in Professional Development Schools have access to university support while working with a pre-service teacher and also for personal growth (KSU, 2012b, KSU, 2012c; NCATE, 2001).

Quality teacher education or professional development is a necessity for teachers at all stages in their careers. Research has shown that teachers at different stages require different forms of feedback and also different levels of engagement or relevancy for professional development or teacher education to be successful (NSDC, 2002). They may be just beginning or early career teachers and need to know what good teaching looks like or they may be more experienced lifelong teachers and need time to reflect on the impact of their teaching with a colleague (Mundry, Britton, Raizen and Loucks-Horsley, 2000). New or early career teachers also may need more support and direction regarding pedagogy. They need to learn to reflect and analyze student work and discuss their practice in order to grow and improve. Experienced teachers may need support, but in a more relevant way, including time for reflection. Early career teachers may not be able to reflect on their practice as deeply as those who are more experienced. But veteran or master teachers may need to be challenged to look at their own practice and reflect on and evaluate the effectiveness of it (Darling-Hammond, 2006; Holmes Group, 1995; Mundry, et al., 2000; NBPTS, 2002; Reeves, 2011). Professional development or teacher education must be differentiated depending on the teacher and experience brought to the

table. The teacher education of pre-service and early career teachers must include learning to reflect on practice and learning from other practitioners and researchers (NSDC, 2003). As Darling-Hammond states:

> To successfully prepare effective teachers, teacher education should lay a foundation for lifelong learning. However, the concept of lifelong learning must become something more than a cliché. Given the relatively short period available for preparing teachers and the fact that not everything can be taught, decisions must be made about what content and strategies are most likely to prepare new entrants to be able to learn from their own practice, as well as the insights of other teachers and researchers. (Darling-Hammond, 2005, p. 359)

Professional development or teacher education has been an integral part of the educational setting for years. Some teachers voluntarily seek out opportunities to enhance their own practice and improve student learning while others participate as required by evaluation procedures or the expectation of an evaluating supervisor (Danielson, 2000). Research has shown that adult learning through professional development opportunities has a direct and positive influence on increasing student achievement. However not all professional development learning experiences produce positive results. The traditional "sit and get" experiences seem not to be as effective as professional learning experiences in which the teachers can participate and share in authentic learning (Drago-Severson, 2011).

Research has shown that teachers develop a deeper understanding of their own pedagogy when: the content is relevant to them, they have time for collaborative planning and reflection, and they can practice and learn in a non-threatening environment (Suh and Fulginiti, 2012). Continuous feedback and support is important because cognitive development does not occur

without interaction among teachers. This collaboration and support leads to internalization of the new learning. Study groups, peer interaction and co-teaching are examples of teacher learning support (Eun, 2008).

Teachers also require ongoing professional development or teacher education in order to close achievement gaps between students. Professional development should be built into the school day and aligned with the content of the curriculum. Schools that are successful match the professional development needs of the teachers through the analysis of classroom data collected from students in that same school. The teachers should be engaged in learning what skills they need to improve classroom instruction (Association for Supervision and Curriculum Development [ASCD], 2003).

The most effective professional development programs are those that: are linked to school initiatives, are grounded in knowledge about teaching and provide opportunities to explore, question and debate classroom practice. They also include: intellectual, social and emotional engagement, draw on the expertise of experienced teachers, and provide sufficient time and follow-up support for teachers to master new content and strategies and to integrate them into their practice (Danielson, 2000). Danielson built her framework and evaluation models for the Educational Testing Service Project in 1987. This framework was based on the analysis of basic tasks required of beginning teachers, reviews of the research, analysis of state regulations and extensive fieldwork that included pilot testing the criteria and assessment process. Danielson used a wide variety of studies including: Dwyer and Villegas, 1993; Rosenfeld, Freeberg, and Bukatko, 1992; Rosenfeld, Reynolds, and Bukatko 1992; Rosenfeld, Wilder, and Bukatko, 1992, to design rubrics based on effective teaching for novice, experienced and expert teachers. These rubrics of effective teaching were then used to create assessment

systems for pre-service teachers (principles of teaching and learning or the PRAXIX exam) as well as expert teachers (National Board for Professional Teaching tasks). Danielson helped to synthesize this data while designing teacher evaluation tools with NBPT and NTE. Her Framework for Teaching provides a synthesis of what teachers should know and be able to do throughout their career (see Appendix B).

Because of the wide variety of ways in which teachers continue to learn about teaching and learning, it is difficult to generalize about or judge the quality of the teacher's learning experiences. Studies have shown that feedback, support and education can make a difference. A set of comprehensive studies was reported by Shroyer & Bollick, (1996a) regarding experienced classroom teachers who participated in a series of math, science and technology institutes associated with a Professional Development School. After learning new teaching strategies these teachers were given pre and post surveys and observed to determine if their attitudes and use of manipulatives or hands on inquiry and efficacy changed with their new learning. The results showed increases in attitudes and behaviors. The results of another study (Shroyer, Wright, Ramsey Gassert, 1996b) found that pre-service teachers who were initially prepared in a Professional Development School were identified as proficient in classroom practices. In this study the pre-service teachers were observed and behaviors were documented and assessed using a detailed observational rubric. Rubric scores for the pre-service teachers were compared to the results of the experienced teachers who were used to norm the observational model rubric. Using a five point observational rubric, the expert science teachers scored only slightly higher (less than one rubric point) compared to the pre-service teachers.

Teacher Learning

In the studies previously mentioned, collaboration is a key to professional development or teacher learning for both experienced and novice teachers. Professional development has been studied and reviewed by the National Staff Development Council and twelve outcomes have been identified as related to the importance of collaboration among professional educators as a form of professional development or learning within the schools. To describe this professional development or teacher education, a rubric was designed by the National Staff Development Council which includes several outcomes related to collaboration that are arranged in orders from level one through level six with level six describing teachers rarely participating in collaboration and level one including teachers with the highest level of collaboration (NSDC, 2003). The rubrics below show the highest level of professional development includes collaboration with others (see Table 2.5 – 2.9 below). Some of these same outcomes are a natural outgrowth of the expectations and communication between a cooperating mentor teacher and pre-service teacher during practicum internship (AERA, 2005; Darling-Hammond & Bransford, 2005; KSU, 2012c).

Table 2-5 NSDC DESIRED OUTCOME 9:1 Participates in a school culture that is characterized by collegiality and shared responsibility. (NSDC, 2003 pp. 42-43)

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Works collaboratively with colleagues across the school on improving practice and the achievement of all students. Works collaboratively with colleagues in established, ongoing learning teams on improving practice and achievement of all students.	Works collaboratively with colleagues in established ongoing learning teams on improving practice and achievement of all students.	Works collaboratively with temporary groups from the same grade level or content area on improving practice and achievement of all students	Works alone without professional exchange with colleagues.	This section is blank in the rubric.	This section is blank in the rubric.

Table 2-6 NSDC DESIRED OUTCOME 9:2 Develops knowledge about effective group process: (NSDC, 2003 pp. 42-43)

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Develops knowledge of strategies to monitor and improve group interactions, group decision making strategies, group structures, stages of group development, and effective interaction skills.	Develops knowledge of group decision making strategies, group structures, stages of group development, and effective interactions	Develops knowledge of the stages of group development and effective interactions skills.	Lacks knowledge about effective group process.	This section is blank in the rubric.	This section is blank in the rubric.

Table 2-7 DESIRED OUTCOME 9:3 Collaborates successfully with colleagues Collaboration – The Teacher Figure (NSDC, 2003 p. 42-43)

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Engages routinely in debriefing meetings to maintain effective interaction. Implements knowledge of group decisions making strategies group structures, group development and effective interaction skills when working with colleagues.	Implements knowledge of group decision making strategies, group structures, group development, and effective interaction skills when working with colleagues.	Implements knowledge of group development and effective interaction skills when working with colleagues.	Lacks skills to work effectively within a group.	This section is blank in the rubric.	This section is blank in the rubric.

Table 2-8 NSDC DESIRED OUTCOME 9:4 Uses effective conflict management skills with colleagues (NSDC, 2003 pp. 42-43)

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Manages productive conflicts with all colleagues. Participates in conversations with colleagues about teaching and learning that respect different beliefs.	Practices effective conflict strategies with a few trustworthy colleagues in a safe environment.	Engages in conflicts with colleagues and fails to use an effective strategy which aggravates the conflict.	Avoids or ignores conflicts with colleagues.	This section is blank in the rubric.	This section is blank in the rubric.

Table 2-9 DESIRED OUTCOME 9:5 Uses technology to support collegial interactions. (NSDC, 2003 pp. 42-43)

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Uses technology to engage in learning communities such as moderated discussions, technology to engage in online	Uses online technology to promote collegial interaction with other teachers and to participate in subject area networks, action research studies, and lesson sharing.	Uses online discussion forms and web sites for collegial interaction with other teachers.	Uses e-mail and chat rooms for collegial interactions with other teachers	Does not use technology to promote collegial interaction with other teachers.	This section is blank in the rubric.

As evidence to the importance of collaboration, The National Staff Development Council (2001) also included an evaluation of collaboration among and between educator colleagues in their Self-Assessment and Scoring Guide Instrument. This instrument has been used by individuals, staff development committees, school boards and district staff development professionals to determine individual or group perspective of effective professional development (NSDC, 2001).

Hollins (2011) also highlighted the alignment between collaboration and professional development found in teacher education and quality teaching. Essential knowledge, skills and understanding found in quality teachers must include: an ability to maintain a strong professional identity, engage in self-directed professional growth and development, recognize characteristics and qualities of professional communities in different contexts, and work collaboratively with colleagues within a professional community to improve learning outcomes.

The NSDC (2001) maintains that professional development is necessary for everyone who teaches children in an educational environment. Staff members should be life time learners who strive to continue to improve performance in the classroom. Lutrick and Szabo (2012) identified seven components of quality professional development based on the previous NSDC works including: 1. learning communities should meet regularly, 2. leadership should recognize the value of professional learning/teacher education, 3. resources should be allocated wisely and be job-embedded, 4. data should be used for planning, 5. learning design should include learning theories, (active engagement, modeling, reflection, metacognition, application, feedback, ongoing support and formative assessments), 6. implementation of new teacher learning should include support (study groups, support, peer observations, co-teaching and feedback) and 7. quality professional development should provide stated outcomes for the participants (NSDC, 2011). Many of these components can be found in the relationship between university faculty, clinical instructors, mentor teachers and the pre-service teacher in the PDS partnership.

Practicing teachers can continue to learn about teaching in many ways. First they learn from their own practice, second they learn through interactions with other teachers and thirdly they learn from teacher educators. They also learn from teacher educators housed in their buildings working as consultants or from support staff. Lastly they can learn from taking graduate coursework (NRC, 1999).

Not all research shows a direct link between the planned professional development and implementation of new learning. Hubbard and Kazemi (2008) did not find a direct correlation in their initial research between professional development offered and actual teaching that occurred in the classroom. The teachers in this study were taught how to use new methods of teaching and to analyze student work during professional development. Then they were observed during

collaborations to see if implementation of new learning occurred. The teacher's instructional practice changed the conversations that occurred in the professional development settings. They talked about the new learning with colleagues. And this professional teacher learning changed some of the teacher interactions with students but was not apparent in all student instruction. Not all teachers used the new learning to change pedagogy in the classroom. However, the teachers did interpret differently the artifacts they were shown after professional learning occurred. Over time as teachers participated in more professional development with collaboration, they became more aware of student learning.

Hubbard and Kazemi's (2008) research indicates a need to view professional development/teacher education from different perspectives. They suggest that the coevolution of professional development/teacher education and classroom practice should both be viewed. To provide professional development related to the classroom, primary artifacts can be viewed and discussed by colleagues. Practicing teaching using new strategies or analyzing work with colleagues may also be a part of teacher professional development learning. This is dramatically different from actually introducing a lesson or questioning or listening to real students. But this type of professional development (collaboration) does elicit engagement of teachers (Grossman, Compton, Igra, Ronfeldt, Shahan and Williamson, 2009).

Professional Collaboration –the Cooperating Mentor Teacher and Pre-service Teacher

With guidance, support, and a trusting relationship and collaboration between them, the cooperating mentor teacher may also become the learner of new skills from the pre-service teacher and the university supervisor. The pre-service teacher and cooperating mentor teacher talk daily about the curriculum and students and reflect on what lessons are successful and how they might be improved. In addition to providing support to new teachers, mentor teachers also

gain valuable knowledge and teaching skills from the process of mentoring (Ganser, 2002). Professional conversations are embedded and occur among veteran teachers also. Ganser (2002) recognized the importance of new and veteran teacher interaction. "In successful schools the work lives of teachers at different career stages intersect regularly and meaningfully to their mutual benefit, the improvement of their profession, and ultimately a better education for the children in their classrooms" (p. 385).

The cooperating mentor teacher is considered the expert as related to pedagogy and content when collaborating and the pre-service teacher is considered to be a novice in the classroom. The pre-service teacher is learning how to teach with the support of an expert cooperating mentor teacher. As the expert, the cooperating mentor teacher sees the "big picture" of teaching to ensure that all students learn. They understand the relatedness between what and how to teach and student learning. The pre-service teacher may view teaching through the lens of a novice and see a jumble of related duties which are not connected to student learning. But the expert teacher's knowledge is connected and organized around the important concept of student learning. The pre-service teacher may or may not need the specific research-based reasoning for the use of teaching strategies and might only need an example or model to follow (AERA, 2005; Intrator and Kunzman, 2009; NRC, 1999).

Occasionally the roles may be reversed. The pre-service teacher may play the expert role of sharing new knowledge gained from university research or experience. If he or she has practiced and used this knowledge or pedagogy previously, it may be shared with the cooperating mentor teacher who has no experience with it. The cooperating mentor teacher may at first focus on the steps or processes in using, for instance, a new piece of technology, but still

maintain the integrity of pedagogy and understand that the technology is incorporated only to improve student learning (Drago-Severson, 2011; NRC, 2001; Zhao, 2008).

Adult learners make sense of learning new information in different ways. But one important aspect of adult learning is to receive feedback and support during the learning experience (Drago-Severson, 2011). So while cooperating mentor teachers provide mentoring and feedback to pre-service teachers during their practicum experience, the reverse is also true (NCATE, 2001). Pre-service teachers in the classroom can provide feedback and support when a cooperating mentor teacher is trying a new strategy, activity or piece of technology. The placement of a pre-service teacher into a classroom with a cooperating mentor teacher encourages all of the previous suggestions for effective professional development or teacher learning. The pre-service teacher and mentor teacher must communicate and collaborate and reflect together to build a foundation for successful classroom teaching and learning (KSU, 2012a).

> Mentoring by experienced teachers is a critical topic in education today and a favored strategy in the U.S. policy initiatives focused on teacher induction. In addition to creating new incentives and career opportunities for experienced teachers, assigning mentors to work with beginning teachers represents an improvement over the abrupt and unassisted entry into teaching that characterizes the experiences of many beginning teachers. (National Center for Research on Teacher Learning, 2003, para 3)

Participants in a PDS partnership can learn to share their skills and experiences and expertise with other participants as a community of learners. The first standard identified for Professional Development Schools by the National Council for Accreditation of Teacher Education is the learning community. The first half of the standard states that a PDS is a

learning-centered community offering support for learning and development of P – 12 students, teacher candidates, and PDS partners through inquiry-based practice. These partners share a common vision of teaching and learning grounded in research-based practice and an educator knowledge base. They believe that children and adults both learn best with practice. Learning supported by this community (PDS) should result in change and improvement in the individual teacher's practice and in the policies and practices of the partnering institutions (NCATE, 2001). A Learning Community is defined by NCATE as a significant number of school faculty participating in candidates' (pre-service teachers) preparation by sharing their expertise, skills and knowledge as mentors, co-teachers, and colleagues in study groups, seminars, committees and other professional collegial activities (NCATE, 2001).

According to research synthesized by the National Research Council (1999), for learning to be effective it must be in a: learner centered, knowledge centered, assessment centered and community centered environment. The placement of a pre-service teacher is directly within the learner centered environment. Both the pre-service teacher and the cooperating mentor teacher can learn together through collaboration and reflection as the clinical experience progresses. The classroom in which a pre-service teacher is placed is also an assessment centered environment (NRC, 1999). Both the pre-service teacher and the cooperating mentor teacher are encouraged to implement new strategies and activities in a safe learning environment with support and feedback from one another and with time for collaborative reflection. While the pre-service student is assessed by the cooperating mentor teacher and other PDS partners throughout the semester, they are both collaborating to assess whether the strategies, activities, and assignments are successful as related to student learning. The classroom is also knowledge centered as the pre-service teacher brings expectations and new learning from the university; this learning is

research-based and directly related to the content being taught. The nature of mentoring a pre-service teacher in the classroom is based on a community centered environment between cooperating teacher and intern and university supervisors (Drago-Severson, 2011; NCATE; 2001, NCATE, 2010; NRC, 1999).

The discourse during the process of lesson planning, interpreting, translating and revising the sequence of learning experiences requires the pre-service teacher to think aloud or transparently, and enables the teacher educator or cooperating mentor teacher to engage in scaffolding through collaboration and provide the opportunities for improvement. As the pre-service teachers become more confident, they design and plan lessons and activities related to student learning. If necessary, teacher educators (pre-service teacher supervisors and cooperating mentor teachers) collaborate with one other and the pre-service teacher to identify appropriate adjustments (Hollins, 2011).

Drago-Severson writes about the importance of the three strands of "Learning Designs" (professional development) standards which include: applying learning theories, researching and using models, and selecting learning designs. These point towards the process of professional learning in the classroom as "learning labs" in which educators can learn about content, learn by engaging with each other, and learn from the process of learning itself (Drago-Severson, 2011). Thus, the classroom setting can serve as a learning lab for both the cooperating mentor teacher and the pre-service teacher as they are engaged in collaborative efforts to learn and reflect on practice (KSU, 2012c).

Collaboration and reflection also play a large role in improving teaching and pedagogy through appropriate and objective teacher evaluations. Teaching professionals have to be evaluated in some way or by using some format. In the past, teachers might have been evaluated

by an administrator with little training in classroom observations, and the observation may have only included a walk through checking to see if objectives were written on the board. The current research shows that teachers should and can be evaluated on more than just classroom teaching behavior (Danielson, 2000).

The framework designed by Charlotte Danielson (Danielson, 2000) recognizes multiple teaching behaviors. The last domain found in her Framework for Professional Practice is titled "Professional Responsibilities". This framework is an evaluation tool used by several school districts and administrators to evaluate teachers while they also look for quality practice. The descriptor for a "distinguished teacher" includes but is not limited to: perceptive use of reflection, leadership roles and extensive professional development activities (Danielson, 2007). The rubric designed by Charlotte Danielson also shows that teacher evaluation can be linked to teacher growth and development if it includes appropriate feedback, collaboration and time for reflection (Danielson, 2000).

There is a benefit for both the pre-service teacher and the cooperating mentor teacher in mutual observations followed by individual and collaborative reflection by the observed and observer. In some cases teachers will reflect on their own; but most do not (Danielson, 2000; Danielson, 2007). This is not to say that teachers do not think about their teaching, but rather that they do not reflect deeply or formally about it. Although reflection on practice is a natural activity for all professionals, doing it well is a learned skill. But teachers can become more discerning with support (Danielson, 2007). The cooperating mentor teacher and pre-service teacher can work together through professional conversation to support one another in learning new information, techniques, strategies, technology and in the analysis of pedagogy for improved teaching. The pre-service teachers arrive at the schools armed with the knowledge of

how to incorporate technology into the classroom. Currently, new technology is readily available to teachers and students.

We live in an age of digital technology where a wealth of information is available at any time. The rationale behind the use of social network as a tool for professional learning includes the idea that the Internet is this generation's defining technology for literacy. It is expected that pre-service and in service teachers will utilize popular media such as Facebook for student learning (Pilgrim and Bledsoe, 2011). Pre-service teachers can share new teaching strategies they have learned from the PDS programs incorporating technology to enhance student learning.

The *How People Learn* (NRC, 1999) framework focuses on a: Knowledge-Centeredness, Assessment-Centeredness, Learner-Centeredness and Community-Centeredness learning environment and provides a framework and parameters for pre-service teachers to build upon (Hammerness, 2005; Darling-Hammond & Bransford, 2005). The *How People Learn* (NRC, 1999) framework also aligns with the idea that a cooperating teacher is experiencing professional development while mentoring a pre-service teacher. Cooperating mentor teachers experience a shared community with the intern and university supervisors. Both the pre-service teacher and the cooperating mentor teacher can be learning in an environment that is focused on their individual needs and allows them to make sense of the material or teaching (metacognition) as it fits into his or her existing schema for pedagogy and to organize the newly learned content. They can provide support and feedback for one another during the implementation of new skills or learning. And they can delve deeper into their content and pedagogy (AERA, 2005; Darling-Hammond, 2006; NRC, 2001a).

Theoretical Framework

How People Learn (NRC, 1999) was based on a two year study conducted by the Committee on Developments in The Science of Learning and shed a new light on teaching and learning. Since then, the expansion of research on the processes of thinking and learning is impacting how curriculum is designed including the teaching of and use of assessments. These studies of learning have a particular significance especially now, due to changes and expectations occurring in the current educational systems. Evidence from several branches of science has impacted what is known about learning. It is no longer enough for students to just attend school or even graduate from high school: they must be literate citizens in the democratic process and develop the intellectual tools and learning to allow them to be productive and successful. Teachers must learn to teach all students in the classroom, to teach for understanding and also teach skills for success. So, the NRC report (1999) has implications for teaching and also for the design of effective instructional learning environments at all levels in the schools.

The theoretical framework for this study was based on a synthesis of the literature reviewed. The researcher identified the Optimal Learning Environment (NRC, 1999) as an overall framework for the study. All additional research was integrated into the four NRC categories that define the Optimal Learning Environment: learner centered, knowledge centered, assessment centered, and community centered environments. These four components help guide the design, delivery, and evaluation of learning environments. As previously noted, only three components of the NRC model were used as the theoretical framework for this study because the fourth component, the community centered environment, was considered beyond the range of a pre-service teachers realm of influence. This framework representation is shown in Figure 2.1 below.

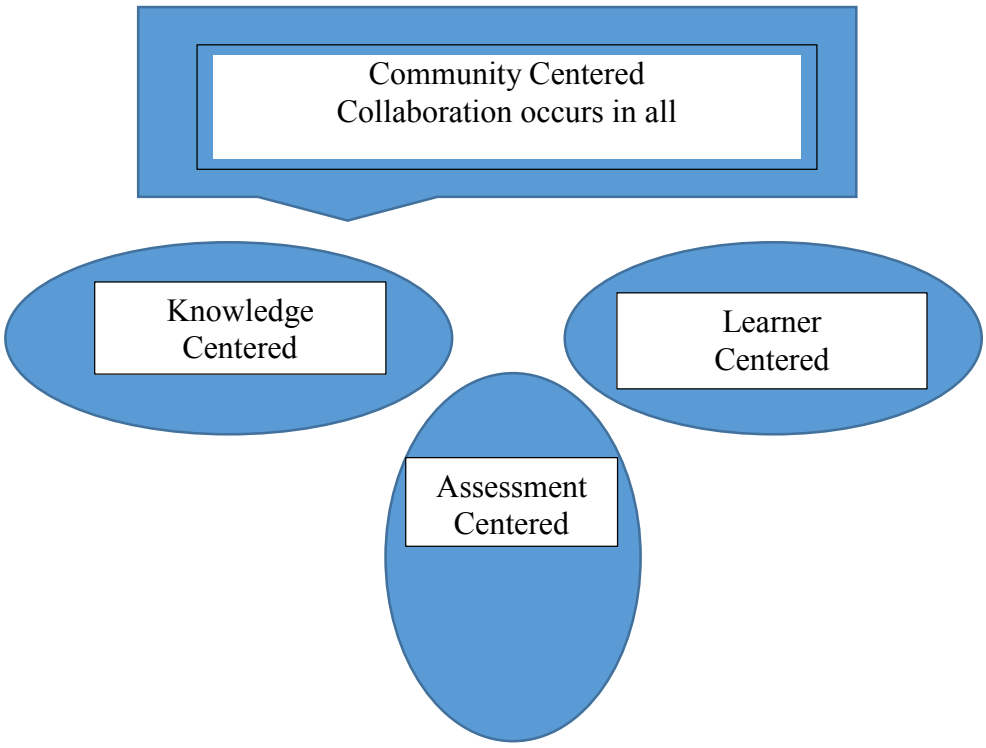

Figure 2 <u>The Four Components of the Optimal Learning Environment</u>

Note. Adapted from *How People Learn*, National Research Council 2000 p. 134.

The Optimal Learning Environment (NRC, 1999) provides the framework for this study by focusing on the perceived impact of pre-service teachers on the learning environment of the high school students they teach and the cooperating teacher who mentors them. It also provides a framework or lens for viewing the other sources found in the literature review related to teaching and learning of both the student learner and the practicing teacher learner (mentor teacher). "The principle of learning and their implications for designing learning environments apply equally to child and adult learning. They provide a lens through which current practice can be viewed with respect to K – 12 teaching and with respect to the preparation of teachers in the research and development agenda. . . . (p. 27). The classroom environments defined and discussed below provide an Optimal Learning Environment for all learners (NRC, 1999).

Learner Centered Learning Environment

The learner centered environment focuses on the knowledge, skills, attitudes and beliefs that learners bring to the education setting. "Within this environment, teachers attempt to understand what students know and can do as well as their interests and passions – what each student knows, cares about, is able to do and wants to do. In this environment the teacher considers the needs of the individual student including: ability, gender, socioeconomic status, and cultural understandings. The information from which to gain this understanding may be acquired through observation, questioning, and conversation (collaboration) on the products of student activity" (NRC, 2000, p.134). Learning becomes more personal and lessons more meaningful. Support and assistance (help) are provided to enhance individual learning (Darling-Hammond, 2005; NRC, 1999).

Assessment Centered Learning Environment

When a classroom learning environment is assessment centered it is focused around providing feedback to enhance learning in alignment with learning goals. "Feedback is most valuable when students have the opportunity to use it to revise their thinking and opportunities for feedback should occur continuously, not intrusively" (NRC, 2000, pp. 140 -141). To be assessment centered the learners are engaged in ongoing formative assessments to allow the teacher to grasp the students' learning and the learner to monitor, respond to and adjust his or her own progress. Through feedback, the learners make revisions to their thinking and grasp of the content. Feedback is essential for the learner to support understanding (Darling-Hammond & Bransford, 2005; NRC, 1999).

Knowledge Centered Learning Environment

"The knowledge centered environment intersect with the learning-centered environments through an emphasis on sense making – on helping students become metacognitive by expecting new information to make sense and asking questions when it does not" (NRC, 2000, p.136). When a classroom learning environment is knowledge centered it addresses the depth and content that a student will learn, what should be taught, and how it should be organized. The learner must process this information and make sense of it. The learner must learn for understanding and knowledge must be organized around concepts already present. Learning is enhanced when teachers pay attention to the learners' prior knowledge and build upon it. During the process of metacognition the learner predicts or monitors his or her own level of performance or mastery of the content. The learner makes sense of the content. (Darling-Hammond & Bransford, 2005; NRC, 1999).

Community Centered Learning Environment

The fourth component in the Optimal Learning Environment, the community centered environment, includes the community of learners both inside and outside of the classroom. As stated in *How People Learn* (NRC, 2000) "The school community or classroom norms can include: how gender roles are portrayed, the grading or cultural expectations, motivation, expectations etc. The learners within the classroom can be collaborative but the classroom can also be collaborative interacting with the home, community centers, after school programs, businesses, states and even the world" (p. 145). Pre-service teachers are not expected to set or determine classroom norms or relationships with other entities outside of the classroom. They are placed with a cooperating mentor teacher who determines these norms. So the component of community centered found in the Optimal Learning Environment was not appropriate for

investigation in this study. However a large piece of the community centered environment is collaboration within the classroom between the study participants. Since collaboration also is a part of the learner centered environment, the collaboration between participants included within the community centered environment was investigated as part of this study.

Optimal Learning Environment

This study was based on exploring the potential impact of pre-service teachers on an optimal learning environment that was; learner, assessment and knowledge centered for both the students and the cooperating mentor teacher. These three components of the Optimal Learning Environment (learner centered, knowledge centered and assessment centered environments) were used as a framework in the development of the researchers' survey questions and interview prompts. In addition, these three components were used to sort and classify all data as the researcher sought to gather evidence related to the research questions.

To understand the relationships and alignment identified by the researcher between the Optimal Learning Environment (NRC, 1999) and the impact on learning of students and teachers see Tables 2.10 and 2.11 below. These impacts or definitions identified by the researcher from the literature review are used as additional references aligning with the framework for the study. Supporting studies or research cited by the researcher aligns with the NRC research (1999) but may not all mention or refer to it using the specific NRC terms.

Table 2-10 Optimal Learning Environment for High School Students

Learner Centered	Assessment Centered	Knowledge Centered
Researcher Definition	Researcher Definition	Researcher Definition
Includes individualized assistance to meet the needs of the individual student learner	*Includes appropriate assessment formats with feedback for student learning*	*Includes deeper learning of the content with appropriate strategies*
<u>The Learner Centered Environment Provides:</u> Personalized learning assistance to meet the individual needs of students Additional assistance for the individual student A supportive learning environment with assistance to enhance individual student learning	<u>The Assessment Centered Environment Provides:</u> Timely and continuous feedback while learning, applying and practicing new skills and knowledge Feedback and answers questions to encourage students' revision of thinking Explanatory responses to allow the students to assess their own learning and understanding.	<u>The Knowledge Centered Environment Provides:</u> Different or new perspective on learning Multiple appropriate content relevant teaching strategies to enhance student learning Strategies to deepen student learning, understanding and sense making of the new content
Cited Literature	Cited Literature	Cited Literature
National Research Council (1999, 2000, 2001b)	National Research Council (1999, 2000, 2001b)	National Research Council (1999, 2000, 2001b)
Champagne (1991)	Sutton & Krueger (2002)	Sutton & Krueger (2002)
Danielson (2000, 2007)	Danielson (2000, 2007)	Danielson (2000, 2007)
Mendler (2000)	Mendler (2000)	Mendler (2000)
Marzano, Pickering, Pollock (2001)	Marzano, Pickering, Pollock (2001)	Marzano, Pickering, Pollock (2001)
Association of Supervision and Curriculum Development (2003)	Association of Supervision and Curriculum Development (2003)	Association of Supervision and Curriculum Development (2003)

Note. Adapted by the researcher from the synthesis of literature and the National Research Council (1999)

Table 2-11 Optimal Learning Environment for Mentor Teachers

Learner Centered	Assessment Centered	Knowledge Centered
Researcher Definition	Researcher Definition	Researcher Definition
Includes time and opportunity for collaborative learning to meet the needs of the individual learner,	*Includes reflection on practice and feedback while learning*	*Includes deeper understanding or new learning of content or pedagogy*
<u>The Learner Centered Environment Provides:</u> A supportive learning environment for the individual teacher in collaboration with peers (including pre-service teachers) Support for pedagogical needs and goals of the individual teacher to help them enhance their own learning Time and opportunity for job embedded practice and ongoing support of new learning	<u>The Assessment Centered Environment Provides:</u> Opportunities for teacher self-assessment of learning through reflection on practice with peers (including pre-service teachers) Timely and continuous feedback while learning, applying and practicing new pedagogical and content skills and knowledge Ongoing assessment of new learning and revision of thinking about pedagogy	<u>The Knowledge Centered Environment Provides:</u> Opportunities to develop new knowledge or deepen the conceptual understanding of content and pedagogy Opportunities to develop new learning, understanding or use of technology. Opportunities to develop shared researched based knowledge in collaboration with colleagues (including pre-service teachers)
Cited Literature	Cited Literature	Cited Literature
National Staff Development Council (2001, 2002, 2011)	National Staff Development Council (2001, 2002, 2011)	National Staff Development Council (2001, 2002, 2011)
National Academy of Education (2005)	National Academy of Education (2005)	National Research Council (1999)
National Research Council (2001a)	National Research Council (2001a)	National Research Council (2001a)
Danielson (2000)	Danielson (2000)	Danielson (2000)
National council for Accreditation of Teacher Education (2001, 2010)	National council for Accreditation of Teacher Education (2001, 2010)	National council for Accreditation of Teacher Education (2001, 2010)

Designing Professional Development for Teachers of Science and Mathematics. (2003)	Designing Professional Development for Teachers of Science and Mathematics. (2003)	Designing Professional Development for Teachers of Science and Mathematics. (2003)
Darling-Hammond (2006)	Darling-Hammond (2006)	Darling-Hammond (2006)
Drago Severson (2011)	Drago Severson (2011)	Drago Severson (2011)

Note. Adapted by the researcher from the synthesis of the literature and the National Research Council (1999)

The researcher discovered multiple relationships or similar perspectives between several studies, reports, dissertations, books and research projects during the analysis of the literature. The overarching theme or framework for all of these was identified. The literature appeared to be aligned under the research project completed by the National Research Council and published in *How People Learn* (NRC, 1999). The study design and questions will be aligned with the theoretical framework in Chapter 3.

Conclusion

The most recent education renewal in the U.S. began due to an identified crisis in education. A Nation at Risk (National Commission on Excellence in Education, 1983) was published in 1983 followed by recommendations by the Holmes Group (1986, 1990, 1995), Goodlad (1994), and others in the mid-1980s through the mid-1990s identifying a need for quality teachers and teacher education programs. It was believed that the education system in the U.S. was not educating a capable work force. The establishment of Professional Development Schools emerged to meet the need of quality teacher education to better prepare pre-service teachers and thus students. Professional Development School standards were implemented and

new teacher education programs in universities based on the medical school model of internship with support were designed (Book, 1996; Teitel, 2001; Neapolitan & Tunks, 2007).

Along with these newly implemented teacher education programs came the expectations for enhanced student achievement. These new Professional Development Schools partnered with schools and universities to provide structure for learning labs to facilitate the pre-service teachers' interactions with classrooms and mentor teachers. Along with the new design for pre-service teacher education, the Professional Development Schools offered support and professional development for the school faculty along with the expectations of quality re-search based practice (AERA, 2005; NCATE, 2001; Teitel, 2001).

Throughout the literature, the importance of collaboration and feedback to improve and enhance learning emerged for all pre-service teachers and mentor teacher learner participants (Darling-Hammond, 2006; Darling-Hammond & Bransford, 2005; Loucks-Horsley et. al., 1998 NCATE, 2001; Neapolitan & Tunks, 2007). There are some differences or varied perspectives in the literature as to how students (people) learn but similar threads and patterns also are seen. Those similar threads can be aligned in a framework for an Optimal Learning Environment based on the research synthesized in *How People Learn* (NRC, 1999). This framework supports the belief that both teachers and students learn when the environment is learner centered, assessment centered, knowledge centered and community centered. They learn by making sense of the material themselves and when they are provided timely feedback and also time for reflection and collaboration that leads to the generation of questions. The student learners and teacher learners both need time to make sense of the content, build upon their understandings and correct for misconceptions to gain a deeper understanding. They can do this as they collaborate and discuss with one another and with their peers (Glynn, et al., 1991a; Marzano, 2001; NRC, 1999; NRC,

2001a, b; NRC, 2000). This body of literature helps frame research on the potential impact pre-service teachers in a PDS school can have on the learning environment of cooperating mentor teachers and their students. But additional research is needed to reveal if such potential impact is realized within the KSU PDS at Manhattan High School.

Chapter 3 - Methodology

Purpose Statement

The purpose of this qualitative study was to investigate the perceived impact of pre-service teachers on the learning environment of students and cooperating mentor teachers in the Professional Development School in which they are placed for their final clinical experience. Qualitative research requires that the researcher make sense of or interpret the findings. It is an inquiry process that can explore a social or human problem and focus on various conditions affecting natural settings. Qualitative research can include observations, historical analysis, participant observation and interviewing (Creswell, 1998; Berg, 1995).

The participants in the study included 130 high school students, eight pre-service teachers and eight cooperating mentor teachers at Manhattan High School (MHS) in the fall of 2013. All eight of the pre-service teacher participants completed their practicum experience during one full semester at MHS KSU PDS, placed with a participating cooperating mentor teacher. The high school student participants were students in the classrooms in which the pre-service teachers were placed. This qualitative case study included data from surveys of high school students, pre-service teachers, and cooperating mentor teachers in addition to data from interviews with pre-service teachers and cooperating mentor teachers collected during the fall semester of 2013.

Research Questions

Since professional development school partnerships call for program evaluations to determine what impacts are occurring, research is ongoing involving all participants. The clinical instructors within the PDS schools collect data yearly. Due to the necessary evaluation of the impact of pre-service teachers on the students and cooperating mentor teacher, the questions identified by the researcher for this study are:

In what ways do pre-service teachers impact the learning environment of the PDS in which they complete their final clinical experience?

a. In what ways do the high school students who are members of the classroom in which a pre-service teacher is placed perceive their learning environment is impacted by the pre-service teacher?

b. In what ways do cooperating teachers who are mentoring a pre-service teacher perceive their learning environment is impacted by the pre-service teacher?

c. In what ways do pre–service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the high school students they teach?

Professional Development Schools are institutions with partnerships between educational programs and Pre K – 12 schools. The missions of these institutions include: the preparation of new teachers, faculty development, and inquiry directed at the improvement of new practice and enhanced student achievement. The Professional Development School Partnership between Kansas State University and Manhattan – Ogden School District was established in 1989. Within this PDS partnership, pre-service teachers have been placed at Manhattan High School to complete their clinical (practicum) internship. The KSU PDS teacher education program has changed over time to include additional partnership schools, additional pre-service students placed earlier in their academic careers, and the implementation of a required professional Student Teacher Portfolio to be completed by each pre-service teacher (KSU, 2012c). Within this portfolio, pre-service teachers discuss and provide evidence of their ability to plan and make accommodations for students, design a positive learning environment, contribute to the school community and create and implement a multi week unit plan based on quality practice as

described in the Kansas State University Portfolio (see Appendix A). The pre-service teachers work closely with the clinical instructor in the building, their university supervisor and their cooperating mentor teacher, learning to teach and design a unit plan.

Research Design

This study was a qualitative case study conducted in a PDS school to determine the perceived impact of pre-service teachers on the Optimal Learning Environment of high school students and cooperating mentor teachers. This study was designed to determine if the high school students perceived an impact on their own learning environment when a pre-service teacher was placed in their classroom. This study was also designed to determine if cooperating teachers, mentoring a pre-service teacher, perceived an impact on their own learning environment. This study was further designed to determine if pre-service teachers perceived that they had an impact on the learning environment of the high school students they taught, or the cooperating teacher who mentored them. In all of the data collection for this study, the term" pre-service teacher" refers only to those in their last semester of the KSU teacher education program and who were placed in a practicum or internship within Manhattan High School in the Manhattan-Ogden school district.

The high school students, pre-service teachers and mentor teachers all responded to a researcher designed survey. The surveys completed by the high school students who were members of the "focus" class chosen by the pre-service teachers and cooperating mentor teachers were analyzed. The "focus" class was featured in the KSU portfolio as the pre-service teachers planned, taught, collected and analyzed data from their units. The Manhattan-Ogden department of Teaching and Learning also requires a survey to be completed by cooperating mentor teachers to ensure they receive professional hours for mentoring a pre-service teacher. This survey is

completed on mylearningplan, which is an electronic tracking system for teacher professional development hours. The results of these surveys were provided to the researcher to supplement the researcher designed surveys and interviews. The cooperating mentor teachers and pre-service teachers administered the researcher designed student surveys to the high school students in the participating focus classrooms. The focus class was chosen by the pre-service teacher and cooperating mentor teacher as the class that the pre-service teacher would plan for, teach and then analyze the student achievement data for the portfolio. The completion of the KSU portfolio required that the pre-service teacher identify and feature a focus class. This research also included structured interviews with the pre-service teachers and mentor teachers. The interview responses were recorded by the researcher as the participants responded and the researcher then listened to and transcribed the responses to ensure accuracy. The researcher interviewed and recorded the pre-service and mentor teachers and also distributed the researcher designed surveys to them (see Table 3.1 for an overview of research design)

Table 3-1 Overview of Research Design

High School Students	Pre-service Teachers	Cooperating Mentor Teachers
1. Surveys of all students in the focus class with a pre-service teacher in the classroom -130 responses	1. Researcher Surveys completed by 8/8 pre-service teachers regarding students 2. Researcher Surveys completed by 8/8 pre-service teachers regarding mentor 3. Structured Interviews with 7/8 pre-service teachers regarding students 4. Structured Interviews with 7/8 pre-service teachers regarding mentor teachers	1. Researcher Surveys completed by 4/8 cooperating mentor teachers 2. Structured Interviews with 8/8 cooperating mentor teachers (1 mentor teacher chose to respond to interview questions in a written format) 3. Completion of the mylearningplan survey by 7/8 cooperating mentor teachers for the district.

The researcher was the data collector during structured interviews with pre-service teachers and the classroom cooperating mentor teachers. The mentor teachers and pre-service teachers distributed and collected the high school students' surveys after the pre-service teachers completed their teaching and grading of student work. The researcher distributed the researcher designed surveys to the pre-service teachers and also to the mentor teachers in both hard copy and electronic copy. The pre-service teachers and cooperating mentor teachers were asked to respond to all prompts on the surveys. The pre-service teachers and the cooperating mentor teachers could not be required to respond to the surveys or interviews. Data was not collected from pre-service teachers placed within the building by the district administration from other universities or when a pre-service teacher was not a part of the traditional teacher education program of study at Kansas State University.

The Setting

The College of Education at Kansas State University maintains professional partnerships with many local schools. Because of this partnership model most of the schools in which pre-service teachers are placed for clinical experiences are identified as Professional Development Schools. These schools are found in several different school districts around the state of Kansas. Currently all of the elementary, middle and secondary schools in the Manhattan – Ogden School District, USD #383, are identified as PDS schools. Pre-service teachers are placed in the partner schools to complete clinical experiences and are supervised by clinical instructors and university supervisors. The principals, clinical instructors, university supervisors and cooperating mentor teachers collaborate to identify the best placement for each pre-service teacher. The PDS at Kansas State University supports the clinical instructors financially and also provides

professional development opportunities and training related to the supervision of pre-service teachers

The school in this study was Manhattan High School which is a 6A school located in Manhattan Kansas and is a Professional Development School partner with the Kansas State University College of Education. The total high school population of grades nine through twelve students is approximately 1,800, but varies from year to year depending on the immigration or emigration of families with secondary students. Manhattan High School is the only public high school in the city and school district. Students attend two public middle schools or private middle schools before transferring to Manhattan High School. These students then attend two different Manhattan High School campuses due to overcrowding. The West Campus is home to students in grades ten through twelve and the population at East Campus is comprised of only ninth grade students. Even though these are two distinct buildings separated by a distance of about a mile they are considered one high school. Some faculty members travel between and teach at both buildings. Some students are bussed between buildings to take elective courses. This separation of students into two different buildings, which also necessitates traveling teachers, results in some pre-service and cooperating mentor teachers traveling between and teaching in two different buildings. This travel is dependent on the course and class schedules.

Overview of the Professional Development School Field Experience Program

Within the Kansas State University Professional Development School, pre-service teachers are afforded several clinical experiences which are aligned with the courses they are required to complete for graduation. The pre-service teachers also are required to complete a Professional Teaching Portfolio that also is aligned with these classes during the semesters prior to and including the final student teaching internship. During all of the practicum semesters the

pre-service teachers are assigned to a mentor teacher and supervised by either the building clinical instructor or the university supervisor or both (KSU, 2012b).

Most of these secondary pre-service teachers begin their clinical experience at a local Professional Development School within a partner district by first completing the Teacher Aide course. They are assigned to a classroom and mentor teacher for approximately 6 hours a week throughout the semester. During this time they observe teachers and complete reflections and assignments related to their experiences working within the school classroom. They are not always placed within their content but are placed by their preference to teach at the elementary, or middle and secondary level. This course is completed before the pre-service teachers are accepted into the professional development school and begin their professional coursework. The pre-professional courses required prior to acceptance into the professional program include: Orientation to Teacher Education at KSU, Intro to Human Development, Teaching as a Career, and Early Field Experience. Foundations of Education can be taken concurrently during this time or with the Block I semester (KSU, 2012c).

The second pre-service teaching placements for traditional secondary education majors occur during Block I. During this semester, the pre-service teachers also are assigned to an approved mentor teacher and are placed in a district partner PDS school and participate in the classroom twice a week for five hours over a span of six weeks. Their assignments include: planning and teaching lessons, observing teachers, and becoming familiar with their students. These assignments are again aligned with the Professional Teaching Portfolio they must complete during their final semester of clinical intern experience. The pre-service students also continue to complete courses on campus that are directly related to the classroom experience and completion of the *KSU teaching portfolio.* These experiences will look similar but not identical

for each of the content areas. These students usually go to the Professional Development Schools partner buildings for their clinical experience in pairs or groups. These students attend professional courses with peers from different content areas. The coursework required during the Block I semester includes: Educational Psychology, Core Teaching Skills and Lab, and Exceptional Students in the Secondary School. Educational Technology for Teaching and Learning must be completed before Block II. These courses help to prepare the pre-service teachers to design quality lesson plans and to complete the KSU Portfolio (KSU, 2012b) requirements while focusing on student learning (KSU, 2012c).

During the next clinical experience, Block II, the hours of involvement, the assignments and the observations are again directly related to the Professional Teaching Portfolio and the concurrent course work taken on campus. The expectations are different from Teacher Aiding or Block I and build upon previous learning in curriculum design, lesson planning, teaching and understanding students. The pre-service students in the Block II clinical settings are placed with an approved mentor teacher by related content area and usually are in the classroom without a pre-service student partner. The coursework required during Block II includes: Interpersonal Relationships Within the Schools, Teaching in a Multicultural Society, and Content Area Literacies and Diverse Learners. Methods for Secondary and Middle Schools and Methods Practicum are courses focused specifically on content and how to teach successfully in a identified content area. The course Middle Level Education must be completed prior to the final practicum for pre-service secondary teachers. During the content methods courses, the pre-service teachers learn quality based practice related to their chosen content. They design content specific lessons and teach them to the high school students in the classroom setting. They will also continue working on the KSU portfolio assignments (KSU, 2012c).

Student Teaching or the student internship clinical experience is the last clinical placement for the pre-service teachers. Most pre-service teachers begin their internship in a Professional Development School building when school begins for the district. They work with the cooperating mentor teacher daily in a full time placement as an intern. During this experience most are placed with the same mentor teacher, in the same building, all day, for the entire semester. In some cases, it is necessary to place an intern half of the day or half of the semester with one cooperating mentor teacher and half of the day with another. A shared placement may be made if a pre-service teacher is going to be certified K – 12 or if he or she is working towards multiple certifications or if there are not enough full time mentor teachers or appropriate classes available.

During this clinical placement the pre-service teacher is supported by the local building Professional Development School clinical instructor, the university supervisor and by the cooperating mentor teacher. The pre-service teachers receive observations of their teaching along with intensive feedback and support as they work to design a full unit plan required in the Professional Teaching Portfolio (KSU, 2012c).

The pre-service teachers collaborate daily with the cooperating mentor teacher on issues related to: teaching and learning, lesson planning, making accommodations and differentiation for individual students, classroom management and use of technology to enhance learning. The pre-service teachers also design and teach a full unit plan during the clinical practicum. During the entire 16 week practicum the pre-service teachers work directly with the high school students in the classroom. They may co-teach, teach by themselves or teach to small groups or individuals, but they are expected to interact with the high school students daily during this time (KSU, 2012b).

The *KSU Teaching Portfolio* (KSU, 2012b) is divided into different entries. Entry 1 documents Professional and Philosophical knowledge and requires pre-service teachers to compose a teaching philosophy (see Appendix A). The pre-service teachers' written philosophy should demonstrate their knowledge and understanding of the historical, social and political influences on learning and teaching. It should also demonstrate their beliefs in a vision for teaching all students, the inherent dignity of all students and respect for customs and beliefs of diverse groups. This philosophy should also include advocacy for students and families and a caring and inclusive regard for humanity.

The second entry in the KSU Portfolio (KSU, 2012b) requires pre-service teachers to demonstrate their understanding and knowledge of Contextual Information and Implications for Student Learning (see Appendix A). In this entry the pre-service students identify the characteristics of the students they teach and describe how best to meet these students' needs. The pre-service teachers describe strategies they use to meet the learning needs of individual students plus sub-groups of students based on: socio-economic status, gender and ethnic/cultural make-up, language proficiency needs, students with demonstrated high or low academic performance, students with special needs or those at risk and students with a military connection. The pre-service teachers must demonstrate knowledge of: appropriate adaptations, characteristics of all student, and implications for planning and instruction of all students. They also must identify two focus students and demonstrate knowledge of the characteristics of both focus students and implications for planning and instruction for these students. As the pre-service teachers are planning and teaching they must identify other learning environmental factors that impact planning and instruction as well as flexibility and responsiveness to meet the diverse needs of all learners.

The third entry (KSU, 2012b) focuses on the unit plan that the pre-service teachers must design and implement (see Appendix A). It is more extensive and includes several parts. Part 1 requires pre-service teachers to identify and write goals and objectives for a unit plan that spans at least ten days. The pre-service teachers must: align the learning goals and objectives, demonstrate high expectations for the classroom students, and explain the significance of the learning goals and objectives. Part 2 requires that these learning goals and objectives for the unit plan are aligned and progressively sequenced. The pre-service teacher must demonstrate an understanding of how to design a quality unit plan which includes: multiple learning strategies, adaptations/differentiations and an equitable learning environment to meet the needs of all students, active inquiry that is learner centered and has meaningful student engagement, and the use of technology to teach and learn. This unit plan also must include: the integration of reading strategies, critical thinking strategies, integration across and within content fields and community resources. In Part 3 the pre-service teacher must design a unit assessment plan to include the use of: pre-tests, formative tests, summative tests and disaggregation of the data collected from the students. All assessments must be aligned with the unit objectives using multiple appropriate formats. These assessments must be measurable, comprehensive and the criteria level for each assessment must be identified. The pre-service teacher must show they have used the data collected from these assessments for future planning and instructional decision-making. In Part 4, the pre-service teachers must reflect on their unit design as it was planned and taught and address the effects of decisions on student learning, instruction and assessment. In addition, the pre-service teacher must document how they communicated with students, families and educational personnel and include information on their roles in the school improvement process.

Part 4 also includes a final reflection on their teaching with implications for future teaching and professional development or continuous learning.

Analysis of classroom learning in Entry 4 (KSU, 2012b) requires pre-service students to document how they implement a positive classroom learning environment (see Appendix A). They explain how they motivate students, create an environment of respect and rapport, establish a culture for learning, encourage appropriate student behavior, manage classroom procedures and organize the physical environment.

Entry 5, Formal Observations (KSU, 2012b), is based on feedback to the pre-service teacher about a lesson observed by the clinical instructor, KSU supervisors, or cooperating mentor teachers (see Appendix A). To begin this process, the pre-service teacher plans a lesson that includes: multiple instructional strategies to promote learning, effective verbal and non-verbal communication, the fostering of active inquiry, and promotion of supportive classroom interactions and a positive learning environment. The pre-service teacher responds to pre-planning questions and prompts prior to teaching this lesson and provides the lesson plan and pre-planning question responses to the observer prior to the observation. The pre-service teacher then is observed while teaching the lesson and observation forms are completed based on Danielson's Framework for Teaching rubric (2007). This is followed by a reflection on the lesson by the pre-service teacher with the observer.

Professional Logs are maintained by the pre-service teacher as part of Entry 6 (KSU, 2012c, see Appendix A). The pre-service teachers must reflect on their experiences as a pre-service teacher and identify professional learning goal based on identified strengths and areas of needed improvement. The pre-service teachers also document their communications with

families, the community and other educational personnel, and provide evidence of participation or contributions to the school improvement process.

The Participants

All of the participants for this study were located at either the East Campus or West Campus in Manhattan High School. The pre-service teachers were all enrolled in the traditional program of the College of Education. All high school students, grades 9 through 12, in the focus classes who were learning with a pre-service teacher in the classroom were asked to participate in completing the researcher designed surveys. The pre-service teachers and their cooperating mentor teachers identified a focus class that the pre-service teacher would specifically plan for, teach and write about in the KSU Student Teacher Portfolio. The high school students who participated in this study were in one of these focus classes. All full time cooperating teachers who were assigned to mentor a traditional pre-service teacher and their assigned Kansas State University pre-service teachers were asked to respond to the researcher designed surveys. All pre-service teachers and their cooperating mentor teachers were asked to participate in the structured interviews and the researcher reminded the mentor teachers to complete the USD #383 district survey on mylearningplan. If a high school student was absent on the day the surveys were completed, he or she did not complete the survey at a later date. If a cooperating mentor teacher or pre-service teacher chose not to complete the survey or interview he or she was not coerced.

Because Manhattan High School is a Professional Development School in partnership with Kansas State University College of Education it is not unusual to collect data, ask for feedback or observe classrooms during any given semester or year. Pre-service teachers who were placed by district personnel at Manhattan High School from other universities were not

included in this study. Pre-service teachers who were enrolled in a nontraditional teacher education program through Kansas State University were also not included in the study.

High School Students

The students at Manhattan High School who participated in the student survey varied. Some of them were enrolled in advanced classes, some regular and some remedial classes. They range from grade 9 through grade 12. The pre-service teachers collected researcher designed surveys from only the identified focus class for this study. The surveys were distributed to students in different classes at different levels of ability. The anonymous student surveys were approved by the USD #383 Manhattan-Ogden school district; the researcher could not determine the socio economic status or ethnicity or gender or other personal information of those participating students from the focus classes. The data is available for the school as a whole. The percent of students who receive free or reduced lunches at Manhattan High School is 24%. The sub-populations which are disaggregated in the data provided to the state of Kansas include: 7% African American, 8% Hispanic, 11 % other, and 72% Caucasian. These numbers are subject to change yearly dependent upon the current local population (see Table 3.2 below).

Table 3-2 Manhattan High School Student Demographics

Free or Reduced Lunch	African American	Hispanic	Caucasian	Other
24%	7%	8%	72%	11%

Note. The researcher collected this data for display from the USD #383School District

Pre-service Teachers

All eight of the pre-service teachers in this study met the requirements to be placed in an internship. All of them had completed the required course work meeting the required GPA. Most of them were traditional college age students but one was nontraditional retired military. One pre-service teacher was married and the rest were single. The researcher identified the

traditional pre-service student as single, a fourth or fifth year senior, attending college after high school graduation. Two of the pre-service teachers were the first to graduate from college in their families, the rest were from families with multiple college graduates. One of the pre-service teachers was Latino and seven were Caucasian. Five of the pre-service teachers were male and three of them were female (see Table 3.3 below).

The classrooms in which the pre-service teachers were experiencing their internships were as diversified as the pre-service teachers. They included: grades nine through twelve, either advanced or regular classes of math, foreign language, life and physical science, business, and social studies. There was no consideration to match pre-service teachers by gender with cooperating mentor teachers of the same gender. There were male cooperating mentor teachers working with male and female pre-service teachers and female mentor teachers working with male with female pre-service teachers. Personality played a small role in placements; the determining factor was based on the desired areas of endorsements for each pre-service teacher and the content being taught by the cooperating mentor teacher (see Table 3.3 below).

Table 3-3 Pre-service Teachers

Traditional Student (single age 23 or less)	Non-Traditional (married, or older, or second career)	Single	Married	Caucasian	Latino
6	2	6	2	7	1
Pre-service Teacher is the First Child to College	Male	Female	Served and retired from Military	From a Military Family	
2	5	3	1	1	

Note. The researcher collected this data for display from the pre-service teachers.

Cooperating Mentor Teachers

All of the cooperating mentor teachers in this study met both the Kansas State University and building requirements to mentor a pre-service teacher in their classroom. All of these mentor teachers had experience teaching in the high school classroom. They were all certified licensed teachers for both the content and the grade level they were teaching. Seven of the cooperating teachers had mentored pre-service teachers in the past and one had never worked as a mentor. These cooperating mentor teachers all either asked to mentor an intern or when asked to do so accepted the placement readily. There was no coercion to facilitate the placement of the pre-service teachers. All of the cooperating mentor teachers were Caucasian. Two of the cooperating mentor teachers were male and six were female. Some of the pre-service teachers were assigned to the main cooperating mentor teacher but observed or worked with other teachers also. These additional teachers were not included in the study (see Table 3.4 below). The experience of each pre-service teacher was different as each of the cooperating mentor teachers teaching experience and courses and students taught were unique to them.

Table 3-4 Cooperating Mentor Teachers – Years of Experience Teaching – Courses Currently Teaching –Age of High School Students-Currently Teaching

Mentor Teacher Classroom Experience 3 – 6 years	Mentor Teacher Classroom Experience 7 – 9 years	Mentor Teacher Classroom Experience 10 - 13 years	Mentor Teacher Classroom Experience 14 - 17 years	Mentor Teacher Classroom Experience 18 - 21 years	Mentor Teacher Classroom Experience 22 – 25 years	Mentor Teacher Classroom Experience 25+ years
1	0	2	2	2	0	1
Mentor Teacher Teaching Assignment Business	Mentor Teacher Teaching Assignment Foreign Language	Mentor Teacher Teaching Assignment Social Studies	Mentor Teacher Teaching Assignment Math Regular	Mentor Teacher Teaching Assignment Math Advanced	Mentor Teacher Teaching Assignment Life Science	Mentor Teacher Teaching Assignment Physical Science
1	1	1	1	1	2	1

Male Mentor Teachers	Female Mentor Teachers	Mentor Teacher of 9th Grade Students	Mentor Teacher of 10th Grade Students	Mentor Teacher of 11th Grade Students	Mentor Teacher of 12th grade Students	Preciously Experienced Mentor Teacher
2	6	6	5	5	4	7

Note. The researcher collected this data from the cooperating mentor and pre-service teachers.

Data Collection

Towards the end of the student teaching clinical experience, a researcher designed survey was used to collect data from all participating pre-service teachers and cooperating mentor teachers. Researcher designed survey data also were collected from the participating high school students in the focus classrooms in which a pre-service teacher was placed for the clinical experience. Data also were collected from structured interviews with all willing cooperating mentor teachers and pre-service teachers who participated in the clinical experience during the fall 2013 semester. In addition, Manhattan-Ogden School District survey data was collected from the cooperating mentor teacher responses to the mylearningplan district survey.

Data Collected From High School Students

There was one source of data collected for evidence from the high school students. The researcher designed a survey to gather data from high school students regarding the impact they perceived the pre-service teacher had made on their learning environment. This survey was designed to elicit a short answer of agreement or disagreement followed by an in-depth explanation (see Appendix D). The researcher asked that the pre-service and cooperating mentor teacher distribute the survey at their convenience so as not to disrupt student learning. The surveys were distributed to the focus class towards the end of the pre-service teachers' clinical experience. Although different classes and hours could be identified, student responses were anonymous. The students were asked four questions on the survey that were aligned with the

researcher's theoretical framework of an Optimal Learning Environment (NRC, 1999): learner centered, assessment centered, and knowledge centered.

Data Collected From Pre-service Teachers

There were two sources of data collected from the pre-service teachers, a survey and an interview. The researcher designed a survey to gather data from the pre-service teachers regarding their perceived impact on the learning environment of their cooperating mentor teacher and high school students (see Appendix E). The survey questions were designed so responses could be short answer to provide more in-depth explanations rather than just yes or no questions. The survey was sent out electronically and given in hard copy to each pre-service teacher to be completed at his or her convenience. There was no monitoring of the pre-service teachers as they completed the survey. All eight of the eight pre-service teachers were asked to complete a researcher designed survey and all complied.

All of the pre-service teachers were asked to be interviewed by the researcher. It is not an uncommon practice for the clinical instructors within the KSU PDS to distribute surveys and also to interview cooperating mentor and pre-service teachers. The researcher has interviewed pre-service teachers for the past six semesters to evaluate and determine perceptions of the pre-service students' experience at MHS and the KSU PDS program. In addition, the researcher has collected data from the pre-service teachers, the cooperating mentor teachers and the students through surveys designed by the KSU PDS. These responses are shared with KSU College of Education. The researcher designed interview questions that were structured with many follow-up prompts (see Appendix F). The researcher asked an identical beginning question for each of the pre-service teachers in a taped interview and transcribed their responses. The original

question and prompts were on a slide that the pre-service students could see. The researcher added additional prompts during the interview for clarification or to elicit additional details.

The pre-service teacher survey and interview questions were aligned with the researcher's theoretical framework of an Optimal Learning Environment (NRC, 1999): learner centered, assessment centered, and knowledge centered (see Tables 3.5 and 3.6 below).

Data Collected From Cooperating Mentor Teachers

There were three sources of data collected from the cooperating mentor teachers, two surveys and an interview. The researcher designed survey questions to gather data related to how the mentor teacher perceived that the pre-service teacher impacted their learning while placed in their classroom (see Appendix G). The survey was designed so that responses could be a short answer or in-depth explanation. The survey was sent out electronically to each cooperating mentor teacher to be completed at his or her convenience and was also provided in hard copy. There was no monitoring of the cooperating mentor teachers as they completed the survey. All eight mentor teachers were asked by the researcher to complete a survey. Four of the eight mentor teachers complied.

All eight cooperating mentor teachers were asked to be interviewed by the researcher. The researcher developed structured interview questions (see Appendix H). The researcher asked the beginning question to each of the mentor teachers, recorded and then transcribed his or her comments. The researcher also asked additional questions for clarification and to elicit additional explanations. Seven of 8 mentor teachers were available to be interviewed.

Cooperating mentor teachers also were required by the Manhattan – Ogden School District to complete a short electronic survey on mylearningplan.com to receive professional development hours for mentoring a pre-service teacher (see Appendix I). This is a program

implemented to monitor professional learning or teacher education for teachers in the district. This district survey was related to the impact of having a pre-service teacher in a school or district classroom. The mylearningplan data collection was implemented several years prior to this research project. The data were collected to be used in the evaluation of the Professional Development School partnership with Kansas State University by the Department of Teaching and Learning in the Manhattan – Ogden School District as well as to track professional teacher activities. The researcher included these survey responses in the data collection.

All survey and interview questions were aligned with the researcher's theoretical framework of an Optimal Learning Environment (NRC, 1999): learner centered, assessment centered, and knowledge centered (see Table 3.5 and 3.6).

Table 3-5 Alignment of Survey and Interview Questions and Optimal Learning Environment for High School Students

Learner Centered Survey & Interview Questions High School Students, Pre-service Teachers, Mentor Teachers	Assessment Centered Survey & Interview Questions High School Students, Pre-service Teachers, Mentor Teachers	Knowledge Centered Survey & Interview Questions High School Students, Pre-service Teachers, Mentor Teachers
Includes individualized assistance to meet the needs of the individual student learner	*Includes appropriate assessment formats with feedback for student learning*	*Includes deeper learning of the content with appropriate strategies*
Survey Question High School Student Do you think that your learning has been impacted with a KSU student teacher in your classroom providing assistance to you?	Survey Question High School Student Do you think your learning has been impacted by the feedback (help) from a KSU student teacher? Survey Questions	Survey Question High School Student Do you think your learning has been impacted from the multiple teaching strategies used by a KSU student teacher in your classroom?

Survey Question Pre-service Teacher Do you think that you have impacted student learning with additional assistance? Interview Question Pre-service Teacher Do you think by having you in the classroom so there are two of you, that the responses to student questions are different? Do you think that you have impacted the strategies for the different kinds of learners in the classroom of your co-ops? (Individual Student Learners) Do you think that the students', in the classroom, learning is impacted by having a student teacher there to answer their questions? Survey Question Mentor Teacher Do you think that mentoring a student teacher has impacted your use of different strategies to meet the needs of diverse learners?	Pre-service Teachers Do you think that you have impacted student learning by providing feedback to the students? Interview Question Pre-service Teacher Do you think that your feedback on their assignments or on their work or projects impacted their learning? Do you think your students are learning from your feedback? Do you think your feedback is different from your co-ops? Survey Question Mentor Teacher Do you think that mentoring a student teacher has impacted your use of innovative teaching strategies? Mylearningplan Question Mentor Teacher How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)	What other comments do you have related to the impact on your learning from your student teacher? Survey Question Pre-service Teacher Do you think that you have impacted student learning by the multiple teaching strategies you used? Interview Question Pre-service Teacher Do you think that you have impacted student learning by the multiple teaching strategies you used? Do you think that any of the strategies you used made a difference? Do you think that you have impacted the students' learning in your classroom? Do you think that the students', in the classroom, learning is impacted by having a student teacher there to answer their questions? Do you think the teaching strategies that you are using are impacting the students; learning? Do you think that you used

Interview Question Mentor Teacher Do you think that having a student teacher impacted the strategies you used with different learners? What about the strategies you are using, has he impacted your teaching the diverse learner? Does it benefit the diverse learners in your classroom? So do you think your diverse learners were impacted? Do you think that having a student teacher impacted the diverse learners in your classroom? Mylearningplan Question Mentor Teacher How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)		different strategies that impacted student learning? Survey Question Mentor Teacher Do you think that mentoring a student teacher has impacted your use of innovative teaching strategies? Interview Question Mentor Teacher Do you think that you reflected more on your teaching and student learning with a student teacher in your classroom? Mylearningplan Question Mentor Teacher How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)

Table 3-6 Alignment of Survey and Interview Questions and Optimal Learning Environment for Cooperating Mentor Teachers

Learner Centered Survey & Interview Questions Pre-service Teachers, Mentor Teachers	Assessment Centered Survey & Interview Questions Pre-service Teachers, Mentor Teachers	Knowledge Centered Survey & Interview Questions Pre-service Teachers, Mentor Teachers
Includes time and opportunity for collaborative learning to meet the needs of the individual learner,	*Includes reflection on practice and feedback while learning*	*Includes deeper understanding or new learning of content or pedagogy*
<u>Survey Question</u> <u>Pre-service Teacher</u> Do you think that you have impacted your cooperating teacher's professional collaboration? <u>Interview Question</u> <u>Pre-service Teacher</u> Do you think that you have impacted your cooperating teacher? In what ways? Do you think it has affected their collaboration of how they collaborate with others? Do you think you have impacted the way your cooperating teacher looks at different learner, students with different learning styles? <u>Survey Question</u> <u>Mentor Teacher</u>	<u>Survey Questions Pre-service Teachers</u> Do you think that you have impacted your cooperating teacher's reflection on practice? <u>Survey Question</u> <u>Mentor Teacher</u> Do you think that mentoring a student teacher has impacted your reflection on practice? <u>Interview Question</u> <u>Pre-service Teacher</u> Do you think that you have impacted your cooperating teacher? In what ways? Do you think that by having you in the classroom their reflection on what they teach is different?	<u>Survey Question</u> <u>Pre-service Teacher</u> Do you think that you have impacted your cooperating teacher's use of multiple teaching strategies? Do you think that you have impacted your cooperating teacher's use of strategies to meet the needs of diverse learners? <u>Survey Question</u> <u>Mentor Teacher</u> Do you think that mentoring a student teacher has impacted your use of innovative teaching strategies? <u>Interview Question</u> <u>Pre-service Teacher</u> Do you think that you have impacted your cooperating

Do you think that mentoring a student teacher has impacted your professional collaboration? <u>Interview Question</u> <u>Mentor Teacher</u> Do you think your teaching has been impacted by mentoring a student teacher? Do you think your collaboration was impacted by having a student teacher? Do you think you collaborated or talked more since you had a student teacher? Does this affect the amount of time you spend collaborating? What about collaboration … ..? What about the impact on your ….. collaboration? <u>Mylearningplan Question</u> <u>Mentor Teacher</u> How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)	Do you think her reflection and what she does is different or impacted by you? Do you think your cooperating teacher reflects differently with you in the classroom, reflects on the lessons? Do you think that you have impacted either one of your co-ops in a way that they reflected or thought about your teaching? Do you think her reflection and what she does is different or impacted by you? Do you think that having you in the classroom has impacted your cooperating teacher's reflection, how she thinks back on her lessons or teaching? <u>Interview Question</u> <u>Mentor Teacher</u> Do you think your teaching has been impacted by mentoring a student teacher? Does this affect your reflection on practice? What about … time for reflection?	teacher? In what ways? Do you think that you have impacted the strategies for the different kinds of learners in the classroom of your co-ops? Do you think that you brought any new technology to the class, or do you think your cooperating teacher was already comfortable with that? Do you think that you impacted your cooperating teacher's use of technology? <u>Interview Question</u> <u>Mentor Teacher</u> Do you think that having a student teacher impacted the strategies you used with different learners? Do you think that mentoring a student teacher has impacted your use of different strategies to meet the needs of diverse learners? Do you think your teaching has been impacted by mentoring a student teacher? What about the impact of learning new technology?

	What about the impact on your reflection ….. ? Do you think you reflected more on your teaching and student learning with a student teacher in your classroom? Do you think he impacted the way you reflect on your own lessons? <u>Mylearningplan Question Mentor Teacher</u> How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)	What about the strategies you are using, has he impacted your teaching the diverse learner? <u>Mylearningplan Question Mentor Teacher</u> How has your experience as a cooperating teacher impacted your professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.) How has the experience impacted your future teaching?

Data Analysis

Data for this study were sorted and classified using categorical analysis. According to Guba and Lincoln (1981) good category construction requires five components that were applied to this analysis. The first is that categories must reflect the purposes of the research. Consequently, the Optimal Learning Environment was used as the analysis framework to explore the impact of pre-service teachers on the learning environment of high school students and cooperating mentor teachers. In addition, categories were exhaustive; each piece of datum was placed in one mutually exclusive category. The classification of one piece of datum did not affect the placement of another piece. And finally each category was derived from a single concept for classification based on the components found in the theoretical framework of the

Optimal Learning Environment: learner centered, assessment centered, and knowledge centered (NRC, 1999).

The researcher used these three categories with which to sort all initial data. Data that focused on meeting the needs of the individual learner, either the high school student or teacher, through collaboration, support, or assistance was sorted under the learner centered environment. Any data focused on providing feedback to enhance learning or to encourage reflection on practice and revision of thinking by the learner was sorted under the assessment centered environment. Data that focused on understanding and the deeper learning of content was sorted as knowledge centered environment. "The naturalistic (qualitative) researcher would want the categories or classifications to emerge from looking at the collected data" (Guba and Lincoln, 1981, p. 244). Consequently, sub-categories were allowed to emerge from the data within each of the initial three categories. These sub-categories allowed the researcher to further explore the impact of the pre-service teacher on the learning environment of the high school students and the cooperating mentor teacher.

More specifically the survey data from the high school students, pre-service teachers and cooperating mentor teachers was first sorted into "positive" or "negative" " categories. A yes response was sorted as positive and a no response was sorted as negative. A response that was confusing to the researcher was sorted as "unsure" and a response that was both negative and positive from the same participant was sorted as "mixed". The data was next sorted into sub-categories that emerged in the responses. These sub-categories were identified by the researcher and can be seen in Chapter 4. The researcher used a coding and re-coding strategy so that all data was sorted and classified at least twice. After the data was categorized for each group of participants, the data was analyzed across these groups for comparison. The responses from the

high school students, the pre-service teachers and the mentor teachers were separated by groups and presented as different findings in chapter four. The cross group results were presented as part of the overall conclusions in chapter five.

After the data was categorized into major learning environment categories and emergent sub-categories for each group of participants, the data was analyzed across these groups for comparison as part of the process of triangulation. The responses from the high school students, the pre-service teachers and the cooperating mentor teachers were separated by groups and presented by category and sub-category in chapter four. The cross group triangulation or comparison of sub-categories was also presented in chapter four. Lastly, a thematic analysis was completed based on the cross group triangulation. Themes were identified to highlight the sub-categories of impact that emerged across the different groups of participants and to help explain how pre-service teachers might impact the Optimal Learning Environment of both teachers and students from the perspectives of high school students, pre-device teachers, and cooperating mentor teachers. These themes were presented as part of the overall conclusions in chapter five.

The Role of the Researcher

The role of the researcher in this study was to interact with the participants to investigate the participants' perceptions of the impact when a pre-service teacher is placed within the classroom. The researcher had a genuine interest in determining the perceptions of the participants but also an investment in the teacher education program.

Personal biases may interfere with the collection of data, as attributed to a researcher (Merriam, 1998). This qualitative study was designed so that the researcher might determine perceptions, both negative and positive and make changes to or improve the teacher education

program at Manhattan High School within the KSU PDS. The researcher for this study was diligent to avoid bias during the collection and analysis of data. All survey questions were pre-written and interviews recorded and then transcribed. The researcher also avoided using nonverbal cues, such as head nodding, smiling or frowning to encourage some responses during the structured interviews. The researcher provided time for participants to respond on all surveys without the researcher present. The surveys were anonymous. There was no reward or punishment awarded to participants from the researcher, although the mentor teachers did receive professional development points for completing the survey on mylearningplan. All cooperating mentor teachers, pre-service teachers and students were asked to participate.

Professional History of the Researcher

I am a former high school and middle school science teacher. I have taught science in grades seven through the freshmen level in college. I am currently a clinical instructor for pre-service teachers and an adjunct teaching a Principles of Biology course at a local community college. As a middle school teacher I taught the subjects of general science and physical science. As a high school teacher I taught the subjects of regular and advanced biology, zoology, health, and psychology.

The decision for me to leave the high school classroom and work full time with pre-service teachers was monumental. I am passionate about life and all the amazing biological processes required for existence. But I am just as passionate about teaching - quality teaching where the students are involved and learning and observing and making sense of the processes around them. I wanted to ensure that my excitement for and understanding of biology was shared and perhaps even instilled in my high school students a passion of their own. I believe in quality teaching and reaching every child and teaching for the real world (21st Century skills). It

was with great trepidation that I abandoned the classroom of high school learners to assume the role of clinical instructor in order to work with and supervise pre-service teachers at Manhattan High School.

So while I am a science teacher and observer of nature I am also a teacher of teachers and observer of pedagogy. Kansas State University has provided an exceptional amount of professional development/teacher education for me and all other clinical instructors placed in Professional Development Schools. We have been trained in mentoring, observing, planning and designing, and providing observational feedback for our pre-service teachers. But we have also been trained in how to read and score the *Kansas State University Teaching Portfolio* (KSU, 2012c). Specifically we have learned how to read the rubric with reliability so that our scores are valid. We have discussed and mulled over and argued about the meaning of each statement and defined terms. And we have finally reached agreement as to what the passing score or quality portfolio should look like. So over time we have participated in numerous professional development/teacher education opportunities and discussions related to the art of teaching and enhanced learning. I have learned to reflect on quality teaching and to base my conclusions on sound research and data.

Rights of Human Subjects

In this study the rules for the Kansas State University IRB process have been followed. The researcher also followed the approval process for the USD #383 School District for collection of data and research. The high school students, pre-service teachers and mentor teachers all remained anonymous but the high school and school district and university PDS are mentioned.

Trustworthiness

This study investigated the perceptions of high school students, mentor teachers, pre-service teachers regarding the impact of a pre-service teacher on the learning environment of the high school students and cooperating mentor teachers. The data for this study was collected using qualitative methods which were appropriate because the study focused on and analyzed descriptions and personal perceptions rather than numerical data (Creswell, 2007). There was no collection of numerical data from test or assignment scores or from performance. While triangulation of both qualitative and quantitative data allows for more credibility this study was based only on qualitative affective responses from the participants.

The trustworthiness of this study can be found in the multiple surveys and interviews of all willing participants. Guba in Silverman (Silverman, 2001) proposes four criteria that should be considered by qualitative researchers in pursuit of a trustworthy study: a) credibility (in preference to internal validity); b) transferability (in preference to external validity/generalisability); c) dependability (in preference to reliability); and d) confirmability (in preference to objectivity). The comparison of these four terms from a qualitative and quantitative design perspective can be seen below in Table 3.7.

Table 3-7 Comparison of Criteria by Research Approach

Criterion	Qualitative Approach	Quantitative Approach
Consistency	Dependability	Reliability
Truth Value	Credibility	Internal Validity
Applicability	Transferability	External Validity
Neutrality	Confirmability	Objectivity

Note. Modified from "Rigor in Qualitative Research: The Assessment of Trustworthiness", by L. Krefting (1991), *The American Journal of Occupational Therapy*, 45, p. 214.

Dependability (Reliability)

Dependability is the criterion that can be used to evaluate a study to determine if the results would be consistent if the research was replicated again. The question to ask regarding dependability is: Would a study with different participants and during a different time frame result in the same interpretation of the data? To ensure that others could replicate this study and thus enhance the dependability of the findings, the researcher provided a dense description of the data collection and analysis process and maintained an audit trail to document all coding and data analysis decisions.

The primary means of establishing dependability was the use of triangulation involving diverse sources of data and data collection methods. Including high school students, pre-service teachers, and cooperating mentor teachers as sources of data provided three different perspectives on the impact of the pre-service teachers on the learning environment. Triangulation of data collection methods ensured that the weakness of one method was supported by the strength of another. The researcher re-questioned the pre-service teacher and mentor teacher participants by collecting data first through surveys and secondly through interviews about the same experience regarding the placement of a pre-service teacher within the classroom. No follow up questions of students occurred due to the numbers of students who participated initially.

In addition, there was prolonged engagement by the researcher and other previous clinical instructors collecting data from high school students, pre-service teachers and mentor teacher participants throughout the previous years creating an environment of willingness and acceptance from participants in the data collection process and an opportunity to compare the

results of this study with earlier findings (Guba, 1981; Knafl and Breitmayer, 1989; Krefting, 1991; Kirk and Miller, 1986; Lincoln and Guba, 1985).

Credibility (Internal Validity)

Credibility is the criterion that can be used to evaluate the trustworthiness of strategies or tools used in research. The question a researcher must determine to enhance credibility is: Is this research measuring what is intended to be measured? The researcher employed several strategies to enhance credibility including prolonged engagement with the participants. While this strategy may not be appropriate in quantitative data collection it does allow the participants in a qualitative study to become more familiar with the researcher, increasing rapport and the type of and amount of information collected. Increased engagement and familiarity can lead to truer data collection because the participants may not respond the way "they think is appropriate", but respond more honestly (Guba, 1981; Knafl and Breitmayer, 1989; Krefting, 1990; Kirk and Miller, 1986; Lincoln and Guba, 1985).

The use of triangulation also enhanced credibility. According to Berg (1995), "triangulation is restricted to the use of multiple data-gathering techniques (usually three) to investigate the same phenomenon. This is interpreted as a means of mutual confirmation of measures and validation of findings" (p 3). The data were triangulated by including surveys and interviews from all willing participants (students, pre-service teachers, and cooperating mentor teachers). Triangulation of data collection methods ensured participants had ample opportunities to present their honest and complete perspectives. The same questions were asked in several different ways on surveys and interviews and interview questions were reframed when necessary to ensure participants understood the questions and provided expanded responses related to the Optimal Learning Environment. These multiple sources of data and data collection strategies

allowed the researcher to make comparisons across survey and interview data and across participant responses (Knafl and Breitmayer, 1989). In addition, participants were not coerced to participate, the participants were not selected at random and none were excluded.

Peer debriefing is an additional strategy used by the researcher to enhance credibility. The researcher's major advisor served as a peer debriefer providing another opinion on the designation of categories and subcategories, and the alignment between categories, data, and the Optimal Learning Environment.

Transferability (External Validity)

Transferability is the criterion used to determine if findings from a study can be applied or transferred to another setting. In quantitative research this is referred to as generalizability. Qualitative research is not designed to be generalized to all settings, but it may be transferable to similar settings. It is the responsibility of the researcher to provide rich, thick descriptions of the research setting, participants, all data collection and analysis strategies, as well as the findings. It is the responsibility of the readers to determine if the study might then be transferable to their own setting (Lincoln and Guba, 1985).

The researcher has described in depth the setting, participants, background, methods of data collection, analysis, findings, and conclusions. These descriptive details should provide enough information for another to determine how transferable the study's findings are. This study was specific to a KSU PDS high school with a clinical instructor in place and a close partnership with the KSU PDS. The perceptions of high school students, pre-service teachers and cooperating mentor teachers may not be similar when compared to a non PDS high school in which a pre-service teacher is placed. The findings might be transferable, however, to other PDS settings, especially within the KSU PDS partnership schools. While the background, setting, and

participants were unique to Manhattan High School during the fall semester of 2013, they are representative of others within PDS in similar situations. And another researcher could clearly follow the guidelines provided for this study investigating the impact regarding pre-service teachers on high school students and mentor teachers within a PDS.

Confirmability/Objectivity

Confirmability is the criterion used to determine if data analysis is objective, impartial, and free of bias. The question a researcher must ask to enhance confirmability is: would other researchers make the same interpretation given the same data. This study does show confirmability. The goal is for a peer, colleague, or auditor to review this study, the data collected, and analysis decisions then arrive at the same interpretations and conclusions. An audit trail is also a useful practice to enable this process and thus an audit trail was maintained. In addition, the major advisor served as an auditor by following the natural progression of this study. The major advisor questioned how and why decisions were made regarding the study design, participants, and methods of data collection and analysis. As previously mentioned, the major advisor also served as a peer debriefer providing an additional perspective related to data analysis and confirming data analysis decisions, placement of responses and quotes within categories and subcategories, and the overall conclusions of the study.

In addition, the researcher was aware of the problems associated with her role as both researcher and clinical instructor. While this was not an action research project, in the past, the researcher has successfully completed a graduate level course on action research and has participated in several other research studies. She has designed action research projects related to student learning for her own classroom and is aware of research protocol. Due to these experiences, she is aware of data collection and researcher bias. The researcher also partnered

on scientific research projects while an undergraduate involved in the biological sciences in a traditional research lab setting. As such, the researcher was aware of the dual role she played as both the clinical instructor and the researcher.

Limitations of the Study

The greatest limitation of this study is the small number of participants. During this study there were only eight pre-service teachers placed at Manhattan High School, this is fewer than the average number in the fall semester. As many as twenty pre-service teachers have been placed at MHS during the fall semester. Another limitation is the number of cooperating mentor teachers who participated and the background of some of these teachers. This study included one cooperating mentor teacher who had not worked with or mentored a pre-service teacher successfully and her expectations and lack of experience may have affected her responses as she had no comparison for this experience. She also did not complete a traditional teacher education program within a PDS school and may have unusual expectations or be unable to understand the research-based teaching strategies used by the pre-service teacher. In a normal semester at MHS most cooperating teachers are experienced with mentoring KSU pre-service teachers and have experienced or are familiar with the traditional teacher education program themselves.

The researcher sought to overcome the limitations of this study by reviewing and comparing data from this study to data previously collected from cooperating mentor teachers and students. While previous survey and interview questions were not the same nor were they designed to align with the Optimal Learning Environment, the data provided additional triangulation regarding the impact of a pre-service teacher on the learning environment of high school students and cooperating mentor teachers.

Although the numbers and experience of the pre-service teachers and cooperating mentor teachers was limited, the researcher was able to survey a large number of high school students. Since there was no shortage of responding students, and they were of all ages and class assignments, their response should bolster the data collected from the pre-service teachers and the mentor teachers providing additional evidence regarding pre-service teachers' impact on the Optimal Learning Environment.

In addition, this research was based on researcher designed surveys and interview questions. Many of these questions were similar to those used as part of the PDS evaluation process over the previous 20 years, but a pilot study was not conducted using the exact surveys and interview questions from this study. Similarly, the mylearingplan electronic cooperating mentor teacher survey was not piloted by the researcher but had been used by the Manhattan-Ogden school district for several years previously to collect data from the cooperating mentor teachers. The high school student surveys were distributed and collected by the cooperating mentor teachers and the pre-service teachers and then given to the researcher. These surveys were conducted at the end of the placement for the pre-service teachers after they were finished teaching and grading assignments from the high school students. However the presence of the pre-service teacher as the high school student surveys were completed may have influenced the responses of some high school students.

Summary

This chapter described the purpose, questions and design of this study along with the research setting and participants. It also elaborated on the theoretical framework, methods of data collection and analysis, and strategies to ensure trustworthiness. The framework for this study was based on research related to the Optimal Learning Environment (NRC, 1999). In the

synthesis of the literature, the researcher found that the learning environment of a classroom is crucial for learning. The Optimal Learning Environments identified as the theoretical framework for this research included: learner centered, assessment centered and knowledge centered environments. The fourth learning environment identified by the NRC (1999), a community centered environment, was not specifically addressed in this research as it is not a variable which the pre-service teacher can impact when placed in another teacher's classroom. But an essential component of a community centered environment is collaboration which was included as part of the learner centered environment.

Chapter 4 will discuss the analysis of the data collected from all participants. The findings of this study may be used in the future to assess the effectiveness of the Professional Development School at Manhattan High School and also the benefits that the partnership may provide. The findings may further be used to make revisions or implement changes in the teacher education program at Kansas State University.

Chapter 4 - Introduction

The purpose of this study was to investigate the perceived impact of pre-service teachers on the learning environment of the professional development school in which they are placed for their final clinical experience. More specifically this study sought to explore the perceived impact on the learning environment of the students who were taught by the pre-service teachers and the cooperating teachers who mentored them. The theoretical framework for this study is based on the synthesis of the research on the Optimal Learning Environment (NRC, 1999). This framework addresses the learning environment of both the students and the mentor teachers.

The research questions for this study are based on the general research question: In what ways do pre-service teachers impact the learning environment of the PDS in which they complete their final clinical experience?

a. In what ways do the high school students who are members of the classroom in which a pre-service teacher is placed perceive their learning environment is impacted by the pre-service teacher?

b. In what ways do cooperating teachers who are mentoring a pre-service teacher perceive their learning environment is impacted by the pre-service teacher?

c. In what ways do pre-service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the high school students they teach?

The framework, synthesized from the research on how people learn (NRC, 1999) includes four crucial components that must be in place to create an Optimal Learning Environment: (a) learner centered, (b) assessment centered, (c) knowledge centered, and (d) community centered. The researcher analyzed all data collected on the perceived impact of the pre-service teacher on the Optimal Learning Environment for high school students and

cooperating mentor teachers from the perspective of the first three components. The fourth component, (d) community centered, was not analyzed in this study due to its expansive nature that is often beyond the impact of a pre-service teacher.

Surveys were collected to gauge the perceived impact from high school students. Surveys and interviews were used to collect data from the pre-service teachers and cooperating mentor teachers. Direct answers to questions, such as yes or no, were classified according to these responses: yes, no, unsure, or mixed. Open-ended explanations to the questions were categorized according to the three categories of the Optimal Learning Environment. All open-ended data was thus analyzed and categorized initially as learner centered, assessment centered and knowledge centered. The data were then analyzed for patterns within each of the three learning environment categories and sub-categories were identified. To guide the coding process, the researcher adapted NRC (1999) descriptions of the Optimal Learning Environment categories to create researcher definitions, specific to this study, to clarify the impact on student and teacher learning when a classroom has an Optimal Learning Environment (see Tables 4.1 and 4.2 below).

Table 4-1 Researcher Definitions of Optimal Learning Environment for High School Students

Learner Centered	Assessment Centered	Knowledge Centered
Researcher Definition	Researcher Definition	Researcher Definition
Includes individualized assistance to meet the needs of the individual student learner	*Includes appropriate assessment formats with feedback for student learning*	*Includes deeper learning of the content with appropriate strategies*
<u>The Learner Centered Environment Provides:</u> Personalized learning	<u>The Assessment Centered Environment Provides:</u> Timely and continuous	<u>The Knowledge Centered Environment Provides:</u> Different or new perspectives

assistance for the individual students' needs Additional assistance for the individual student A supportive learning environment with assistance to enhance individual student learning	feedback while learning, applying and practicing new skills and knowledge Feedback and answers to questions to encourage students revision of thinking Explanatory responses to allow the students to assess their own learning and understanding.	on learning Multiple appropriate content relevant teaching strategies to enhance student learning Strategies to deepen student learning, understanding and sense making of the new content

Note. Adapted by the researcher from the synthesis of the literature and the NRC (1999)

Table 4-2 Researcher Definitions of Optimal Learning Environment for Mentor Teachers

Learner Centered	Assessment Centered	Knowledge Centered
Researcher Definition	Researcher Definition	Researcher Definition
Includes time and opportunity for collaborative learning to meet the needs of the individual learner,	*Includes reflection on practice and feedback while learning*	*Includes deeper understanding or new learning of content or pedagogy*
<u>The Learner Centered Environment Provides:</u> A supportive learning environment for the individual teacher learning in collaboration with peers (including pre-service teachers) Support for the pedagogical needs and goals of the individual teacher to help them monitor and enhance their own learning Time and opportunity for job	<u>The Assessment Centered Environment Provides:</u> Opportunities for teacher self-assessment of learning through reflection on practice with peers (including pre-service teachers) Timely and continuous feedback while learning, applying and practicing new pedagogical and content skills and knowledge Ongoing assessment of new learning and revision of	<u>The Knowledge Centered Environment Provides:</u> Opportunities to develop new knowledge or deepen the conceptual understanding of content and pedagogy Opportunities to develop new learning, understanding or use of technology. Opportunities to develop shared researched based knowledge in collaboration with colleagues (including pre-service teachers)

embedded practice and ongoing support of new learning	thinking about pedagogy	

Note. Adapted by the researcher from the synthesis of the literature and the NRC (1999)

Results of the data analysis based on each data source (surveys and interviews from Manhattan High School Students, Pre-service Teachers and Mentor Teacher) will be described under separate headings and sub-headings below.

Manhattan High School Student Surveys

One hundred thirty Manhattan High School students completed a researcher-designed survey in class. In some cases they completed and responded to all of the questions while in other cases one or more of the questions were left blank. On some surveys the students responded with a yes or no only and did not respond with additional information, and on other surveys they just began responding without including yes or no. Overall 452 individual responses were analyzed and classified from the students in response to four different survey questions (see Appendix D):

Learner Centered Learning Environment

1. Do you think that your learning has been impacted with a KSU student teacher in your classroom providing assistance to you? In what ways? Explain.

Assessment Centered Learning Environment

2. Do you think that your learning has been impacted by the feedback (help) from a KSU student teacher in your classroom? In what ways? Explain

Knowledge Centered Learning Environment

3. Do you think that your learning has been impacted from the multiple teaching strategies used by a KSU student teacher in your classroom? In what ways? Explain.

Open Response

4. What other comments do you have related to the impact on your learning from your student teacher?

While each pre-service teacher administered and collected the anonymous surveys, the surveys were analyzed en mass by the researcher. The responses and quotes from different students from different classes are mixed throughout the analysis. The pre-service teachers collected data from only their one focus class, the class featured in the *KSU Teaching Portfolio* (2012b). The age and class assignment of the students was dependent upon the cooperating mentor teachers' schedule of courses taught. Five focus classes were comprised of only 9th grade students and three other focus classes were comprised of tenth through twelfth grade students. Three of the classes were advanced classes and the other five were a mix of students at different levels of achievement (see Table 4.3 below). All high school student responses were analyzed in a whole group with mixed age and class assignment. The group's high school student participants were of varying levels of achievement, age, gender, race and ethnicity. Due to the anonymity of the surveys, this information was not available to the researcher for individual students or classes.

Table 4-3 Types of High School Students Responding on the Survey

9th Grade class	10th – 12th Grade Class	Advanced Class	Regular Class
5	3	3	5

Note. The researcher collected these numbers from the pre-service teachers

One hundred twenty seven of 130 Students responded to explain further on question 1, 126 of 130 responded to question 2, 122 of 130 responded to question 3 and 77 of 130 responded to question 4. Some students responded multiple times in response to the same category on different questions. A response to feedback, use of different strategies or help and assistance was

counted even if it was found multiple times in response to different questions. So the number of responses to an identified category may have been higher than the number of surveys completed.

The responses to the student survey questions were sorted by yes, no, unsure or mixed responses by the researcher. Initial plans to sort responses were based on yes and no only, but after analyzing the data the researcher realized that there were two additional categories of unsure and mixed. The researcher identified all positive responses regarding impact on the learning environment as yes and all negative responses as no. The researcher identified the category of unsure if the response was ambiguous and the researcher could not determine if it was positive or negative and mixed if the student response contained both positive and negative responses.

The researcher sorted all open-ended student responses into the three learning environment categories (learner centered, assessment centered and knowledge centered) based on researcher definitions provided previously for each category. The researcher sorted responses for the best fit within these three learning environments regardless of the learning environment for which a particular question was designed. For instance 71 students responded positively to question 4, but few responses were related to students' perceived impact on learning as requested. Students might respond about strategies used by the pre-service teacher on questions 1 or 3 and mention feedback on question 2. In many cases, one response might have addressed more than one learning environment. The researcher coded these responses with overlap into the most appropriate category.

The survey data collected from the Manhattan High School students were overwhelmingly positive related to the impact on the Optimal Learning Environment by having a

pre-service teacher placed in their classroom (see Table 4.4 below). These data will be described in separate sections below based on the three categories of the Optimal Learning Environment (a) learner centered, (b) assessment centered and (c) knowledge centered.

Table 4-4 Manhattan High Student Survey Responses Regarding Optimal Learning Environment

Optimal Learning Environment	Questions and Responses
Learner Centered Learning Environment	Do you think that your learning has been impacted with a KSU student teacher in your classroom providing assistance to you? In what ways? Explain
Yes (Positive)	121
No (Negative)	5
Unsure (Ambiguous)	2
Mixed (Both)	2
Total Responses	130
Assessment Centered Learning Environment	Do you think that your learning has been impacted by the feedback (help) from a KSU student teacher in your classroom? In what ways? Explain
Yes (Positive)	125
No (Negative)	3
Unsure (Ambiguous)	1
Mixed (Both)	1
Total Responses	130
Knowledge Centered Learning Environment	Do you think that your learning has been impacted from the multiple teaching strategies used by a KSU student teacher in your classroom? In what ways? Explain.
Yes (Positive)	115
No (Negative)	8
Unsure (Ambiguous)	5
Mixed (Both)	2
Total Responses	130

Other Comments	What other comments do you have related to the impact on your learning from your student teacher?
Yes (Positive)	71
No (Negative)	6
Unsure (Ambiguous)	
Mixed (Both)	
Total Responses	77

Note. The researcher categorized the high school student responses according to the NRC (1999)**.**

Manhattan High School Student Surveys: Learner Centered Environment

The first area to be explored from the Manhattan High School student surveys was the learner centered learning environment and whether the students perceived that their personal learning environment had been impacted by a KSU pre-service teacher providing additional assistance in their classroom. Table 4.4 shows that out of a total of 130 student responses to this question, 121 were coded as positive; students' perceived that their learning had been positively impacted by a pre-service teacher providing assistance to them**.** Five students responded negatively, 2 were coded as unsure by the researcher and 2 were coded as mixed, including both positive and negative comments in the response.

Any open ended responses to any of the survey questions that provided evidence of impact on learner centered learning environment, based on the researcher's definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and four subcategories were identified: *personalized individual assistance, additional assistance, creation of caring and supportive environment, and relatedness of the pre-service teacher.*

Twenty-seven students mentioned *personalized individual assistance* (see Table 4.5 below). This subcategory included any references to meeting the unique, diverse, or

individualized needs of the students. Examples of this sub-category included one on one help, help to catch up, and individualized assistance in learning the content. Student responses coded into this sub-category included: "I got one on one help" (High School Student 3.14); "I get help from the way the info [*sic*] was provided" (High School Student 7.5); "More help more individual experiences (High School Student 1.4).

Thirteen high school students described the *additional assistance* provided by the pre-service teacher. This sub-category focused on the benefits of two teachers to provide additional help and assistance when needed. Examples of this sub-category included the pre-service teacher providing help when the cooperating mentor teacher was absent or busy, providing additional guidance or assistance beyond what he or she provided, and providing continuous assistance to all students in the classroom even when not asked. Students mentioned: "Having a student teacher in the classroom helps because the teacher may be busy and having another person in the room to help you is great" (High School Student 2.3); "When the teacher is absent usually your substitute doesn't keep teaching you, but they [sic] would just give you a worksheet. If you have a student teacher they [sic] could keep teaching and helping" (High School Student 1.3).

Nine high school students discussed ways in which their student teachers helped to create a *caring and supportive classroom environment*. Although the idea of the pre-service teacher caring about his or her students was not initially considered in the design of this study, it did occur in the student responses. Students indicated they felt close to the pre-service teacher, the pre-service teacher made them feel safe, supported, and comfortable, the pre-service teacher was approachable, and understood the students. Students said: "The lessons were very effective and we've gotten really close to the teacher" (High School Student 8.15); "They helped us a lot in most classes because they really care" (High School Student 8.4).

Eleven high school students referred to the *relatedness* of the pre-service teacher. This sub category was not originally considered in the design of this study, but emerged from the student responses. Students felt connected or related to the pre-service teachers because they were closer in age. Their comments included: "It is easier to ask questions too because student teachers are more our age [sic]" (High School Student 1.1); "He's kind of easier to be with because they [*sic*] are more close to our age" (High School Student 1.4); "They are younger and are in the same generation as us [sic] so they thing [*sic*] the same way" (High School Student 7.4).

Five students responded negatively regarding the learner centered environment. Some comments included, "I did not learn much" (High School Student 3.8), and "I learned nothing new" (High School Student 4.15). One student mentioned that she was not comfortable with the pre-service teacher. The four sub-categories along with the numbers of responses in each sub-category within the learner centered environment are seen in Table 4.5 below.

Table 4-5 Manhattan High School Student Survey Responses: Learner Centered Sub-Categories

Learner Centered Environment Sub-Categories	Number of Student Responses in Each Sub-category
Personalized individual assistance	27
Additional assistance	13
Creation of Caring and supportive environment	9
Relatedness to the pre-service teacher	11
Total number of student responses to all survey questions	452

Note. The researcher sorted response into categories and then sub-categories.

Manhattan High School Student Survey: Assessment Centered Learning Environment

The second area explored on the high school student survey was the assessment centered learning environment. This was to determine whether high school students perceived that their learning environment had been impacted by the pre-service teacher using appropriate assessment formats with feedback for student learning. Out of a total of 130 responses to this prompt, 125 responses were positive that their learning had been positively impacted by a pre-service teacher providing feedback. Three students responded negatively, 1 was coded as unsure by the researcher and 1 was coded as mixed, including both positive and negative comments in the response.

The open-ended responses to any survey questions that provided evidence of impact on the assessment centered learning environment, based on the researcher's previous definitions were sorted into this category. After sorting responses into this initial category, the researcher looked for additional patterns in the data and three sub-categories were identified: consistent feedback, timely feedback and explanatory feedback (see Table 4.6 below).

Eleven students mentioned the *consistent feedback* provided by the pre-service teacher. This sub-category included references to always providing feedback, and answering all questions. Students perceived that they received ongoing feedback in class and that the pre-service teacher was there to answer questions or help them. Student responses coded into this category included: "She has been able to answer or researched and answered every question I've had" (High School Student 3.13).

Timely feedback was mentioned by 9 students. This sub-category consisted of responses related to receiving feedback quickly when it was most needed to impact learning. Timely

feedback was provided by the pre-service teachers on assignments and during class to help students revise their thinking. Comments included: "I got help when I needed it" (High School Student 1.12); "Because they have helped me when I needed ….. (High School Student 3.15).

The sub-category of *explanatory feedback* was mentioned 4 times by high school students. This category consisted of responses related to receiving explanations to enhance understanding. The students mentioned that they understood better from the explanation provided by the pre-service teachers because they were easier to understand than when the mentor teacher explained. Some said this feedback helped them learn and make revisions to their work and thinking. Students said "I think it has because of the extra feedback cleared [*sic*] a lot of topics for me and helped me to gather a better understanding of the lesson that was at hand" (High School Student 3.1); " ….. made things more understandable and simple" (High School Student 3.4); "He would explain things over again if you needed him to and would help you work through the problem not just give you the answer" (High School Student 4,14); "If I ask a question it comes back [sic] with a very thorough and descriptive answer" (High School Student 1.1).

Three students responded negatively regarding the assessment centered learning environment. Some comments included: "They do what the main teacher tells them to do" (High School Student 8.14) and "My grades or views of the subject aren't different" (High School Student 8.11). Table 4.6 provides a synthesis of the sub-categories that emerged from the assessment centered responses and the numbers of responses that could be sorted by the researcher into each identified sub-category**.**

Table 4-6 Manhattan High School Student Survey Responses: Assessment Centered Sub-Categories

Assessment Centered Environment Sub-Categories	Number of Student Responses in Each Sub-Category
Consistent feedback to students	11
Timely feedback	9
Explanatory feedback for understanding	4
Total number of student responses to all survey questions	452

Note. The researcher sorted response into categories and then sub-categories.

Manhattan High School Student Surveys: Knowledge Centered Learning Environment

The third area explored on the high school student survey was the knowledge centered learning environment. This question was designed to explore the pre-service teachers use of appropriate strategies to build *deeper understanding of the content*. A total of 130 student responses were provided in response to this question. One hundred fifteen responses were positive indicating that their learning had been positively impacted by a pre-service teacher using multiple teaching strategies. Eight student responses were negative, 5 were coded as unsure and 2 were coded as mixed, which included both positive and negative comments in the response.

The open ended responses to any of the survey questions that provided evidence of impact on the students' knowledge centered learning environment, based on the researcher's previous definition were sorted into this category. The researcher then examined all responses for patterns and trends in the data and three sub-categories emerged: the use of appropriate learning strategies, the use of engaging strategies, and teaching from a different perspective (see Table 4.7 below).

Seven students responded on the survey about the use of *appropriate learning strategies* by the pre-service teacher. This sub-category of appropriate learning strategies included any references to the use of multiple strategies and learning differently through these strategies. These students perceived that they learned better through the different strategies that the pre-service teachers used. The students perceived an impact on their learning as mentioned in their responses: "It made a lot of things clear to me and I liked the different strategies because sometimes I couldn't understand one way … we did it a different way" (High School Student 6.12); " Because we didn't just use the same way each time we would learn in many different ways with that lesson [*sic*]" (High School Student 7.7); "Hands on type people [sic] might have trouble learning by taking notes, but would learn much better if we did something hands on" (High School Student 1.1).

Three students mentioned the use of *engaging strategies*. This sub-category included references to assignments or activities that were perceived as fun and or interesting. The students perceived that the pre-service teacher used more teaching strategies and assignments that kept their attention. Student responses coded into this sub-category included: "I really enjoyed making models with play dough and playing review games" (High School Student 3.2); "By having more teaching strategies it keeps it more interesting [*sic*]" (High School Student 3.6); "I liked the strategies used by our student teacher. They were much more hands on and interactive than most other teaching methods I have seen and I feel that I learned much more efficiently as a result" (High School Student 5.1).

Nine students mentioned that the pre-service teachers taught from a *different perspective*. This sub-category included any references to the pre-service teacher's perspective and different or newer content taught. Student responses coded into this sub-category included: "Because

having a teacher and then a student teacher offers different perspectives" (High School Student 1.11); "There were multiple methods for one problem that was being worked on & it helped me in finding easier paths" (High School Student 3.1); "It gives more points of view on the subject" (High School Student 1.6).

Eight high school students responded negatively, some of their comments were "I never need assistance because I learned nothing new" (High School Student 4.15) and "Maybe a little but not a lot when I had questions they never really answered the question I asked" (High School Student 5.6). Two responses included a simple no with no additional explanation. Table 4.7 includes the sub-categories identified within the knowledge centered environment and the numbers of responses that could be sorted by the researcher into the each sub-category.

Table 4-7 Manhattan High School Student Survey Responses: Knowledge Centered Sub-Categories

Knowledge Centered Learning Environment Sub-Categories	Number of Student Responses in Each Sub-Category
Appropriate learning strategies	7
Engaging	3
Different perspective	9
Total number of student responses to all survey questions	452

Note. The researcher sorted response into categories and then sub-categories.

Manhattan High School Student Surveys - Other Comments

The fourth and final question included on the high school student survey provided an opportunity for students to add any additional comments related to the pre-service teachers impact on their leaning. Again the students' perceptions were overwhelmingly positive

indicating that their Optimal Learning Environment had been impacted in a positive way when a pre-service teacher was placed in their classroom. Seventy-one out of seventy-seven high school student responses to this question were positive regarding the placement of the pre-service teacher within their classroom. Six students responded negatively in regards to their pre-service teacher.

Pre-service Teachers Surveys Regarding Impact on Students

The pre-service teachers were provided the option to complete a survey at the end of their clinical practicum experience (see Appendix E). It was not required, but all 8 of the pre-service teachers completed the survey. Manhattan High School is a PDS school and routinely collects data from all of the participants. The questions on the researcher designed survey were all aligned with the conceptual framework addressed in the Optimal Learning Environment (see Table 4.8 below). As the responses were sorted, the researcher assigned a yes or no if the response from the pre-service teachers on the survey were definitely positive or definitely negative. There was no need for the researcher to assign an unsure or mixed response in the survey analysis as all were positive or negative. The researcher sorted the interview responses into one of the three categories (leaner centered, assessment centered and knowledge centered) within the NRC (1999) Optimal Learning Environments previously described. The responses were analyzed as a whole group. As Table 4.8 shows, the survey data collected from the pre-service teachers was overwhelmingly positive as to their perception of impact on the learning environment for high school students. Open-ended responses are discussed separately below according to the learning environment into which they were sorted.

Table 4-8 Pre-service Teacher Survey Responses Regarding Optimal Learning Environment for High School Students

Optimal Learning Environment	Questions and Responses
Learner Centered Learning Environment	Do you think that you have impacted student learning with additional assistance? In what ways?
Yes	8
No	0
Assessment Centered Learning Environment	Do you think that you have impacted student learning by providing feedback to the students? In what ways? Explain
Yes	8
No	0
Knowledge Centered Learning Environment	Do you think that you have impacted student learning by the multiple teaching strategies you used?
Yes	8
No	0
Other Comments	What other comments do you have related to your perceived impact on the students?
Positive	4
negative	

Note. All responses were sorted by the researcher.

Pre-service Teacher Surveys: Learner Centered Environment for High School Students

The first question on the pre-service survey was designed to explore the learner centered environment and whether pre-service teachers perceived that their placement within the classroom impacted the high school students by providing additional assistance. Out of a total of 8 pre-service teachers responding to this prompt all 8 responded positively that the learning environment of the high school students was impacted positively by providing additional assistance to them.

Any open ended responses to any of the survey questions that provided evidence of impact on the learner centered learning environment for high school students, based on the researcher's previous definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and three subcategories were identified. The sub-categories that emerged from this data included: *additional assistance, personalized individual assistance, a supportive caring environment and relatedness to the pre-service teacher* (see Table 4.9 below).

Pre-service teachers mentioned *additional assistance* 14 times when talking about their perceived impact for the high school students learning environment. This sub-category focused on the benefits of having another adult in the classroom to provide help when the teacher was absent or busy or providing assistance beyond what the mentor teacher could provide. Examples from the pre-service teachers included: working with small groups, working with students while the cooperating mentor teacher was busy, providing additional learning feedback. Pre-service teacher responses coded into this sub-category included, "Giving the students another person in the classroom is very effective" (Pre-service Teacher 1).

> There were times when I was able to assist students while my co-op was teaching in the class or with another group or individual, I was able to address other students in the class, giving multiple students or groups of students the opportunity to learn or address issues they had with the lesson (Pre-service Teacher 1).

Pre-service teachers mentioned *personalized individual assistance* six times in their responses. This sub-category included any references to meeting the unique needs of the high school students, one on one assistance, and individualized assistance, helping the high school student catch up in learning content. Examples from pre-service teachers included: working with small groups, working one on one, and responding to individual questions. Pre-service teacher

responses coded into this sub-category included: “Students seemed to appreciate the times when I was able to work on a more individual level with them, and addressing questions any student in the class had during a lesson was a major goal of mine” (Pre-service Teacher 1). And

> Additional assistance from the student teacher often meant more individual time for instruction and further development of procedures. What I mean by that is the student was not left stranded. The teacher could continue to teach the class while the student teacher helped the student individually with whatever he needed additional clarification with (Pre-service Student 8).
>
> Having two teachers in the classroom really was a huge benefit to the students. It allowed for us to take more one-on-one time with students who were struggling to understand a concept, or even just a student who had become unorganized and needed help getting his/her things together and finding missing work. It also allowed me to be able to spend a lot of time with students who were in ISS and needed to be caught up on work (Pre-service Teacher 3).

Six pre-service teachers mentioned a *caring and supportive classroom environment.* Although the idea of the pre-service teacher caring about the high school students was not initially considered in the design of this study it did occur and the researcher coded for it in the learner centered environment. This sub-category included any responses about a supportive, caring, comfortable environment with a closeness developing between students and the pre-service teacher. Examples from this sub-category included: the pre-service teacher cared about the students, the learning environment included respect, and the pre-service teachers felt that the students knew they cared. Pre-service teachers said:

> I feel that I was able to create an environment of caring for my students. My students knew I cared how they performed and it was of utmost importance that they do their best. I feel like this relationship was able to benefit all of my students and helped them to perform even better than many thought they were capable (Pre-service Teacher 4).
>
> I believe that I have showed my students that I truly care about their success in the classroom showing that I care, we have created a respect [sic] between one another and the students respect each other (Teacher 7).

> I feel that I was able to create an environment of caring for my students. My students knew I cared how they performed and it was of utmost importance that they do their best (Pre-service Teacher 3).

One pre-service teacher mentioned his age compared to that of the students. The researcher coded this sub-category as *relatedness.* The sub-category of relatedness also was not expected by the researcher. This sub-category included any reference to the age of the pre-service student as related to the students. Examples of the relatedness sub-category include age and perspective. The pre-service teacher said, "And having a different perspective than my co-op allowed for discussion to take place in class, with perspectives coming from students, a current college student and post grad (Pre-service Teacher 1). The sub-categories and number of responses in each sub-category identified within the larger category of learner centered learning environment are seen in Table 4.9 below.

Table 4-9 Pre-service Teacher Survey Responses: Learner Centered Sub-Categories for High School Students

Learner Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-category
Additional, consistent assistance	14
Personalized individual assistance	6
Supportive, caring environment	6
Relatedness to the pre-service teacher	1
Total number of pre-service teacher responses to all survey questions	8

Note. The researcher sorted the responses into sub-categories

Pre-service Teacher Surveys: Assessment Centered Learning Environment for High School Students

The second question on the pre-service teacher survey was designed to investigate the pre-service teacher's perceived impact on the assessment centered learning environment for the

high school students. All 8 of 8 pre-service teachers believed that their placement in classroom with the high school students impacted the student learning environment in a positive way.

All open ended responses from the pre-service teachers on this survey that provided evidence of impact on the high school students' assessment centered environment, based on the researcher's previous definition, were coded into this initial category. The researcher next sorted the responses for trends and patterns and sub-categories were identified. These sub-categories included: *explanatory feedback that made it easier for students to understand, timely feedback that occurred during the learning process and positive feedback to the students* (see Table 4.10 below).

Six pre-service students mentioned *explanatory feedback* for the high school students in their survey responses. This sub-category included any references to feedback to explain or assist students in understanding the content. This sub-category of explanatory feedback focused on explanations for the students to clarify what they were learning. Examples from this sub-category included: providing different types of feedback, providing feedback in steps or to help them understand using different strategies. Pre-service teachers responded: "I do think I used feedback in a way that helped students understand the material even better" (Pre-service Teacher 3); "and if they still don't understand I try to give them feedback using different explanation strategies [*sic*]" (Pre-service Teacher 7); "I have impacted students in a positive way. I provide them…. with feedback that helped students see what problems they were making along the way rather than just showing correct or incorrect answers" (Pre-service Teacher 4).

Two pre-service teachers mentioned providing *timely feedback* to the students related to their learning environment. In this sub-category, examples include responding to students in

class and when they are working on assignments and feedback is timely to benefit student learning. Pre-service teachers said: “If the students have questions, I will address them then and there “(Pre-service Teacher 7); “When I had students present concepts to the class, I was sure to clear up any misunderstandings during the presentation’(Pre-service Teacher 3).

Three pre-service teachers stated on the survey that they provided *positive feedback* to the high school students. This sub-category included any reference to pre-service teachers providing positive feedback verbally or in written form. Examples of this sub-category include positive written comments on assignments if the students are correct but also if they are not correct and the positive comments can provide some direction. Positive comments to the high school students could also be verbal during work on assignments. Pre-service teachers mentioned:

> When grading student work, I am always sure to write comments when I feel necessary. For example, if a student seems very confident in their answer, but is incorrect, I will be sure to guide them towards the right thought process. And if a student is on the right track, but just isn't getting a certain part, I would write something to inspire thought in that direction, thereby enforcing what they had already, but emphasizing a little bit more (Pre-service Teacher 3).
>
> I feel that when I taught my lessons I impacted my students through the feedback I provided them. I fell [*sic*] that my attitude helps keep them positive and therefore my positive feedback continually kept students willing to work and get better (Pre-service student 2).

The sub-categories and number of responses in each sub-category identified within the larger category of assessment centered learning environment are seen in Table 4.10 below.

Table 4-10 Pre-service Teacher Survey Responses: Assessment Centered Sub-Categories for High School Students

Assessment Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Explained and made easier to understand	6
Timely feedback	2
Positive responses to students	3
Total number of pre-service teacher responses to all survey questions	8

Note. The researcher sorted the responses into sub-categories

Pre-service Teacher Surveys: Knowledge Centered Learning Environment for High School Students

The third question on the pre-service teacher survey was designed to investigate the knowledge centered learning environment of the high school students. This was to explore whether pre-service teachers perceived that by their placement within the classroom, they had impacted the knowledge centered learning environment of the students. Overwhelmingly positive, 8/8, all of the pre-service teachers believed that the strategies they used to teach the high school students, impacted the student learning environment in a positive way.

All open ended responses to the survey questions that provided evidence of impact on the knowledge centered learning environment for the high school students, based on the researcher's previous definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and three subcategories were identified including: the *use of multiple and alternative types of teaching or learning strategies, the use of technology, and the use of engaging strategies* (see Table 4.11 below).

Pre-service teachers mentioned the use *of multiple, different or alternative teaching strategies* eleven times. This sub-category included any references to teaching with or learning

from different types of strategies. Examples from this category included references to pre-service teachers using multiple strategies related to student learning. The pre-service teachers mentioned incorporating the use of several types of strategies, related to learning, with the high school students.

> When using different strategies, it was obvious when certain students were comfortable in that modality or not, and as a result, some were able to grasp the information better than others in that area. During labs, students were able to actually see the results, which helped to either solidify the previously known facts about the topic, OR gets students thinking about the topic and wondering why a certain result happened. By mixing up the strategies, I allowed every student to at some point work in an area of their strength where they feel comfortable, and also in a weakness to challenge them [*sic*] (Pre-service Teacher 3).

> I have implemented multiple teaching strategies throughout each individual lesson. The students have shown and explained to me that these strategies help them understand the material. The students like to do interactive learning whether it involves them discussing, solving problems in groups, presenting problems at the board, or activities to reinforce the material. By using these strategies, the students have shown success in understanding the content through both formal and informal assessments. I can also see that these strategies impact their learning by when [*sic*] we discuss the material the next day to review and connect it to the new information. The students are able to recall and explain their understanding (Pre-service Teacher 7).

Two pre-service teaches mentioned the *use of technology* while teaching the high school students. Examples from this sub-category on the surveys included: pre-service teachers mentioning their use of technology. This sub-category included any reference to the use of any type of technology used for teaching or learning in the high school classroom. The pre-service teacher mentioned:" "…..not only through the use of technology" (Pre-service Teacher 6); "Also the class has its own page on Edmodo where they can ask questions about things going on in class or over a homework assignment" (Pre-service Teacher 7).

Four pre-service teachers mentioned the use of engagement or *engaging teaching strategies*. Engaging strategies included strategies that were fun, or entertaining or engaging and

kept the students focused on learning. The pre-service teachers mentioned: "I was able to engage them with lessons that had them up, moving and interacting with their fellow classmates" (Pre-service Teacher 5); "(with the use of pipe cleaners, pool noodles, socks) I was able to engage them….. (Pre-service Teacher 6); "they liked the board game they played for the carbon cycle" (Pre-service Teacher 2). The sub-categories and number of responses in each sub-category identified within the larger category of knowledge centered learning environment are seen in Table 4.11 below.

Table 4-11 Pre-service Teacher Survey Responses: Knowledge Centered Sub-Categories for High School Students

Knowledge Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Multiple and alternative types of strategies	11
Use of Technology	2
Engaging strategies	4
Total number of pre-service teacher responses to survey questions	8

Note. The researcher sorted the responses into sub-categories

Pre-service Teacher Interview Responses Regarding High School Students

Pre-service teachers were not required to participate in the interviews conducted towards the end of the pre-service teacher clinical practicum. Seven of 8 total pre-service teachers participated in the pre-planned interviews with the researcher (see Table 4.12 below). The questions were written in advance and shown to the pre-service teachers. They were also written in hard copy for the pre-service teachers as they responded during the interview. However many did not respond directly to the questions in which case the researcher asked other probative

questions (prompts) to elicit deeper responses (see Appendix F). The researcher informed the pre-service teachers in advance that she may use additional questions and included these on the copy shown to the pre-service teachers. The categories and sub-categories may have more responses than the actual number of participants; seven pre-service teachers participated in the interviews with the researcher but mentioned or referred to the previously identified sub-categories multiple times.

Table 4-12 Pre-service Teacher Interview Responses: Impact on High School Students Optimal Learning Environment

Optimal Learning Environment	Questions and Responses
Learner, Assessment , Knowledge Centered Learning Environment	Do you think that you have impacted the student's learning in your classroom? In what ways
Yes	7
No	0
Learner, Assessment , Knowledge Centered Learning Environment	Do you have any other comments on how you may have impacted student learning?
Yes	2
No	0

Note. The researcher sorted the pre-service teacher responses as positive or negative as related to the initial survey questions.

Pre-service Teacher Interviews: Learner Centered Learning Environment for High School Students

The first question on the pre-service teacher interview was open ended and allowed for responses related to all of the Optimal Learning Environment categories investigated for this study. The researcher's question asked the pre-service teachers about their perceived impact on the learning of the high school students. All 7 of 7 pre-service teachers perceived that they had positively impacted the learning of their students.

Any responses to the interview questions or prompts that provided evidence of impact on the learner centered environment of the high school students, based on the researcher's definition seen previously were sorted into this initial category. The responses were sorted again and examined by the researcher for patterns and trends. Five sub-categories were identified: *additional assistance for the student; personalized individualized assistance; establishment of a caring, comfortable, supportive learning environment; life skills learning strategies and relatedness with the students* (see Table 4.13 below).

Pre-service teachers mentioned *additional assistance* three times. The sub-category of additional assistance was coded from open ended responses such as: additional help, providing more assistance than a student would receive with just one classroom teacher, small group assistance. Pre-service teacher responses coded in this sub-category included: "I tried to (give them assistance) when instructing and coming up with lessons to get the student to learn from each other, not just from what I was presenting to them" (Pre-service Teacher 1); "…..just meeting the different styles and answering questions a lot" (Pre-service Teacher 7); "But then also just having background knowledge on my own and being able to answers those questions and helping them think up more questions is also important especially in science (Pre-service Teacher 3).

Pre-service teachers mentioned *personalized assistance* on four occasions which includes assistance to accommodate the individual learner, one-on-one assistance, and assistance specific for the learner, helping a student catch up after school and students generating their own questions and getting assistance while they are learning. Pre-service teachers responded to this sub-category: "they come in after school and I'll help them" (Pre-service Teacher 7); "I try to

make contact with them one on one" (Pre-service Teacher 8); "and a lot of them I have realized over the time [*sic*] they have completely different ways of learning" (Pre-service Teacher 3).

Pre-service teachers mentioned the sub-category of a *caring or a comfortable* learning environment four times. This sub-category included: positive feedback during learning and also caring about the students to create a caring supportive learning environment. They mentioned providing encouraging feedback to the high school students even when they did not have the correct responses. Student responses coded into this sub-category included: "A big area we talked about was patience, with students, especially during teacher led lessons such as lecture"(Pre-service Teacher 1); "I try to give them feedback on what they are doing right, so that they have a greater confidence and hopefully future perseverance though through situations" (Pre-service Teacher 3); "I am pretty positive to [*sic*] them but I feel like I am positive but honest at the same time….. if they need improvement I let them know" (Pre-service Teacher 2).

Pre-service teachers mentioned *life skills* six times during the interview process. This sub-category included working as a team and getting along with one another. The pre-service teachers mentioned that the students would need some specific skills to be successful in life. The researcher did not expect to find this sub-category and it was not considered in the design of the study but emerged from the pre-service teacher interview responses. The pre-service teacher comments included: "Within any activity or lesson I have done they are always working together … at some point they are either doing something individually … then later on doing something together so teamwork and collaborating over ideas … which is something I think is important that they need to do later in life as well [sic]" (Pre-service Teacher 7); "not everything is the most interesting to them or always applicable in life but ….. fit it to their needs and their future goals" (Pre-service Teacher 4).

The pre-service teachers mentioned *relatedness* six times during the interviews. This last sub-category of relatedness included the similarity of the pre-service teachers to the high school students. This could have been because of the closeness in age, similarity in perspective or use of strategies, and incorporation of technology. This sub–category was not expected by the researcher and the study design did not consider it. However the pre-service teacher comments about relatedness emerged during the interview and the researcher included them. Pre-service teachers mentioned: "I hope to impact students because of the closeness in age to them….."(Pre-service Teacher 1); "I think because of the age difference…..I am able to relate in some ways better….." (Pre-service Teacher 8). "Because I am younger and have just gone through college … because I use a lot of videos, different websites that help tie them to the classroom another way than just listening to me talk" (Pre-service Teacher 8). The sub-categories and number of responses in each sub-category identified within the larger category of learner centered environment are seen in Table 4.13 below.

Table 4-13 Pre-service Teacher Interview Responses: Learner Centered Sub-Categories for High School Students

Learner Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Additional assistance	3
Personalized individual assistance	4
Caring, comfortable environment	4
Life skills	6
Relatedness	6
Total number of pre-service teacher responses to interview questions	7

Note. The researcher sorted the responses into sub-categories

Pre-service Teacher Interviews: Assessment Centered Learning Environment for High School Students

The second question in the pre-service teacher interview was designed to explore their perceptions of the learning environment of high school students and whether the pre-service teachers perceived that they had impacted this environment of the students in their classroom. Out of a total of 7 pre-service teachers responding to this prompt, 7 responded positively that they had impacted the learning environment for high school students.

Any open ended responses to any interview questions that provided evidence of impact on the assessment centered learning environment for high school students, based on the researcher's earlier definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and four subcategories were identified: *explanatory feedback for understanding, timely feedback, and feedback for correctness and revisions* (see Table 4.14 below).

Five pre-service teachers mentioned providing *feedback for deeper understanding*. This subcategory included any references to providing feedback to the high school students assisting them to understand new content or to build upon and deepen current understanding, to make the content easier to understand. Examples of this sub-category included feedback to explain the content, written or verbal feedback on assignments to direct the students learning and the use of different teaching strategies or examples to aid understanding. Pre-service teacher responses coded into this sub-category included:

> On any assignment that I grade or even if we are going over an assignment I'll explain it one way and have them explain it another way to me. I will give them feedback to say "I agree with that, or I disagree, or what if you look at it this way", if it's an essay or short answer question or ….. an activity they did ….. they were having to explain vocab so mine would be "ok I see where you are coming from but explain it to me so I understand

> this part of it" and then they would have to see what I am looking for within the question (Pre-service Teacher 7).
>
> Even with students who were struggling with me or got something wrong, I didn't try to just mark it wrong without giving an explanation why, …..(Pre-service Teacher 1).

Four of the 7 pre-service teachers mentioned *timely feedback*. This sub-category included any references to feedback that was given quickly, during the class time on assignments or shortly after assignments were completed to aid the students in understanding the content. Examples of this category included: feedback to the students as during the learning process, feedback on their assignments to direct their learning. Pre-service teachers mentioned: "….."This is a good thought, to try and keep them motivated going through different lessons … so they stay in tuned to what is going on in the class" (Pre-service Teacher 1); "I am brutally honest about … "You know what, I don't know the answers to that specific question so let's look it up together" (Pre-service Teacher 3); "… that really helps students because they can see it happening instead of us [sic] just telling them… labs help a lot (Pre-service Teacher 3).

Four of the 7 pre-service teachers mentioned *feedback for correctness or revision.* This sub-category included any references to feedback provided to the students to enable them to make corrections or revisions on their assignments. This feedback allowed students to correct for misconceptions while learning. Examples of this sub- category included: feedback written on papers, feedback during discussions or questioning with suggestions for revision. Pre-service teachers responded "I will try to write a comment either pushing them more towards[*sic*] the right answer or furthering what they already have that is correct just to get them thinking more about it because I know they like to see comments on their work" (Pre-service Teacher 3); "…..so that they can try to build on it and if they can't correct it for a future grade or maybe they would feel motivated to correct it on their own so they would know that they have gotten where

the objective was trying to get them to be at [*sic*]" (Pre-service Teacher 1). The sub-categories and number of responses in each sub-category identified within the assessment centered learning environment are seen below in Table 4.14**.**

Table 4-14 Pre-service Teacher Interview Responses: Assessment Centered Sub-Categories for High School Students

Assessment Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Explanatory feedback for understanding	5
Timely feedback	4
Feedback on correctness and revisions	4
Total number of pre-service teacher responses to interview questions	7

Note. The researcher sorted the responses into sub-categories

Pre-service Teacher Interviews: Knowledge Centered Learning Environment for High School Students

The third question and follow-up prompts on the pre-service teacher interview were designed to explore their perceptions of the pre-service teachers regarding their impact on the knowledge centered learning environment of high school students. Out of a total of 7 pre-service teachers responding to this question and follow-up prompts, 7 responded positively that they had impacted the learning of high school students.

Any open ended responses to any interview questions that provided evidence of impact on the knowledge centered learning environment for high school students, based on the researcher's earlier definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and four subcategories were identified: *multiple and alternative types of strategies* use of *technology* and *engaging strategies* (see Table 4.15 below).

Pre-service teachers mentioned the incorporation of *different teaching and learning strategies* for deeper understanding 10 times. This subcategory included any references to using different types of teaching and learning strategies, appropriate teaching strategies for the high school students and assisting them to new and deeper understand of the content. Examples of this sub-category included a variety of engaging strategies, and technology used including hands on activities and grouping for learning. Pre-service teacher responses coded into this sub-category included their use of different or alternative teaching strategies for student learning. Pre-service teachers responded; "When instructing and coming up with lessons I got the students to learn from each other, not just from what I was presenting to them. So, I did activities such as jigsaws or think, pair share so they can [*sic*] communicate with each other" (Pre-service Teacher 1); "I think that students respond well to some of the reading strategies that we did….. kids that are hands on or they like technology" (Pre-service Teacher 2).

Pre-service teachers mentioned the use of *technology* five times to enhance the learning or deepen understanding of the high school students. This sub-category included any reference to using technology to teach with or for the students to learn with. Examples of this sub-category included the mention of hands on technology and new learning apps and websites. Pre-service teachers mentioned scientific lab equipment, i-pads, apple TV and videos. Related responses from pre-service teachers include; "…can't do very well unless we use technology … so in some of the teaching strategies when we employ technology, it really helps out the….. students" (Pre-service Teacher 2). "It helps with the technology that I implement things that they may not see in the other classrooms unless they have another student teacher, because a lot of things we learn from being through Block I and Block II. I think that the big one is technology that I

impact them … the classroom another way than just listening to me talk" (Pre-service Teacher 8).

The pre-service teachers mentioned the use of *engaging learning* activities twice during the interviews. This sub-category includes any mention of a learning activity that is fun, or entertaining or engaging for the students, activities the students like. Examples of this sub-category include hands on activities with unusual objects or manipulatives, unusual projects that allow students to "buy in" and get excited for deeper student understanding. Pre-service teachers responded: "A lot of them have said, 'I love group projects' and some said 'I like the project….."(Pre-service Teacher 7); "I am able to relate in some ways better with the students with music and activities" (Pre-service Teacher 8); I ….. brought in a different approach from what my cooperating teacher did, something fresh" (Pre-service Teacher 1). The sub-categories and number of responses within each sub-category identified within the knowledge centered learning environment are seen in Table 4.15 below.

Table 4-15 Pre-service Teacher Interview Responses: Knowledge Centered Sub-Categories for High School Students

Knowledge Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Multiple and alternative types of strategies	10
Use of Technology	5
Engaging strategies	2
Total number of pre-service teacher responses to interview questions	7

Note. The researcher sorted the responses in to sub-categories

Pre-service Teacher Surveys Regarding Cooperating Mentor Teachers

Pre-service teachers were not required to participate in the researcher designed surveys distributed at the end of the student teacher clinical practicum responding to their perceived impact on both the high school students and the cooperating mentor teacher. Eight of 8 participated and completed the surveys. The surveys were distributed in electronic format to allow pre-service teachers to expand on their responses (see Appendix G). The pre-service teachers responded to the questions and then returned the surveys to the researcher. Many Pre-service teachers did not respond directly to the questions, or responded very briefly. The questions and the initial analysis of the survey responses can be seen below in Table 4.16. This table shows the perceived positive or negative impact responses as yes and no. If a response was both positive and negative the researcher categorized it as mixed. If a response was unclear to the researcher it was assigned as unsure. There were no mixed responses with both positive and negative statements.

All 8 of 8 pre pre-service teachers responded to all of the questions with the exception of the last question on which only three responded. “Do you have any other comments”. Seven of 8 responded that they did believe that they impacted positively their cooperating mentor teachers’ professional collaboration, reflection and use of multiple teaching strategies. Six of 8 responded that they believed they impacted their mentor teacher positively in using different strategies to meet the needs of the diverse learners. One of 8 pre-service teachers responded that he did not have an impact on his cooperating mentor teacher in any of the identified categories.

Table 4-16 Pre-service Teacher Survey: Impact on Optimal Learning Environment for Cooperating Mentor Teachers

Optimal Learning Environment	Questions and Responses
Learner Centered Learning Environment	Do you think you have impacted your cooperating teacher's professional collaboration? In what ways? Explain.
Yes	7
No	1
Mixed	0
Unsure	0
Assessment Centered Learning Environment	Do you think you have impacted your cooperating teacher's reflection on practice? In what ways? Explain
Yes	7
No	1
Mixed	0
Unsure	0
Knowledge Centered Learning Environment	Do you think you have impacted your cooperating teacher's use of multiple teaching strategies? In what ways? Explain.
Yes	7
No	1
Mixed	0
Unsure	0
Knowledge Centered Learning Environment	Do you think you have impacted your cooperating teacher's use of strategies to meet the needs of diverse learners? In what ways? Explain.
Yes	6
No	1
Mixed	0
Unsure	1
Other Comments	What other comments do you have related to your perceived impact on your cooperating teacher?
Yes	4

No	0
Mixed	0
Unsure	0

Note. The researcher sorted the open ended pre-service teacher responses into sub-categories

As the researcher analyzed the survey responses from the pre-service teachers regarding their impact on the cooperating mentor teachers, open ended explanations were coded under the three Optimal Learning Environment categories of: learner centered, assessment centered and knowledge centered learning environments. These open-ended responses are discussed separately below.

Pre-service Teachers Surveys: Learner Centered Learning Environment for Cooperating Mentor Teachers

The first question on the pre-service teacher survey was designed to explore their own perceptions of their placement within the classroom on the learner centered learning environment of the cooperating mentor teachers. The question was designed to investigate if the pre-service teacher impacted this learner centered environment though collaboration with the mentor. Seven of 8 pre-service teachers responded positively to this question**.** One pre-service teacher student responded negatively.

Any open ended responses to any of the survey questions that provided evidence of impact on the cooperating mentor teacher's learner centered learning environment, based on the definition provided earlier by the researcher were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and two subcategories of: d*esign of lessons together* and *collaboration* (see Table 4.17 below).

One pre-service teacher mentioned PLC time which is an acronym for a professional learning community within the high school. PLT is the designated professional learning time that

high school teachers participate in daily. Usually the pre-service teacher attends these PLC meetings daily with the cooperating mentor teacher and other teacher colleagues. If the cooperating mentor teacher is teaching an overload of courses he or she may not attend and therefore not have the benefit of a collaborative period with other teachers.

Four pre-service teachers mentioned that they worked with their mentor teacher to design lessons together. This sub-category included references to the components of the learner centered environment for teachers including: job embedded learning through a variety of approaches. Examples of this sub-category included references to planning the lessons in general, and specifically planning or discussing assignments, activities, assessments, technology, or other requirements in the lesson plan. Pre-service teacher responses coded into this sub-category included:

> Each lesson that we have taught together or individually… we have discussed our ideas and possible different ways to enhance them. I have worked a lot with her on incorporation of technology to implement those ideas. We have collaborated on activities that the students will work on in order to help reinforce what we want them to take away from a lesson (Pre-service Teacher 5).

> I used a couple of new technologies that he had not tried yet, including Educations and Poll Anywhere (Pre-service Teacher 3).

Four pre-service teachers described the collaboration that promoted learning between the mentor teacher and themselves. This sub-category focused on: meeting the individual pedagogical needs of the teacher, collaboration with others, and job embedded learning through a variety of approaches. This category was not specific to planning lessons for the high school students. Examples of this sub-category included collaboration including classroom time together and the continuation of PLC discussions of professional development topics. Pre-service teachers mentioned

> Together we discovered our strengths and downfalls [sic] … we figured out better ways to use them … what we need to think about before we use them in the classroom (Pre-service Teacher 3).
>
> I think I have impacted my teacher's collaboration. She collaborates a lot with me because we are together for much of the day. Due to being on over load and not having much spare time I feel her collaboration with other teachers may suffer (Pre-service Teacher 1).
>
> This was due to taking an interest in PLT times and continuing discussions on the PLC topic for that day and sometimes into subsequent days. Having this continued discussion where we shared and solidified … ideas strengthened my cooperating teacher (Pre-service Teacher 3).

One pre-service teacher responded that she did not impact her cooperating mentor teacher's collaboration. She said "I would say no, not directly. My cooperating teacher is great at collaborating with other teachers and adjusting his lessons base on new strategies he learns….. I would say that he did improve at collaborating this semester but it would have happened had I been here or not" (Pre-service Teacher 3). The two sub-categories and number of responses within each sub-category that were identified within the larger category of learner centered learning environment are seen in Table 4.17 below

Table 4-17 Pre-service Teacher Survey Responses: Learner Centered Sub-Categories for Mentor Teachers

Learner Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Designing lessons together	4
Learning from each other through Collaboration,	4
Total number of pre-service teacher responses to survey questions	8

Note: The researcher sorted responses into sub-categories.

Pre-service Teachers Surveys: Assessment Centered Learning Environment for Cooperating Mentor Teachers

The second question on the pre-service teacher survey was designed to explore the pre-service teachers' perceptions of their impact on the assessment centered learning environment of their cooperating mentor teachers. The question was designed to investigate if the pre-service teacher impacted the assessment centered environment though enhanced reflection for the mentor teacher. Seven of 8 pre-service teachers responded positively that they impacted the reflection of their cooperating mentor teacher. One pre-service teacher student responded negatively.

Any open ended responses to any of the survey questions that provided evidence of impact on the cooperating mentor teacher's assessment centered learning environment, based on the researcher's previous definition, were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and two subcategories were identified: *reflection on lessons* and *feedback/support* from the pre-service teacher (see Table 4.18 below).

Three pre-service teachers mentioned that they worked with their mentor teacher to *reflect on lessons*. This subcategory included references to the components of the assessment centered environment for teachers including: reflection on practice, feedback with practice and assessment of new learning. Pre-service teacher responses coded into this sub-category included comments related to reflections on lessons and grading. Responses from pre-service teachers found in this sub-category included:

> I feel that I have impacted my cooperating teacher's reflection on practice. I have used many of my own materials as well as my cooperating teachers, and this causes my cooperating teacher to think about why she used the materials she did or why a lesson was designed the way it was. We both reflected on many of my lessons and she made notes for herself [sic] to use in upcoming years. Both cooperating teachers have

> requested flash drives of all my material and lesson plans that I used throughout my semester (pre-service teacher 8).
>
> I have impacted my teachers' reflection practice. My teachers had not always considered why they did things. As a curious future teacher I usually asked why my teachers did certain practices [sic]. Additionally, I would ask how it was working and details that led up to particular decision making (pre-service teacher 3).

Twelve times the pre-service teachers mentioned *supportive feedback* they provided for their cooperating mentor teacher while he or she was learning. This subcategory included any references to providing support and feedback while the mentor teacher was learning new content or pedagogy. Examples of this sub-category included: learning of new teaching strategies, practice with feedback, learning to use new technology with feedback.

> His classroom was chosen to receive an Apple TV; I utilized this resource in several of my lessons showing him how easy it is to switch between technologies. This allowed him to look at how he could change his lessons and possibly better use technology to his advantage (Pre-service Teacher 6).
>
> I was able to make using technology more viable for my (mentor) teacher. I was able to assist them with technology problems when they arose. This allowed them to be more confident in electronic use. (Pre-service Teacher 3).

One pre-service teacher (2) responded that the he did not impact his cooperating mentor teacher, "No not at all. She has told me that she always reflects on each lesson. Which is something that she has done with me for everything this semester [*sic*]. So I feel that she has not changed her routine due to me being in the room". The sub-categories and the number of responses within each sub-category identified within the larger category of assessment centered learning environment are seen in Table 4.18 below.

Table 4-18 Pre-service Teacher Survey Responses: Assessment Centered Sub-Categories for Mentor Teachers

Assessment Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
Reflection on lessons, grading	3
Supportive feedback from pre-service teacher	12
Total number of pre-service teacher responses survey questions	8

Note. The researcher sorted the data into sub-categories.

Pre-service Teachers Surveys: Knowledge Centered Learning Environment for Cooperating Mentor Teachers

The third and fourth questions on the pre-service teacher survey were designed to explore the pre-service teachers' perceptions of their impact on the knowledge centered learning environment for their cooperating mentor teachers. The third question was designed to investigate if the pre-service teacher impacted this environment though the sharing and implementation of new or varied pedagogical or content strategies. Seven of 8 pre-service teachers responded positively to that they impacted their cooperating mentor teacher's use of multiple teaching strategies**.** One pre-service teacher student responded negatively. The fourth question related to the incorporation of different strategies to teach diverse students. Two of 8 pre-service teachers mentioned that they worked with their mentor teacher as they learned new teaching strategies or reinforced those already in place for diverse

Any open ended responses to any of the survey questions that provided evidence of impact on the cooperating mentor teacher's knowledge centered learning environment, based on the researcher's previous definition, were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and four subcategories were identified:

new pedagogical strategies, implementation of technology, pre-service teacher modeling, and strategies for diverse students (see Table 4.19 below).

Pre-service teachers mentioned 8 times that they worked with their mentor teacher as they learned *new pedagogical strategies*. This subcategory included references to the components of the learner centered environment for teachers including: new or deeper understanding of content or pedagogy, and shared learning within the PDS partners. Examples of this sub-category included references to the mentor teacher learning how to use technology and other teaching strategies. Pre-service teacher responses coded into this sub-category included the cooperating mentor teacher learned to use new content pedagogy:

> I also used many tactile items and models that inspired some ideas of his own … to alter his lesson plans to include some more tactile options. I also used a couple of reading strategy games that we both found very beneficial to the students, and that he plans to use in the future (Pre-service Teacher 6).
>
> I have done this, incorporating a lot of grouped learning strategies such as a jigsaw activity, something my co-op was hesitant at doing. However the way I conducted the jigsaw showed that it can be done, and encouraged her to use it….. (Pre-service Teacher 1).

Pre-service teachers described 10 times their impact on deepening the understanding of and the *implementation of technology* by the cooperating mentor teacher. Examples of this sub-category included teaching and planning and learning to use and incorporate new technology with supportive feedback from the pre-service teacher. The pre-service teachers mentioned:

> My interest in technology helped him. I was able to implement a number of technologies during the semester namely Clickrs, applications such as NearPod and websites such as Animoto and Educreation. Introducing these technologies during the semester allowed the (cooperating mentor teacher) to see them put to use and how engaging they are (Pre-service Teacher 4).
>
> She uses technology to an extent, but there have been many times where it's "Oh how would I do this?" or "I want to do this, how would I make that work? (Pre-service Teacher 7).

Pre-service teachers again mentioned ten times that they *modeled* new learning for their cooperating mentor teachers. This sub-category focused on teacher learning with support through the PDS partnership; with the pre-service teachers providing support. Examples in this sub-category included pre-service teachers modeling teaching strategies and activities and the use of technology for teaching. Pre-service teacher responses coded into this sub-category included: "I think it is something she would want to do in the future" (Pre-service teacher 2); "….. but it is leading him to thinking of other things, just different ideas, activities and different resources that I have brought in" (Pre-service Teacher 2);"Since in the beginning stages I was just an observer and once I started teaching and then she started teaching (again) there was definitely a difference that I noticed" (Pre-service Teacher 7); "She has also taken notice [sic] and tries to incorporate more team building activities with students in the class" (Pre-service Teacher1).

The final sub-category within the knowledge centered learning environment was *strategies learned for diverse students*. Examples of this sub-category included references to the pre-service teacher reinforcing with the mentor teacher the importance of incorporating strategies to teach the diverse learner. Two pre-service teacher responses were coded into this sub-category:

> I think that my teacher teaches to the majority of the class, but there have been times when we discussed different ways to meet the needs of many of our students with IEPs. I think she has seen how I implemented different learning strategies within one lesson to help meet the needs of the diverse learners…..I think I impacted her outlook on how sometimes [sic] it takes more than one explanation to help the students fully understand, because towards the end of the semester I could see her going more in depth about why something has to be true using … explanations.(Pre-service Teacher 7).
>
> Yes, I believe that I was able to help with ELL (English Language Learner) and struggling readers to learn vocab [sic]. We made it more of a necessity to help all of the

students learn the vocab [sic] because it is the foundation for additional learning (Pre-service Teacher 4).

One pre-service teacher responded negatively to impacting the cooperating mentor teacher's knowledge centered environment. 'No, I really don't think that I have. She is very diverse as a teacher [sic] and my presence has not impacted that. She has remained diverse and continued to have multiple teaching strategies" (Pre-service Teacher 2). The sub-categories and number of responses within each sub-category identified within the larger category of knowledge centered learning environment are seen in Table 4.19 below.

Table 4-19 Pre-service Teacher Survey Responses: Knowledge Centered Learning Environment for Mentor Teachers

Knowledge Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Category
New pedagogical strategies	8
Implementation of technology	10
Pre-service teacher modeled strategies	10
Strategies to teach diverse learner	2
Total number of pre-service teacher responses to survey questions	8

Note. The researcher sorted the data into sub-categories.

Pre-service Teacher Surveys: Other Comments Related to Cooperating Mentor Teachers

There were only 4 of 8 pre-service teachers who responded to the "other comments" question related to the Optimal Learning Environment. Their responses were few and varied so that the researcher could detect no separate patterns or trends from them. However all comments were related to and coded in sub-categories under the knowledge centered learning environment. This environment provides the opportunity for shared and new knowledge between colleagues

Pre-service Teacher Interviews Regarding Cooperating Mentor Teachers

Although not required to do so, 7 of the 8 pre-service teachers participated in interviews with the researcher related to the cooperating mentor teachers, towards the end of the pre-service teacher clinical practicum. The questions were written in advance and shown to the pre-service teachers. They were also shown to the pre-service teachers as they responded in the interview. The pre-service teachers were instructed by the researcher that she might ask extended prompts related to each question. Many Pre-service teachers did not respond directly to the questions, or responded very briefly, in which case the researcher asked other probing questions. The initial pre-planned questions from the pre-service teacher interviews are included in Table 4.20 below. Additional prompts used by the researcher during these interviews to elicit more information can be seen in Appendix H.

The initial question to the pre-service teachers investigated their perceived impact on his or her mentor teacher's Optimal Learning Environment. All 7 of 7 pre-service teachers who were interviewed perceived that they did have a positive impact with their mentor teachers (see Table 4.20 below). The second question used by the researcher for the pre-service teacher interview asked for other comments.

During the interviews, the pre-service teachers mentioned several reasons why they believed they did have a positive impact on the mentor teacher. The reasons were varied and the researcher allowed the pre-service teachers to talk until finished with their comments before moving to the next question. One of 3 mentioned that he brought a different perspective to share with the mentor teacher, 1 of 7 said that the cooperating mentor and pre-service teacher could be support for one another and grow and learn together.

Table 4-20 Pre-service Teacher Interview Responses Regarding the Optimal Learning Environment for Mentor Teachers

Optimal Learning Environment	Questions and Responses
Learner, Assessment, Knowledge Centered Learning Environment	Do you think that you have impacted your cooperating teacher? In what ways? Explain
Yes	7
No	
Learner, Assessment, Knowledge Centered Learning Environment	Do you have any other comments on how you may have impacted your cooperating teacher?
Yes	3
No	

Note. The researcher sorted the responses found in this table.

Pre-service Teacher Interviews: Learner Centered Learning Environment for Mentor Teachers

The beginning question in the pre-service teacher interview was designed to explore the learning environment of the cooperating mentor and the impact from the placement of the pre-service teacher in the classroom. Out of a total of 7 students responding to this question, 2 responded positively that their placement in the classroom had positively impacted their cooperating mentor teacher's learner centered learning environment through collaboration.

Any open ended responses to any of the survey questions that provided evidence of impact on the learner centered learning environment for the mentor teacher, based on the researcher's definition previously, and were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and one subcategory of *collaboration* was identified (see Table 4.21 below). This subcategory included any references to collaboration to meet the needs of the mentor teacher and provide job embedded learning between the mentor teacher and pre-service teacher. Examples of this sub-category *collaboration* included discussion

between the pre-service teacher and mentor teacher related to the teacher needs. Pre-service teacher responses coded into this sub-category included:

> I feel like I have impacted my cooperating teacher. We have talked multiple times about collaboration; we collaborate on everything and for both of us that is good but, for her… she is just able to throw out ideas and say well would you like that as a student? And me, being so close from getting out of school… I can say yea, or hmm maybe not (Pre-service Teacher 7).
>
> Just working together to understand those together…like Nearpod, we took a whole plan period to work on it to get to know it a little better and what we can use it for (Pre-service Teacher 3).

Table 4-21 Pre-service Teacher Interview Responses: Learner Centered Environment for Mentor Teachers

Learner Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
More Collaboration	2
Total pre-service teacher interview participants	7

Note: The researcher sorted responses into sub-categories.

Pre-service Teacher Interviews: Assessment Centered Learning Environment for Cooperating Mentor Teachers

The first question in the pre-service teacher interview was designed to explore the learning environment of the cooperating mentor and the perceived impact from the placement of the pre-service teacher in the classroom. Out of a total of 7 students responding to this prompt, 2 responded positively that their placement in the classroom had positively impacted their cooperating mentor teacher's assessment centered learning environment through reflection.

Any open ended responses to any of the survey questions that provided evidence of impact on the assessment centered learning environment for the mentor teacher, based on the researcher's definition previously were sorted into this initial category. The researcher then

examined all responses for trends and patterns in the data and one sub-category of reflection was identified. This subcategory included any references to mentor teacher *reflection* which was job embedded as seen or experienced by the pre-service teacher (see Table 4.22 below).

Examples of this sub-category included mentor teachers and job embedded reflection. Pre-service teacher responses coded into this sub-category included: "...she said the other day "Well I'm going to have to start being more creative since you know you've been so creative in your lessons" (Pre-service Teacher); "Before teaching, if they left (the room) they gave me their material I would ask them questions so they would have to think about why they did what they had…and afterwards change it. …." (Pre-service Teacher 8).

Table 4-22 Pre-service Teacher Interview Responses: Assessment Centered Environment for Mentor Teachers

Assessment Centered Learning Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
More Reflection	2
Total pre-service teacher interview participants	7

Note. The researcher sorted responses into sub-categories

Pre-service Teacher Interviews: Knowledge Centered Learning Environment for Cooperating Mentor Teachers

The initial question on the pre-service teacher interview was designed to explore the learning environment of the cooperating mentor and the impact from the placement of the pre-service teacher in the classroom. Out of a total of 7 students responding to this prompt, 7 responded in affirmation that their placement in the classroom had positively impacted their cooperating mentor teacher's knowledge centered learning as the mentor teacher learned new pedagogical strategies, content and technology.

Any open ended responses to any of the survey questions that provided evidence of impact on the knowledge centered learning environment for the mentor teacher, based on the researcher's definition previously were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and four subcategories were identified. These subcategories included any references to the mentor teachers' new learning or deepening of understanding of pedagogy or content including: *new teaching strategies, technology, focus on the diverse learner and university resources* (see Table 4.23 below).

Pre-service teachers' responses included 8 references to *new teaching strategies* learned by the mentor teacher. Examples of this sub-category included mentor teachers learning about new learning activities for the students. This subcategory included any references to the mentor teacher learning any kind of new learning activity. Examples of the first sub-category of new strategies learned included: mentor teachers learning about new activities and assignments, and classroom resources for teaching. Pre-service teacher responses coded into this sub-category included:

> I definitely think so because I can hear him talking to other teacher saying " she did this…" and it is not always exactly what I did, but it is leading him to thinking of other things, just different ideas, activities and different resources that I have brought in. (Pre-service Teacher 3).
>
> She has taken notice and tries to incorporate more team building activities with students in the class. (Pre-service Teacher 1).

Pre-service teachers mentioned the new learning of technology by their mentor teachers 6 times. This subcategory included any references to the learning or incorporation by the mentor teacher of new technology. Examples of this sub-category included *multiple kinds and uses of*

technology learned from or with the pre-service teacher. Pre-service teacher responses coded into this sub-category included:

> Just working together to understand those ….. just like *Nearpod* we took a whole plan period to just work on the *Nearpod* stuff to getting to know it a little better and what we can use it for. For sure, Yes. With the different tools like Educan, and Nearpod is a really good one. And just bringing in the Ipad in the classroom and using those, I don't think he has every used them before, but now he is a little bit more comfortable with using it. It went really well with the Ipads and I think he will probably use those from now on (Pre-service Teacher 3)

> With the different tools like Educan and Nearpod … is a really good one. And just bringing the iPad in the classroom and using those ….. I think he will use those from now on. (Pre-service Teacher 5)

> But for her also… technology… she uses technology to an extent, but there have been many times where … I have been able to help her …(Pre-service Teacher 7)

Pre-service teachers mentioned a new focus on the diverse learner by the mentor teacher 9 times. This subcategory included any references to the mentor teacher learning to focus on and meet the unique, diverse, or individualized needs of the students. This was not new learning but a new focus on the learner. Examples of this sub-category included meeting the needs of the diverse learner including special education students and English language learners. Student responses coded into this sub-category included

> ... focused more on the different learning strategies of the all those different students than… I may have observed my teacher … maybe she did she just didn't vocalize it with me. (Pre-service Teacher 5).

> We are talking about how to be creative together and for her to learn ways to present stuff [sic] or different activities to reinforce things (Pre-service Teacher 7).

Two of the pre-service mentor teachers mentioned resources available from the university partnership. This subcategory included any references to knowledge associated with the PDS partnership meeting the needs of the mentor teacher or mentor teachers gaining access to resources because of the relationship within the PDS. Examples of this sub-category included

information from the pre-service teacher garnered from the PDS and other material resources. One pre-service teacher response coded into this sub-category, ”Sometimes they will ask me, for example … common core … we were talking about that, because at K-state we talk about it lot and how to implement it”(Pre-service Teacher 8).

Table 4-23 Pre-service Teacher Interview Responses: Knowledge Centered Learning Environment Sub-Categories

Knowledge Centered Environment Sub-Categories	Number of Pre-service Teacher Responses in Each Sub-Category
New Teaching Strategies Learned	8
New Technology Learned	6
New focus on diverse learner	9
More University Resources	2
Total pre-service teacher interview participants	7

Note. The researcher sorted responses into sub-categories

Cooperating Mentor Teacher Surveys and Interviews

The researcher designed survey, the district designed mylearningplan survey and researcher designed interviews all provided data from the cooperating mentor teachers related to their perception of impact from the pre-service teachers on their Optimal Learning Environment. The cooperating mentor teachers were provided the option to complete the researcher designed survey or interview. Neither was required, but it has been common practice for the researcher or other clinical instructor to administer and collect these in previous years. As a PDS, Manhattan High School routinely collects data from all participants. The Manhattan-Ogden School District, as a PDS district, also routinely collects data from the cooperating mentor teachers on mylearningplan. This on-line survey is not required, but the participating cooperating teachers will not receive professional learning hours for mentoring a pre-service teacher if it is not completed.

The questions for the researcher designed survey and interview focused on the cooperating mentor teachers perceptions of the impact of their pre-service teachers on their Optimal Learning Environment (NRC, 1999) in terms of the: (a) learner centered environment, (b) assessment centered environment, and the (c) knowledge centered environment. Each of these three learning environments can potentially be impacted by the presence of a pre-service teacher. Questions from mylearningplan were developed before this research project was initiated and consequently were not designed around the NRC (1999) Optimal Learning Environment. However, mylearningplan questions were very general and responses were easily coded into the three learning environments of interest to the researcher.

Four of the 8 cooperating mentor teachers completed the researcher designed survey while all 8 cooperating mentor teachers chose to complete the district mylearningplan.com survey. Seven of the 8 cooperating mentor teachers completed the interview with the researcher, with one mentor teacher requesting to answer the interview questions in written form rather than orally face to face. In this one case, the researcher provided the interview questions to her in written form.

As with all other survey and interview data, the researcher first coded any single response questions on the surveys and interviews. A "yes" or "no" was coded when responses were definitely positive or definitely negative. An "unsure" was coded if the response was ambiguous to the researcher. A response was coded as "mixed" if it seemed to be both positive and negative or included both positive and negative comments. All open-ended responses were categorized according to the three Optimal Learning Environment categories of: learner centered, assessment centered and knowledge centered. Once data was coded into these three initial categories, the researcher examined the data for trends and patterns and sub-categories were identified within

each of the three leaning environments. The analysis of responses from the cooperating mentor teachers will be presented separately beginning with the mentor teacher responses on the researcher designed survey, followed by the district electronic mylearningplan survey results, and finally the interview responses.

Cooperating Mentor Teacher Researcher-Designed Surveys

Four of 8 mentor teachers responded to a researcher-designed survey (see Appendix I). The experience, age, and gender of the cooperating mentor teachers were varied and the content that was taught varied. The cooperating mentor teachers talked or wrote about their perception of impact from mentoring a pre-service teacher. One responding cooperating mentor teacher taught classes comprised of only 9th grade students. Three responding cooperating mentor teachers taught classes comprised of tenth through twelfth grade students. Some of the classes were advanced classes and some were remedial and some were a mix of students at different levels of achievement. The race, gender, ethnicity and orientation of classroom students were also mixed.

The survey was developed by the researcher and the focus was determined through the previous literature review which is synthesized in the conceptual framework. The main questions were designed to address the perceived impact from the pre-service teacher on the mentor teachers' Optimal Learning Environment as defined by: (a) learner centered, (b) assessment centered, and (c) knowledge centered learning environments. The survey was designed to collect data from cooperating mentor teachers on their perception of the impact on their learning environment from mentoring a pre-service teacher. Responses to the survey questions can be seen below in Table 4.24.

Table 4-24 Cooperating Mentor Teacher Survey Responses: Optimal Learning Environment

Optimal Learning Environment	Questions and Mentor Teacher Responses
Learner Centered Learning Environment	Do you think that mentoring a student teacher has impacted your professional collaboration? In what ways? Explain
Yes	3
No	
Unsure	1
Assessment Centered Learning Environment	Do you think that mentoring a student teacher has impacted your reflection on practice? In what ways? Explain.
Yes	3
No	
Unsure	1
Knowledge Centered Learning Environment	Do you think that mentoring a student teacher has impacted your use of innovative teaching strategies? In what ways? Explain
Yes	3
No	
Unsure	1
Knowledge Centered Learning Environment	Do you think that mentoring a student teacher has impacted your use different strategies to meet the needs of diverse learners? In what way? Explain.
Yes	1
No	1
Unsure	2
Other Comments	What other comments do you have related to the impact of your student teacher?
Yes	3
No	
Mixed	1

Note. Data was categorized by the researcher.

One cooperating mentor teacher responded with an ambiguous answer on each of the four categories. The comments were related to the preparation and the supervision of the pre-service

teacher, and the KSU supervisor. The responses were not directly related to the learner centered environment and were coded as unsure. One other cooperating mentor teacher response was coded as unsure and one was coded as mixed by the researcher. Their comments included, "Somewhat…We did collaborate often about lesson planning …. The new standards are vague at times or seem tough to accomplish… because of my over load my intern did miss out on collaboration…"(Mentor Teacher 2), "anything they can learn before coming in as a student teachers will make their teaching more successful" (Mentor Teacher 3). And "I really enjoyed seeing teaching with fresh eyes again" (Mentor Teacher 4).

Cooperating Mentor Teacher - Researcher-Designed Surveys: Learner Centered Learning Environment

The first question on the mentor teacher survey was designed to explore the learner centered learning environment and whether the mentor teachers perceived an impact on their environment from mentoring a pre-service teacher. Out of a total of 4 mentor teachers responding to this prompt, 3 responded positively that their learner centered environment had been positively impacted by mentoring a pre-service teacher. Any open ended responses to any of the survey questions that provided evidence of impact on learner centered learning environment, based on the researcher's previous definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and identified one sub-category as *collaboration* (see table 4.25 below).

Three cooperating mentor teachers made comments coded as collaboration because the pre-service teacher helped to meet their individualized learning needs through joint work and interactions. Examples of this sub-category included collaboration with the pre-service teacher about lesson plans and (like Next Generation Science Standards), on teaching and learning

strategies, and collaboration with attention to students (learning). Cooperating mentor teacher responses coded into this sub-category included: collaboration with the pre-service teacher related to: the special needs student, the diverse learners, and lesson plans. Comments from mentor teachers in response to the perceived impact on the mentor teachers' learner centered environment include:

> We talked almost daily about meeting the needs of SPED students, CLD students, and those on IEP's. We did collaborate often about lesson planning and use of standards. The new standards are vague at times … (Mentor Teacher 2).

> I feel like it was very productive collaboration because you are both very aware of the gifts and limitations of the students you are working with. Sometimes "professional collaboration" ideas are for completely polar opposite demographics. Certain ideas work great for some classes, but not all classes will respond the same way. I felt like we were on the same page as far as understanding the realities of our population and working within those parameters (Mentor Teacher 4).

> We have collaborated on the lesson planning process (Mentor Teacher 1).

Table 4-25 Mentor Teacher Survey Responses: Learner Centered Environment Sub-Category

Learner Centered Environment Sub-Category	Number of Mentor Teacher Responses in Sub-Category
Collaborated on planning	3
Total number of mentor teacher responses to survey questions	4

Note. The researcher sorted responses into sub-categories

Cooperating Mentor Teacher - Researcher-Designed Surveys: Assessment Centered Learning Environment

The second question on the mentor teacher survey was designed to explore the assessment centered learning environment and whether the mentor teachers perceived an impact on their environment from mentoring a pre-service teacher. Out of a total of 4 mentor teachers responding to this prompt, 3 responded positively that their assessment centered environment

had been positively impacted by mentoring a pre-service teacher. Any open ended responses to any of the survey questions that provided evidence of impact on assessment centered learning environment, based on the researcher's definition previously provided were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and identified 2 sub-categories of *reflection* and *feedback* (see Table 4.26below).

Three of 4 mentor teachers mentioned *reflection.* This sub-category included any references to the mentor teacher reflecting more on lesson plans, student learning or lessons after they were taught as impacted by the pre-service teacher. Examples of this sub-category included; mentor teachers engaged in reflection with the pre-service teacher about the lesson and making revisions for improvement. Mentor teacher responses coded into this sub-category included those examples for reflection. Comments from mentor teachers, in response to the perceived impact on their own assessment learning environment from mentoring a pre-service teacher include; "The experience makes me more cognizant in reflections and more planned [*sic*] for the next semester" (Mentor Teacher 1); "I harp on reflection for all my interns. Many times I would share my own reflections when I was teaching. I would tell them what I thought I would do differently during the next class, etc. Reflection is a powerful tool that every successful teacher must do" (Mentor Teacher 2).

The second subcategory in the assessment centered learning environment was mentioned 3 times also. This sub-category included any references to the impact from the pre-service teacher on the mentor teacher through *feedback and learning with peers,* and practice with new learning. Examples of this sub-category included; mentor teachers were engaged in learning with feedback and one mentioned practice with feedback. Mentor teacher responses coded into this sub-category included examples of feedback and practice previously mentioned. Comments

from mentor teachers, in response to the perceived impact on their own assessment learning environment from mentoring a pre-service teacher include:

> Explaining "why" I do things has really made me more focused on important activities. After activities, we would say what we liked (what we will keep) and what we would change (what didn't go so well). For the most part, it has been an affirmation that our techniques work well for our students. Other times, it was an exercise in humility. The planning process is not a natural for them, so the work that is involved details that step by step process of student centered learning, setting goals and objectives, analyzing whether those have been met, what changes to make for next year. The experience makes me more cognizant in reflections and more planned [*sic*] for next semester (Mentor Teacher 4).
>
> When you try something new (with the pre-service teacher), you will face new (typically unexpected) challenges. Teaching keeps you on your toes, but every time you do an activity, it becomes smoother and more polished with quality reflection and organization (Mentor Teacher 1).
>
> There were a couple of things I wanted to do and it was nice to share perspectives and ideas. Ex. What is the best way to grade study guides (Mentor Teacher 4).

Table 4-26 Mentor Teacher Survey Responses: Assessment Centered Environment Sub-Categories

Assessment Centered Environment Sub-Categories	Number of Mentor Teacher Responses in Each Sub-Category
Reflection on lessons	3
Feedback learning with peers	3
Total number of mentor teacher responses to survey questions	4

Note. The researcher sorted responses into sub-categories

Cooperating Mentor Teacher Researcher-Designed Survey: Knowledge Centered Learning Environment

The third and 4th questions on the mentor teacher survey were designed to explore the knowledge centered learning environment and whether the mentor teachers perceived an impact

on their environment from mentoring a pre-service teacher. Out of a total of 4 mentor teachers responding to this question, 3 responded positively that their knowledge centered environment had been positively impacted by mentoring a pre-service teacher. Any open ended responses to any of the survey questions that provided evidence of impact on knowledge centered learning environment, based on the researcher's earlier definitions were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and identified 2 sub-categories related to developing new or deeper learning of teaching strategies or content: *new techniques and strategies to use in the future* and *new use of technology* (see Table 4.27 below).

The first subcategory included 5 references to the impact from the pre-service teacher through learning or trying new strategies that they will use in the future. Comments from mentor teachers, in response to the perceived impact on their own knowledge centered learning environment from mentoring a pre-service teacher include:

> I think I will change a few teaching strategies next semester. I've made notes of ideas that she has used as well as have her lesson plans with some of the materials she used as well as presentation methods, video clips (Mentor Teacher 3).
>
> Again, I think that the evaluation of a classroom of students that is part of the portfolio and the discussions we have had about using different strategies have made an impact on me that I can continue to review in future classes (Mentor Teacher 3).

The second subcategory in the knowledge centered learning environment included 2 references to the impact from the pre-service teacher on the mentor teacher's learning of and use of new technology. Example comments include: "I learned about some new songs and websites and that is always good (Mentor Teacher 3); "Luckily my intern was very tech savvy. I opened up the door for him to try anything new to me [*sic*] regarding technology" (Mentor Teacher 2).

Two responses were coded as unsure by the researcher, and one was coded as negative. "We talked daily……but I can't say that anything new really came out of it on my end" (Mentor Teacher 2). "No not really, I try to use different teaching strategies for my students all the time….I could incorporate more technology into the teaching but I was aware of that before having a student teacher" (Mentor Teacher 3).

Table 4-27 Mentor Teacher Survey Responses: Knowledge Centered Environment Sub-Categories

Knowledge Centered Environment Sub-Categories	Number of Mentor Teacher Responses in Each Sub-Category
New techniques, strategies to use in future	5
New use of technology	2
Total number of mentor teacher responses to survey questions	4

Note. The researcher sorted responses into sub-categories

Cooperating Mentor Teacher Electronic Surveys

The mylearningplan electronic survey was written by the Professional Development Council for the Manhattan Ogden USD 383School District. The Professional Development Council is required by the state to oversee and track professional development (teacher learning) for school district employees. The researcher was a member of the subcommittee during the time that the mylearningplan electronic survey questions were developed. The survey was designed to collect data from cooperating mentor teachers regarding how the process of mentoring a pre-service teacher impacts them and their students. The cooperating mentor teachers receive 90 professional development hours (points) for mentoring a pre-service student. These points are not awarded unless the mylearningplan survey is completed by the mentor

teacher. Some mentor teachers choose not to complete the survey if they do not need the hours for re-licensure or just do not want to bother with it. The mentor teachers are not required to complete the survey but it is strongly suggested from the USD #383 Manhattan Ogden district office that they do so.

The researcher identified the mylearning plan survey as a tool to triangulate with the data collected on the researcher designed surveys and interviews. While the questions on mylearningplan are not the same as other prompts in this study, they do align naturally with the three components of the Optimal Learning Environment: learner centered, assessment centered, and knowledge centered, and they do ask for perceptions that can be related to all three (see Appendix J). The researcher coded the mentor teacher responses into the Optimal Learning Environment categories. The researcher consolidated the like responses from both questions.

Seven of 8 cooperating mentor teachers responded on the electronic mylearningplan survey**.** The researched analyzed the mentor teacher response data as yes for a perceived positive impact and no for a perceived negative impact from mentoring the pre-service teacher. If the response was ambiguous to the researcher it was sorted as unsure. The researcher further analyzed the collected responses from the mentor teachers on mylearningplan.com into categories of professional work and future teaching based on the prompts. They were further sorted into subcategories that emerged to the researcher (see Table 4.28 below).

Table 4-28 Cooperating Mentor Teacher Mylearningplan.com Responses

Learner Centered Assessment Centered Knowledge Centered	How has your experience as a Cooperating Teacher impacted your Professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)
Yes	5
No	1
Unsure	1
Learner Centered Assessment Centered Knowledge Centered	How has this experience impacted your future teaching?
Yes	6
No	0
Unsure	1

Note. The researcher sorted this data into categories.

Cooperating Mentor Teacher Electronic Surveys: Learner Centered Learning Environment

The questions on the mylearningplan mentor teacher survey were not initially designed to explore the learner centered learning environment but could be analyzed for this purpose, to investigate whether mentor teachers perceived that their personal learning environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 7 mentor teachers responding to this question, 5 responded positively that their learner centered environment had been positively impacted by a pre-service teacher providing assistance to them on the first question and 6 of 7 on the second. One mentor teacher response was ambiguous and the researcher coded it as unsure.

Any open ended responses to the survey questions that provided evidence of impact on learner centered learning environment, based on the researcher's previous definition were sorted

into this initial category. The researcher then examined all responses for trends and patterns in the data and one sub-category emerged. It was identified as *personalized individual* learning (see Table 4.29 below). Only 1 mentor teacher responded with a learner centered learning response. She mentioned that she would like to become involved with teacher education for her content area. Because this seemed to fit within the learning environment of personalized or individualized learning, the researcher coded it into the learner centered environment. This subcategory included any references to meeting the personalized learning needs of the individual mentor teacher. The mentor teacher response was "I would like to get more involved in teacher preparation in my own content area" (mentor Teacher 5).

Cooperating Mentor Teacher Electronic Surveys: Assessment Centered Learning Environment

The questions on the mylearningplan mentor teacher survey were not initially designed to explore the assessment centered learning environment but could be analyzed for this purpose, to investigate whether mentor teachers perceived that their personal learning environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 7 mentor teachers, 5 responded positively that their assessment centered environment had been positively impacted by a pre-service teacher.

Any open ended responses to the survey questions that provided evidence of impact on the assessment centered learning environment, based on the researcher's previous definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and again only one subcategory was identified which was *reflection with revision* (see Table 4.28 below).

Five of 7 mentor teachers described the *reflection* process that occurred when the pre-service teacher was placed within the classroom. This sub-category focused on the benefits of two adults in the classroom with the mentor teacher reflecting on lessons after seeing the pre-service teacher's lessons, and on the benefits of having a pre-service teacher in the classroom to facilitate reflection. Examples of this sub-category included the mentor teacher thinking about the pre-service teacher's activities or lessons and then their own. The mentor teachers mentioned: "I will continue to examine what I am doing in the classroom and search for new ideas especially technology"(Mentor Teacher 7); "I had a strong student teacher and feel it impacted me in that I rethink the process and content looking for ways to improve" (Mentor Teacher 2); "It always makes me think about why I do what I do in the classroom" (Mentor Teacher 7).

Cooperating Mentor Teacher Electronic Surveys: Knowledge Centered Learning Environment

The questions on the mylearningplan mentor teacher survey were not initially designed to explore the knowledge centered learning environment but could be analyzed for this purpose, to investigate whether mentor teachers perceived that their personal learning environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 7 mentor teachers responding to this prompt, 5 responded positively that their knowledge centered environment had been positively impacted by a pre-service teacher.

Any open ended responses to the survey questions that provided evidence of impact on the knowledge centered learning environment, based on the researcher's previous definition were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and three sub-categories were identified including: *technology, new lessons or strategies, and continue to change* (see Table 4.29 below).

Four of 7 mentor teachers mentioned new or deeper learning and referenced technology specifically. This subcategory included any references to improve or incorporate new technology. Examples of this sub-category included how the mentor teachers learned new technology and how they might use it in the future and descriptions of their learning of new technology. This occurred when the pre-service teacher was placed within the classroom. This sub-category focused on the benefits of two adults in the classroom with the pre-service teacher impacting the learning of the mentor teacher. Examples of this sub-category included the mentor teachers seeing how the pre-service teachers implemented technology within their teaching and then trying it themselves. Examples of this sub-category also included how the mentor teachers learned new technology and how they might use it in the future. Mentor teacher responses coded into this sub-category included: "The student teacher included new technology that I was not aware of" (Student Teacher 1).

> I was fortunate to have a very tech savvy intern this semester. I am much better equipped to use my iPad, Apple TV, and other sources of technology during instruction. Also having an intern when I was on overload has been nice to take some of the pressure off … getting feedback to students in a timely fashion (Mentor Teacher 3).
>
> Again, the technology use of my intern has made me proficient in the same area. His use of apps with the students was great. I particularly I know I will be able to utilize the Nearpod app for many future purposes (Mentor Teacher 3).

Mentor teachers responded positively 8 times describing the impact of the pre-service teacher on their knowledge centered learning environment through the *new lessons or strategies* they used in their teaching. This sub-category focused on the benefits of having a pre-service teacher in the classroom to facilitate new or deeper learning about pedagogy or content. Mentor teachers mentioned: "I am going to use some of the activities and techniques that my student teacher tried. I also will try to keep the spirit of experimentation in my teaching – an intentional

willingness to experiment with new lessons, ideas, and techniques (Mentor Teacher 5); "Plan to incorporate all techniques" (Mentor Teacher 6).

Six of the 7 mentor teachers mentioned that they would *continue to ch*ange in future practice. These were generic comments and the researchers choose to sort them in the knowledge centered environment. "I am going to use some of the activities that my student teacher tried…."(Mentor Teacher 4). "Plan to incorporate all techniques" (Mentor Teacher 7). There was one negative response coded by the researcher and it included comments about the preparation, supervision and the KSU supervisor. Another comment was coded as unsure as it spoke to the work required to mentor a pre-service teacher. Neither could be coded as related to the learning environments.

Table 4-29 Cooperating Mentor Teacher Electronic Survey Responses: Sub-Categories

Optimal Learning Environment Categories And Sub-Categories	Number of Mentor Teacher Responses in Each Sub-Category
Learner Centered Learning Environment	
Personalized learning (involve self in teacher education)	1
Assessment Centered Learning Environment	
Reflect with revision	5
Knowledge Centered Learning Environment	
Technology	4
Use new lessons or strategies	8
Continue to change	6
Total number of mentor teacher responses to survey questions	7

Note. The researcher sorted responses into sub-categories

Cooperating Mentor Teacher Interviews

The researcher requested an interview with all eight of the cooperating mentor teachers to ask about their perceptions of impact from mentoring a pre-service teacher. These mentor teachers were not required to participate in the interviews conducted by the researcher towards the end of the pre-service teacher clinical practicum. Eight complied and one said she would send the responses electronically if she could have the questions in advance. The researcher provided all mentor teachers with the main question in advance, but in some cases during the interview asked additional questions or prompts if the mentor teacher's reply was brief of did not answer the question. The questions also were written in hard copy for the cooperating mentor teachers as they responded in the interview. The interviewer went to the mentor teachers' classroom and recorded the interviews. After the interviews were recorded they were transcribed.

The researcher used the Optimal Learning Environment (NRC, 1999) as a framework to categorize responses as: a) learner centered, (b) assessment centered and (c) knowledge centered. She then identified the sub-categories that appeared naturally within each of the three learning environment categories. In many cases the cooperating mentor teachers mentioned several impacts during the interview that aligned with several different subcategories. So the sub-categories may have more responses recorded than the number of mentor teachers interviewed. Some cooperating mentor teachers responded with statements that did not address the questions. In this case the researcher redirected the mentor teachers with additional prompts, but did not code a response that could not fit within the theoretical framework of the Optimal Learning Environment. All additional prompts used during the interview by the researcher can be seen in

Appendix K**.** Most of the responses from the mentor teachers were positive as can be seen below in Table 4.30.

Table 4-30 Cooperating Mentor Teacher Interview Responses: Optimal Learning Environment

Optimal Learning Environment	Questions and Responses
	Do you think your teaching has been impacted by mentoring a student teacher? In what ways? Explain
Positive	7
No	1
Learner Centered Learning Environment	What about collaboration?
Positive	8
No	0
Assessment Centered Learning Environment	What about reflection?
Positive	7
No	0
Unsure	1
Knowledge Centered Learning Environment	What about technology?
Positive	7
negative	0
Unsure	1
Knowledge Centered Learning Environment	What about teaching strategies?
Positive	6
Negative	0

Note. The researcher sorted responses into categories

The researcher's initial question was, "Do you think your teaching has been impacted by mentoring a student teacher?" And, "In what ways? Explain." The themes for the additional

prompts provided to the cooperating mentor teachers by the researcher included: collaboration, reflection, technology, and teaching strategies. The researcher was also prompting with the term "diverse or different learner" frequently in the interviews attempting to elicit responses regarding strategies learned or used to address the needs of diverse learners. One cooperating mentor teacher responded that she was not impacted by the pre-service teacher in the initial question. "No, not really … I already know how to ….." (Mentor Teacher 6).

Seven of 8 mentor teachers responded positively to the initial question indicating that they perceived their teaching had been impacted by mentoring a student teacher. All 8 indicated their teaching was impacted by collaboration with the pre-service teacher about lessons and planning. Seven mentor teachers believed they reflected more on teaching while mentoring a pre-service teacher. Most mentioned that they thought about the teaching of lessons and this reflection was tied to collaboration with the pre-service teacher about the lessons. Seven of 8 mentor teachers responded that their knowledge and use of technology with a pre-service student in the classroom increased. They said they learned to use new technology with or learned from the pre-service teacher. Six of 8 mentor teachers said they observed and/or would implement new strategies that the pre-service teacher demonstrated while teaching. One specifically mentioned the *KSU Teaching Portfolio* requirements for multiple teaching strategies. While the prompts were specific to professional (teacher) learning, some mentor teachers strayed from those prompts and 2 of 8 mentor teachers perceived a positive impact with a pre-service teacher in the classroom to help answer student questions. Another mentioned that it was beneficial to have a pre-service teacher to help them with other required teaching duties. Two of 8 mentor teachers remarked that some diverse students were impacted positively by the strategies used by the pre-service teacher. In one case it was the low achieving students and in another case, student

who were high achieving in an advanced class. One mentor teacher mentioned that the pre-service teacher was creative and fresh.

Cooperating Mentor Teachers Interviews: Learner Centered Learning Environment

The question and prompts in the cooperating mentor teacher interview which focused on collaboration were designed to allow open-ended responses regarding whether the cooperating mentor teachers perceived that their learner centered environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 8 cooperating mentor teachers responding to this, 7 responded positively that their learning had been positively impacted by collaboration with a pre-service One mentor teacher responded negatively. Any open ended responses to the interview question and follow-up prompts that provided evidence of impact on the learner centered learning environment, based on the researcher's definition earlier were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and one subcategory of *continuous learning* was identified (see Table 4.31 below). The mentor teachers were continuing their learning while collaborating with the pre-service teacher.

Cooperating mentor teachers mentioned seven times during the interviews that they learned continuously with the pre-service teacher in the classroom. This first sub-category included any references to meeting the ongoing unique learning needs of the cooperating mentor teacher. Examples of this sub-category included job embedded learning between the cooperating mentor teacher and the pre-service teacher. Cooperating mentor teacher responses coded into this sub-category included:

> ...I learned so much from her… we talked all the time about teaching and she always wanted to make her lessons perfect. It made me think more about some of my own lessons (Mentor Teacher 7).

We talked about teaching and also worked together to create a lot of lessons. We also worked on some technology but the technology in my classroom is not working so we could not use it. She did have good ideas for lessons (Mentor Teacher 2).

I had to think about what I was doing. And we talked all of the time about lessons (Mentor Teacher 6)."

"We did talk about lessons and teaching and I don't usually get to talk with the other biology teachers because I am on overload so I don't go to PLC. They all get time to talk during PLC so it's nice to have a student teacher to talk with….. Yes, we did talk about lesson planning somewhat. But the members in my department are already collaborative – so it was a different kind of collaboration (Mentor Teacher 3).

We talked all the time about teaching and planning lessons and the students. I had to think about and sometimes I had to revise some of my lessons as we talked. It made me think about why I was doing some things. We always planned together and he had some really good ideas. We changed some plans after talking sometimes (Mentor Teacher 3).

Table 4-31 Cooperating Mentor Teacher Interviews: Learner Centered Environment Sub-Categories

Learner Centered Environment Sub-Category	Number of Mentor Teacher responses in Sub-Category
Continuous collaborative mentor learning	7
Total number of mentor teacher responses to interview prompts	8

Note. Researcher sorted responses into categories

Cooperating Mentor Teachers Interviews: Assessment Centered Learning Environment

The question and prompts in the cooperating mentor teacher interview focused on reflection were designed to allow open-ended responses regarding whether the mentor teachers perceived that their assessment centered environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 8 cooperating mentor teachers responding to this, 7

responded positively that their learning had been positively impacted by reflection with a pre-service teacher and one response was ambiguous.

Any responses to the survey question or follow-up prompts that provided evidence of impact on assessment centered learning environment, based on the researcher's definition were sorted into this initial category. These responses focused on teacher self-assessment, reflection with peers, timely feedback while learning, and revision of thinking about pedagogy. The researcher then examined all responses for trends and patterns in the data and two subcategories were identified*:* *reflection on lessons* and *trying new strategies with feedback and support* (see Table 4.32 below).

Cooperating mentor teachers mentioned reflection on lessons nine times. This subcategory included any references to reflecting on lesson planning, teaching strategies, and student learning with the pre-service teacher or as a result of mentoring a pre-service teacher. Cooperating mentor teacher responses coded into this sub-category of *reflection on lessons* included:

> Yes. I'm constantly thinking about my own lessons knowing that he is seeing them and me teach them [*sic*] and I want to make sure they are good. I feel like I need to be a good role model for him. I want to make sure that I'm using good teaching skills. He is such a good student teacher we talk all the time about our teaching. We talk about lessons and also the students and if they are getting it. He makes me want to prepare better lessons because he's watching. He makes me want to learn how to use more technology to teach with (Mentor Teacher 5).
>
> … just this week, my student teacher was teaching about …….. She was writing it on the board for the students and as I watched…… I never thought about it that way. I had never taught it that way. It was a new way of looking at …… for me. So it was new for the students too (Mentor Teacher 7).
>
> Yes, because I had to think about what I was doing. And we talked all of the time about lessons (Mentor Teacher 1).

> It made me think about my own lessons and what I teach and why I teach it that way. It also made me aware of some resources I had not used (Mentor Teacher 3).
>
> We talked all the time about teaching and planning lessons and the students. I had to think about and sometimes I had to revise some of my lessons as we talked. It made me think about why I was doing some things. We always planned together and he had some really good ideas. We changed some plans after talking sometimes (Mentor Teacher 4).

Cooperating mentor teachers mentioned *trying new strategies with feedback and support* twice. This subcategory included any references to supportive learning and trying new teaching strategies for lesson planning and teaching. Examples of this sub-category included the cooperating teachers trying new teaching strategies when mentoring a pre-service teacher. Mentor teacher responses coded into this sub-category of *trying new strategies* included:

> I also learned a lot of new technology. I know how to use a lot of technology but with a student teacher in the classroom it gave me time to try new things. We can work together to find new technology and then try it out together and we don't have to be embarrassed or afraid (Mentor teacher 7).
>
> My student teacher taught me how to use some apps on my Ipad and use them in class for the students. She also brought over some equipment from the university for some of the labs (Mentor Teacher 1).

One cooperating mentor teacher responded with an ambiguous answer and the researcher coded it as unsure. The response could not be aligned within any of the Optimal Learning Environment categories but comments also were not negative. They were related to the completion of the KSU portfolio.

Table 4-32 Cooperating Mentor Teacher Interviews: Assessment Centered Environment Sub-Categories

Assessment Centered Environment Sub-Categories	Number of Mentor Teacher Responses in Each Subcategory
Reflections on lessons	9
Trying new strategies with support, feedback	2
Total number of mentor teacher responses to interview questions and prompts	8

Note. Researcher sorted responses into sub-categories

Cooperating Mentor Teachers Interviews: Knowledge Centered Learning Environment

The prompts in the mentor teacher interview focused on teaching strategies or the use of technology were designed to allow open-ended responses regarding whether the mentor teachers perceived that their knowledge centered environment had been impacted by mentoring a KSU pre-service teacher. Out of a total of 8 mentor teachers responding to the prompt on technology, 7 responded positively that their learning had been positively impacted by the pre-service teacher's use of technology and one response was ambiguous. Six mentor teachers responded positively to the prompt regarding teaching strategies.

Any open ended responses from the mentor teacher during the interview question and follow-up prompts that provided evidence of impact on the learner centered learning environment, based on the researcher's definition provided earlier were sorted into this initial category. The researcher then examined all responses for trends and patterns in the data and two subcategories emerged*: new techniques and strategies to use now and in the future* and *new use of technology for now and the future* (see Table 4.33 below). One cooperating mentor teacher's response was ambiguous and the researcher coded it as unsure.

The first subcategory included 13 references to learning new teaching pedagogy through interactions with the pre-service teacher. Comments revealed these new techniques, perspectives, or strategies would be used by the mentor teacher now or in the future. Mentor teacher responses coded into this first sub-category included "I will use some of the lessons we designed together when I teach" (Mentor Teacher 7).

> My student teacher brought a lot of innovative ideas into the classroom as well as a new perspective on content… She did design a lot of different lessons. I'll probably use some of them after she is gone. (Mentor Teacher 2)
>
> I think I will change a few teaching strategies next semester. I've made notes of ideas that she has used as well as … have her lesson plans with some of the materials she used as well as presentation methods, video clips (Mentor Teacher 4)

Nine times, the mentor teachers described the knowledge gained regarding the use of new and additional *technology* by collaborating with the pre-service teacher. This sub-category focused on the benefits of using technology with which to teach now and in the mentor teacher's future. Examples of this sub-category included the student teacher using the technology and the mentor teacher following suit. Mentor teachers mentioned:

> They usually know how to use different kinds of technology and share it with me. I want to stay up on current trends and information and they bring some of that from the university. I don't ever want to get bored and when I have student teachers they make the teaching and the content fresh. I like to have them in the classroom and work with them to plan more innovative lessons (Mentor Teacher 1).
>
> He did use technology very well to teach and he was good at it. I would like to incorporate more technology in my own lessons but it just takes time (Mentor Teacher 3).

Table 4-33 Cooperating Mentor Teacher Interviews: Knowledge Centered Environment Sub-Categories

Knowledge Centered Environment Sub-Categories	Number of Mentor Teacher Responses in Each Sub-Category
New techniques, strategies to use now and in future	13
New use of technology for now and the future	9
Total number of student responses to interview questions and prompts	8

Note. Researcher sorted responses into sub-categories

Triangulation of Data from all Participants

The researcher triangulated all data sources to identify themes in responses found across all participant groups. The discussion of these themes can be found in Chapter 5. Columns marked with an X indicate evidence found in the groups' participant responses in the sub-categories that emerged as the researcher sorted responses. The triangulation response data can be seen in Tables 4.34 – 4.39 below.

Table 4-34 Results for High School Students Optimal Learning Environment - Includes all responses from surveys and interviews

Learner Centered Environment	High School Students	Pre-service Teachers
Individual Assistance	X	X
Additional Assistance	X	X
Caring Environment	X	X
Relatedness to Pre-service Teacher	X	X
Life Skills		X

Table 4-35 Results for High School Students Optimal Learning Environment - Includes all responses from surveys and interviews

Assessment Centered Environment	High School Students	Pre-service Teachers
Consistent Feedback	X	
Timely Feedback	X	X
Explanatory Feedback (understanding)	X	X
Positive Feedback		X
Revision Feedback		X

Table 4-36 Results for High School Students Optimal Learning Environment - Includes all responses from surveys and interviews

Knowledge Centered Environment	High School Students	Pre-service Teachers
Appropriate Strategies	X	
Engaging Strategies	X	X
Different Perspective	X	
Multiple Alternative Strategies		X
Technology		X

Table 4-37 Results for Cooperating Mentor Teachers - Optimal Learning Environment - Includes all responses from surveys and interviews

Learner Centered Environment	Cooperating Mentor Teacher	Pre-service Teachers
Designing Lesson Together (Collaboration)		X
Learning From Each Other		X
More Collaboration	X	X
Individualized Learning	X	

Table 4-38 Results for Cooperating Mentor Teachers - Optimal Learning Environment - Includes all responses from surveys and interviews

Assessment Centered Environment	Cooperating Mentor Teacher	Pre-service Teachers
Reflection on Pedagogy	X	X
Supportive Feedback to Mentor Teacher	X	X

Table 4-39 Results for Cooperating Mentor Teachers - Optimal Learning Environment - Includes all responses from surveys and interviews

Knowledge Centered Environment	Cooperating Mentor Teacher	Pre-service Teachers
New Strategies	X	X
Implementation of Technology	X	X
Modelling of Strategies		X
Strategies for Diverse Learners		X
University Resources	X	X
Continue to Change Pedagogy	X	

Summary

This data presented in chapter 4 included results of the analysis of the perceived impact on both high school students and the cooperating mentor teacher when a pre-service teacher is placed in the classroom for his or her final clinical practicum experience. Data was collected from the high school students, the pre-service teachers and the mentor teachers.

High School Student Perceptions Regarding the Optimal Learning Environment for High School Students

The high school students overwhelming agreed that they perceived a benefit to their own learning when a pre-service teacher was placed within their classrooms. One hundred twenty five

of 130 responses indicated that high school students perceived a positive impact due to feedback, 115 of 130 responders perceived a positive impact from the use of multiple teaching strategies, and 121 of 130 responders perceived a positive impact from the help or assistance from a pre-service teacher. They cited the types of assistance (help) and response to questions from the pre-service teacher. They also mentioned the new and additional use of technology and different teaching or learning strategies incorporated during lessons. The students mentioned that they liked the activities and the kind of feedback they received from the pre-service teacher regarding their questions. One unexpected finding was that some high school students also mentioned age related comments when talking about the perceived positive impact of the pre-service teacher. The second unexpected finding was the perceived impact of the pre-service teacher caring for or about the high school students. There were no prompts or questions for either of these last two subcategories.

Pre-Service Teacher Perceptions Regarding the Optimal Learning Environment for High School Students

Responses were analyzed by the researcher related to the pre-service teachers' perception of impact on the high school students' learning. The categories analyzed by the researcher, identified in the literature review and guided by *How People Learn* (NRC, 1999) investigated the Optimal Learning Environment for the students and included the categories of: (a) learner centered (help, assistance) and (b) assessment centered (feedback with practice) and (c) knowledge centered (deeper understanding and appropriate strategies) learning environments. The pre-service teachers stated that the students received more help and assistance, experienced different learning strategies including the incorporation of technology and that they benefited from the feedback provided by the pre-service teachers. All 8 of 8 perceived that they positively

impacted student learning in all categories when completing the surveys and 7 of 7 had the same perception during the interviews. Age related comments; pre-service students are closer in age to the high school students than the mentor teachers are, were also mentioned by the pre-service teachers as having a perceived positive impact related to student learning. And the mention of the perceived impact of the pre-service teacher caring for or about the high school students was mentioned. Both of these subcategories were also found in the high school students responses.

Pre-Service Teacher Perceptions Regarding the Optimal Learning Environment for Mentor Teachers

The conceptual framework categories analyzed by the researcher, identified in the literature review and guided by "How People Learn" (NRC, 1999) investigated the Optimal Learning Environment for the cooperating mentor teachers and included three categories: (a) learner centered (collaboration), and (b) assessment centered (feedback and reflection) and (c) knowledge centered (deeper understanding of new pedagogy or content and also the use of newly learned strategies to meet the needs of diverse learners). There was evidence to show the pre-service teachers perceived that they positively impacted the cooperating mentor teachers' professional learning, collaboration, and reflection. Seven of 8 pre-service teachers responded on the survey that they perceived a positive impact in all categories except meeting the needs of diverse learners on which responses were positive from 6 of 8 pre-service teachers. The results on the pre-service teacher interview responses showed that a majority perceived an overall positive impact on their mentor teacher. The pre-service teachers perceived that the cooperating mentor teachers thought more and reflected on their own practice as they collaborated with the pre-service teacher and tried new technology with feedback and support from the pre-service teacher.

Cooperating Mentor Teacher Perceptions Regarding the Optimal Learning Environment for Mentor Teachers

Cooperating mentor teachers perceived a positive impact on their teaching practice in all of the conceptual framework categories except for meeting the needs of diverse learners. The categories, analyzed by the researcher, identified in the literature review and guided by *How People Learn* (NRC, 1999) investigated the Optimal Learning Environment for the cooperating mentor teachers and included three categories: (a) learner centered (collaboration), and (b) assessment centered (feedback and reflection) and (c) knowledge centered (deeper understanding of new pedagogy or content) and also the use of newly learned strategies to meet the needs of diverse learners. Responding to the researcher designed survey; the cooperating mentor teachers said they learned new strategies and technology through collaboration and reflection with the pre-service teachers. They said they practiced these skills and most will use some of them in future teaching. They also said they thought more and reflected on their own practice as they collaborated with the pre-service teacher. Four of 8 cooperating mentor teachers chose to complete the researcher designed survey related to impact of the pre-service teacher. Three of 4 cooperating mentor teachers responded that the student teacher positively impacted their professional collaboration and reflection, and perceived a positive impact on the use of innovative teaching strategies (resources), and also indirectly the use of different strategies to meet the needs of diverse learners.

The district surveys completed by the cooperating mentor teachers on mylearningplan.com also show a positive impact by mentoring a pre-service teacher. Seven cooperating mentor teachers responded to the district mylearningplan survey. Five of 7 responding cooperating mentor teachers referred to reflection on their teaching, 7 of 8 mentioned

the learning and incorporation of new teaching strategies, and 4 mentioned the increased learning on and new use of technology, 6 mentioned they would continue to change practice, and 1 responded that she would like to work with pre-service teachers.

The interviews with the cooperating mentor teachers also showed that they perceived an impact on their own professional learning. Seven of 8 mentor teachers participated in the interviews with the researcher. One of 8 responded to the interview questions in print rather than participating in a face to face interview. These comments were compiled with the other interview responses. Eight of 8 mentor teachers said they collaborated with their pre-service teacher when planning or teaching lessons, which impacted their learning environment. Seven of 8 stated that they reflected on their teaching while mentoring a pre-service teacher, again impacting their learning environment and 7 of 8 mentor teachers responded that their knowledge and use of technology with a pre-service student in the classroom increased. Six of eight mentor teachers responded positively to learning new teaching strategies. Two of 8 mentor teachers perceived a positive impact with a pre-service teacher in the classroom to help answer student questions, and also to help them with teaching duties. Two of 8 mentor teachers remarked that some diverse students were impacted positively by the strategies used by the pre-service teacher.

The responses collected and analyzed do show a perceived positive impact on the high school students' and the cooperating mentor teachers' Optimal Learning Environment when pre-service teachers are placed in a classroom for their final intern practicum. These perceived impacts can be categorized as enhancing the learner centered, the assessment centered, and the knowledge centered learning environments for both the high school students and the cooperating mentor teachers.

Chapter 5 - Conclusions, Discussion and Implications

The national Professional Development School (PDS) movement grew out of dissatisfaction with education in the Unites States in the 1980s. University-school partnerships were encouraged in an effort to reform K-12 schools while simultaneously reforming teacher education from pre-service teacher preparation through the continuing professional development of experienced teachers. This simultaneous and collaborative reform through PDS partnerships was advocated for the ultimate benefit of the K-12 students being educated in these schools (Holmes, 1986). Almost thirty years later, educators continue to question if simultaneous reform in teacher education and K-12 schools has been realized through Professional Development Schools (Teitel, 2001; Neapolitan & Tunks, 2007).

This study was a response to similar legitimate questions from stakeholders within the KSU PDS partnership and the Manhattan – Ogden School District. In particular, PDS partners at Manhattan High School wanted to be sure that the large numbers of pre-service students placed at the high school were positively impacting the teachers and students who taught and learned within the high school. Consequently, the purpose of this study was to investigate the perceived impact of pre-service teachers on the learning environment of the Manhattan High School Professional Development School in which they are placed for their final clinical experience. More specifically, this study was designed to explore the perceived impact on the learning environment of the students who were taught by the pre-service teachers and the cooperating teachers who mentored them.

Based on this purpose statement, the overarching question posed for this study was: In what ways do pre-service teachers impact the learning environment of the PDS in which they

complete their final clinical experience? To effectively address this overarching question, three sub-questions were identified:

a. In what ways do the high school students who are members of the classroom in which a pre-service teacher is placed perceive their learning environment is impacted by the pre-service teacher?

b. In what ways do pre–service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the high school students they teach?

c. In what ways do cooperating teachers who are mentoring a pre-service teacher perceive their learning environment is impacted by the pre-service teacher?

The theoretical framework for this qualitative case study was based on the concept of an Optimal Learning Environment as delineated by the National Research Council (NRC, 1999). The NRC synthesized research that has been shown to impact the learning environment of both students and teachers in the publication *How People Learn* (1999). This synthesis resulted in the identification of four components of an Optimal Learning Environment: (a) a learner centered learning environment, (b) an assessment centered learning environment, (c) a knowledge centered learning environment, and (d) a community centered learning environment.

The components of the learner, assessment and knowledge centered learning environment were all investigated as part of this case study. The fourth component of the Optimal Learning Environment (NRC, 1999), the community centered learning environment, was not investigated because it was perceived to be outside the realm of influence of pre-service teachers. It is usually the cooperating mentor teacher who determines the community involvement within and outside of the classroom and the pre-service teacher simply adapts to these previously established norms

and practices. But one major component of a community centered learning environment, collaboration, was included in this study under the learner centered environment.

Data collection and analysis was guided by the Theoretical Framework of the Optimal Learning Environment as presented in chapter three. Researcher definitions of the learner centered, assessment centered, and knowledge centered learning environments were developed for high school students as well as cooperating mentor teachers to guide data collection and analysis. Data collection was triangulated through the use of multiple sources of data and data collection. To determine the perceived impact of the pre-service teacher on the learning environment of students and teachers, the researcher considered the perspective of eight pre-service teachers placed at Manhattan High School for their final practicum along with the perspectives of 130 high school students taught by these pre-service teachers and the eight cooperating teachers who mentored the pre-service teachers. To gather the perspectives of all three participant groups, the researcher designed and used high school student surveys, pre-service teacher surveys and interviews, and cooperating mentor teacher surveys and interviews. In addition, the researcher collected data from an existing electronic survey, "mylearningplan", designed and used by the Manhattan-Ogden School District to assess the impact on cooperating teachers from mentoring a pre-service teacher. All surveys and interviews were structured with pre-planned questions. Surveys provided an opportunity for short responses followed by more detailed explanations. Interview questions were followed by a series of prompts used when deemed necessary to clarify responses or elicit additional information.

The researcher used qualitative categorical data analysis to sort the responses that emerged within the data collected to understand the perceived impact of the pre-service teacher on the learning environment of the high school students and cooperating mentor teachers (Guba

& Lincoln, 1981). The researcher initially coded all data using the NRC (1999) categories of learner centered learning environment, assessment centered learning environment, and knowledge centered learning environment and researcher definitions of each of these environments. Data within each of these three categories were then examined for trends and patterns and sub-categories were identified within each larger category. Descriptions of each sub-category were generated and quotes from survey and interview data were used to further support the inclusion of each sub-category as part of the analysis process. The results of this data analysis were presented in chapter four.

In this final chapter, conclusions will be presented and discussed related to the three sub-questions focused on each participant group, pre-service teachers, high school students, and cooperating mentor teachers. Conclusions related to the overarching research question will then be presented and discussed based on a cross group analysis of the data. Lastly, implications of these conclusions and recommendations for further study will be presented.

Conclusion and Discussion

In the section below each of the sub questions will be discussed by the researcher followed by a discussion of the overall question.

In what ways do the high school students who are members of the classroom in which a pre-service teacher is placed perceive their learning environment is impacted by the pre-service teacher?

Conclusion 1: An overwhelming majority of high school students in this study perceived a positive impact on their own learning environment from the placement of a pre-service teacher in their classroom. High school student comments provide evidence that all three components of

their Optimal Learning Environment were impacted: the learner centered learning environment, assessment centered learning environment, and knowledge centered learning environment.

In terms of the learner centered learning environment, high school students perceived a positive impact from: personalized individual assistance, additional assistance, the creation of a caring and supportive environment and their ability to relate to the pre-service teacher. These students mentioned several examples of why they perceived their learning to be impacted positively by the pre-service teacher. Many students mentioned that sometimes the classroom teacher was busy or even absent and could not answer their questions, but the pre-service teacher did. They some mentioned that the pre-service teacher would respond to their questions until they understood the material. Students perceived the pre-service teacher to be knowledgeable and articulate and thorough. Many mentioned that having two knowledgeable adults in the classroom provided more help than just one adult (NRC, 1999; NRC, 2000).

Two unexpected sub-categories emerged from student responses within the learner centered learning environment. A few students mentioned a caring or supportive learning environment, stating that the pre-service teacher cared about them and that they felt close to him or her. Some students also mentioned the closeness in age between them and felt they could relate better to the pre-service teacher and the strategies and technology he or she used than to an older teacher.

In terms of the assessment centered environment, high school students perceived their learning to be impacted by: consistent feedback, timely feedback, and explanatory feedback to enhance their understanding. Many students perceived that they understood better with this feedback. These students said they consistently received feedback when they needed it -while working or soon after an assignment was completed. Some high school students mentioned that

the pre-service teachers explained things well and feedback from some pre-service teachers was more thorough and descriptive compared to that provided by the cooperating mentor teachers (Marzano, et al. 2001; NRC, 1999; NRC, 2000).

In terms of the knowledge centered environment, high school students perceived their learning to be impacted by: the use of appropriate learning strategies, the use of engaging strategies, and the different perspectives the pre-service teachers provided on the concepts to be learned. Some mentioned that the pre-service teacher showed them several different ways to learn and applied the information to relevant situations. A few students even perceived that they learned more when the pre-service teacher was teaching compared to when the cooperating mentor teacher was teaching. These high school students talked about learning in different ways and staying more interested and engaged because of the pre-service teachers (Mendler, 2000; NRC, 1999; NRC, 2000). Several of the students mentioned the demonstrations or hands on lab activities that the pre-service teacher was using and their interactive strategies. One student said that the KSU pre-service teachers provide more up to date information than the textbook and another said he/she learned from different perspectives with the pre-service teacher.

In what ways do pre–service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the high school students they teach?

Conclusion 2: The pre-service teachers involved in this study overwhelming perceived they positively impacted the learning environment of the high school students they taught. Pre-service teacher comments provided evidence that all three components of the high school students' Optimal Learning Environment were impacted: the learner centered learning

environment, assessment centered learning environment, and knowledge centered learning environment.

In terms of the learner centered learning environment, pre-service teachers perceived they impacted the learning environment of high school students through: additional assistance, personalized individual assistance, the creation of a caring and comfortable environment, attention to life skills, and by their ability to relate to the students. Many of the pre-service teachers perceived that the assistance they provided to students was in additional to what the classroom teacher could consistently provide alone. These pre-service teachers also felt they personalized their assistance for the individual students and clarified the content for the students by the questions they asked and answered (NRC, 1999; NRC, 2000). A few pre-service teachers mentioned that they were not just teaching content but were teaching the students life skills they would need in the future. Some also tried to let the students know that they cared about them and felt that the students knew this. Some said they wrote positive notes or comments of encouragement on the students' work. A few pre-service teachers also mentioned that they were closer in age to the students and they thought that the students could relate better to them.

In terms of the assessment centered learning environment, pre-service teachers perceived they impacted the learning environment of high school students by providing explanatory feedback to enhance understanding, timely feedback, and feedback regarding correct responses as well as needed revisions. Some described the feedback they provided along with the appropriate assessments or strategies they used. Several mentioned that their feedback during assessments or class time was explanatory. They used feedback as another opportunity to thoroughly explain the content to the students and sometimes, in response to questions, re-stated or used different examples or different strategies to help the students understand. These pre-

service teachers also said they provided timely feedback and some mentioned using technology to respond more quickly to student assignments. A few also mentioned providing feedback regarding the correctness or need for revisions in students' thinking to guide students' understanding (Marzano, et al. 2001; NRC, 1999; NRC, 2000).

In terms of the knowledge centered learning environment, pre-service teachers perceived they impacted the learning environment of high school students through the use of: multiple or alternative teaching strategies, instructional technology, and engaging strategies. Several of the pre-service teachers perceived that the strategies they were using were impacting the learning environment of the students positively. They mentioned that students learn differently and that the use of different strategies would help them learn more. Some of the pre-service teachers talked about using instructional technology for teaching and discussed the specific tools or apps used to aid student learning. A few mentioned that students liked the engaging strategies they used, but also that students were learning from these strategies (Marzano et al, 2001; Mendler, 2000; NRC, 1999; NRC, 2000).

In what ways do pre–service teachers perceive that they are impacting the learning environment of the cooperating teachers who mentor them and the highs school students they teach?

Conclusion 3: The pre-service teachers involved in this study overwhelming perceived they positively impacted the learning environment of the cooperating mentor teachers who mentored them. Pre-service teacher comments on surveys and interviews provided evidence that all three components of the cooperating mentor teachers' Optimal Learning Environment were impacted: the learner centered learning environment, assessment centered learning environment, and knowledge centered learning environment.

In terms of the learner centered learning environment, pre-service teachers perceived they impacted the learning environment of their cooperating mentor teacher by designing lessons together and learning together through collaboration (Danielson, 2000; NRC, 1999;NSDC, 2002). Most mentioned that they collaborated daily about lessons and assignments and student learning and some that they were both learning from one another during this collaborative time. This professional collaboration was job embedded and usually occurred throughout the day after a lesson was taught or during the planning of lessons. This collaboration also focused on educational initiatives discussed during the expected professional learning time that occurred at Manhattan High School. This professional learning or collaboration for the mentor teachers allowed time for discussion and implementation of new learning (Darling-Hammond, 2006; Loucks-Horsley, et al., 1998; NSDC, 2001).

In terms of the assessment centered learning environment, pre-service teachers perceived they impacted the learning environment of their cooperating mentor teacher by: reflecting together on lessons and grading and creating a supportive environment for each other. Reflection is a crucial part of effective teaching (Danielson, 2000; NRC, 1999; NSDC, 2002). Pre-service teachers commented that they reflected with their cooperating mentor teacher after each lesson regarding what did and did not work and what could be revised. Several mentioned stimulating their cooperating mentor teacher to reflect by asking why they were using specific strategies or materials. Pre-service teachers also felt they helped provide supportive feedback to their cooperating teachers (Darling-Hammond, 2006; Loucks-Horsley, et al., 1998; NSDC, 2001). One said his cooperating mentor teacher asked for feedback from him after she taught. Several mentioned modeling new technology and innovative strategies and providing supportive

feedback to the cooperating mentor teachers as they reflected on and revised their own teaching to include technology and other new strategies.

In terms of the knowledge centered learning environment, pre-service teachers perceived they impacted the learning environment of their cooperating mentor teacher by: implementing and modeling instructional technology, new teaching strategies, additional resources, and strategies to teach diverse learners (Loucks-Horsley, et al., 1998; NSDC, 200; NSDC 2002). These behaviors helped to deepen the cooperating mentor teachers' understanding of content and pedagogy and their use of new resources, strategies, and technology. Many pre-service students mentioned helping their cooperating mentor teachers with new strategies they were not familiar with, the setup of different labs and activities, and the use of new technology including different web sites to aid student learning (NRC, 1999). Pre-service teachers also mentioned sharing new strategies related to meeting the needs of diverse learners since this is heavily emphasized at KSU.

In what ways do cooperating teachers who are mentoring a pre-service teacher perceive their learning environment is impacted by the pre-service teacher?

Conclusion 4: The cooperating teachers involved in this study overwhelmingly perceived a positive impact on their own learning environment from mentoring a pre-service teacher. Cooperating mentor teacher comments on surveys and interviews provided evidence that all three components of their Optimal Learning Environment were impacted: the learner centered learning environment, assessment centered learning environment, and knowledge centered learning environment.

In terms of the learner centered learning environment, cooperating mentor teachers perceived their pre-service teacher impacted their learning environment through the collaboration

that occurred daily in a job embedded environment. They shared that it was productive for them to collaborate about lessons and student learning and beneficial to have another adult in the classroom talk with. Most mentioned planning and implementing lessons together and frequently talking about lesson design (NRC, 1999; Drago-Severson, 2011). Some of the cooperating mentor teachers said this was the only time they could really collaborate.

In terms of the assessment centered learning environment, cooperating mentor teachers perceived their pre-service teacher impacted their learning environment through: continuous reflection and feedback (Danielson, 2007; NRC 1999). Several cooperating mentor teachers described the benefits of daily planning, observing, reflecting with, and exchanging feedback with the pre-service teacher. Some believed the presence of a pre-service teacher stimulated them to think more deeply and more often about their own teaching. Some said they would continue to reflect and change practice. One said it made her more conscientious as a teacher.

In terms of the knowledge centered learning environment, cooperating mentor teachers perceived their pre-service teacher impacted their learning environment through the use of new strategies and techniques, and technology used (Loucks-Horsley et al., 2010, NRC, 1999; NSDC, 2002). A few cooperating mentor teachers mentioned the incorporation of new teaching methods, materials or resources, and technology learned with the pre-service teacher. One mentor teacher mentioned that she was taking notes and would make changes in her teaching the next year. Responses also included that the mentor teacher was supported while learning to use these new or different strategies or technology. Some said the diverse high school students in the classroom benefited from the use of these different strategies or teaching styles.

In what ways do pre-service teachers impact the learning environment of the PDS in which they complete their final clinical experience?

A cross group analysis of the data from all participants was used to form the final conclusion of this study.

Conclusion 5: The vast majority of high school students, pre-service teachers, and cooperating mentor teachers participating in this study all perceived that pre-service teachers positively impacted the Optimal Learning Environment of the high school students and cooperating mentor teachers. Comments from all participants provide evidence that the Optimal Learning Environment of the high school students and the cooperating teachers was impacted in terms of their learner centered learning environment, their assessment centered learning environment, and their knowledge centered learning environment.

Professional Development Schools were envisioned as an effective way to enhance the learning of students and experienced cooperating mentor teachers while preparing novice pre-service teachers. This study has not demonstrated that all PDS partnerships will positively impact all participants within a PDS. However it has demonstrated that, according to the perceptions of those involved, positive impact on students and teachers is possible when pre-service teachers are placed within PDS classrooms.

Themes Across Participant Groups

Several themes emerged from the data related to how pre-service teachers might impact the Optimal Learning Environment of both teachers and students. These themes were identified by the researcher as part of the process of triangulation. Sub-categories that were mentioned by more than one group of participants (see Tables 4.34 – 4.39) were clustered into themes to demonstrate the relationships between these sub-categories. The themes related to the impact of

pre-service teachers on the students they teach include the additional and individualized assistance and feedback the pre-service teachers provide to their students, the relationships they build within a supportive environment and their use of a variety of effective and engaging strategies. These themes all can be related to a deep understanding and appreciation of students as unique and diverse learners and the use of strategies to meet these individual needs. The themes related to the impact of pre-service teachers on the cooperating teachers who mentor them include the power of collaboration and reflection and opportunities to plan, observe and practice new effective and engaging strategies together. The importance of collaboration, reflection, and the implementation of new strategies is a common message in professional development (NSDC, 2002). But the culture of teaching has been one of isolation and independence. A PDS partnership may help to change this culture of teaching by placing teachers in an environment where collaboration, reflection, and the practice of new teaching strategies are the norm and the expectation. The KSU PDS is based on the premise of learning and growing together as a community of learners. Participants may or may not agree with this premise, but the practice of mentoring a pre-service teacher may help to create a culture that reflects this premise.

Additional, Individualized Assistance for the Learner: Both high school students and pre-service teachers mentioned the value of additional individualized assistance for the high school students. Both said this assistance was consistently provided as needed and personalized to meet the unique needs of the students. Both the pre-service teachers and the students mentioned assistance for the students in addition to what the cooperating mentor teacher was able to provide alone.

Feedback: All three participant groups, high school students, pre-service teachers, and cooperating mentor teachers, mentioned the importance of feedback for teacher and student learning. Feedback was provided in different ways: verbal, written, and online for the students. Both the high school students and pre-service teachers mentioned the importance of timely, consistent feedback provided to students as they were learning. They also mentioned that the feedback they received was explanatory in nature helping them to understand. Some of the pre-service teachers also provided support and feedback for the mentor teacher that occurred while they were learning to use new strategies or technology.

Building Relationships Within a Supportive Environment: Two unexpected sub-categories emerged from both the high school students and pre-service teachers: a caring and supportive learning environment and relatedness. Some high school students responded that the pre-service teacher cared about them and some pre-service teachers responded that they let the students know that they cared for them. And both students and pre-service teachers mentioned the closeness in age between them positively impacting student learning. These unexpected sub-categories can be merged under the theme of building relationships within a supportive environment.

Use of a Variety of Effective, Engaging Strategies: Both pre-service teachers and high school students mentioned using fun or engaging activities to enhance students' understanding. Both pre-service teachers and high school students also mentioned the use of multiple and different approaches to meet the different learning needs of students and enhance their understanding.

The Power of Collaboration: Both the pre-service teachers and the cooperating mentor teachers shared examples of the collaboration they experienced during the student teaching placement. Both mentioned the cooperating mentor teacher learning new content or pedagogy

with collaborative support from the pre-service teacher. They collaborated on lesson planning but also on topics related to other areas of education. Cooperating teachers described how mentoring a pre-service teacher provided a supportive environment for collaboration within a job embedded environment. One cooperating mentor teacher mentioned that her pre-service teacher was the only adult or peer she had to collaborate with during the day.

The Power of Reflection: Both the pre-service teachers and the cooperating mentor teachers mentioned the frequent reflection that occurred between them and how this influenced their learning. Cooperating mentor teachers mentioned that the pre-service teacher made them think more about their teaching. Pre-service teachers mentioned that the mentor teacher reflected more after observing them. Both agreed reflection occurred in relation to teaching and student learning.

Opportunities to Observe, Plan, and Practice New Engaging Strategies: Both pre-service and mentor teachers described learning about and practicing new instructional strategies, including technology, as they planned and taught together. Both also mentioned the instructional resources from the PDS that the pre-service teachers shared with their cooperating mentor teachers. Some pre-service teachers modeled the use of new engaging strategies and technology as the cooperating mentor teacher observed. The cooperating mentor teachers then practiced these new approaches while the pre-service teacher provided support.

Implications

As previously stated in the conclusions, this study has not demonstrated that all PDS partnership will positively impact all participants within a PDS. However it has demonstrated that, according to the perceptions of those involved, positive impact on students and teachers is possible when pre-service teachers are placed within PDS classrooms. When universities and

schools partner to enhance teacher education for pre-service teachers, it also is possible to impact the learning of experienced teachers and students. Currently in the U.S. there is momentum to train teachers in alternative types of programs rather than in Professional Development Schools. The implication from this study is that teacher educators would do well to continue to consider the needs of practicing teachers and students in future plans to once again reform teacher education.

As the country and state focus more on student achievement and the need for quality teachers, the potentially negative implications for the placement of pre-service teachers within the classroom loom large. The data from this study has shown that the use of novice pre-service teachers in the classroom is not necessarily to be feared in this era of accountability. It is possible to positively impact the learning of all three groups simultaneously: pre-service teachers, students, and cooperating mentor teachers. This message is important for faculty and teachers, university and school administrators, school board members and parents.

All educators can benefit from the themes identified in this study related to the learning of students and teachers. Few would argue the importance of providing students additional individualized assistance or feedback, or building positive relationships within a supportive environment or the importance of collaboration and reflection for teachers. And it is well known that both students and teachers benefit from the use of a variety of effective and engaging strategies (Danielson, 2007, Marzano et al., 2001; NRC, 1999; NRC, 2000; NSDC, 2002). This study simply provides additional evidence to support these earlier claims. However, this study also demonstrates that these sound practices may be encouraged through PDS partnerships for the ultimate benefit of students and teachers alike.

The theoretical framework for this study was based on How People Learn (NRC, 1999). This framework and the concept of an Optimal Learning Environment provided a solid foundation for understanding the teaching and learning process. All educators are encouraged to focus on learner centered, assessment centered, and knowledge centered learning environments while planning teaching and learning projects and studies. While the community centered environment was not considered in this study, collaboration surfaced as an essential theme related to learning. Since collaboration is a key element of the community centered learning environment, it can be assumed this environment also should be considered in future teaching and learning projects and studies.

As a coding system, the three categories within the Optimal Learning Environment were less useful due to their broad nature and the extreme overlap between categories. The researcher was challenged to gather evidence related to all three categories through surveys and interviews since each category is exceptionally comprehensive. Researcher definitions made this task manageable, but perhaps limited each learning environment category too much to realize the full impact within that learning environment. Although all participants were given an opportunity to respond to open ended questions, they tended to limit their responses to the questions they were initially given. Other interesting and useful information might have surfaced with a more open-ended approach. It also was a challenge to code survey and interview responses using the three learning environments within the Optimal Learning Environment since any given response might address all three environments. Although the researcher had assigned key words, such as collaboration and reflection, to one learning environment only for coding purposes, participants frequently used these words in relation to all three environments making coding difficult.

Recommendations for Further Study

The impact of pre-service teachers on the learning environment during their final practicum experience on their assigned students and cooperating mentor teachers needs to be investigated further. The Optimal Learning Environment (NRC, 1999) offers several areas for future study. Further research might include the investigation into the impact when the pre-service teachers are placed at elementary or middle schools. Is the impact on the learning environment different in the elementary schools from the secondary schools? The framework of literature could serve as a basis for a different type of investigation comparing these two similar yet different experiences. An investigation into the academic level of performance of the high school students as related to their responses to the pre-service teacher would be beneficial also. Students may or may not believe that the pre-service teacher is beneficial depending on the level of their individual learning needs. Does an advanced student perceive the impact from a pre-service teacher differently than a low achieving student? Another area of investigation might include the teaching experience of the cooperating mentor teacher. Do the more experienced mentor teachers reflect more; do the less experienced mentor teachers learn more from the collaboration? Another study might include investigating the content area of the cooperating mentor teacher and the pre-service teacher. Does the content area itself lead to more impact through collaboration or the use of different teaching strategies including technology? Another avenue could be a study to determine if the professional learning of the cooperating mentor teacher is shared with their colleagues contributing to exponential growth of learning within the building from the placement and mentoring of a pre-service teacher. And finally a study could be designed to determine if the impact from mentoring a pre-service teacher is long lasting or if the cooperating mentor teacher discontinues using the new strategies or technology learned from

the experience after the pre-service teacher has completed the practicum. Do the cooperating mentor teachers need more support to continue using the new pedagogy learned?

While the NRC framework was a good conceptual framework generating questions in this study, it might have been too limiting. A few sub-categories emerged within all of the Optimal Learning Environments. As previously mentioned, the sorting and coding of participant responses were difficult for the researcher as the emerging sub-categories overlapped much of the time in each set of participants. For instance: collaboration, feedback, questioning and reflection could have been coded across all categories investigated. In further research more open ended questions on surveys and interviews might be used to investigate whether the same sub-categories emerge from the data as were found in this study.

Summary

The purpose of this study was to investigate the perceived impact of pre-service teachers on the learning environment of the Manhattan High School Professional Development School in which they are placed for their final clinical experience. More specifically, this study was designed to explore the perceived impact on the learning environment of the students who were taught by the pre-service teachers and the cooperating teachers who mentored them. The analysis of data collected in this study demonstrated that all participant groups did perceive pre-service teachers made a positive impact on the learning environment of students as well as the cooperating mentor teachers in terms of their learning environment, assessment environment, and knowledge environment.

The Optimal Learning Environment provided an effective conceptual framework for understanding the teaching and learning process for students and teachers alike. As stated in *How People Learn* (NRC, 1999):

> The principle of learning and their implications for designing learning environments apply equally to child and adult learning. They provide a lens through which current practice can be viewed with respect to K – 12 teaching and with respect to the preparation of teachers in the research and development agenda. . . . (p. 27)

High school students in this study perceived that their learning environment was positively impacted when pre-service teachers provided them with additional individualized assistance and feedback, established positive relationships with them within a supportive environment, and used a variety of effective and engaging teaching strategies. Since these students perceived the impact of pre-service teachers on their learning environment was positive, there is reason to believe learning was enhanced (NRC, 1999). Cooperating mentor teachers perceived their learning environment was positively impacted by the pre-service teacher through collaboration, reflection, and opportunities to plan, observe, and practice new, effective, and engaging strategies. Since these cooperating teachers perceived the impact of mentoring a pre-service teachers on their learning environment was positive, there is reason to believe learning was enhanced (NRC, 1999). It can thus be argued that pre-service teachers can enhance the learning of both students and cooperating mentor teachers within a PDS and this is one more benefit to PDS partnerships.

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Appendix A - Kansas State University Teaching Portfolio Rubrics

Entry 1

Professional and Philosophical Platform

Rubric for Entry 1 (Philosophy of Education)				
Rating → **Indicator ↓**	**0** **Performance Not Demonstrated**	**1** **Performance Partially Demonstrated**	**2** **Performance is Demonstrated**	**Score**
Knowledge and understanding of the historical, social, and political influences on learning and teaching.	The philosophy does not exemplify any knowledge base or understanding of the historical, social, **or** political influences on learning and teaching of students.	The philosophy exemplifies some knowledge base and understanding of the historical, social, **or** political influences on learning and teaching.	The philosophy exemplifies a strong knowledge base of the historical, social, **and** political influences on learning and teaching.	
The beliefs and vision for effectively teaching ALL students.	The philosophy does not address the teacher's beliefs **or** vision for effectively teaching ALL students.	The philosophy partially addresses the teacher's beliefs **or** vision for effectively teaching ALL students.	The philosophy fully addresses the teacher's beliefs **and** vision for effectively teaching ALL students.	
The belief in the inherent dignity of all and respects customs and beliefs of diverse groups	The philosophy of education does not provide evidence that the teacher believes in the inherent dignity of all people and respects the customs and beliefs of diverse groups.	The philosophy of education provides evidence that the teacher believes in the inherent dignity of all people and respects the customs and beliefs of diverse groups.	The philosophy of education provides strong evidence that the teacher believes in the inherent dignity of all people and respects the customs and beliefs of diverse groups.	
Advocacy for students and families and a caring and inclusive regard for humanity.	The philosophy does not reflect advocacy for students and families **or** a caring and inclusive regard for humanity.	The philosophy partially reflects advocacy for students and families **or** a caring and inclusive regard for humanity.	The philosophy fully reflects advocacy for students and families **and** a caring and inclusive regard for humanity.	
		Total Rubric Score:		**_____/8**

Total Score for Entry 1: _____/8

Entry 2

Contextual Information and Implications for Student Learning

Checklist for Entry 2 (Contextual Information and Student Learning Adaptations)	No	Yes
The Teacher Describes:		
Students' socio-economic, gender, and ethnic/cultural make-up	0	1
Students' language proficiency needs	0	1
Students' previously demonstrated academic performance	0	1
Students with special needs/at risk students	0	1
Students with military connections	0	1
Total Checklist Score		**_____/5**

Entry 2

Contextual Information and Implications for Student Learning

Rubric for Entry 2 (Contextual Information and Implications for Student Learning)				
Rating → **Indicator ↓**	**0** **Performance Not Demonstrated**	**1** **Performance Partially Demonstrated**	**2** **Performance is Demonstrated**	**Score**
Knowledge and use of Appropriate Adaptations	Teacher does not describe any strategies for providing equitable opportunities, accommodations, or modifications in relation to classroom contextual information.	Teacher describes some strategies for providing equitable opportunities, accommodations, or modifications; but, they do not address all students identified under the contextual information or adaptations are too general and not related to specific student needs or classroom activities.	Teacher describes at least one specific strategy for providing equitable opportunities, accommodations, or modifications for any student identified under contextual information.	

Knowledge of ALL student characteristics (developmental levels, prior knowledge, and interests) and <u>implications for planning and instruction</u>.	Teacher does not demonstrate knowledge of **ALL** student characteristics and does not consider the implications for planning or instruction.	Teacher demonstrates knowledge of **ALL** student characteristics, but does not consider the implications for planning and instruction to meet the needs of **ALL** students.	Teacher demonstrates knowledge of **ALL** student characteristics and offers detailed and appropriate implications for planning and instruction to meet the needs of **ALL** students.	
Knowledge of the FOCUS student characteristics (developmental levels, prior knowledge, and interests) and <u>implications for planning and instruction</u>.	Teacher does not demonstrate knowledge of **FOCUS** student characteristics and does not consider the implications for planning or instruction.	Teacher demonstrates knowledge of **FOCUS** student characteristics, but does not consider the implications for planning and instruction to meet the needs of the **FOCUS** students.	Teacher demonstrates knowledge of the **FOCUS** student characteristics and offers detailed and appropriate implications for planning and instruction to meet the needs of the **FOCUS** students.	
Knowledge of environmental factors (district, school, classroom, community, and family) and <u>implications for planning and instruction</u>.	Teacher does not demonstrate knowledge of environmental factors or consider the implications for planning instruction.	Teacher demonstrates knowledge of environmental factors, but does not consider implications for planning to meet the needs of students.	Teacher demonstrates knowledge of environmental factors and offers reasonable implications that impact plans to meet students' needs.	
Flexibility and Responsiveness	Teacher does not demonstrate flexibility or responsiveness in seeking out and using a variety of strategies to meet the cognitive, physical, emotional, or social needs of students in his or her classroom.	Teacher demonstrates some flexibility and responsiveness in seeking out and using a few strategies to meet the cognitive, physical, emotional, or social needs of some students in his or her classroom	Teacher demonstrates flexibility and responsiveness in seeking out and using a variety of strategies to meet the cognitive, physical, emotional, and social needs of all students in his or her classroom	
			Total Rubric Score:	**_____/10**

Total Score for Entry 2: _____/15

Entry 3, Part 1

Learning Goals and Objectives

Checklist for Entry 3, Part 1 (Learning Goals and Objectives):		
Learning Goals and Objectives Are:	**No**	**Yes**
Clearly stated and measurable	**0**	**1**
Focused on what the students will learn and be able to do (not activities)	**0**	**1**
Appropriate for developmental level and classroom context (see Entry 2)	**0**	**1**
Total Checklist Score:		**_____/3**

Rubric for Entry 3, Part 1 (Learning Goals and Objectives)				
Rating → **Indicator ↓**	**0** **Performance Not Demonstrated**	**1** **Performance Partially Demonstrated**	**2** **Performance is Demonstrated**	**Score**
Alignment of Learning Goals and Objectives	Leaning goals and objectives are not aligned with state content standards or school improvement goals.	Learning goals and objectives are aligned with state content standards and school improvement goals but are not fully integrated into instruction or assessments.	Learning goals and objectives are aligned with state content standards and school improvement goals and are integrated into instruction and assessments.	
High Expectations	Learning goals and objectives do not reflect high expectations and include only low-level objectives (simple facts, recall, recognition, identification).	Learning goals and objectives reflect some high expectations but include mostly low-level objectives.	Learning goals and objectives reflect high expectations and include a balance of low and high level objectives **or** mostly high- level objectives (comprehension, analysis, etc).	
Significance of Learning Goals and Objectives	Learning goals and objectives do not represent central concepts and/or skills in the subject area of importance to students**.**	Some of the learning goals and objectives represent central concepts and/or skills in the subject area of importance to students.	Most of the learning goals and objectives represent important concepts and/or skills in the subject area of importance to students.	
			Total Rubric Score:	**_____/6**

Total Score for Entry 3, Part 1: _____/9

Entry 3, Part 2

Instructional Design

Checklist for Entry 3, Part 2 (Instructional Design)		
Instructional Design:	**No**	**Yes**
Is aligned with unit goals and objectives as stated in Entry 3, Part 1	0	1
Is progressively sequenced	0	1
Total Checklist Score:		**_____ /2**

Rubric for Entry 3, Part 2 (Instructional Design)				
Rating → Indicator ↓	**0 Performance Not Demonstrated**	**1 Performance Partially Demonstrated**	**2 Performance is Demonstrated**	**Score**
Multiple Learning Strategies	Only one instructional strategy is used throughout the unit.	A few instructional strategies are incorporated throughout the unit, but they are not designed to meet the diverse cognitive, physical, emotional, and social needs of all students.	Multiple instructional strategies of learning are incorporated throughout the unit to meet the diverse cognitive, physical, emotional, and social needs of all students.	
Adaptations/Differentiation and Equitable Learning opportunities to Meet the Needs of All Students	The teacher does not address implications of contextual, pre-assessment/ diagnostic information in planning instruction and assessment; no adaptations/differentiation are considered (beyond referring a student to a specialist).	Adaptations/differentiation and equitable learning opportunities are too general and do not address the **specific** contextual information, pre-assessment/ diagnostic information identified.	Adaptations/differentiation and equitable learning opportunities are designed to address the **specific** contextual information, pre-assessment/diagnostic information identified.	

Active Inquiry, Learner Centered, and Meaningful Student Engagement	The unit design includes no opportunities for active inquiry. The instruction is teacher centered and not meaningful.	The unit design includes opportunities for engaging students only in passive forms of inquiry that are not meaningful and/or are teacher controlled (e.g. specific set exercises, a prescribed product).	The unit design includes opportunities that meaningfully engage students in active inquiry (questioning concepts, developing learning strategies, seeking resources, and conducting independent investigations).	
Integration of Technology	The unit design does not include technology.	Technology is used only by the teacher and/or is used without regard to learning outcomes (i.e., an add-on just to fulfill the requirement).	The teacher integrates technology into planning and instruction. The students use technology to enhance their learning.	
Integration of Reading Strategies	The teacher presents no evidence that reading strategies have been integrated into the unit.	The teacher presents evidence that only one or two reading strategies have been integrated into the unit. These strategies provide support for a limited range of reading concerns and abilities.	The teacher presents evidence that three or more reading strategies have been integrated into the unit. These strategies provide support for a wide range of reading concerns and abilities.	
Integration of Critical Thinking Strategies	The teacher presents no evidence that critical thinking strategies have been integrated into the unit.	The teacher provides evidence that critical thinking strategies have been integrated into the unit, but does not apply those strategies to help students learn the concepts and skills being taught.	The teacher provides evidence that critical thinking skills have been integrated into the unit and applies those strategies to help students learn the concepts and skills being taught.	
Integration Across and Integration Within Content Fields	The teacher presents no evidence that he/she is integrating knowledge, skills, or methods of inquiry across or within content fields.	The teacher provides evidence that he/she is integrating knowledge, skills, or methods of inquiry across or within content fields, but this integration does not help students understand relationships between subject areas.	The teacher provides evidence that he/she is integrating knowledge, skills, or methods of inquiry across and within content fields to help students understand relationships between subject areas.	
Community Resources	The teacher does not attempt to use *community resources* to foster learning.	The teacher uses *community resources* to foster learning, but they are not related to the objectives of the unit.	The teacher uses *community resources* to foster learning and it is directly connected to the unit's objectives.	
			Total Rubric Score:	**_____/16**

Total Score for Entry 3, Part 2: _____/18

Entry 3, Part 3

Analysis of Assessment Procedures

Checklist for Entry 3, Part 3 (Analysis of Assessment Procedures)		
The Teacher:	**No**	**Yes**
Presents pre-assessment/diagnostic assessment data in a table or chart	**0**	**1**
Presents formative assessment data in a table or a chart	**0**	**1**
Reports formative assessment data to students	**0**	**1**
Presents summative assessment data in a table or chart	**0**	**1**
Lists the level of student performance on each objective	**0**	**1**
Lists percentages of students who achieved unit objectives (overall class results)	**0**	**1**
Provides evidence of disaggregation of data based on at least two additional classroom subgroups	**0**	**1**
Provides evidence of disaggregation of data based on Focus Students A and B	**0**	**1**
Total Checklist Score:		**_____/8**

Rubric for Entry 3, Part 3 (Analysis of Assessment Procedures)				
Rating → **Indicator ↓**	**0** **Performance Not Demonstrated**	**1** **Performance Partially Demonstrated**	**2** **Performance is Demonstrated**	**Score**
Pre-Assessment/ Diagnostic Assessment is Utilized for Planning and Instructional Decision-Making	No pre-assessment/ diagnostic data are collected, or the data/information collected is not appropriate for (aligned with) unit objectives.	Appropriate student pre-assessment/diagnostic assessment data are collected, but not used for planning or instructional decision-making.	Appropriate student pre-assessment/diagnostic assessment data are collected and used in planning and instructional decision-making before the unit is taught.	
Formative Assessment is Utilized for Planning and Instructional Decision-Making	No formative assessment data are collected, or the data/information collected is not appropriate for (aligned with) unit objectives.	Appropriate formative student assessment data are collected, but not used for planning or instructional decision-making to help all students achieve success.	Appropriate formative student assessment data are collected and used in planning and instructional decision-making as the unit is taught to persistently help all students achieve success.	

Summative Assessment is Utilized for Planning and Instructional Decision-Making	No summative assessment data are collected, or the data/information collected is not appropriate for (aligned with) unit objectives.	Appropriate summative student assessment data are collected, but not used for planning or instructional decision-making to enhance future success.	Appropriate summative student assessment data are collected and used in planning and decision-making to enhance future success.	
Multiple Formats for Assessment	Only one assessment format is used, or procedures and formats are very limited.	There is more than one assessment format used.	A variety of assessment formats (more than two) are used (e.g., multiple choice, short answer, essay, performance assessment, portfolios, observations, etc.)	
Alignment of Objectives and Assessment	The learning objectives are not aligned with assessment.	Some, but not all, of the learning objectives are aligned and assessed.	Each of the learning objectives is aligned and assessed.	
Assessment Criteria	Assessment contains no clear criteria for measuring student progress.	Assessment criteria have been developed, but they are not clear and/or they include only 1or 2 of the following characteristics: ***Measurable***- All criteria for assessment are described in measurable terms. ***Comprehensive***- Covers essential content and skills from those covered during instruction. Does not assess irrelevant content or skills. ***Criteria Level***- Specifies the minimal level of performance at which students successfully meet the learning objective (demonstrates high yet reasonable expectations).	Assessment criteria are clear and include the following characteristics: ***Measurable***- All criteria for assessment are described in measurable terms. ***Comprehensive***- Covers essential content and skills from those covered during instruction. Does not assess irrelevant content or skills. ***Criteria Level***- Specifies the minimal level of performance at which students successfully meet the learning objective (demonstrates high yet reasonable expectations).	
			Total Rubric Score:	**_____/12**

Total Score for Entry 3, Part 3: _____/20

Entry 3, Part 4

Self-Evaluation of the Instructional Unit

Rubric for Entry 3, Part 4 (Self-Evaluation of the Instructional Unit)				
Rating → Indicator ↓	**0 Performance Not Demonstrated**	**1 Performance Partially Demonstrated**	**2 Performance is Demonstrated**	**Score**
Effects of Decisions on Student Learning	Teacher provides no evidence or reasons to support conclusions regarding why students did or did not meet learning objectives.	Teacher provides some data or evidence but offers simplistic or superficial reasons or hypotheses to support conclusions regarding why students did or did not meet leaning objectives.	Teacher uses evidence and data to support conclusions. He or she explores multiple hypotheses for why students did or did not meet learning objectives.	
Effects of Decisions on Instruction and Assessment	Teacher provides no rationale for why some activities or assessment were more successful than others.	Teacher identifies successful and unsuccessful activities and assessments but only superficially explores reasons for their success or lack of success.	Teacher identifies successful and unsuccessful activities and assessments and provides plausible reasons for their success or lack of success.	
Communication with Students, Families, and Educational Personnel	Teacher provides no information on communication with students, families, or other educators in support of student learning.	Teacher provides little evidence of communication with students, families, **or** other educators in support of student learning.	Teacher provides evidence of some communication with students, families, **and** other educators in support of student learning.	
Information from School Improvement Process	Teacher provides no information about the School Improvement Process.	Teacher provides evidence of knowledge of the School Improvement Process in the school or a description of his/her role in the School Improvement Process.	Teacher provides evidence of knowledge of the School Improvement Process in the school and a description of his/her role in the School Improvement Process or explains why he/she has no role in the process.	
Implications for Future Teaching of this Unit	Teacher provides no suggestions for redesigning learning goals, instruction, or assessment.	Teacher provides suggestions for redesigning learning goals, instruction, or assessment but offers no rationale why changes would improve student learning.	Teacher provides suggestions for redesigning learning goals, instruction, or assessment and explains why these changes would improve student learning.	
Implications for Professional Development/ Continuous Learning	Teacher provides no professional learning goals or goals that are not related to the strengths and weaknesses revealed by teaching this unit	Teacher presents fewer than 2 professional learning goals, or presents goals that are not related to the strengths and weaknesses revealed by teaching this unit	Teacher presents at least two professional learning goals that clearly emerge from the strengths and weaknesses revealed by teaching this unit	
			Total Rubric Score:	**_____/12**

Total Score for Entry 3, Part 4: _____/12

Entry 4

Analysis of Classroom Learning Environment

Checklist For Entry 4 (Analysis of Classroom Learning Environment)		
The Teacher Describes:	**No**	**Yes**
Principles of individual and group motivation as they apply to the 5 components of the classroom learning environment	**0**	**2**
Total Checklist Score:		**_____/2**

Rubric for Entry 4 (Analysis of Classroom Learning Environment)				
Rating → Indicator ↓	**0 Performance Not Demonstrated**	**1 Performance Partially Demonstrated**	**2 Performance is Demonstrated**	**Score**
Creating an Environment of Respect and Rapport	The teacher did not provide evidence of strategies for establishing an environment of respect and rapport or the strategies were not appropriate for promoting positive verbal and non-verbal communication or positive social interactions.	The teacher only partially described strategies for establishing an environment of respect and rapport, or the strategies were not specific, or not appropriate for promoting both positive verbal and non-verbal communication and positive social interactions.	The teacher fully described appropriate strategies for establishing an environment of respect and rapport to promote both positive verbal and non-verbal communication and positive social interactions.	
Establishing a Culture for Learning	The teacher did not provide evidence of strategies for establishing a culture of learning or the strategies were not appropriate for encouraging active engagement in learning, student responsibility for learning, commitment to the subject, high expectations, and student pride in work,	The teacher only partially described strategies for establishing a culture for learning to encourage some of the following: active engagement in learning, student responsibility for learning, commitment to the subject, high expectations, and student pride in work or the strategies were not appropriate.	The teacher fully described appropriate strategies for establishing a culture for learning to encourage all of the following: active engagement in learning, student responsibility for their own learning, students' commitment to the subject, high expectations for achievement, and student pride in work.	
Encouraging	The teacher did not provide	The teacher described a	The teacher described a	

Appropriate Student Behavior	evidence of a classroom management plan or the plan did not include standards of conduct, strategies to monitor student behavior, or appropriate and respectful responses to student misbehavior.	classroom management plan that established standards of conduct, strategies to monitor student behavior, and responses to student misbehavior; but the standards were vague, or strategies and responses were not specific, not fully developed or not appropriate and respectful.	classroom management plan that established clear standards of conduct, specific strategies to monitor student behavior, and appropriate and respectful responses to student misbehavior.	
Managing Classroom Procedures	The teacher did not provide evidence of specific classroom procedures or procedures were not established to promote student responsibility, smooth operation of the classroom, or efficient use of time.	The teacher described classroom procedures to promote student responsibility, smooth operation of the classroom, or efficient use of time; but the procedures were not specific, not fully developed, or not appropriate.	The teacher described specific classroom procedures that promote student responsibility, smooth operation of the classroom, and efficient use of time	
Organizing the Physical Environment	The teacher does not provide evidence of a plan to organize the physical space in their classroom or the plan does not promote student access to learning or does not address potential safety concerns.	The teacher described a plan to organize the physical space in their classroom to promote student access to learning, ensure the furniture supports learning activities, and to address potential safety concerns; but the plan was not specific, not fully developed, or not appropriate.	The teacher described a specific plan to ideally organize the physical space in their classroom to optimize student access to learning, ensure the furniture supports learning activities, and to address potential safety concerns.	
			Total Rubric Score:	**_____/10**

Total Score for Entry 4: _____/12

Entry 5

Formal Observations

Checklist for Entry 5 (Formal Observations)		
The Teacher Included:	**No**	**Yes**
Five instructional plans and *Guiding Questions for a Single Lesson*	0	1
Five *Reflections on a Single a Lesson*	0	1
Evidence/Feedback Forms from five observed lessons (one *Evidence/Feedback Form* may be used for more than one observation)	0	1
Professional Progress Forms based on observed lessons	0	1
Evidence that *Contextual Information* from Entry 2 is used in instructional decisions	0	1
Total Checklist Score:		**_____/5**

Rubric for Entry 5 (Formal Observations)

The following rubric assess the standards and dispositions related to Entry 5 and the teacher's completion of the requirements for entry 5. The rubric designed to assess all standards and dispositions related to student teaching is included as part of the Professional Progress Form to be included in this entry.

Rating → Indicator ↓	**0 Performance Not Demonstrated**	**1 Performance Partially Demonstrated**	**2 Performance is Demonstrated**	**Score**
Multiple Instructional Strategies to Promote Learning	The teacher does not use a variety of strategies and does not provide evidence of student learning.	The teacher uses a few strategies but does not provide evidence linking these strategies to student learning, or does not maintain high expectations, or does not persist in helping all students achieve success.	The teacher consistently uses a variety of appropriate strategies, links these strategies to student learning, maintains high expectations, and persists in helping all students achieve success.	
Effective Verbal and Non-Verbal	No evidence is provided that effective verbal and	The teacher provides some evidence of the importance of	The teacher encourages verbal and non-verbal communication	

Communication	non-verbal communication among students was taken into account.	positive communication but does not provide opportunities for students to practice communication techniques.	and provides evidence of specific learning activities leading to the development of positive communication.	
Fosters Active Inquiry	The teacher does not actively engage students or encourage active inquiry.	The teacher understands the importance of active engagement and inquiry techniques but does not develop learning activities that build on inquiry learning.	The teacher actively engages students in inquiry learning activities. Specific examples of inquiry learning are provided.	
Supportive Classroom Interactions	The teacher does not encourage student interaction in learning activities.	The teacher promotes positive interactions among students but does not provide specific learning activities that encourage interactions.	The teacher promotes positive interactions among students and provides specific learning activities that encourage positive interactions.	
			Total Rubric Score:	**_____/8**

Total Rubric Score for Entry 5: _____/13

Entry 6

Professional Logs

Rubric for Entry 6 (Professional Logs):				
Rating → Indicator ↓	**0 Performance Not Demonstrated**	**1 Performance Partially Demonstrated**	**2 Performance is Demonstrated**	**Score**
Professional Log Reflections	Teacher does not identify professional strengths and weaknesses revealed by keeping professional logs or does not describe any professional learning goals or professional plans based on these goals.	Teacher may describe some professional strengths and weaknesses revealed by keeping professional logs or identify goal and plans related to the professional logs; but does not describe all three components on all three logs.	Teacher describes strengths and weaknesses revealed by keeping professional logs, identifies one or more professional learning goals on each of the three professional logs, and describes specific plans to meet these goals.	
Communication with Families, Community, and Educational Personnel	Teacher provides no evidence of interactions with families, community, or other educators in support of student learning.	Teacher provides little evidence of interactions with families, community, or other educators in support of student learning.	Teacher provides evidence of frequent interactions with families, community, and other educators in support of student learning.	
Participation in the School Improvement Process	Teacher provides no evidence of participation in or contributions to school or district improvement efforts.	Teacher provides little evidence of participation in and/or contributions to school and/or district improvement efforts.	Teacher provides evidence of frequent participation in and contributions to school and/or district improvement efforts.	
			Total Rubric Score:	**_____/6**

Total Score for Entry 6: _____/6

Appendix B - Danielson Framework for Teaching

Domain 1: Planning and Preparation. The components in Domain 1 outline how a teacher organizes the content of what students are expected to learn---in other words, how the teacher designs instruction. These include demonstrate knowledge of content and pedagogy, demonstrating knowledge of the students, selecting instructional goals, demonstrating knowledge of resources, designing coherent instruction, and assessing student learning

Domain 2: The classroom Environment. The components in Domain 2 consist of the interactions that occur in a classroom that are non-instructional. These consist of creating an environment of respect and rapport among the students and with the teacher, establishing a culture for learning, managing classroom procedures, managing student behavior, and organizing the physical space.

Domain 3: Instruction. The components in Domain 3 are what constitute the core of teaching – the engagement of students in learning contest. These include communicating clearly and accurately, using questioning and discussion techniques, engaging students in learning, providing feedback to students, and demonstrating flexibility and responsiveness.

Domain 4: Professional Responsibilities. The components in Domain 4 represent the wide range of a teacher's responsibilities outside the classroom. These include reflecting on teaching, maintaining accurate records, communicating with families, contributing to the school and district, growing and developing professionally, and showing professionalism. Teachers who demonstrate these competencies are highly valued by their colleagues and administrators, as well as being seen as true professionals.

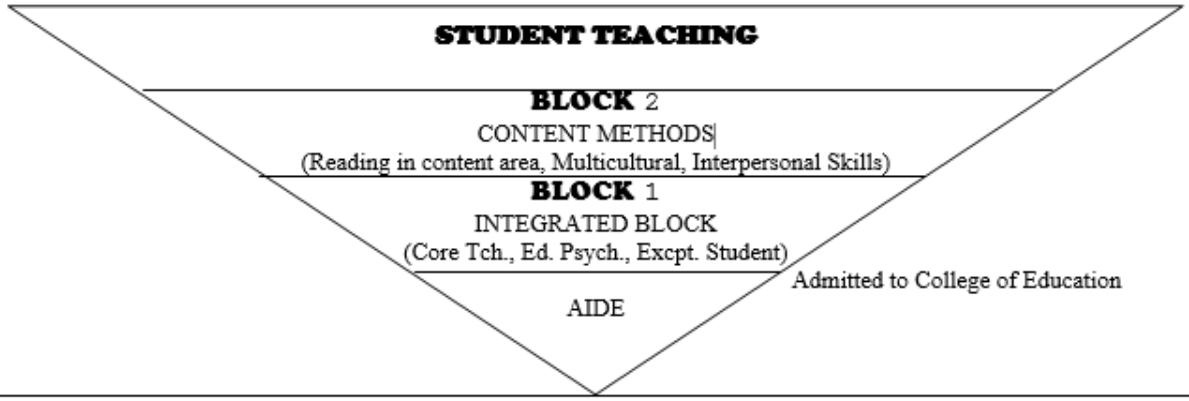
From Charlotte Danielson, "Enhancing Professional Practice: A Framework for Teaching," Association for Supervision and Curriculum Development, 1996, pp.3-4. Reprinted by permission of the author.

Appendix C - KSU Field Experience Model

FOUR FIELD EXPERIENCES

Teacher candidates at Kansas State University have four field experiences beginning with teacher aiding, generally in the sophomore year, and ending with student teaching in the senior year. The following is a graphic of the secondary and elementary field experiences completed by all teacher candidates.

Secondary Education Field Experience Summary



Aide	Integrated Block	Content Methods	Student Teaching
Do I want to be a teacher?	***What general skills do I need to teach?***	***What skills do I need to teach this subject?***	***What are my strengths, areas for improvement?***
12 weeks/3-4 hours Once a week for 3 hours or twice a week for 2 hour each	Periodic, Short-term A few team meetings One time presentation	10-12 weeks/3-4 hours Three or four times a week for an hour	12-16 weeks/entire day Five days a week for the entire day
RESPONSIBILITIES: School-wide observation hall monitoring office/counselor/media center Classroom observation of a variety of teachers and class levels preparation tasks small group monitoring individual tutoring clerical Shadow Interview	Preparation in instructional strategies assessment team teaching special needs students diversity technology Peer teaching requirement KSU team meets with middle school team to determine topic and possible instructional strategies and resources Interdisciplinary team develops integrated lesson which is presented in the middle school. Each team member is responsible for a section of the lesson.	K-12 observation of teachers Individual tutoring Small group monitoring Large group mini-lesson(s) Administrative tasks School-wide issues Co-teach with cooperating teacher Integrate when possible: unit planning cooperative learning technology reading strategies problem solving multicultural interpersonal skills modifications 6-trait writing model diverse learning Classroom management	Co-plan and co-teach with cooperating teacher Incorporate a variety of teaching strategies to meet diverse student learning needs School-wide involvement QPA, Site Council Life of a School Building in-service Administrative tasks Extra-curricular duties Parent/Teacher conferences
Begin Portfolio	Revise Portfolio	Refine Portfolio	Implement Portfolio
ASSESSMENT: Weekly Journal Mid and Final Evaluation Attendance Register Task Inventory Portfolio	Lesson plans, materials and assessments Website Reflection/Debrief Portfolio	Performance Rubric(s) Unit/Lesson plans Assessments Reflection/Debrief Portfolio	Observation & feedback Mid and Final Evaluation Reflection/Debrief Portfolio

Appendix D - High School Student Survey

Adrian A. Walker Clinical Instructor Fall 2013

Professional Development School – Manhattan High School Student Survey

Manhattan High School in Partnership with Kansas State University's College of Ed

The purpose of this survey is to obtain feedback from Manhattan High School Students. It is important to MHS and KSU to have your feedback. We are interested in how you perceive the impact of learning with student teachers. We will collect the data and analyze it in an effort to continue to improve the partnership and the experiences for KSU student teachers and MHS students. Please respond to the questions below to help us continue to improve. Your name will not be identified with your response. Thank you.

MHS Student Survey

Do you think that your learning has been impacted by the feedback from a KSU student teacher in your classroom? In what ways? Explain.

Do you think that your learning has been impacted from the multiple teaching strategies used by a KSU student teacher in your classroom? In what ways? Explain.

Do you think that your learning has been impacted with a KSU student teacher in your classroom providing assistance to you? In what ways? Explain.

What other comments do you have related to the impact on your learning from your student teacher?

Appendix E - Pre-Service Teacher Survey – Students

Adrian A. Walker Clinical Instructor Fall 2013

Professional Development School - Manhattan High School Survey

Manhattan High School in Partnership with Kansas State University's College of Education

The purpose of this survey is to obtain feedback from student teachers at Manhattan High School. It is important to MHS and KSU to have your feedback. We are interested in how you perceive your impact on student learning while working with these high school students. We will collect the data and analyze it in an effort to continue to improve the partnership and the experiences for KSU student teachers, MHS students and Cooperating Teachers. Please respond to the questions below to help us continue to improve. Thank you

Student Teacher Survey-High School Student–
This survey is designed to identify the perceived impact of a student teacher on the student learning of high school students.

Do you think that you have impacted student learning by providing feedback to the students? In what way. Explain.

Do you think that you have impacted student learning by the multiple teaching strategies you used?

Do you think that you have impacted student learning with additional assistance? In what ways? Explain.

What other comments do you have related to your perceived impact on the students?

Appendix F - Pre-Service Teacher Interview - Students

Appendix F - Interview Questions and Prompts Pre-service Teachers

Initial Interview Question – Pre-service Teachers – Regarding High School Students

Initial Interview Question
Do you think that you have impacted the students' learning in your classroom? In what ways? Explain.

Additional Pre-service Teacher Interview Prompts – High School Student Optimal Learning Environment

Assessment Centered Learning Environment:
Do you think that your feedback on their assignments or on their work or projects impacted their learning?
Do you think that your feedback is different from your co-ops? Do you think your students are learning from your feedback?
Do you think that your feedback on their assignments or on their work, or projects impacted their learning?
Knowledge Centered Learning Environment:
Do you think the teaching strategies you are using are impacting the students' learning?
Do you think any of the strategies that you used made a difference?
Do you think that you used different strategies that impacted their learning?
Learner Centered Environment:
Having you in the classroom, do you think it has impacted the way the students get responses?
Do you think by having you in the classroom so there are two of you, that the responses to student questions are different?
Do you think the student in the classroom's learning is impacted by having a student teacher answer their questions? Having another adult?

Note. The researcher asked these prompts to during interviews with the pre-service teachers to elicit deeper responses

Appendix G - Pre-service Teacher Survey – Mentor Teacher

Adrian A. Walker Clinical Instructor Fall 2013

Professional Development School - Manhattan High School Survey

Manhattan High School in Partnership with Kansas State University's College of Education

The purpose of this survey is to obtain feedback from student teachers placed at Manhattan High School. It is important to MHS and KSU to have your feedback. We are interested in how you perceive your impact on your cooperating teacher. We will collect the data and analyze it in an effort to continue to improve the partnership and the experiences for KSU student teachers, MHS students and Cooperating Teachers. Please respond to the questions below to help us continue to improve. Thank you

Student Teacher Survey –Cooperating Teacher

This survey is designed to identify the perceived impact of a student teacher on his or her cooperating teacher.

Do you think that you have impacted your cooperating teacher's professional collaboration? In what ways? Explain

Do you think that you have impacted your cooperating teacher's reflection on practice? In what ways? Explain

Do you think that you have impacted your cooperating teacher's use of multiple teaching strategies? I.e. technology. In what ways? Explain

Do you think that you have impacted your cooperating teacher's use of strategies to meet the needs of diverse learners? In what ways? Explain.

What other comments do you have related to your perceived impact on your cooperating teacher?

Appendix H - Pre-service Teacher Interview – Mentor Teacher

Initial Interview Question – Pre-service Teachers – Regarding Mentor Teacher

Initial Interview Question
Do you think that you have impacted your cooperating teacher? In what ways? Explain. Do you have any other comments on how you may have impacted your cooperating teacher?

Additional Pre-service Teacher Interview Prompts – Mentor Teacher Optimal Learning Environment

Learner Centered Learning Environment for Mentor Teacher
Do you think it has affected their collaboration or how they collaborate with others?
Assessment Centered Learning Environment for Mentor Teacher
Do you think having you in the classroom has impacted your cooperating teacher's reflections, how she thinks back on her lessons or teaching?
Do you think you impacted either one of your co-ops in a way that they reflected or thought about your teaching?
Do you think that by having you in the classroom their reflection on what they teach is different?
Do you think that your cooperating teacher reflects differently with you in the classroom, reflects on teaching the lessons?
Do you think her reflection and what she does is different or impacted by you?

Knowledge Centered Learning Environment for Mentor Teacher
Do you think that you have impacted the strategies for the different kinds of learners in the classroom of your co-ops?
Do you think you impacted your teacher's use of technology?
Do you think that you brought any new technology to the class or do you think your cooperating teacher was already comfortable with that?
Do you think that you have impacted your cooperating teacher by the way you look at different types of students or different types of learners or diverse student groups?
Do you think you have impacted the way your cooperating teacher looks at different learners, students with different learning styles?

Appendix I - Mentor Teacher Survey

Adrian A. Walker Clinical Instructor Fall 2013

Professional Development School - Manhattan High School Survey

Manhattan High School in Partnership with Kansas State University's College of Education

The purpose of this survey is to obtain feedback from Manhattan High School Cooperating Teachers. It is important to MHS and KSU to have your feedback. We are interested in how you perceive the impact of working with a student teacher. We will collect the data and analyze it in an effort to continue to improve the partnership and the experiences for KSU student teachers, MHS students and Cooperating Teachers. Please respond to the questions below to help us continue to improve. Thank you

Cooperating Teacher Survey

This survey is designed specifically to identify the perceived impact on the practice of pedagogy of a cooperating teacher while mentoring a student teacher. Consider if your teaching, planning or reflection has changed during the time period in which you mentored a student teacher. Please respond to my questions below

Do you think that mentoring a student teacher has impacted your professional collaboration? In what ways? Explain

Do you think that mentoring a student teacher has impacted your reflection on practice? In what ways? Explain.

Do you think that mentoring a student teacher has impacted your use of innovative teaching strategies? In what ways? Explain

Do you think that mentoring a student teacher has impacted your use different strategies to meet the needs of diverse learners? In what way? Explain.

What other comments do you have related to the impact of your student teacher?

Appendix J - Mentor Teacher Mylearningplan Survey

Mylearning plan questions – Mentor Teachers – Regarding Pre-service teacher

Survey Questions
How has your experience as a Cooperating Teacher impacted your Professional work? (Consider technology, new ideas, work load and reflection of your own practice and any other ideas.)
How has this experience impacted your future teaching?

Appendix K - Mentor Teacher Interview Questions

Initial Interview Question – Mentor Teacher – Regarding Pre-service Teacher

Initial Interview Question
Do you think your teaching been impacted by mentoring a student teacher? In what ways?

Additional Mentor Teacher Interview Prompts – Mentor Teacher Optimal Learning Environment

What about the strategies you are using, has he impacted your teaching the diverse learner?
Does this affect your reflection on your practice or the amount of time you spend collaborating?
What about the strategies you are using, has he impacted your teaching the diverse learner?
What about the impact on your collaboration or reflection.
What about technology?
Does it benefit the diverse learners in your classroom?
Do you think you collaborated or talked more since you had a student teacher? So do you think your diverse learners were impacted?
Do you think that you reflected more on your teaching and student learning with a student teacher in your classroom?
What about collaboration time for reflection?
Do you think he used different strategies that impacted the diverse learners in your class? What about the impact of technology?
Do you think that having a student teacher impacted the strategies you use with different learners?
Do you think that he impacted the way you reflect on your own lessons?
Do you think that your collaboration was impacted by having a student teacher?
Do you think that having a student teacher impacted the diverse learners in your classroom?