Using TeachLivE™ to Improve Pre-Service Special Education Teacher Practices

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USING TEACHLIVE™ TO IMPROVE PRE-SERVICE SPECIAL EDUCATION TEACHER PRACTICES

by

April N. Enicks

A Dissertation
Submitted to the
Faculty of The Graduate College
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Advisor: Elizabeth Whitten, Ph.D.

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Currently, there is a body of research available that clearly specifies effective
teaching behaviors and quality indicators of a given behavior (Rosenshine, 2012;
Danielson, 2007; Stronge, 2007; Rosenshine, 1983; Brophy, 1979). Research is lacking in
defining practices that develop effective teaching behaviors in pre-service teachers. The
primary objective of this study was to determine the effects of various forms of
instructional modes, settings, and experiences on students’ ability to demonstrate desired
effective teaching behaviors. The secondary objective of this study was to determine if
on-going self-reflection coupled with various forms of feedback supported students in
becoming more effective reflective practitioners. The purpose of this research was to
examine if there was a relationship between pre-service students’ participation in
TeachLivE™ and their ability to demonstrate effective teaching behaviors in a practicum
setting and reflect on those behaviors.
ACKNOWLEDGEMENTS

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April N. Enicks
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CHAPTER I

INTRODUCTION

You are a stakeholder in the educational community whether you know it or not. Perhaps you are a parent, an aunt, a grandma, a businessman, a politician, or something more overt such as a teacher, administrator, or student yourself; you inevitably know and likely care about those who lead and partake in our nation’s public schooling. By way of being a connected part of your family, neighborhood, or community you are invested in the state of our educational system. As a stakeholder in education it is logical to believe you are an advocate for quality education in schools because you want your investment to be of high value. Research reveals one key to quality education in the classroom is the quality of the teacher; teachers do matter (Ball & Forzani, 2009; Gates, 2009; Stronge, Ward, & Grant, 2007).

Research shows a correlation between high quality student achievement (what we as educational stakeholders desire) and high quality teachers (Gates, 2009; Stronge, Ward, & Grant, 2007). The equation is as follows: good teachers = good student outcomes. Studies of effective practices of current teachers are happening now with the Bill & Melinda Gates Foundation’s Measures of Effective Teaching project, the Effective Classroom Practice project through Economic and Social Research Council and other studies led by organizations, universities, and non-profit organizations working to add to the research body available on effective teacher practices (Rutten-McClay, 2012; Gates,
Factors successfully contributing to the development of an effective teacher are debated often: is it certification, degree, preparation, or experience? Many studies agree teacher certification and advanced degrees play little part in increasing teachers’ levels of effectiveness, while experience often levels off as the newness of a practitioner fades typically after five years in the classroom. This same research body is in agreement that teacher preparation does matter. The University of Michigan (U of M) is an example of a research organization that has recognized the need for additional research on the preparation of teachers and its relationship to teacher quality (Ball & Forzani, 2011). There is a continued need to deepen the body of research available on teacher preparation and its impact on teacher effectiveness in the classroom. This need exists because the line has been drawn connecting teacher effectiveness and student outcomes. Therefore, it is necessary to back up and determine how to best develop high-quality, effective teachers in order to increase the quality of student achievement in our country.

This dissertation study addresses the issue of teacher preparation utilizing effective teacher practices, specifically targeting pre-service special education teachers. The study attempts to show the degree of effectiveness of TeachLivE™, a mixed-reality teaching environment using a simulation and student avatars, as a component of the teacher educator program in the Department of Special Education and Literacy Studies at Western Michigan University. We were also interested in the effects of coaching and reflection on pre-service teachers’ effective behaviors in relation to their experience with TeachLivE™.
The remaining chapters in this dissertation include a review of current literature and research on teaching effectiveness and teacher preparation and a presentation of findings from the study conducted. In chapter 2 of this dissertation the literature review will discuss the current research base available on effective teacher behaviors and the correlation to student outcomes, teacher preparation, and the need for coaching, feedback as components of preparation of effective teacher educators. Chapter 3 outlines the methods utilized to conduct this dissertation study. In chapter 4 the results of statistical analysis are presented while implications and areas in for additional study and research are shared in chapter 5.
CHAPTER II

REVIEW OF THE LITERATURE

The Reauthorization of the Elementary and Secondary Education Act, better known as the No Child Left Behind Act (NCLB) of 2001 brought the matter of teacher quality to the national platform (Munoz & Chang, 2007; Stronge, J., Ward, T., Tucker, P. & Hindman, J., 2007). NCLB focused attention on identifying “what works” in schools and classrooms and ensuring the presence of quality teachers in each and every classroom throughout the nation. The act increased accountability for the educational community by requiring all students, including those with special needs, to be proficient in both math and reading. Ball et al., (2004, p. 3) address the need for extra attention paid to the state of our nation’s education system by multiple stakeholders, “The quality of teaching in U.S. schools is of central concern to policy makers, researchers, and the public. Policy makers demand that there be a qualified teacher in every classroom; researchers examine the nature and demands of high-quality teaching; and parents expect their children to be taught by able, caring, and dedicated teachers. These concerns for teaching make sense.”

Hollins (2011), defines teaching:

“Teaching is a complex and multidimensional process that requires deep knowledge and understanding in a wide range of areas and the ability to synthesize, integrate, and apply this knowledge in different situations, under varying conditions, and with a wide diversity of groups and individuals. In quality teaching, this knowledge is applied in ways that provide equitable access and
opportunities that build upon and extend what learners already know in facilitating the ability to acquire, construct, and create new knowledge. Access to quality teaching is unequally distributed among public schools in different contexts and that serve different populations of students.”

Response to Intervention (RtI), or Multi-Tiered Support Systems (MTSS), models for education of all students concur the need for high quality teaching (Arnberger & Shoop, 2008; Fuchs & Fuchs, 2006). The models use a tier system as a method to systematically organize the intensity and strength of interventions provided to students. A student progresses to a higher, more intensive tier of instruction and intervention only when he or she is unresponsive to the instruction and intervention delivered in the current least restrictive tier. This systematic process benefits from the implications lay by NCLB by ensuring that all teachers are using research-based methods and differentiated strategies for instruction in all classrooms. This also allows clear distinction between poor instruction and a student’s true response to instruction.

Introduction to Research of Effective Teaching Behaviors

The study of effective teaching behaviors and measuring teacher quality are not new constructs in educational research, though legislation has increased the pressure for high-quality teachers in all classrooms (Ball & Forzani, 2009; Munoz & Chang, 2007; Stronge, J., Ward, T., Tucker, P. & Hindman, J., 2007). Decades ago, most believed teaching to be an art form. Concern for teacher quality grew in the 1970’s due to a general decline in American students’ achievement and a lack of teacher accountability. Around this same time period, identification of professional teaching practices initiated with the work of process-product research and study of relationship between teacher
behaviors (processes) and student outcomes (products) (Doyle, 1977). At this time, researchers began to operationally define behaviors of teachers and look for correlations between identified teacher behaviors and student outcomes (Erlich & Shavelson, 1978). After a decade of research and study of effective teaching, Brophy (1979) shared, “...I believe that research on teaching is still in its infancy, despite recent advances, I think that more than anything else it needs to develop and solidify an empirical base of reliable information about the process-process and process-product relations.” Thirty years later, Pianta & Hamre (2009, p.110) reaffirm the need for continued research on teaching effectiveness, “…we need more evidence on why and how classrooms, and teachers, matter…The production of effective teachers (and presumably teaching quality) is of real concern and has extraordinarily high stakes attached to its success or failure.”

The identification of effective teaching practices has been the focus of study and research for decades (Stronge, 2010; Danielson, 2009; Brophy, 1979; Doyle, 1977). Barak Rosenshine has remained on the forefront regarding study of effective teaching. Rosenshine’s research is based in cognitive science, focused on practicing master teachers, and utilizes cognitive supports and effective instructional procedures. Table 1 outlines teaching practices identified effective by Rosenshine in the 1970’s and those identified in his current research (2012).

Table 1

<table>
<thead>
<tr>
<th>Effective Teaching Practices Then and Now</th>
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<td>1970’s</td>
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6
Table 1 shows a comparison of effective teaching behaviors identified by Rosenshine nearly a half of a century apart (Brophy, 1979; Rosenshine, 2012). Both sets of skills are lists of effective teacher practices that include teacher demonstration, on-going practice, and differentiated independent work for students practicing the intended objective at their instructional level of learning. The practices of 2012 are more explicit and student-centered than those identified in the 1970’s. For example, rather than stating “with-it-ness”, or the teacher’s ability to monitor students decades ago, Rosenshine specifies effective practice today entails asking a large number of questions and checking for understanding and the responses of all students.

A plethora of behaviors are to be considered when determining the effectiveness of an educator (Rosenshine, 2012; Danielson, 2007 & Rosenshine, 1983; Brophy, 1979). Describing and evaluating effective teacher practices are complex processes (Munoz &
One way to classify teacher behaviors is to organize into a framework with categories of connected behaviors and practices (Danielson, 2007; Stronge, 2007). A framework of effective teaching behaviors must be comprehensive, grounded in research, public, generic, coherent in structure, and independent of teaching methodology.

Grossman & McDonald (2008, p. 186), state:

“Such a framework for teaching would require a careful parsing of the domain, an effort to identify the underlying grammar of practice, and the development of a common language for naming its constituent parts. A framework for teaching could identify the key components of teaching, both those that are common across grade levels subject areas, students, and school context and those that are particular to specific subject matters, to specific kinds of learners…or to particular teaching contexts. A framework for the field would also need to be agnostic with respect to various models of teaching…This effort to parse teaching would need to respect the difficulty of breaking apart such a complex system of activity…Such a framework could inform both research on teaching and the improvement of professional education.”

Performance standards coupled with quality indicators can be utilized in the form of a framework to evaluate performance (Stronge, 2010). Performance standards are the overarching units or responsibilities of the position and quality indicators are observable behaviors describing each standard.

There are multiple uses for a framework for teaching effectiveness (Danielson, 2009, Stronge, 2007). Teacher preparation programs can utilize frameworks of effective teaching behaviors to design curriculum and instruction of pre-service teachers. Novice
teachers can use the framework to guide teaching. Master teachers can use the tool as a guide to hone in on and advance their skills. Both pre-service and in-service teachers can use a framework with performance standards and quality indicators as a self-assessment or reflection tool. Frameworks are both assessment and evaluation tools that indicate effective practices.

Stronge shared an example of a framework of effective teacher behaviors in *Qualities of Effective Teachers* (Stronge, 2007). Findings based on a meta-review of educational research on teaching effectiveness organize qualities of an effective teacher into five categories: As a person; Management; Planning and Organization; Implementing Instruction; and Monitoring Student Progress and Potential. Each standard is comprised of more detailed teacher behaviors, or quality indicators (Stronge 2010; Stronge, 2007). The standard “As a Person” addresses: being caring, fair and respectful of students, interactions with students, enthusiasm and motivation, attitude toward teaching, and reflective practice. “Management” addresses: management skills, applying elements of organization, and managing and responding to student behavior. “Planning and Organization” addresses: focus on instruction, maximizing instructional time, expecting achievement, and planning and preparing for instruction. “Implementing Instruction” addresses: use of instructional strategies, responding to a range of student needs and abilities, communicating high expectations to students, understanding complexities of learning, using questioning techniques, and student engagement. Lastly, the standard of “Monitoring Student Progress” addresses: homework, meaningful feedback provided, and assessment of students’ knowledge and progress towards intended learning outcomes.
The Framework for Teaching designed by Charlotte Danielson is comprised of four general domains or performance standards: Planning and Preparation, Classroom Environment, Instruction, and Professional Responsibilities (Danielson, 2007). Domain One: Planning and Preparation focuses on how a teacher organizes content students are to learn, instructional design, and their written plan, student activities and assignments. Domain Two: Classroom Environment focuses on aspects of the environment and whether it is conducive to learning, how teachers set the stage for student learning, the atmosphere of the classroom, and classroom interaction between the teacher and students, as well as student to student interactions. Domain Three: Instruction focuses on actual engagement of students in the content being taught, how teachers enhance student learning, students’ opportunities to develop complex understandings and their participation as a community of learners. Instruction also entails components such as the teachers’ implementation of their written plan and execution of Domain One (Planning and Preparation), whether students are engaged in meaningful work; if the work is real and significant, quantity and quality of questions asked to probe student thinking, how student understanding is monitored, and if teacher work is fluid and flexible to meet students’ needs. Domain Four: Professional Responsibilities focuses on the teacher in their roles outside and in addition to those in the class, as well as how the teacher self-reflects, participates in the professional community, and interacts with others including colleagues, students, and families.

The Classroom Assessment Scoring System (CLASS), a standardized observation tool focused in three domains developed by Bob Pianta and Bridget Hamre at the University of Virginia, is also utilized in the MET study (Pianta & Hamre, 2009).
CLASS tool is a measure of global classroom quality. Domains assessed include emotional supports, classroom organization, and instructional supports. Like Danielson’s framework, each CLASS domain has performance standards and quality indicators. The domain of emotional supports has dimensions of positive climate, negative climate, sensitivity, and regard for student perspective each with more targeted indicators with both actions and descriptors. Classroom organization is comprised of dimensions of behavior management, productivity, and instructional learning formats again with additional indicators. The domain of instructional supports includes dimensions of concept development, quality of feedback, and language modeling.

A study by Stronge, Ward, and Grant (2011) explored the effect of teacher behaviors on students’ achievement based on different areas of effectiveness and quality indicators. The purpose of the study was to answer the question, “What does empirical evidence have to say about specific characteristics of teachers and their relationship to student achievement?” The study outlined multiple dimensions of teacher effectiveness into the following domains, instructional delivery, student assessment, learning environment, and personal qualities. Each of these four domains was also broken down into distinct components, creating another framework similar in design to Stronge’s framework in Qualities of Effective Teachers (Stronge, 2007). Teacher behaviors were observed over a period of time in all four aforementioned domain areas. Cross-analysis was conducted between observations of teacher behaviors with student achievement scores. Data revealed that two of the four domain areas were statistically significant in positively effecting student achievement: differences in teacher effectiveness were observed both in classroom management and in personal qualities. This study suggests
that pre-service teacher education must address teachers and their effectiveness in order to address reform and change in schools. Student achievement is related to teacher effectiveness and frameworks are useful tools to measure teacher effectiveness.

The issue of teacher effectiveness continues to gain attention across the United States. Groups including The Gates Foundation, the Economic and Social Research Council, and the University of Michigan (U of M) have developed studies addressing teacher effectiveness. The problem of inadequate teacher evaluation, one factor leading to inadequate teacher quality addressed by these groups is articulated in *The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness* funded by The New Teacher Project (TNTP) a national non-profit organization (Weisberg, Sexton, Mulhern & Keeling, 2009). Data collected from twelve districts including 15,000 teachers and 1,300 administrators throughout the nation shows performance of teachers is taken into account primarily in situations requiring remediation or dismissal, but only one-twelfth of the districts use performance of teachers for compensation, tenure, or hiring. These same representative districts that evaluate the majority of teachers as either good or great have only one percent unsatisfactory rating of teacher effectiveness. This study shows a failure to distinguish great teaching from good teaching and fair teaching from poor teaching once teachers are in the field. TNTP data paints a picture revealing both excellent and poor teaching performance is going unnoticed, inadequacy of professional development continues, and novice teachers are receiving no special assistance to develop as professionals.

In response to *The Widget Effect*, Kane, Wooten, Taylor, & Tyler (2012) state:
“In recent years, school districts and states have compiled datasets that make it possible to track the achievement of individual students from one year to the next, and to compare the progress made by similar students assigned to different teachers…The quantification of differences has generated a flurry of policy proposals to promote teacher quality over the past decade…Yet, so far, little has changed in the way that teachers are evaluated, in the content of pre-service training, or in the types of professional development offered. A primary stumbling block has been a lack of agreement on how best to identify and measure effective teaching.”

Research suggests an adoption of a comprehensive evaluation system which administrators are thoroughly trained and held accountable to, an evaluation system integrated with other systems and policies, and adoption of dismissal policies for teachers who are found inadequate (Weisberg et al, 2009; Taylor & Tyler, 2012).

**Studies in Teaching Effectiveness**

The Bill & Melinda Gates Foundation responded to *The Widget Effect* and its depiction of weak teacher evaluation systems and their impact on student achievement with the development of *The Measures of Effective Teaching* (MET) Project (Gates, 2009).

Thomas Kane, former deputy director of U.S. education group at the Bill & Melinda Gates Foundation, describes the project:

“…MET project is searching for tools to save the world from perfunctory teacher evaluations. In our first report, we described the potential usefulness of student
surveys for providing feedback to teachers. For our second report, the Educational Testing Service (ETS) scored 7,500 lesson videos for 1,333 teachers in six school districts using five different classroom-observation instruments. We compared those data against student achievement gains on state tests, gains on supplemental tests, and surveys from more than 44,500 students.”

The MET Project was initiated in response to studies demonstrating a correlation between students’ achievement and teacher effectiveness (Gates, 2009). The Widget Effect revealed teachers often receive too little feedback on their practice (TNTP, 2009). Based on the known correlation between teacher practices and student achievement and the problem of inadequate teacher evaluation, the MET project proposed a solution (2009, p.5), “…a teacher’s evaluation should include his or her students’ achievement gains…. any additional components of the evaluation (e.g., classroom observations, student feedback) should be demonstrably related to student achievement gains…the measure should include feedback on specific aspects of a teacher’s practice to support teacher growth.” In the MET study teachers were randomly assigned to classrooms and data collection of classroom observations was collected through video recording of teaching and scores from multiple observation protocols.

Kane (2012) describes the procedure for scoring observed lessons:

“Every video was rated at least three times: once using the Framework for Teaching, developed by Charlotte Danielson; once using the Classroom Assessment Scoring System (CLASS), developed by Bob Pianta and Bridget Hamre at the University of Virginia; and a third time using a subject-specific instrument.”
The primary purpose of classroom observations is to support teachers in increasing the effectiveness of their practice to ultimately increase student achievement (Kane, 2012). Findings from the tools used by the MET project show: (a) all protocols (Framework for Teaching, CLASS, and the subject-specific instruments) used are positively associated with student achievement goals; (b) in order to reliably characterize a teacher’s practice, one must average scores over multiple observations; (c) combining observation scores with evidence of (value-added) student achievement gains and student feedback improves both power and reliability; (d) teaching experience and graduate degrees does not identify teachers with larger gains on state tests, but combined measure of observation with student achievement gains and student feedback does identify teachers with larger gains on state tests; and (e) teachers with high scores on the combined measure including observation, student gains and feedback, also perform well on other student outcomes including higher levels of student engagement and effort (Gates, 2009). Again, all five protocols assessed by MET yielded positive correlations to student achievement gains in multiple randomly assigned classrooms.

Many suggestions for new and upgraded teacher evaluation systems are made by the authors and researchers of the MET project based on study findings (Gates, 2009). In order to have high levels of classroom observations, multiple quality assurances must be put into place including: training of observers, certification process, audits of observations conducted by trained observers, use of multiple observations in situations and circumstances where stakes are high, and also a procedure to track reliability including use and comparison of data from an impartial observer (Kane, 2012; Stronge, 2010; Gates, 2009). Multiple measures should make up an evaluation system including
both observation and value-added data. Including both types of measures will increase the predictive power of the data while increasing the reliability and the possible diagnostic insight to support a teacher’s practice and reflection. Research findings strongly indicate high-quality observations need to have clear standards, certified raters, and multiple observations per year.

One study conducted in Cincinnati Public Schools put many implications of MET such as need for training and certification of observers to the test (Taylor et al., 2012). The study utilized a practice-based approach using Danielson’s Framework for Teaching as an approach to teacher evaluation in the school district. The practice-based approach is comprised of multiple, structured classroom observations done by highly effective peer teachers and administrators who have been thoroughly trained on the observation process. Inclusionary criteria for participants were to be mid-career teachers in order to compare evaluation year with years when no evaluation took place in past.

Researchers Taylor and Tyler (2012) suggest using practice-based assessments like those used in Cincinnati Public Schools:

“First, teachers could gain information through the formal scoring and feedback routines of an evaluation program. Second, evaluation could encourage teachers to be generally more self-reflective, regardless of the evaluative criteria. Third, the evaluation process could create more opportunities for conversations with other teachers and administrators about effective practices.”

Findings from the Cincinnati study indicate teachers more positively effect students’ achievement in years when evaluation occurs in comparison to when teacher evaluation did not occur. Study findings show those teachers who did participate in the evaluation
process continued to remain more effective in years following the evaluation. These findings respond to the critique that teachers are too often left alone and not provided feedback on their practices. Results were most impressive and gains in effectiveness over the course of the school year were greatest for teachers whose performance was weakest at the start of the evaluation process. These results suggest the practice-based assessment together with the on-going evaluation process used in Cincinnati were impactful on effective teacher practices, especially for those teachers who received greater amounts of feedback in response to room for improvement.

Research to determine a profile for effective teaching practices is being funded by the Economic and Social Research Council (ESRC) (Rutten-McClay, 2012). The ESRC funded a two-year project entitled the Effective Classroom Practice [ECP] project conducted by professors from the University of Nottingham. The research design for the project involved mixed methods using questionnaire surveys for the teachers and students, observation, semi-structured pre and post observation interviews with teachers, and focus groups with students. The ECP project found a strong correlation of teachers’ experience, preparation in content and pedagogy, and verbal and cognitive abilities to their effectiveness and a weak correlation between form of licensure and advanced degrees in relation to effectiveness. Research from the ECP project found nine effective practices in all: (a) establishing a positive classroom climate with clear expectations; (b) promotion of positive teacher-student relationships; (c) providing structured and well-paced lessons and use of questioning and scaffolding techniques to engage all students; (d) catering to a variety of learning styles and personalized pupil needs; (e) maintaining a welcoming and organized classroom and use of a variety of resources; (f) monitoring and
evaluating throughout the lesson and offering opportunities for students to reflect; and (g) maintaining high expectations and offering well-structured lessons and transitions. The study found that intangible attributes of teachers play a part in teaching effectiveness including teachers’ beliefs such as: all kids can learn, belief in self, and connection and rapport with students.

Addressing Effective Teaching through Teacher Preparation

Throughout the years organizations and institutions have focused attention on the study of teacher quality through the development of quality teacher education preparation programs. In 2005 the American Educational Research Association (AERA) formed a Panel on Research and Teacher Education in an effort to address recruitment, preparation and retention in teacher education (AERA, 2005). Nine topics of teacher education were reported on in the report starting with a review of what has been learned and what additional research is needed in teacher preparation. Topics addressed by the Panel include a review of teacher demographics and an in-depth look at how teachers are prepared and what the teacher pool for hire looks like. The panel observed for a correlation between teacher quality and teachers’ demographic profiles. Other topics reviewed by the panel include preparation in content-specific areas and for specific student populations including those with disabilities, and research on teacher education programs. Multiple pedagogical approaches were identified including lab experience and micro-teach using computer simulations to develop targeted skills. Case methods, video and hypermedia, portfolios, and practitioner research were identified as additional approaches to pedagogy. The panel explicitly addresses teaching students with
disabilities stating all teachers are teachers of students with disabilities and this reality must be addressed in all teacher preparation programs.

Future research designs for teacher education were suggested by the Panel including the development of clear and consistent definitions of terms in teacher education (AERA, 2005). It was suggested to focus future research on the correlation between teacher education on students’ learning and their future professional practice, research linking teacher education to student’s learning in the classroom, and more reliable measures of teacher knowledge and skills. Following a review of research available the AERA panel (2005) concluded, “The few studies that have examined the impact of differences in teacher ability/achievement, largely measured by test scores, have focused on correlations with pupils’ test scores rather than with other outcomes of with differences in teachers’ classroom practices.” The Panel went on to recommend topics for further research. Though the research base is growing, further examination of effective teaching practices relating classroom practices to student outcomes is needed. These issues focused again linking preparation with practice and impact on students’ learning, teacher preparation program design, preparing teachers to positively impact student outcomes to name just a few. The Panel’s review outlines the reality that much more research is needed in the field of teacher education and specifically on identifying ways preparation programs can impact pre-service teachers so they impact the students they will teach.

selected placements with little guidance about what happens in them and little connection to university work.” Both Darling-Hammond and Zeichner state a need for more of a connection between on campus learning and school-based or cite-based learning in teacher preparation. Traditionally, pre-service teachers attending university to learn and would then go to schools to practice and apply what was learned in academia. Two models of teacher preparation were discussed connecting campus and school learning in different ways. The “early entry” model focuses on careful selection of pre-service candidates and includes some degree of pre-service training. Advocates of this model are confident new teachers can learn quickly with the guidance of a peer mentor teacher. Others stand behind a “gradual entry” model embedding more coursework and training under a mentor who is responsible for the running of the class for a period of time. The greatest difference between these two models of release where the responsibility for the running of the classroom lies: with the teacher in training (early entry) or with the mentor teacher (gradual entry). Methods being used to strengthen the connection between learning sites for pre-service educators include the use of campus-based laboratories used for demonstration and teaching skills and incorporation of practicing teachers’ perspectives into the campus courses.

A holistic practice-based approach is another model for teacher preparation (Hollins, 2011). This method was developed in response to criticisms of fragmentation and weak connections between coursework and fieldwork in traditional teacher preparation models. The practice-based approach identifies essential elements of teaching focusing on knowledge of: learners, learning and theories of learning, subject matter, pedagogy, accountability and assessment and also the ability for the individual to
participate in a professional community. The design of a holistic practice-based approach to teacher preparation is comprised of focused inquiry, directed observations, and guided practice of the pre-service teachers.

The U of M School of Education has focused a lens on the study of teacher effectiveness (Ball et al., 2004). The school has formed the Teacher Education Initiative [TEI] in order to both revamp their teacher education program and add to the research body on effective practices to be taught in teacher education. TEI is a new model of teacher education (Ball & Forzani, 2011). Faculty and doctoral students in TEI have drawn from research on teaching, videos of teaching in action, and personal experience of the researchers to develop a comprehensive list of more than 200 teacher practices. Their team edited the list in order to identify nineteen high leverage practices. The term high-leverage practice is defined by Ball & Forzani (2004) as, “…practices that significantly increase the likelihood that teaching will be effective for students’ learning”. There are nineteen high-leverage practices outlined by TEI.

Each are described (“High-Leverage Practices”, 2012):

“1) Making content explicit through explanation, modeling, representations, and examples; 2) Leading a whole-class discussion; 3) Eliciting and interpreting individual students’ thinking; 4) Establishing norms and routines for classroom discourse central to subject-matter domain; 5) Recognizing particular common patterns of student thinking in a subject-matter domain; 6) Identifying and implementing an instructional response to common patterns of student thinking; 7) Teaching a lesson or segment of instruction; 8) Implementing organizational routines, procedures, and strategies to support a learning environment; 9) Setting
up and managing small group work; 10) Engaging in strategic relationship-building conversations with students; 11) Setting long- and short-term goals for students referenced to external benchmarks; 12) Appraising, choosing, and modifying tasks and texts for a specific learning goal; 13) Designing a sequence of lessons toward a specific learning goal; 14) Selecting and using particular methods to check understanding and monitor student learning; 15) Composing, selecting, interpreting, and using information from methods of summative assessment; 16) Providing oral and written feedback to students on their work; 17) Communicating about a student with a parent or guardian; 18) Analyzing instruction for the purpose of improving it; and 19) Communicating with other professionals”.

Teaching Works is an organization developed by U of M from recent TEI research focused on professional training, development and assessment of teaching of pre-service teachers (Ball & Forzani, 2012). Training in the program is based on clear specification of skills taught to pre-service teachers and developmental clinical training. In her presentation at Education Writers Association's 65th National Seminar in the spring of 2012, Ball described the concept of “Great Teachers are Not Born; They’re Taught”. The reasoning behind the construct of teaching great teachers parallels the fundamental pillars and components of Teaching Works: skill training with gradual release of responsibility through training with models such as coaching or modeling in a laboratory. High-leverage practices lie at the core of the Teaching Works strategy and are used as a framework outlining effective teaching practices and the skills taught to pre-service teachers. Pre-service teachers start by observing master teachers in practice,
participating in simulation experiences, practicing skills taught in supervised guided practice and then finally implementing skills in supervised independent practice.

Providing Feedback to Support Teaching Effectiveness

Use of an evaluative tool such as a framework is beneficial in order to provide explicit feedback (Danielson, 2007; Stronge, 2007). Similar to teaching primary and secondary students, instruction of pre-service student teachers is best when instruction and feedback is explicit, especially when information being transmitted is novel (Clark, Krischner, & Sweller, 2012; Krischner, Sweller, & Clark, 2006). Learners construct meaning and knowledge through practice.

Krischner et al. (2006) provide the following definition for explicit or direct instruction: “Direct instructional guidance is defined as providing information that fully explains the concepts and procedures that students are required to learn as well as learning strategy support that is compatible with human cognitive architecture. Learning, in turn, is defined as a change in long-term memory.” Initially when teaching novel information, instruction must contain thorough explanation of skills with practice and feedback. Over time explicit explanation may fade as practice and feedback continue because space available in short-term working memory is limited when learning novel information; however, this is not the case with information that has been moved to long-term memory. The goal in teaching pre-service teachers is to add effective skills to long-term memory. Though some believe preparation of pre-service teachers and support of in-service educators is best done with minimal guidance fearing instruction may interfere with the natural learning process; however, study of the human
cognitive architecture and process of moving information from short to working to long-term memory argues strongly that novel information needs to be explicitly shown and modeled in order to be learned and stored.

Research suggests immediate feedback supports an increase in observable specific teaching behaviors in pre-service teacher educators (Kane et al, 2012; Scheeler, Bruno, Grubb, & Seavey, 2009; Scheeler, Ruhl, & McAfee, 2004). Findings show behaviors decline over time without programming for generalizing. The authors suggest the following action to support pre-service teacher educators’ generalization of effective teaching behaviors over time: 1) provide immediate feedback; 2) train skill to mastery; 3) program for generalization; and 4) provide performance feedback in a classroom setting. In order to program for generalization there must be systematic arrangement of stimuli in multiple teaching settings because the common stimulus serves as the cue for the teacher to perform the behavior. The results of the study suggest when programming for generalization is present teachers’ observable effective teaching behaviors are maintained across settings and over a four-month period of time. Programming must provide a common language for the complex behaviors desired, as well as a structure for reflection.

Characteristics of feedback can be organized into three domains: nature, temporal dimension, and messenger (Van Houten, 1980). The nature of feedback involves both what is delivered in the feedback and the method for delivery. For example, if feedback is given in written or oral form. Barton & Wolery (2007) studied the impact of use of e-mail as a method for delivery of feedback, “E-mail provides a practical system for delivering feedback because e-mail is widely used in university settings, provides a written record of
feedback, and can be delivered immediately and efficiently.” The second attribute of feedback, temporal dimensions, refers to the frequency and duration feedback is given (Van Houten, 1980). The final attribute of feedback is the person who delivers the information. Content of feedback communicated can be further categorized: corrective, non-corrective, general, positive, and specific. Research suggests positive, specific, and corrective feedback is most correlated with positive changes in teachers’ behaviors (Sheeler et al., 2004). The most important attribute of feedback to impact teacher behaviors is immediacy; therefore, feedback is most effective when provided immediately.

Bug in Ear is a technology being used to support delivery of immediate feedback and coaching (Rock, Gregg, Howard, Ploessl, Maughn, Gable & Zigmond, 2009). Rock et al., (2009) describe, “Bug-in-ear technology is a proven method for improving the professional practice of frontline practitioners. Consisting mainly of a portable two-way radio with earpiece and microphone, bug-in-ear devices allow coaches or supervisors to give teachers immediate feedback while they are delivering instruction in their classrooms.” The two-way radio connection allows the supervisor to provide immediate feedback and coaching to the pre-service teacher during delivery of instruction. Utilization of bug-in-ear virtual observations allows coaches and observers to offer immediate feedback, encouragement, and corrective remarks to teachers. Rock and colleagues (2009) surveyed research available on bug-in-ear technology and found trends in increases teachers’ use of praise and decreases in reprimands, as well as observation of increased time on task for students. The bug-in-ear model of observation provides
flexibility in classroom observation and more immediate feedback to benefit both the teacher and the students they are teaching.

**Introduction to Reflective Teacher Practices**

Highly effective teaching requires reflection (Gomez et al., 2008; Schon, 1983). Each of the frameworks highlighted earlier in this literature review each identify reflective practice as a key component of effective teaching. “Reflection in action” is described by Schon (1983, p. 68), “The practitioner allows himself to experience surprise, puzzlement, or confusion in a situation which he finds uncertain or unique. He reflects on the phenomenon before him, and on the prior understandings, which have been implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation.”

Pre-service teachers must think about themselves as engaged in practice and instructional leaders of pre-service teachers must provide effective conditions for reflection (Gomez et al., 2008). In order for reflection of teaching practices to take place there must be something to reflect on, conditions to interrupt practice to allow reflection are present, and in environment is developed where reflection is valued. Dieker and Monda-Amaya (1997) state, “Teacher educators should prepare future teachers to become reflective practitioners who can effectively solve the problems they encounter. Further, teacher educators should begin to incorporate effective instruction and problem-solving frameworks into [teacher education] programs to promote reflective practice...”. Dieker and Monda-Amaya (1997) cited Ross et al. (1992) as defining one set of researchable criteria for analyzing reflective thought, “(a) the ability to recognize
educational dilemmas, (b) the willingness to assume responsibility, (c) the ability to view situations from multiple perspectives, (d) the ability to search for alternative explanations for events occurring in the classroom, (e) the use of adequate evidence to support a position or decision, (f) the willingness to consider new evidence, and (g) the ability to judge the adequacy of a decision or position based on the context of application.” These are all effective teaching behaviors that can be observed and analyzed through reflective process.

Introduction to TeachLivE™

Multiple modes of instruction are often utilized to prepare pre-service students effectively for careers as teachers (Andreasen, Haciomeroglu, Akyuz, Coskun, Cristwell, & Whitby, 2008; Mullen, Beilke, & Brooks, 2007). Andreasen et al. state, “Environments for teacher training often include field experiences, micro-teach experiences, and internships. These are widely used and accepted methods for training perspective teachers for the classroom, yet teachers in their first years of teaching often face difficulties related to classroom management.” TeachLivE™ is an innovative virtual teaching environment being used by universities across the United States to support future educators in both content knowledge and effective teacher behaviors including management.

A group of faculty at the University of Central Florida (UCF) worked collaboratively to develop the concept of TeachLivE™ (Teach Live Education) in response to a question raised within their own teacher education department, “How can we prepare teachers to manage classroom and student behavior without putting teachers
and students at risk?” (Andreasen & Haciomeroglu, 2009). The response to their question came in the form of a mixed reality classroom utilizing technology in the form of avatars as students and human interactors.

Dieker, Rodriguez, Lingnugaris/Kraft, Hynes, and Hughes (2012, in press) describe the TeachLivE™ Lab:

Imagine walking into a room where everything looks like a middle-school classroom, including props, whiteboards and, of course, children, but it is a virtual setting and the students in the classroom are avatars. The virtual students may act like typically developing students, depending on the objectives of the experience. Participants can interact with students and review previous work, present new content to students and provide scaffolding or guided practice in a variety of content areas, and monitor students while they work independently. In this environment, prospective teachers learn the skills needed to become effective professionals, while practicing, honing or refining their skills in a student-centered personalized environment...If teachers, novice or experienced, fail to meet a session objective, they can reenter the virtual classroom with a new plan and try again to teach the same students the same concept or skill.

The methodology for developing the initial prototype of this technology was built on strong, scientifically based research in the field of virtual and mixed realities.

Andreasen et al. describe the TeachLivE™ learning laboratory:

One interactor is the human avatar for all five students. The interactor can escalate or de-escalate the level of behavioral responses depending on teacher interaction. Furthermore, the interactor can create behavior issues between students if the
specific needs of the students are not addressed, creating a simulated classroom with real student-to-student interaction. The teacher faces a large screen that displays all of the students. By stepping towards the screen and leaning towards the child, the teacher can interact individually with each student, or stand in front of the room to address the group.

Potential for helping to teach and develop pre-service teachers effective teaching behaviors through utilization of TeachLivE™ in both areas of content knowledge and behavior management (Andreasen et al., 2008) is highly probable. Teaching efforts of pre-service teachers in TeachLivE™ are not focused entirely on one’s content knowledge, but also require pre-service teachers to focus on their delivery of instruction and management of student behaviors. TeachLivE™ is one technology that supports teacher education programs instituting more practice-centered approaches connecting pre-service teachers to direct practice enhancing their skill set (Dieker et al., 2012; Gomez, Sherin, Griesdorn, & Finn, 2008). Rather than attempting to teach and reinforce the learning of effective teaching strategies through lecture or discussion for pre-service teachers, this technology allows learners to apply knowledge to participate in meaningful experiences in TeachLivE™. Teachers must rely on themselves to motivate, engage, and teach the virtual students who have been observed to be at times disrespectful, unmotivated, unenthusiastic, and in other words real (Andreasen et al., 2008).

Research Questions

The goal of this project was to study the effects of different instructional modes in teacher education on pre-service teachers’ practices. The study asked the following
questions: (a) Do TeachLivE™ and practicum teaching sessions impact the utilization of key effective teaching behaviors; (b) Do pre/post reflection scores change significantly over the duration of the study; and (c) Do the changes reported in pre post reflection of lesson plan development and implementation align with the changes in supervisor observation of the pre-service teacher’s teaching over time? Furthermore, the broad purpose of this proposed study is to increase the quality of the teaching force in special education and as a result improve the education of students who are taught by teachers.
CHAPTER III

METHOD

There is a need to continue to investigate the process used in the collegiate setting to effectively develop teaching behaviors and reflection in pre-service teachers. The primary objective of this study was to determine the effects of various forms of instructional modes, settings, and experiences on students’ ability to demonstrate desired effective teaching behaviors. Instructional modes utilized in this study included traditional lecture, discussion, and coursework lead by the instructor, a tenured faculty member in the Department of Special Education and Literacy Studies at WMU, and coaching via provision of in-action and verbal and written feedback following observed teaching sessions. Settings utilized to conduct research included the TeachLivE™ at WMU and the afterschool practicum setting located at Parchment North Elementary School. Experiences for participating pre-service teachers included teaching and being observed in the TeachLivE™ and practicum settings, completion of pre and post self-reflections for each teach (both observed and unobserved), all traditional coursework, and participation on coaching in-action and following observed sessions. The secondary objective of this study was to determine if on-going self-reflection coupled with various forms of feedback supported students in becoming more effective reflective practitioners. Participating pre-service teachers were asked to predict the outcomes of each teaching session prior to the start of the lesson on a pre self-reflection form and then reflect back following the completion of each teach on a parallel post self-reflection form. Again,
each pre-service teacher received feedback through traditional coursework on lesson plan design and in-action and follow up oral and written feedback for each observed teach. The purpose of this research was to examine if there was a relationship between pre-service students’ participation in TeachLivE™ and their ability to demonstrate effective teaching behaviors in a practicum setting and reflect on those behaviors. The study investigates the following questions:

1. Do TeachLivE™ and practicum teaching sessions impact the utilization of key effective teaching behaviors? TeachLivE™ is defined in this study as the lab experience combined with coaching by trained observer following teaches, and written feedback.

2. Do pre/post reflection scores change significantly over the duration of the study?

3. Do the changes reported in pre/post reflection of lesson plan development and implementation align with the changes in supervisor observation of the pre-service teacher’s teaching over time?

Permission to conduct the study was obtained from the Human Subjects Institutional Review Board (HSIRB) of Western Michigan University (WMU) (Appendix A).

Procedure

To begin, researchers identified potential participants as pre-service special education students enrolled in SPED 4040: Practicum in Assessment and Intervention and SPED 4340: Curriculum and Instruction in Special Education at WMU in spring
2012. All nineteen students enrolled in 4340 and 4040 in the spring semester consented to participate in the study. Each participant developed eighteen to twenty lessons to be taught in a practicum setting taking place in an after school program at a local elementary school. Elementary age students from all three Parchment elementary schools were bused to Parchment North Elementary School for an after school program every Tuesday and Thursday from January 2012 through April 2012. Small groups ranging from two to four elementary aged children were paired with a “Western Buddy” (pre-service special education student teacher). The “Western Buddy” would work in an assigned area with their assigned elementary students an hour and a half each day. Following the Madeline Hunter lesson plan format (Appendix C) provided and required by the course instructor, every lesson had goals and objectives, as well as teacher demonstration, guided practice and independent practice in areas of English Language Arts (ELA), and math. Trained observers scored a minimum of five lessons for each participant in the practicum setting over the course of the academic semester. The observed participant received coaching from the trained observer including provision of explicit feedback from ATE form following the observation. Participants received a copy of each completed ATE form as a part of their coaching. These observations in the practicum setting established the baseline for student performance over the course of the semester.

Participants were evaluated using the Assessing Teacher Effectiveness (ATE) form (Appendix D). The Department of Special Education and Literacy Studies at WMU utilizes the ATE form for all observations of students in their program. The form was taken from Kennesaw State University and adapted by the department at WMU.
Additions were made to the ATE form for SPED 4340 as previously stated to offer explicit examples of observable practices and quality indicators. These latter additions were implemented in order to offer additional guidance to student teachers. The ATE form is comprised of five performance standards: Planning; Conducting Lessons; Assessment; Classroom Ecology and Behavior; and Professionalism. All performance strands have a minimum of two quality indicators totaling twenty-three for the entire ATE observation tool. See Table 2 for an outline of each standard and its indicators. Each indicator was scored on a scale of 0 – 5 with rankings of Focus Attention Needed (FAN) for a score of 0 (Not Present) or 1 (Very Poor), Progressing Towards Expectations (PTE) for a score of 2 (Poor) or 3 (Average), or Meets Expectations (ME) for a score of 4 (Good) or 5 (Very Good). See Figure

Table 2

*Assessing Teacher Effectiveness Standards and Indicators*

<table>
<thead>
<tr>
<th>Standard</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>1. Provides access to the general education curriculum by successfully aligning IEP objectives or State Standards with instruction and assessment.</td>
</tr>
<tr>
<td></td>
<td>2. Develops lesson plan using research-based strategies (Universal Design, Concept Mapping, Differentiated Instruction, Multi-level Curriculum).</td>
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<tr>
<td></td>
<td>3. Plans for student diversity through differentiation of individual needs.</td>
</tr>
</tbody>
</table>

34
Table 2 - continued

<table>
<thead>
<tr>
<th>Conducting Lessons</th>
<th>4. Gains student attention prior to instruction.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5. At the beginning of the lesson, incorporates preview and review, connects new learning to previous learning, and connects use of learning strategies to content to be learned and students’ previous learning.</td>
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<td></td>
<td>6. Demonstrates congruence between the lesson plan and instruction while incorporating student responses to the lesson.</td>
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<td></td>
<td>7. Effectively uses technology and adaptive/assistive technology in the lesson.</td>
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<td></td>
<td>8. Provides explicit reinforcement to student responses.</td>
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<td></td>
<td>9. Effectively paces instruction.</td>
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<td></td>
<td>10. Provides opportunities for student responses.</td>
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<td></td>
<td>11. Correctly uses a variety of research-based instructional strategies (direct instruction, strategy instruction, systematic prompting task analysis, and multiple flexible grouping structures).</td>
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<tr>
<td></td>
<td>12. Maintains active student engagement through meaningful and motivating lessons.</td>
</tr>
<tr>
<td>Assessment</td>
<td>14. Embeds authentic assessment in lessons including on-going progress monitoring.</td>
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<td></td>
<td>15. Provides immediate and appropriate correction to student errors and adjusts instruction accordingly (telling, showing, demonstrating correct answer).</td>
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<tr>
<td>Classroom Ecology and Behavior</td>
<td>16. Work area is clean and well organized.</td>
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<td></td>
<td>17. Provides consistent routines and procedures for managing all class activities.</td>
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<td></td>
<td>18. Facilitates positive social interactions among students within the learning community.</td>
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<td></td>
<td>19. Provides manageable positive behavior supports for all students, consistently applies rules and consequences, and models and reinforces appropriate behavior at all times.</td>
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<tr>
<td>Collaboration</td>
<td>20. Effectively manages para professionals and other support staff so that they are effectively involved in meaningful instruction.</td>
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<td></td>
<td>21. As evidenced through planning, implements co-teaching models where appropriate (co-teaching models: complementary teaching, station teaching, parallel teaching, alternative teaching, shared teaching with multiple flexible groups).</td>
</tr>
</tbody>
</table>
Professionalism

22. Communication, both written and oral, is clear, concise and grammatically accurate.

23. Overall appearance and attitude (dress, comments, body language) are positive and indicates respect for students, parents, and colleagues.

Table 3

Example of ATE Indicator

1. Gains student attention prior to instruction. (CEC 5)

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to lesson introduction, student attention is obtained and clear expectations are established.</td>
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<tr>
<td>• Teacher shows warmth, caring, respect, and fairness for all students</td>
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<td>• Teacher builds strong relationships.</td>
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<tr>
<td>• Teacher is direct, specific, consistent, and tenacious in communicating and enforcing very high expectations.</td>
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<tr>
<td>Prior to lesson, introduction some student attention is obtained and expectations are unclear.</td>
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<tr>
<td>• Teacher is fair and respectful toward students</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• Teacher builds positive relationships</td>
<td></td>
<td></td>
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<tr>
<td>• Teacher clearly communicates and consistently enforces high expectations for student behavior.</td>
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<tr>
<td>Lesson introduction begins without gaining student attention and minimal or no expectations are established.</td>
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</tr>
<tr>
<td>• Teacher is fair and respectful toward most students and builds positive relationships with some students.</td>
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<tr>
<td>• Teacher refers to expectations throughout the lesson only when students are acting out.</td>
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</table>

Additionally, each participant completed four ten-minute TeachLivETM sessions throughout the semester. Prior to the first teaching session in the TeachLivETM laboratory each pre-service teacher participated in an introductory session to the laboratory including a viewing a video example of a teaching session and overview of avatar student profiles. Parallel to the requirements of the practicum setting, participants developed
lesson plans following the Madeline Hunter format for each teach done in the laboratory setting. All TeachLivE™ sessions were scored using the ATE form by the same trained observers from practicum. The nineteen participants were randomly selected to participate in one of two cohorts for the academic semester. Each cohort participated in TeachLivE™ sessions in the laboratory setting; however, one group participated immediately following collection of baseline data in the practicum setting and the other group participated in TeachLivE™ approximately halfway through the semester following completion of four teaches each for the first cohort. Participant were required to observe a minimum of four peer teaching sessions and encouraged to observe as many teaches in the laboratory as they liked.

Observers immediately following TeachLivE™ sessions coached participants. Coaching was done individually with participants and focused on observable areas of strength and weakness from the session. In-action coaching, or coaching during a participant’s TeachLivE™ session, also occurred in the laboratory setting on a small number of occasions. Examples of instances of in-action coaching included times when students continued to struggle with the same component of their lesson without self-correction, or instances when the mixed reality environment is out of control for a sustained period of time. The purpose of in-action coaching was to guide the participating pre-service teacher to make a change in their practice to elicit a positive response from the mixed reality classroom. The observer would pose a reflective question to the participant-teacher and follow up guided questions as needed to support the participant. Coaching sessions during each TeachLivE™ session were video recorded and monitored
for the aforementioned seven reflective practices Dieker and Monda-Amaya (1997) outlined, “(a) the ability to recognize educational dilemmas, (b) the willingness to assume responsibility, (c) the ability to view situations from multiple perspectives, (d) the ability to search for alternative explanations for events occurring in the classroom, (e) the use of adequate evidence to support a position or decision, (f) the willingness to consider new evidence, and (g) the ability to judge the adequacy of a decision or position based on the context of application.” Following each TeachLivE™ session the observers would review their quantitative marks and write qualitative notes to the participant-teachers and send their ATE forms via e-mail that same night.

Participants were required to complete a pre and post reflection using the Student Self-Assessment Rating Scale (Appendix B). The Student Self-Assessment Rating Scale is the ATE form without descriptions of each quality indicator. Participants received a copy of the entire ATE observation tool at the start of the semester as a reference and then were asked to complete the Student Self-Assessment Rating Scale before and after all teaching sessions in the practicum and TeachLivE™ laboratory settings participant-teachers. Before each teaching session participants were required to predict the outcome of their upcoming teach, while after they were required to self-assess their execution. The purpose of these tools was to have a measure of students’ self-perception of their ability to demonstrate effective teacher behaviors throughout the duration of the semester.

Additional forms of data collection included participant-teachers’ lesson plans and academic data collected of students’ progress in areas of reading, mathematics, written expression and behavior in practicum setting. Academic data in areas of reading,
math, and written expression was collected and displayed based on course requirements. This data will be utilized to determine if there is a relationship between pre-service teacher practices and practicum students’ achievement. Data reflecting the count of behavioral redirections each potential participating WMU pre-service student teachers give to their students was quantified based on their report of each anonymous individual’s final card color level for each practicum day; green stands for no redirections through red indicating there were multiple behavioral redirections necessary in the day. All additional forms of data collection were compiled by participants and submitted as a final portfolio for SPED 4340 coursework. See Table 4 below for an outline of procedures for this study.

Table 4

Procedural Timeline

<table>
<thead>
<tr>
<th>Month</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| December | • Receive approval from HSIRB  
            • Construct observation schedule for practicum  
            • Update ATE observation tool and pre and post self-reflection form  
            • Randomly assign participants to Group 1 or Group 2 |
Table 4 - continued

<table>
<thead>
<tr>
<th>Month</th>
<th>Week</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Week 1</td>
<td>• Begin practicum observations</td>
</tr>
<tr>
<td></td>
<td>Week 2</td>
<td>• Begin observer training</td>
</tr>
<tr>
<td></td>
<td>Week 3</td>
<td>• Continue practicum observations</td>
</tr>
<tr>
<td></td>
<td>Week 4</td>
<td>• Continue observer training to establish interrater reliability</td>
</tr>
<tr>
<td></td>
<td>Week 5</td>
<td>• Begin TL with Group 1</td>
</tr>
<tr>
<td></td>
<td>Week 6</td>
<td>• Continue practicum observations</td>
</tr>
<tr>
<td>February</td>
<td>Weeks 1 and 2</td>
<td>• Continue TL with Group 1</td>
</tr>
<tr>
<td></td>
<td>Week 3</td>
<td>• Continue practicum observations</td>
</tr>
<tr>
<td></td>
<td>Week 4</td>
<td>• Interrater reliability check</td>
</tr>
<tr>
<td>March</td>
<td>Week 1</td>
<td>• WMU Spring Break: No observations in TL or practicum</td>
</tr>
<tr>
<td></td>
<td>Week 2 and 3</td>
<td>• Begin TL with Group 2</td>
</tr>
<tr>
<td></td>
<td>Week 3</td>
<td>• Continue practicum observations</td>
</tr>
<tr>
<td></td>
<td>Week 4</td>
<td>• Week 3: Interrater reliability check</td>
</tr>
<tr>
<td></td>
<td>Week 5</td>
<td>• Continue practicum observations</td>
</tr>
</tbody>
</table>


Participants and Setting

The pool of potential participants consisted of pre-service special education students enrolled in SPED 4040: Practicum in Assessment and Intervention and SPED 4340: Curriculum and Instruction in Special Education at WMU. These courses are taught together and students are required to enroll in the same semester. The concepts taught in SPED 4340 are evaluated in the practicum setting in SPED 4040. Inclusionary criteria for this pool of potential subjects to participate in this study were active enrollment in both courses. Nineteen potential participants were recruited and all agreed to consent to participate in the study. The principal investigator of the study was the assigned instructor to this course offered through the Department of Special Education and Literacy Studies. In order to ensure students did not feel pressured to participate, the lead investigator did not participate in recruitment. Recruitment occurred via e-mail and face-to-face interaction from the student investigator and graduate assistant assigned to the practicum sight and the potential participants without engagement or interaction with the course instructor. Data was collected at WMU in the TeachLivE™ laboratory located in the Department of Special Education and Literacy Studies. Parchment North Elementary School in Parchment, Michigan served as the off-site practicum setting where data was also collected.
Consent Procedures

Potential participants enrolled in SPED 4040 and SPED 4340 were contacted by the student investigator regarding participation in the study by e-mail with the informed consent document attached presenting information about the study and their potential participation. The potential participants were given the informed consent document by the graduate assistant while the lead investigator was out of the room. Potential participants were given the opportunity to ask any questions regarding participation in the study. It was requested all informed consent documents be turned in at the end of a class period to the student investigator after the instructor and principal investigator had left the classroom so that those not choosing to participate would not feel uncomfortable.

Risks and Costs

All subjects were free not to participate at any time without penalty to their course work or course of study. There was no risk or cost to subject participants for engagement in this research study. The research participants were treated fairly and with respect to their position as a university student throughout the research study. The research participant also gained automatic access to relevant conversation regarding current and prevalent issues with their field of work. There were no direct compensatory or physical benefits from participation in this research study. Long-term benefits of this study will be felt by the Department of Special Education and Literacy Studies and all involved through the improvement of the program on teacher effectiveness. There will likely be long-term benefits to the participating individuals because they will be receiving
information and feedback that will positively support them in becoming an effective special educator.

Inter-observer Agreement for Reliability

The lead and student investigator, a departmental graduate student, and adjunct faculty member all were trained to function as observers. Training to score participants using the ATE was lead by the principal investigator, also a tenured member of the Department of Special Education faculty at WMU. The student investigator, graduate student, and adjunct faculty were each trained following a model of gradual release of responsibility. The training process began with the observations of the lead investigator scoring a participant using the ATE form. Next, in guided practice both the lead investigator and observers in training scored a participant using the ATE form and would then check their responses to one another until a minimum of ninety percent reliability was achieved. Once inter-observer agreement (IOA) was established the newly trained observers would observe participant-teachers independently. Reliability checks were continued in an on-going manner to ensure upkeep of reliability. Minimum weekly two randomly assigned observers would both observe the same participants’ teaching session and compare scores as a reliability check. At these checkpoints reliability of IOA remained ninety percent or greater.
CHAPTER IV

RESULTS

Overview

Do teachers really matter? Research by numerous nonprofit groups and institutions such as the Gates Foundation and the University of Michigan suggests a positive correlational relationship between teacher effectiveness and student achievement indicating yes; teachers do matter (Kane, 2012; Ball & Forzani, 2011). The established relationship between effective teacher practices and achievement of students brings to light many potential areas of study, including additional research on the development of effective teacher practices of both in-service and pre-service teachers. This area of research focusing on development of effective teacher practices is especially pertinent to teacher educators in higher education as programs of study are developed, revised and refined.

The purpose of this research was to examine if there was a relationship between pre-service students’ participation in TeachLivE™, defined in this study as the lab experience combined with coaching by trained observer following teach, and written feedback, and participants’ ability to demonstrate effective teaching behaviors in a practicum setting. Additionally, the study examined the effects of on-going pre and post self-reflective practice on pre-service students to observe if there was a change over time in students’ self-reflection scores. This research also focused on observation of change in
students’ pre and post self-reflection scores and potential alignment over the duration of the research study with observers’ scores of teaching sessions.

Research Question One

Multiple Baseline Across Groups Experiment

Research question one looked at TeachLivE™ and practicum teaching sessions impact on participants’ utilization of key effective teaching behaviors. TeachLivE™ intervention was implemented as a treatment for two groups of pre-service special education student teachers with two varying baseline periods; therefore, this experiment was conceptualized and was analyzed as a multiple baseline across groups experiment (Huitema, 2011). Multiple baseline experimental design is ideal when it is undesirable or impossible for subjects to return to their original baseline (Barger-Anderson, Domaracki, Kearney-Vakulick & Kubina Jr., 2004). In the case of this dissertation study, multiple baseline design was appropriate because it was extremely undesirable for participating pre-service student teachers to return to the state of their original baseline level of achievement following treatment of TeachLivE™ intervention over time. The primary objective of the study was to determine if participation in treatment of TeachLivE™ intervention had an effect on pre-service student teachers’ observable teaching behaviors and ultimately for participants to increase demonstration of observable effective teaching behaviors over time.

Participants were randomly assigned to one of two groups. Group One had a short baseline period prior to the start of treatment of TeachLivE™ intervention. This group
participated in four consecutive sessions of TeachLivE™ (one per week) and then had a longer second baseline period. Group Two had a longer initial baseline period before participating in treatment of TeachLivE™ intervention and then a short second baseline period following TeachLivE™. Practicum was present and constant throughout all phase changes. Barger et al. (2004), describe, “The multiple baseline across [groups] addresses the impact of the treatment of the independent variable on the dependent variable, the same behavior, for different [groups].” For this experiment the independent variable was the treatment of TeachLivE™ and the dependent variable, or the constant, was the ATE score for participants throughout all phase changes. The ATE scores from observed teaching sessions across phase changes were analyzed using regression analysis appropriate for multiple baseline analysis following A-B-A pattern: baseline (Practicum) to treatment phase (Practicum and TeachLivE™) to baseline (Huitema, 2011). Regression analysis was utilized to determine if a relationship was present between the independent variable and treatment of TeachLivE™ intervention, and dependent variable of participants’ individual ATE scores over time in this experiment.

Within this multiple baseline across groups approach, the regression lines (the solid lines in Figure 1) are broken at the phase changes (the dashed lines in Figure 1), and changes to the slope or level of the regression line that result in the closest fit to the data are calculated. These slope and level changes are then assessed for statistical significance (i.e., how likely a slope or level change of that size would be in the absence of an effect associated with the phase change). The slope is assessed by the steepness of slopes and levels are assessed by comparison of means (Barger et al., 2004). A comparison of
regression models was also analyzed that included and excluded slope change parameters. This comparison of regression models indicated that inclusion of slope change parameters did not add significantly to the model. Therefore, the model that was assessed for statistical significance did not include slope change parameters (notice that the regression lines fitted to the data in Figure 1 have a constant slope across phases). With a multiple baseline design, the level change coefficients from each group for the same phase change are combined, weighted according to the reciprocal of the error variance estimates for the individual level change coefficients, to obtain an overall level change statistic. The overall level change computed for the transition from baseline to treatment (Pre TL to TeachLivE™ in Figure 1) was 5.18 ($p = .08$), and the overall level change computed for the transition from treatment to the second baseline (TeachLivE™ to Post TL in Figure 1) was 1.6 ($p = .18$). These statistics are shared below in Table 5 and represented visually in Figure 1. Neither of the overall level changes was statistically significant with $\alpha$ set at .05. Therefore, the obtained level change statistics may not have been due to the TeachLivE™ intervention.

Table 5

<table>
<thead>
<tr>
<th>Overall Change</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre TL to TL Level Change</td>
<td>5.2</td>
</tr>
<tr>
<td>TL to Post TL Level Change</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Data in Table 5 outlines the overall level changes and $p$-values from regression analysis of treatment of TeachLivE™ and participants’ ATE scores over time. The data suggest neither Groups 1 nor 2 experienced a statistically significant impact due to
implementation of the treatment of the TeachLivE™ intervention on ATE scores across phase changes. In this regression model the $p$-value is .08, which is greater than the level of significance set at .05. Therefore, there is no significant relationship between the outcome, participants’ ATE scores and the independent variable TeachLivE™.

Regression analysis of teacher observation scores across sessions for Groups 1 and 2 are shown in Figure 1 below.

Data shown in Table 5 and Figure 1 indicate a need for additional research of TeachLivE™ as a tool to positively impact pre-service teachers’ observable effective teaching behaviors. As a researcher of teacher training it would be beneficial to consider the way in which TeachLivE™ was implemented and utilized and evaluate the ATE observation tool and its ability to capture and document student teachers’ demonstration of effective teaching behaviors. Because TeachLivE™ intervention is a new tool in teacher training it would be pertinent to replicate this study with edits addressing the treatment, control and design of future studies.

Subset of Indicators

A subset of indicators from the ATE observation tool was assembled for analysis to determine if indicators focused on teaching behaviors explicitly observable in TeachLivE™ yielded statistically significant results. Indicators were compiled from domain areas of Planning, Conducting Lessons, and Assessment. The individual indicators included were: (a) Plans for student diversity through differentiation of individual needs (differentiation); (b) Beginning of the lesson, incorporates preview and
review, connects new learning to previous learning, and connects use of learning strategies to content to be learned and students’ previous learning (lesson set-up); (c) Provides explicit reinforcement to student responses (reinforcement); (d) Provides opportunities for student responses (response opportunities); (e) Correctly uses a variety of research-based instructional strategies (use of strategies); (f) Maintains active student engagement through meaningful and motivating lessons (engagement); and (g) Provides immediate and appropriate correction to student errors and adjusts instruction accordingly (telling, showing, demonstrating correct answer).

This subset of indicators was compiled in response to observation of multiple indicators present on the ATE unable to be influenced by a treatment or intervention such as TeachLivE™. For example, the whole domain area of Professionalism is composed of indicators focusing on use of professional language in oral and written presentation and professional dress and is unlikely to be influenced by participation in TeachLivE™. It is standard course expectation students dresses in professional attire at all times and thoroughly edit and revise their written work prior to submission to the course instructor. Since these indicators are expectations throughout the duration of the course they are unlikely to be impacted by TeachLivE™. Individual component analysis of the domain area of Professionalism indicates the level change between baseline and treatment is especially statistically insignificant as shown in Table 6. Participating pre-service students are scoring high to begin on these indicators expected throughout the semester.

Regression analysis was conducted for the subset of indicators to research if treatment of TeachLivE™ impacts demonstration specific explicitly observable teaching
Table 6

*Level Change Statistics From Component Analysis of ATE Domain Area Professionalism*

<table>
<thead>
<tr>
<th>Overall Change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre TL to TL Level Change</td>
<td>-.2</td>
</tr>
<tr>
<td>TL to Post TL Level Change</td>
<td>.11</td>
</tr>
</tbody>
</table>

*Figure 1. Regression Analysis of Total ATE Scores from Practicum and TeachLivE™*
behaviors from ATE including differentiation, lesson set up, reinforcement, opportunities to respond, use of research-based strategies, engagement, and teaching and modeling. A comparison of regression models with and without slope change parameters indicated that the slope change parameters resulted in a significantly better fit to the data (notice that the slope of the regression line fitted to the data changes across phases in Figure 2). The overall level and slope change statistics obtained from this analysis are summarized in Table 3 and shown in Figure 2. The most noteworthy finding is that the overall slope change for the transition from baseline to treatment was both large (1.44) and statistically significant ($p = .01$). This finding can be interpreted as a socially and statistically significant increase in the rate at which student teachers improved according to the items selected for analysis with the implementation of the TeachLivE™ intervention. The slope change of 1.44 indicates that the students gained an additional 1.44 points per session on average on top of the number of points gained in the absence of the intervention, TeachLivE™.

Table 7

*Level and Slope Change Statistics From ATE Subset Score Analysis*

<table>
<thead>
<tr>
<th></th>
<th>Overall Change</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre TL to TL Level Change</td>
<td>-1.72</td>
<td>.22</td>
</tr>
<tr>
<td>TL to Post TL Level Change</td>
<td>-3.83</td>
<td>.08</td>
</tr>
<tr>
<td>Pre TL to TL Slope Change</td>
<td>1.44</td>
<td>.01</td>
</tr>
<tr>
<td>TL to Post TL Slope Change</td>
<td>-.97</td>
<td>.22</td>
</tr>
</tbody>
</table>
Figure 2. Regression Analysis of ATE Scores for Subset of Indicators from Practicum and TeachLivE™

Research Question Two

A secondary objective of this dissertation study was to determine if on-going self-reflection would result in changes in pre-service students' pre and post self-reflection scores over time. Reflection was a focus of this study because research shows effective teaching practice includes reflective thought (Gomez et al., 2008). Reflective practice
was encouraged throughout this study through participants’: (a) completion of pre and post self-reflections following each teaching session throughout all phases; (b) through in-action coaching in the TeachLivE™ Lab; (c) focused coaching face to face immediately following TeachLivE™; (d) focused coaching following observation in the practicum setting; and (e) written feedback in both TeachLivE™ and practicum. Formal written feedback was provided via e-mail within three hours of teaching in the TeachLivE™ lab. Written feedback based on observation in the practicum setting was provided within a day to a week’s time from an observed teach based on when students signed up to meet with the observer to review feedback and receive completed ATE. In the design phase of this study it was discussed by researchers to withhold feedback outside of the treatment of TeachLivE™ to further control for the independent variable; however, to do so would have potentially harmed participants’ educational progress and therefore was decided against.

The differences between participants’ pre and post self-reflection scores were determined by subtracting the post score from the pre score and then by plotting the difference scores across sessions (see Figure 3). A regression analysis was conducted on the difference scores to determine if there was a linear trend. For Group 1 the obtained slope was -.17, and for Group 2 the slope was -.11, indicating that students scored themselves higher on their pre-reflection than on their post-reflection at the beginning of the semester and that the pre and post scores were approximately equivalent by the end of the semester. This data indicates participants’ pre and post self-reflection scores did change over time.
The $p$-value associated with the slope in the regression analysis was not statistically significant for each individual group ($p = .06$ for Group 1 and $p = .26$ for Group 2). However, when a regression analysis was conducted for both groups combined, the $p$-value associated with the slope of -.14 was statistically significant ($p = .03$) as shown in Table 5. The difference in $p$-values associated with individual groups versus the collective group of participants indicates baseline periods and phase change periods were not relevant to the statistical significance of reflective practice. Based on regression analysis of participants’ pre and post self-reflection scores over the duration of the semester there is a statistically significant relationship between on-going practice decreased difference in pre and post self-reflection scores over sessions.

Results shown in Figure 3 indicate on-going self-reflection is an effective and meaningful use of time to promote reflective thinking in pre-service student teachers. Figure 3 shows all students at the start of the semester in both groups had a positive difference between their pre and post self-reflection scores indicating as a group the participants were scoring themselves higher on pre self-reflections than post self-reflections. As the semester progressed participants’ differences in pre and post self-reflections scores converged suggesting participants were more accurately predicting the outcomes of their teaching sessions. Figure 3 clearly depicts student participants becoming more critical of their teaching behaviors outlined on the ATE observation tool indicated in their self-reflections. As researchers we were unable to control for factors of coursework that might have contributed to participants’ increased critical self-reflection beyond on-going completion of pre and post reflections. Other potential contributing
Figure 3. Regression Lines for Difference Between Pre-Post Self-Reflection Scores

Factors impacting self-reflection could be attributed to observation of highly effective practices demonstrated by course instructor in lecture, observation of peers in TeachLivE™, reflection from feedback in TeachLivE™, or written feedback from TeachLivE™ or Practicum. Regardless of potential variables the statistical significance of the regression analysis run on participants’ differences in reflection scores across sessions suggests that the differences are not due to random variation and that research investigating the reasons for this finding may be justified. This finding also suggests that on-going reflective practice in pre-service teacher education may be fruitful.
Research Question Three

The final objective of this study was to determine if changes in pre-service student teachers’ pre-post self-reflection scores change to align with observers’ scores over time. The purpose of this research question was to study trends in students’ potential changes in pre and post self-reflection scores, specifically to see if scores across sessions trend closer to observers’ scores. To compare student self-reflection scores with observer scores across time, difference scores were calculated by subtracting the student teachers’ pre and post self-reflection scores from the observers’ score for each session in which an observer score was available. These difference scores were plotted across sessions, and a regression analysis was conducted to determine if there was a linear trend (see Figures 4 & 5).

For Group 1, the obtained slope for TO – Pre was 1.18, and the slope for TO – Post was .93. For Group 2, the obtained slope for TO – Pre was 1.43, and the slope for TO – Post was 1.6. The $p$-value associated with all obtained slopes was less than .01, indicating that the obtained non-zero slopes were not due to random variation. These findings show that self-observation scores started out much higher than teacher observation scores but converged and became equal to or lower than teacher observation scores by the end of the semester at the rate indicated by the slope (e.g., for Group 1, the pre self-evaluation scores converged with the teacher observation scores at a rate of 1.18 points per session on average). The difference between the slopes obtained for each group for pre self-evaluations was not statistically significant ($p = .17$). The difference between the slopes obtained for each group for post self-evaluations was statistically significant ($p$
A summary of differences, equations and p-values is shown in Table 5. However, because this aspect of the data analysis is purely observational, it is difficult to interpret this outcome other than to say that the post self-evaluation scores converged more rapidly with teacher observation scores in Group 2 (1.6 in Group 2 vs. .93 in Group 1) and that this difference does not appear to be the result of random variation. These difference scores suggest on-going pre and post self-reflection by pre-service special education teachers is an effective tool to increase critical self-reflective practice.

Table 8

**Comparison Data of Teacher Observation and Self-Reflection Scores**

<table>
<thead>
<tr>
<th>Group</th>
<th>Difference</th>
<th>Linear Regression Equation</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TO-Pre</td>
<td>(TO – Pre) = -12.8 + 1.18 Time</td>
<td>&lt;.015</td>
</tr>
<tr>
<td>1</td>
<td>TO-Post</td>
<td>(TO – Post) = -9.13 + 0.932 Time</td>
<td>.003</td>
</tr>
<tr>
<td>2</td>
<td>TO-Pre</td>
<td>(TO – Pre) = -7.55 + 1.43 Time</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>2</td>
<td>TO-Post</td>
<td>(TO – Post) = -8.12 + 1.60 Time</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Data in Figures 4 and 5 suggests on-going self-reflection supports development of pre-service student teachers’ ability to better predict and evaluate their own effective teaching practices. The data suggests to teacher educators support of pre-service students development of reflective skills is doable with institution of on-going reflective practice in practicum experiences and throughout teacher training programs. Across time, participants’ self-reflection scores converged with observers’ scores indicating an increase in participants’ ability to critically self-reflection. These results could indicate
participants became more attune to observers’ critiques and overtime attempted to match observers’ scores. To score like an observer requires knowledge and study of indicators assessed and analysis of feedback and scores provided. Both aforementioned activities focused on thinking and engaging with effective teaching behaviors. Teacher educators may consider ways to further spur pre-service student teachers to think about their teaching practices in a meta-cognitive way such as observing peers, privately assessing peers’ teaches using a standard observation tool and comparing and contrasting observed teaches with their own teaching experiences. Data comparing pre-service student teachers’ self-reflection with observers’ scores clearly indicate reflective practice is an effective tool to support self-reflection in teacher training programs.

Figure 4. Regression Lines for Difference Between Teacher Observation Scores and Pre-Post Self-Reflection Scores for Group 1
The primary research focus of this study was to determine if a relationship is present between the treatment of TeachLivE™ and pre-service student teachers’ demonstration of observable effective teaching behaviors. The purpose of this research agenda is to determine if treatment of TeachLivE™ is related to an increase over time in effective teaching. An underlying question posed by researchers query if TeachLivE™ is positively impacting student teachers’ effective teaching behaviors will it also positively impact the achievement of students taught in the practicum setting by participants of the TeachLivE™ treatment?

Figure 5. Regression Lines for Difference Between Teacher Observation Scores and Pre-Post Self-Reflection Scores for Group 2
Data from this multiple baseline across groups experiment concluded TeachLivE™ is a statistically significant treatment to increase a subset of teaching behaviors indicated on the ATE observation tool. The next step in research would be to look for a correlation between pre-service students’ scores and an increase in achievement by students serviced in the practicum setting. For approximately half of the student teachers (eight in Group 1 and four in Group 2), achievement scores for the students taught in the practicum setting were calculated by subtracting each student’s baseline score from their outcome score. Students were assessed using student teacher created curriculum-based measurements for mathematics and DIBELS Next probes for reading. For each student teacher, scores were obtained from as few as two and as many as four students for two academic subjects: math and reading. The difference scores were averaged for each student teacher and then analyzed with an independent-samples t-test to determine if there were any between-group differences (Shavelson, 1996). A potential outlier (a difference score of 3.5) was identified during initial graphical analysis and subjected to an outlier test, which suggested that the score should be removed ($t_{res} = -4.21$, Bonferroni $t_{12,10} = 3.63$). With the outlier removed, the group means were 19.83 and 14.65 for Groups 1 and 2, respectively. The 5.18-point difference between means was not found to be statistically significant with $\alpha$ set at .05 ($p = .11$; $SE = 2.51$). However, this outcome may be a result of the small, unequal samples with heterogeneous variance.

Baseline data in each academic area was established at the start of the semester and outcome data in each area was determined at the close of the academic term utilizing curriculum-based measures in mathematics and DIBELS Next progress monitoring.
Figure 6. Boxplots of Student Achievement Scores

probes for reading. No significance was found in practicum students’ achievement. This data suggests the treatment of TeachLivE™ on student teachers had no impact on the outcome data of the students they served; therefore, no significance was found in this study data connecting teacher effectiveness with student data. The next step in research would be to design a study examining multiple potential relationships starting with conceptual design of the study to encompass study of treatment of TeachLivE™ on student teachers’ teaching behaviors and also study of teaching behaviors on practicum students’ achievement.

End of Course Survey Results

Following completion of all coursework all pre-service student teachers participated in an anonymous end of course survey. The purpose of the survey was for pre-service student teachers to share their perspectives on TeachLivE™, the ATE
observation tool, pre and post self-reflections and other course components. The researchers were interested to see how participants’ perspectives compared with data analysis results from the study.

Figure 7: Results from the survey question, “Rate how well the following [components of SPED 4040 lecture and 4340 practicum] have supported you in working to develop your effective teaching skills.”

Survey results shared in Figure 7 show participants’ responses indicating which course components helped in developing effective teaching skills in order of greatest to least: written feedback in Practicum, written feedback TeachLivE™ and teaching Practicum teaching, and coaching in TeachLivE™ were most helpful. Survey results suggest students did not feel teaching in TeachLivE™ was as helpful as the coaching they
received during the treatment in helping to develop their effective teaching skills. These results suggest pre-service student teachers find value in time they are able to work face to face with students. This data also suggests student teachers feel feedback and coaching are both beneficial to their personal development as professionals, regardless if they found great value in the teaching experience itself. Feedback and coaching from observers is desired. Data from this survey question indicates pre-service student teachers did not feel completion of pre and post self-reflections had any impact on their
development of effective teaching skills. Teacher educators may benefit from more explicitly supporting student teachers connect reflective practice and its impact on practice by modeling and providing class time for students to reflect and support them in meta-cognitive practice.

Figure 8 shows survey results participants’ responses indicating which course components helped their development as a reflective practitioner in order of greatest to least: Practicum teaching, written feedback from Practicum, written feedback from TeachLivE™, coaching in TeachLivE™ and 4340 lecture, course work, time in class, and finally teaching in TeachLivE™. The results from this survey question suggest to teacher educators to provide feedback and coaching to student teachers in practicum experiences. In reference to pre and post self-reflections 37% of participants rated them as “well” or “very well” in supporting their development as reflective practitioners and 63% of participants rated this activity as “not very well” or “not at all” helpful. Data from regression analysis of pre-service student teachers’ pre and post self reflections does indicate participants’ reflection did change over time and did converge with observers’ scores over time. It is interesting the statistical analysis of students’ reflection is statistically significant and the over 50% of participants did not perceive it as helpful in their development as a reflective practitioner. The data suggests the reflective practice was an effective and meaningful use of time in supporting participants’ development. This mismatch between data and perspective suggests to teacher educators additional teaching and scaffolding of reflection on practice is needed to support students in connecting the impact of their reflection on their practice.
Figure 9: Results from survey question, “Check (Yes, No, Not Sure) if you were taught strategies in SPED 4340 to implement the following effective teaching behaviors”

Figures 9, 10 and 11 each share end of course survey results revealing participants’ feelings towards coursework, TeachLivE™, and Practicum. Figure 9 asks participants which specific effective teaching behaviors were taught and figures 10 and 11 probe which settings, TeachLivE™ and Practicum, provided opportunities to implement effective teaching behaviors. Results shown in Figure 9 reveal nearly 100% of
Figure 10: Results from survey question, “Check if you practiced implementing the following effective teaching behaviors during practicum”
Figure 11: Results from survey question, “Check (Yes, No, Not Sure) if you practiced implementing the following effective teaching behaviors during TeachLivE.”
participants felt they were taught how to provide positive behavior support, use research-based strategies, explicit praise, and co-teaching models, set the purpose for the lesson and goals and objectives, differentiate instruction, and get to know the students. One of the nineteen participants did indicate they felt unsure if they had been taught how to provide positive behavior support and another how to set up the purpose and outcome of the lesson. Data analysis of the subset of indicators from the ATE determined there was statistical significance between TeachLivE™ and the pre-service student teachers’ demonstration specifically of the subset of indicators over time. The subset of indicators did include both provision of positive behavior support and reinforcement and lesson set up. Both the data and survey results suggest to teacher educators explicit instruction and modeling of effective teaching behaviors in course work is a meaningful and impactful way to support pre-service teachers’ development of effective practices.

Survey results in figures 10 and 11 indicate whether participants’ felt they were provided the opportunity to implement specified teaching behaviors in Practicum and TeachLivE™. Participants responses indicate they felt strongly both Practicum and TeachLivE™ both offered the opportunity to implement the teaching behaviors specified in figures 10 and 11, all indicators from the ATE observation and self-reflection tool. In Practicum, 100% of participants indicated “Yes” to all behaviors with the exception of “Monitoring the progress of an effective lesson plan” in which over 80% of participants indicated “Yes”. Responses to practice in TeachLivE™ varied a bit more because participants indicated “Not Sure” in multiple categories. Greater variation is reasonable in TeachLivE™ where in-action was utilized to support pre-service student teachers struggling with specific behaviors. It is probable students who received in-action
coaching in TeachLivE™ were focused on behaviors targeted by coaching. Participants were observed in each setting for different amounts of time; Practicum observations lasted for twenty minutes, while TeachLivE™ sessions lasted ten minutes including pauses in teaching for in-action coaching. It is possible differences in duration of teaching sessions in each setting impact participants’ opportunity to implement different teaching behaviors. Overall, the survey results indicate the majority of participants’ felt they were provided the opportunity to implement various effective behaviors in both the Practicum and TeachLivE™ setting.

Conclusion

Over the course of this dissertation study massive amounts of data were collected leading to numerous analyses. Regression analysis indicates a statistically significant relationship between the subset of indicators from the ATE in relationship to the treatment of TeachLivE™. Based on this data, teacher educators should consider TeachLivE™ as an effective tool to address specific, effective teaching behaviors including engagement, explicit reinforcement, use of research-based strategies, and more in teacher training programs in higher education. Based on regression analysis of participants’ pre and post self-reflection scores over the duration of the semester there is a statistically significant relationship between on-going practice decreased difference in pre and post self-reflection scores over sessions. Lastly, difference scores between participants’ pre and post self-reflection scores and observers’ scores indicate statistical significance and suggest on-going pre and post self-reflection by pre-service special education teachers is an effective tool to increase critical self-reflective practice.
CHAPTER V

DISCUSSION

The average American student attends an average of 180 school days each year for an average of six instructional hours each day for an annual total of 1,080 hours of instruction. Therefore, over 1,000 waking minutes of a student’s life each year is spent with his or her classroom teacher. Time is a resource available to all teachers everywhere. This basic number sentence outlining the time available for learning in the classroom depicts an opportunity to respond to educational stakeholders’ concern for teacher quality. Effectiveness of teacher practice has been directly correlated with student achievement (Stronge, Ward & Grant, 2011; Gates, 2009). One thousand hours with an effective teacher is excellent opportunity for a student to learn and grow to reach their potential; however, 1,000 hours spent with an ineffective teacher is presumably 1,000 hours of time lost. Undoubtedly the job of a teacher is tremendous, chalked full of pressure and responsibilities. Darling-Hammond (2006), explains, “[The] realities of what it takes to teach in U.S. schools such that all children truly have an opportunity to learn are nearly overwhelming…” The purpose of this dissertation study was to add to the research body available on the development of effective teaching behaviors and reflective practice and to support the creation of a teacher work force that does have what it takes to teach the students of today.
Research Question One

Teaching is difficult and so is measuring effective teaching practice (Hollins, 2011; Gates, 2010; Gates, 2009). Research by the Gates Foundation outlines a pathway from teacher practices to student results: teachers’ implementation of multiple measures of effectiveness, accurate evaluation and then implementation of factors such as merit based pay to encourage effective teaching all in an effort to create more effective teachers to result in better student outcomes. The University of Michigan is also researching teacher effectiveness through study of their high-leverage practices and implementation of Teaching Works, a teacher-training program (Ball & Forzani, 2012; Ball & Forzani, 2011). Both the Gates Foundation and U of M are working in response to our nation’s growing concern for teacher quality to offer research-based solutions for a better future in education and both have established processes to develop effective teaching behaviors.

The University of Central Florida’s (UCF) development of the TeachLivE™ Lab, a mixed-reality teaching environment, has provided a safe place to practice implementation of content and pedagogy without the stresses of a real-life classroom (Dieker, 2012).

The primary research focus of this dissertation study was to determine if participation in the TeachLivE™ Lab and practicum setting would have an observable effect on pre-service student teachers’ effective teaching behaviors. The purpose of this research study was to determine the effectiveness of TeachLivE™ as a tool to develop effective teaching behaviors in pre-service student teachers. Findings from this study indicate the TeachLivE™ Lab is an effective tool to develop effective teaching behaviors in pre-service student teachers in special education. Based on statistical analysis, a
relationship does exist between TeachLivE™ and student teachers’ demonstration of a subset of explicitly observable effective teaching behaviors. A statistically significant relationship was not found based on analysis of the complete ATE document and the treatment of TeachLivE™. There are a number of indicators on the ATE that are course expectations and it is likely the presence of these indicators weighted participants’ overall scores to diminish the likelihood of achieving statistical significance. Based on statistical data found in response to research question 1, teacher educators should consider TeachLivE™ as an effective tool to address specific, effective teaching behaviors including engagement, explicit reinforcement, use of research-based strategies, and more in teacher training programs in higher education.

Research Questions Two and Three

Kane (2012) addresses feedback in teacher education and evaluation, “…professional growth must begin with an individualized (and honest) assessment of a teacher’s strengths and weaknesses.” Both the MET project and Teaching Works teacher education program at U of M have feedback embedded within their designs (Ball & Forzani, 2012; Gates, 2009). The MET project identifies provision of accurate feedback as the secondary step in their pathway from effective teaching practice to positive student outcomes. Teaching Works structure of teacher training is developed to include on-going assessment following training and development of skills through levels of practice of high-leverage behaviors. The training program utilizes a model of gradual release of responsibility to support pre-service teachers acquisition of skills with feedback embedded. Clark, Kirschner, and Sweller (2012) support the use of gradual release of
responsibility, “…when teaching new content and skills to novices, teachers are more effective when they provide explicit guidance accompanied by practice and feedback…” Again, both projects addressing teacher effectiveness incorporate and utilize feedback in different ways; however, both the MET project and Teaching Works have highlighted provision of feedback as a feature of their design studies. The secondary and tertiary research objectives from this dissertation study address on-going feedback and its impact on pre-service special education student teachers reflective practice.

The first question addressing feedback and reflection examined if on-going feedback resulted in a change in self-reflection scores of pre-service student teachers over time. Feedback was provided in this study through: (a) completion of pre and post self-reflections following each teaching session throughout all phases; (b) through in-action coaching in the TeachLivE™ Lab; (c) focused coaching face to face immediately following TeachLivE™; (d) focused coaching following observation in the practicum setting; and (e) written feedback in both TeachLivE™ and practicum. The second research question focused on reflective practice probed if changes in participants’ self-reflection scores over time converged with observers’ scores of teacher effectiveness. Findings from this study suggest on-going feedback and reflection did result in a change of pre-service student teachers’ self-reflection scores. Further analysis of student teacher self-reflection scores in comparison to observer scores across sessions indicate participants’ scores change to align over time with observers’ scores.

Scheeler et al. (2004) wrote in response to an empirical review of studies of feedback to teachers and stated, “The only attribute that clearly demonstrates efficacy as
a characteristic of feedback is immediacy. Thus, it seems obvious that supervisors should seek ways to provide feedback as close to the occurrence of teaching behavior as possible... Conversely, supervisors should investigate ways to provide immediate feedback in the least intrusive manner.” In this study feedback was provided as immediately as possible for each setting. In-action coaching in the TeachLivE™ Lab was provided immediately when the participant was struggling. Additional feedback through focused coaching was provided immediately following each TeachLivE™ session. Focused coaching in practicum was provided anytime immediately following the after school program up to one week from an observation. This form of feedback was not able to be provided as immediately because the participant could not be removed from the tutoring session and many participants had other commitments that made them unable to stay to receive feedback the same day. All forms of feedback (in-action coaching, focused coaching, written feedback and participants’ completion of pre and post self-reflection) were all done utilizing the ATE observation tool. Based on study results participants’ pre and post self-reflection scores did positively change overtime. End of survey results support the importance of provision of immediate feedback; participants indicated they felt feedback received in TeachLivE™ and in the Practicum setting to be beneficial both to development of effective teaching behaviors and to their development as reflective practitioners.

Implications for Practice

Study findings suggest the TeachLivE™ Lab as a significant treatment to be utilized to support student teachers’ practice of effective teacher skills including those
focused on content and delivery of instruction. Results from analysis of Research Question 1 suggest when observing for a relationship between indicators of effectiveness and TeachLivE™ it is important researchers ensure the observation tool utilized to effective teaching practices is comprised of relevant and observable behaviors. The findings on Research Question 1 analyzing the use of a subset of indicators to impact key effective teacher behaviors suggests instructors in higher education would benefit from a review of observation tools utilized to observe and provide feedback to pre-service student teachers to ensure the tools measure specifically what is being taught and assessed. Universities are being called to review and revamp teacher preparation programs to ensure graduating teacher candidates are emerging ready to face the demands of the professional field of education (Darling-Hammond, 2009). Reforms to teacher preparation programs include revision to both content and instructional delivery models (Hollins, 2011; Chelsey & Jordan, 2012). End of survey results indicate participants’ perspectives support the findings of the data; pre-service students’ responses show they believed time spent in the TeachLivE™ Lab was beneficial to their develop specific effective teaching behaviors.

Based on analysis of data from Research Questions 2 and 3, on-going self-reflection scores of pre-service student teachers can be impacted overtime. Results from the end of course survey indicate completion of self-reflections were undesirable to many participants. There was no observation of participants completing pre or post self-reflections and the data does not describe how or why the changes in self-reflection scores over time occurred. In order to better control for thorough and meaningful
completion of self-reflections it would be beneficial for teacher educators to embed self-reflection into course practices and schedules. It might also be beneficial to hold discussions with participants as a whole group, small group, or one on one encouraging them to utilize pieces of their self-reflection as talking points. For example, participants could spend five minutes following completion of pre-reflection discussing how they plan to implement a specific component of the ATE observation tool. The focus of the discussion could be on a specific indicator or based on their areas of strength or weakness.

Limitations

Although the research of this study resulted in statistically significant findings regarding treatment of TeachLivE™ to impact pre-service teachers’ teaching and reflective practices, limitations to the study were found and must be discussed. The greatest limitation of this research design and study was the duration of the study over the course of an academic semester. The study was a multiple baseline across groups design meaning two groups were to have two different baseline periods at the prior to the treatment and following the treatment. The design of this experiment within the constraints of an eighteen week academic semester resulted in a shorter initial baseline period for the first group to take part in the treatment than desirable, as well as too short of a baseline period following treatment for Group 2. If more time were available to run the multiple group baseline across groups design the quality of the research design might increase. The limitation of time constraints is bound to occur when conducting studies utilizing traditional course work in the collegiate setting. The academic semester does not
bend for research design. Also, a secondary limitation of this study involved the organization of the observers. Observers were trained and reliability among observers was measured, recorded, and maintained strong throughout the study; however, observers were the same in the TeachLivE™ and practicum setting. The research questions addressing TeachLivE™ and its impact on teacher effectiveness of pre-service teachers limits the flexibility in design of the study because time will always be determined by the university calendar. Therefore, it would be reasonable for researchers to return to the design of the study and assess and determine other research designs that might work around the limitation of time available. This limitation could be resolved by editing the research questions and design to work within the time available. Similar research questions could be addressed through future research utilizing a randomized group design. This study might examine potential participants’ observable effective teaching behaviors and reflective practices over a period of time in the practicum comparing students participating in TeachLivE™ versus another treatment. If a randomized group design were utilized it would be necessary to ensure trained observers were conducting observations of participants in multiple settings to ensure observers were blind to which treatment each participant was receiving. This potential limitation could be resolved through organization and scheduling of trained observers and data collectors.

Future Research Recommendations

Researchers of teacher education would benefit from continuing to research tools and frameworks focused not on theory, but strictly on observable teacher behaviors to evaluate tools such as TeachLivE™ used in higher education to teach and train explicit
teaching behaviors. Teacher educators should be cautious when designing observation tools for treatments such as TeachLivE™ as an intervention to be sure each indicator is explicitly observable. Continued research on additional teacher behaviors impacted by TeachLivE™ would further develop the breadth of the technology as a teaching tool. It would be interesting for teacher educators to study high-leverage behaviors from the University of Michigan and Teaching Works (Ball and Forzani, 2011) as potential indicators within an observation tool with treatment of TeachLivE™. Teacher educators and researchers alike would benefit from study of maintenance of skills taught, observed, and mastered by pre-service students TeachLivE™ and the presence or absence of skills over time in an internship or in-service position.

TeachLivE™ is impactful on pre-service special education students’ teaching effectiveness and reflective practice. As teacher educators we must increase the amount of opportunities we provide pre-service student teachers with to implement and attempt the teaching behaviors and skills we bestow upon them and TeachLivE™ is an engaging technology to support this effort. At this time ten universities throughout the United States are partnering with UCF to utilize TeachLivE™ with pre-service and in-service teachers. WMU is one of those universities and it is up to the faculty with access to this teaching tool to use it. Teacher educators at WMU can review their course work and determine where practice is needed and embed TeachLivE™ to strengthen students’ practice towards targeted goals and objectives. Researchers of teacher education, specifically at WMU and other nine university beta-sites throughout the nation privileged with TeachLivE™ must continue to establish a research-based around the mixed reality
environment and support one another in establishing its strengths and weaknesses. Based on the results of this dissertation study, all teacher educators must consider how to embed additional meaningful, immediate feedback into their course work and practicum experiences. We must also analyze as teacher educators the practices we providing student teachers to reflect on their own work. Data from this study clearly suggests ongoing feedback and reflection does change students’ self-reflections over time and in a way that aligns their thinking to the standards and tools used to measure their effectiveness.

Over fifty million students attend school daily in our nation. It is the responsibility of the classroom teacher to prepare each of these young minds to be an active member of their future local and global economy. It is the joint responsibility of the aspiring teacher and the program they have enrolled in to become prepared to effectively teach the students who they will instruct for more than one thousand waking minutes each year. The responsibilities of the teacher are great. Therefore, the responsibilities of the teacher education programs preparing pre-service teachers and evaluation systems monitoring in-service teachers are also great. Results from this dissertation study support the use of TeachLivE™ as an exciting and engaging answer to the greater question of how to develop and support quality teachers.
REFERENCES


Kane, T. J. & Staiger, D. O. (2012). Gathering feedback for teaching: Combining high-quality observations with student surveys and achievement gains. Seattle, WA:


Appendix A

Human Subjects Institutional Review Board Letter of Approval
Date: February 16, 2012

To: Elizabeth Whitten, Principal Investigator
    April Enicks, Student Investigator

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number 12-02-20

This letter will serve as confirmation that your research project titled “Using TeachLIVE® to Improve Pre-Service Special Education Teacher Practices” has been reviewed under the exempt category of review by the Human Subjects Institutional Review Board.

Before final approval can be given please address each of the following concerns. We expect that you will find the revisions requests to be productive and that you will revise your protocol according to our suggestions or in similar ways. If you think a particular revision is not in the best interest of the human subjects in your study, or you think an entirely different approach to the issue is best, please provide a written explanation and/or call us for consultation.

1. Consent Document:
   • Who can participate in this study?
     o Please change “anonymously return signed consents” to read “return signed consent.”

   In a cover letter to the HSIRB, indicate whether you have made the requested change; addressed the issue in a different way than the one the reviewers suggested; are directing the reviewers to the pages in your protocol that address the issue; or are providing a justification for not making the requested change.

   Please submit your cover letter and one copy of the revised protocol with the changes highlighted within the document to the HSIRB, 251 W Walwood Hall (East Campus). Remember to include the HSIRB project number (above).

Conducting this research without final approval from the HSIRB is a violation of university policy as well as state and federal regulations.

If there is anything you don’t understand about these comments, you are welcome to call the research compliance coordinator (387-8293) for consultation.
Appendix B

Madeline Hunter Lesson Plan Format
Lesson Plan

Unit of Study:  
Concept or skill to be taught:

Lesson Goal:  
State Standard:

Lesson Objectives:  
Accommodations:

<table>
<thead>
<tr>
<th>Sequence of Plan</th>
<th>Time (approx.)</th>
<th>Modality (visual, auditory, tactile, motor)</th>
<th>Grouping Pattern (1-1, 2’s, 3-5, 2-3 groups, whole group)</th>
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<tbody>
<tr>
<td>Anticipatory Set:</td>
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<td>Instruction:</td>
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<td>Guided Practice (Modeling):</td>
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<td>Independent Practice:</td>
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<td>Closure:</td>
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Evaluation to be accomplished by:

Materials Needed:

Reference(s):
Appendix C

Example of Student Pre and Post Reflection Form
Read each question. Evaluate your teaching based on the following scale:

<table>
<thead>
<tr>
<th>Meets Expectations (ME)</th>
<th>Progressing Towards Expectations (PTE)</th>
<th>Focus Attention Needed (FAN)</th>
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<tr>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>Not Present</td>
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</table>

Very good     Good     Average   Poor     Very Poor

**Planning**

24. Provides access to the general education curriculum by successfully aligning IEP objectives or State Standards with instruction and assessment.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
```


```
| 5 | 4 | 3 | 2 | 1 | 0 |
```

26. Plans for student diversity through differentiation of individual needs.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
```

**Conducting Lessons**

27. Gains student attention prior to instruction.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
```

28. At the beginning of the lesson, incorporates preview and review, connects new learning to previous learning, and connects use of learning strategies to content to be learned and students’ previous learning.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
```

29. Demonstrates congruence between the lesson plan and instruction while incorporating student responses to the lesson.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
```

30. Effectively uses technology and adaptive/assistive technology in the lesson.

```
| 5 | 4 | 3 | 2 | 1 | 0 |
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31. Provides explicit reinforcement to student responses.

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32. Effectively paces instruction.

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33. Provides opportunities for student responses.

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34. Correctly uses a variety of research-based instructional strategies (direct instruction, strategy instruction, systematic prompting task analysis, and multiple flexible grouping structures).

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35. Maintains active student engagement through meaningful and motivating lessons.

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36. Gives correct curriculum content while teaching.

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**Assessment**

37. Embeds authentic assessment in lessons including on-going progress monitoring.

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38. Provides immediate and appropriate correction to student errors and adjusts instruction accordingly (telling, showing, demonstrating correct answer).

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**Classroom Ecology and Behavior**

39. Work area is clean and well organized.

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40. Provides consistent routines and procedures for managing all class activities.

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<td>0</td>
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</tbody>
</table>
41. Facilitates positive social interactions among students within the learning community.

| 5 | 4 | 3 | 2 | 1 | 0 |

42. Provides manageable positive behavior supports for all students, consistently applies rules and consequences, and models and reinforces appropriate behavior at all times.

| 5 | 4 | 3 | 2 | 1 | 0 |

**Collaboration**

43. Effectively manages para professionals and other support staff so that they are effectively involved in meaningful instruction.

| 5 | 4 | 3 | 2 | 1 | 0 |

44. As evidenced through planning, implements co-teaching models where appropriate (co-teaching models: complementary teaching, station teaching, parallel teaching, alternative teaching, shared teaching with multiple flexible groups).

| 5 | 4 | 3 | 2 | 1 | 0 |

**Professionalism**

45. Communication, both written and oral, is clear, concise and grammatically accurate.

| 5 | 4 | 3 | 2 | 1 | 0 |

46. Overall appearance and attitude (dress, comments, body language) are positive and indicates respect for students, parents, and colleagues.

| 5 | 4 | 3 | 2 | 1 | 0 |
Appendix D

Assessing Teacher Effectiveness Observation Tool
Student Name: ___________________________ Course: SPED 4040

Observation Date: ____________ Observation #______ Observer Name: ______________________

<table>
<thead>
<tr>
<th>Meets Expectations (ME)</th>
<th>Progressing Towards Expectations (PTE)</th>
<th>Focus Attention Needed (FAN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 4</td>
<td>3 2</td>
<td>1 0</td>
</tr>
</tbody>
</table>

| Very good | Good | Average | Poor | Very Poor | Not Present |

Total Points:

Comments:
### Planning

2. Provides access to the general education curriculum by successfully aligning IEP objectives or State Standards with instruction and assessment. (CEC 7)

<table>
<thead>
<tr>
<th>5</th>
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<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• IEP Objectives or State Standards listed and embedded in the lesson.</td>
<td>• Objectives or State Standards listed but not embedded in the lesson.</td>
<td>• Objectives or State Standards not listed.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

3. Develops lesson plan using research-based strategies (Universal Design, Concept Mapping, Differentiated Instruction, Multi-level Curriculum). (CEC 7)

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<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lesson plan has stated goals and objectives</td>
<td>• Lesson plan has stated goals and objectives • Limited or no indications that research based strategies were used to develop the plan.</td>
<td>• No lesson plan present, or lesson plan refers only to page numbers or chapters from books.</td>
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</table>

4. Plans for student diversity through differentiation of individual needs. (CEC 3, 7))

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<tr>
<th>5</th>
<th>4</th>
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<th>2</th>
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<th>0</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differentiation using assistive technology, accommodations, and modification are incorporated throughout the lesson plan including instruction and assignment completion.</td>
<td>Differentiation in the areas of assistive technology, accommodation, and modifications are incorporated only for assignment completion.</td>
<td>No differentiation is listed or applied.</td>
<td></td>
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</tbody>
</table>
### Conducting Lessons

#### 5. Gains student attention prior to instruction. (CEC 5)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Comments</th>
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</table>
| 5 | Prior to lesson introduction, student attention is obtained and clear expectations are established.  
  - Teacher shows warmth, caring, respect, and fairness for all students  
  - Teacher builds strong relationships.  
  - Teacher is direct, specific, consistent, and tenacious in communicating and enforcing very high expectations. |
| 4 | Prior to lesson, introduction some student attention is obtained and expectations are unclear.  
  - Teacher is fair and respectful toward students  
  - Teacher builds positive relationships  
  - Teacher clearly communicates and consistently enforces high expectations for student behavior. |
| 3 | Lesson introduction begins without gaining student attention and minimal or no expectations are established.  
  - Teacher is fair and respectful toward most students and builds positive relationships with some students.  
  - Teacher refers to expectations throughout the lesson only when students are acting out. |
| 2 | |
| 1 | |
| 0 | |

#### 6. At the beginning of the lesson, incorporates preview and review, connects new learning to previous learning, and connects use of learning strategies to content to be learned and students’ previous learning. (CEC 3, 5)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Comments</th>
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</table>
| 5 | Provides preview and review and connects new learning to previous learning or learning strategies to the content to be learned.  
  - Teacher reviews previous learning and |
| 4 | Provides preview and review but only minimally connects new learning to previous learning or learning strategies to the content to be learned.  
  - Teacher reviews previous learning but does not check for |
| 3 | |
| 2 | |
| 1 | |
| 0 | |

NA Comments
students show understanding and ability to build on previous concepts.

| students show understanding and ability to build on previous concepts. | understanding. | provides an opening activity but it does not relate to the lesson objective or make any connection. |

7. **Demonstrates congruence between the lesson plan and instruction while incorporating student responses to the lesson.** (CEC 3, 4, 5)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Lesson is implemented according to plan and instruction adjusted based on student responses. Includes:  
  • Adjusting for student errors  
  • Augmenting instruction to insure student understanding  
  • Providing enrichment activities.  
  • Teacher directions are explicit and individualized based on student needs. | Lesson is implemented according to plan.  
  • There is minimal reaction to student responses or adjustment to instruction based on those responses.  
  • Teacher directions are clear and detailed instructions but not individualized. | Implementation of the lesson does not follow the lesson plan or is only tangentially related to it.  
  • There is little if any reaction to student responses and no adjustment of instruction based on those responses.  
  • Teacher directions are simple and ambiguous. |

8. **Effectively uses technology and adaptive/assistive technology in the lesson.** (CEC 4)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Technology is integrated into the lesson  
  • Teachers use technology during the lesson, or technology is used | Technology is integrated into the lesson, but at the surface level. | Technology is not used during the lesson, or technology is used |
| Technology for enhancing student learning and assignment completion | • Used by teacher or students but not both. | as an add-on to the lesson. |

9. Provides explicit reinforcement to student responses. (CEC 4, 5)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinforces desirable student behavior 4 positives to 1 negative. • Reinforcement is connected to a specific behavior. • Teacher provides feedback in a firm, quick, and positive manner.</td>
<td>Reinforces desirable student behavior below a 4:1 positive to negative ratio but does have more positive to negative statements to student responses • Reinforcement needs to be connected to a specific behavior. • Teacher feedback and corrections are present but often too much time is spent on a few students.</td>
<td>Does not provide reinforcement for student behavior at the desired rate • Used more negative than positive statements to student responses. • Teacher feedback and corrections are present but not always presented in a positive manner.</td>
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</tbody>
</table>
| Consistently maintains an effective pace of instruction.  
• Teacher uses coherence, lesson momentum, and silky-smooth transitions to get the most out of every minute.  
• At end of lesson teacher answers all remaining questions, reviews today’s lesson, assigns homework, and previews next day’s lesson. | Typically adjusts pace of instruction to maintain student attention.  
• Teacher maximizes academic time through coherence, lesson momentum, and smooth transitions.  
• At end of lesson teacher offers some closure and answers some questions or reviews today’s lesson or preview next day’s lesson. | Pace of instruction is too fast or too slow.  
• Teacher sometimes loses teaching time due to lack of clarity, interruptions, and inefficient transitions.  
• Teacher ends lesson with no review, preview, or closure. | |

11. **Provides opportunities for student responses. (CEC,4)**

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<th>Comments</th>
</tr>
</thead>
</table>
| Provides 6-8 opportunities for students to respond per min.  
• Teacher asks a large number of high level | Provides 4-6 opportunities for students to respond per min.  
• Teacher asks a large number of questions and checks for | Provides 0-3 opportunities for students to respond per min.  
• Teacher asks few questions and does | |
and low level questions and checks for individual student understanding.

- Teacher asks all students to explain what they learned.
- Teacher checks responses of all students throughout the duration of the lesson and documents responses.

<table>
<thead>
<tr>
<th>student understanding.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher asks some students to explain what they learned.</td>
</tr>
<tr>
<td>Teacher checks responses of all students 1-2 times throughout the lesson.</td>
</tr>
</tbody>
</table>

little to no checking for understanding.

- Teacher does not ask students to explain what they learned.
- Teacher does not check responses of all students.

12. Correctly uses a variety of research-based instructional strategies (direct instruction, strategy instruction, systematic prompting task analysis, and multiple flexible grouping structures). (CEC 4)

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<th>N/A</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Demonstrates effective implementation of at least four research-based strategies.</td>
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<tr>
<td>• There is a balance in the use of a variety of flexible grouping</td>
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<tr>
<td>Demonstrates effective implementation of at least two research-based strategies.</td>
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<td>• There is a balance between whole class/independent work and student</td>
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<tr>
<td>Does not use research-based strategies effectively.</td>
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<tr>
<td>• Does not involve the students in active, hands on learning</td>
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<tr>
<td>• Instruction is predominantly whole class and</td>
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</table>
strategies. collaborative or cooperative groups. independent work.

13. Maintains active student engagement through meaningful and motivating lessons. (CEC 4, 5)

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<tr>
<th>5</th>
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<th>N/A</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Actively engages the students in the learning process by weaving the sharing of information with meaningful activities 80% of the time.</td>
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<tr>
<td>- Teacher provides a high level of active practice for all students at their ability levels.</td>
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<tr>
<td>- Teacher is animated and enthusiastic.</td>
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<tr>
<td>- Teacher directions are explicit and individualized based on student needs.</td>
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<tr>
<td>- Teacher presents new material in a step-by-step manner.</td>
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<tr>
<td>Shares information with the students and then engages them in meaningful activities 60-79% of the time.</td>
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<tr>
<td>- Teacher provides a high level of active practice for all students.</td>
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<tr>
<td>- Teacher directions are clear and give detailed instructions.</td>
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<tr>
<td>- Teacher presents new material in some steps with some practice following these steps.</td>
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<tr>
<td>- Teacher provides some examples in the lesson.</td>
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<tr>
<td>Lectures or reads from the teacher’s manual, engages the students less than 59% of the time.</td>
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<tr>
<td>- Students remain passive recipients of teacher information.</td>
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<tr>
<td>- Teacher provides low levels of practice for all students.</td>
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<tr>
<td>- Teacher directions are simple and ambiguous.</td>
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<tr>
<td>- Teacher presents new material to students all at one time with no practice for students.</td>
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<tr>
<td>- Teacher provides 1-2 examples throughout the lesson or no examples to support student understanding.</td>
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</tbody>
</table>

102
**step process at differentiated levels allowing for student practice.**
- Teacher provides connected examples that are relevant to individual students.

| 14. Gives correct curriculum content while teaching. (CEC 1, 7) |
|---|---|---|---|---|---|---|
| 5 | 4 | 3 | 2 | 1 | 0 | N/A | Comments |
| Presents curriculum content with fidelity. | Teacher hesitates and needs to constantly refer to curriculum materials in order to present the content with fidelity. | Is unable to present content with fidelity. | |

***Assessment***

15. Embeds authentic assessment in lessons including on-going progress monitoring. (CEC 8)

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<th>Comments</th>
</tr>
</thead>
</table>
| Uses multiple assessments, including authentic assessments to adjust instruction and determine student learning.  
- Systematically monitors progress.  
- Teacher asks all students to explain what they learned.  
- Teacher checks responses of all students throughout | Uses a form of authentic assessment to determine student errors and correct responses and adjusts the lesson accordingly.  
- Has inconsistent progress monitoring.  
- Teacher | Relies on end of lesson or unit test to assess learners, has not established progress monitoring.  
- Teacher does not ask students to explain |
the duration of the lesson and documents responses.

asks some students to explain what they learned.
- Teacher checks responses of all students 1-2 times throughout the lesson.

what they learned.
- Teacher checks responses of all students throughout the duration of the lesson and documents responses.

16. Provides immediate and appropriate correction to student errors and adjusts instruction accordingly (telling, showing, demonstrating correct answer).  (CEC 4, 8)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Adjusts instruction to include a formal error correction procedure to insure correct student understanding before moving on.  
  - Provides prompts, cues that are specific, informative and focused on the correct response(s).  
  - Teacher thinks aloud and provides | Inconsistent error correction, prompts, cues are not specific or informative and focused on the correct response(s).  
  - Teacher thinks aloud and models steps with some variation but does not meet the individual needs of all students.  
  - Teacher feedback and corrections are present but often too | Does not stop or alter lesson when students make errors.  
  - Teacher provides some thinking aloud and modeling of steps in the same manner for all students.  
  - Teacher feedback and corrections are present but not always |
models in steps of worked-out problems in a variety of ways to meet student needs.
- Teacher provides feedback in a firm, quick, and positive manner.
- Teacher uses time to provide explanations throughout lesson based on student responses.
- Teacher re-teaches material based on student understanding.

much time is spent on a few students.
- Teacher uses some time to provide explanations in the lesson.
- Teacher re-teaches when asked to by a student.

presented in a positive manner.
- Teacher provides 1-2 additional explanations or does not provide any additional explanations.
- Does not reteach any material throughout lesson.

*** Classroom Ecology and Behavior ***

17. Work area is clean and well organized. (CEC, 5)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional area is uncluttered and organized.</td>
<td>Instructional area is uncluttered and organized</td>
<td>Instructional is cluttered and disorganized.</td>
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<tr>
<td>• Materials for student use</td>
<td>• Materials for student use</td>
<td>• Materials for students are</td>
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</tbody>
</table>
are readily available and student desks are arranged in a manner conducive to learning.

- There are clear pathways to and from vital areas in the room and teacher can see all students at all times.

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<tbody>
<tr>
<td></td>
<td>are readily available, but student desks are not arranged in a manner conducive to learning.</td>
<td>not readily available, desks are not arranged in a manner conducive to learning,</td>
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<tr>
<td></td>
<td>• Classroom rules and consequences are not posted.</td>
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</table>

18. Provides consistent routines and procedures for managing all class activities. (CEC 4, 5, 7)

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<tbody>
<tr>
<td>Consistent routines and procedures are posted and evident.</td>
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<tr>
<td>• Routines and procedures flow smoothly.</td>
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<tr>
<td>• Students clearly know what to do.</td>
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<tr>
<td>• Teacher only intermittently has to intervene and redirect students.</td>
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<tr>
<td>• Students respond immediately to teacher.</td>
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<tr>
<td>• Classroom rules are posted.</td>
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<tr>
<td>Consistent routines and procedures are posted and evident.</td>
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<tr>
<td>• Routines and procedures flow smoothly.</td>
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<tr>
<td>• Students clearly know what to do, however, the teacher still has to monitor and re-direct students on a regular basis.</td>
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<tr>
<td>• Classroom rules are posted.</td>
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<tr>
<td>• Teacher reviews a brief agenda or addresses</td>
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<tr>
<td>Consistent routines and procedures are not posted or evident; students clearly do not know expectations or how to follow through.</td>
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<tr>
<td>• Classroom rules are not posted.</td>
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<tr>
<td>• Teacher refers to student homework or outcomes that relates to the lesson being taught but with little detail.</td>
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</table>
• Teacher clearly provides an agenda for the lesson and addresses expected student outcomes but without detail.
• Students still need to ask for clarification.

19. Facilitates positive social interactions among students within the learning community. (CEC 2, 5)

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<th>Comments</th>
</tr>
</thead>
</table>
| Teacher promotes positive student-to-student interactions.  
  • Teacher rarely has to intervene to re-direct students.  
  • Teacher shows warmth, caring, respect, and fairness for all students and builds strong relationships. | Most of the student-to-student interactions are positive and show respect.  
  • Teacher has attempted to establish a positive learning community.  
  • Teacher frequently has to intervene to re-direct students.  
  • Teacher is fair and respectful toward students and builds positive relationships. | Teacher fails to intervene when there are negative student-to-student interactions.  
  • Teacher is fair and respectful toward most students and builds positive relationships with some students. |

20. Provides manageable positive behavior supports for all students, consistently applies rules and consequences, and models and reinforces appropriate behavior at all times. (CEC 2, 3, 5, 7)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Consistently reinforces appropriate behavior and explicitly describes what the student is doing that | Typically reinforces appropriate behavior. Classroom ecology is conducive to appropriate behavior. Provides limited | Relies on punishment to control classroom behavior.  
  • No rules or consequences |

107
<table>
<thead>
<tr>
<th>merited the reinforcement.</th>
<th>reinforcement.</th>
<th>posted.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Rules are stated, consistently and fairly followed.</td>
<td>• Rules and consequences are posted and followed.</td>
<td>• Tone of voice and body language are harsh and indicate lack of respect for students.</td>
</tr>
<tr>
<td>• Students with problem behaviors have written positive behavior support plans.</td>
<td>• Corrective action with students is more consistent and fair.</td>
<td>• Corrective action with students is arbitrary and inconsistent.</td>
</tr>
<tr>
<td>• Teacher “sets up” students for appropriate behavior through the use of systematic prompting procedures.</td>
<td>• Tone of voice and body language show respect for students.</td>
<td>• Uses too many rule reminders, does not use low level interventions,</td>
</tr>
<tr>
<td>• Tone of voice and body show respect for students.</td>
<td>• Circulates and maintains good proximity to all students, but especially those with problem behaviors.</td>
<td>• Ratio of positive to negative interactions with students is less than 1:1 (more negative than positive).</td>
</tr>
<tr>
<td>• Circulates and maintains good proximity to all students, but especially those with problem behaviors.</td>
<td>• There is no consistency in providing reinforcers for appropriate behavior and does not explicitly describe what the student is doing that merited the reinforcement.</td>
<td>• Teacher is fair and respectful toward most students and builds positive relationships with some students.</td>
</tr>
<tr>
<td>• Uses least intrusive, low level interventions</td>
<td>• Uses more restrictive, higher level interventions</td>
<td>• Teacher refers to expectations throughout the lesson only when students are</td>
</tr>
</tbody>
</table>
- Ratio of positive to negative interactions with students is 4 to 1 using time sampling.
- Teacher is direct, specific, consistent, and tenacious in communicating and enforcing very high expectations.

- Ratio of positive to negative interactions with students is 1:1 using time sampling.
- Teacher is fair and respectful toward students and builds positive relationships.
- Teacher clearly communicates and consistently enforces high expectations for student behavior.

*** Collaboration ***

21. Effectively manages para professionals and other support staff so that they are effectively involved in meaningful instruction. (CEC 10)

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<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para professionals spend all their time on instructional tasks and interactions with the students. Related services personnel are also working with other students along with the targeted student in an integrated fashion.</td>
<td>Para professionals spend the majority of their time on instructional tasks and interactions with students. Related services personnel are working with the student in an integrated fashion within the curriculum.</td>
<td>Para professionals spend the majority of their time talking or working on non-instructional tasks such as bulletin boards, cleaning, filing, or other paper work.</td>
<td>Teacher stops</td>
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</table>
within the curriculum.

- In general education settings the para professional works collaboratively with both the general and special education teachers in teaching all students in multiple flexible groups.

- Teacher models appropriate instructional and behavior management strategies.

- All staff handle transitions smoothly without additional instructions being needed.

- Does not provide clear direction for transitions.

22. As evidenced through planning, implements co-teaching models where appropriate (co-teaching models: complementary teaching, station teaching, parallel teaching, alternative teaching, shared teaching with multiple flexible groups. (CEC 4, 7, 10)

<table>
<thead>
<tr>
<th>Plans for collaborative teaching as indicated by the details in the lesson plan. Co-teaching is aligned with lesson objective(s) and the model(s) selected connect to the learning objective(s).</th>
<th>Plans for collaborating with other professionals but details are not clearly outlined in the lesson plan. Co-teaching is inconsistently aligned with the lesson objectives and the model(s) selected are inconsistently connected to the learning objective(s).</th>
<th>Does not use collaborative teaching. Co-teaching is not aligned with lesson objective(s) and the model(s) selected are not connected to the learning objective(s).</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
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</tbody>
</table>

23.
### Professionalism

24. Communication, both written and oral, is clear, concise and grammatically accurate. (CEC 9)

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written and oral communication are free of errors and consistently conveyed in a clear fashion.</td>
<td>Written and oral communication contains occasional errors of structure and syntax, an occasional spelling error is noted in written work and message is typically clearly conveyed.</td>
<td>Written and oral communication is frequently incorrect in terms of basic structure and syntax, multiple spelling errors are noted in written work and the message is not clearly conveyed.</td>
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</tbody>
</table>

25. Overall appearance and attitude (dress, comments, body language) are positive and indicates respect for students, parents, and colleagues. (CEC 9)

<table>
<thead>
<tr>
<th>5</th>
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<th>3</th>
<th>2</th>
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<th>0</th>
<th>N/A</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Clothing is neat, clean and appropriate. Body language is positive and indicates not only respect for students and colleagues but also pride in the profession.  
  - Verbal language is not only free of ridicule and sarcasm but also shows enthusiasm for both teaching and the subject. | Clothing is neat, clean and appropriate. Body language is positive and shows respect for students, parents and colleagues.  
  - Verbal language is free of ridicule and sarcasm. | Teacher uses sarcastic language or language that ridicules students or colleagues.  
  - Clothing is dirty, disheveled, not neat and or inappropriate for the classroom.  
  - Teacher’s affect demonstrates no enthusiasm for either teaching or the subject. | |
| matter and respect for students, parents and colleagues | matter or respect for students, parents or colleagues. |   |   |