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The Perception of Pacing in Music Classrooms and Its Relationship to Teacher Effectiveness and Teacher Intensity

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THE PERCEPTION OF PACING IN MUSIC CLASSROOMS AND ITS RELATIONSHIP TO TEACHER EFFECTIVENESS AND TEACHER INTENSITY

By

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I dedicate this dissertation to my loving wife, Robin, for her tireless support throughout this process. She is at once my best friend and my loving companion through life. From the very beginning, she has been my source of inspiration, perseverance, and steadfastness. This would not have been possible without her. With eternal gratitude and understanding, I dedicate this dissertation to you, my love.
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# TABLE OF CONTENTS

List of Tables ................................................................................................................................ vii  
List of Figures ................................................................................................................................ viii  
Abstract .......................................................................................................................................... ix  
1. CHAPTER ONE: INTRODUCTION .....................................................................................1  
   BACKGROUND AND IMPORTANCE OF PROJECT .........................................................2  
2. CHAPTER TWO: REVIEW OF LITERATURE ...................................................................5  
   HISTORICAL OVERVIEW ............................................................................................5  
   TEACHER TRAINING .................................................................................................8  
   TEACHER EFFECTIVENESS .......................................................................................12  
   TECHNIQUES FOR EFFECTIVE TEACHING ..........................................................13  
   TRAITS OF EFFECTIVE TEACHERS ........................................................................16  
   TEACHER INTENSITY ...............................................................................................19  
   GENERAL PRINCIPLES OF PACING ........................................................................21  
   PACING IN AN EDUCATIONAL SETTING ...............................................................23  
   EXPECTATION THEORY ............................................................................................25  
   INFORMATION THEORY ..........................................................................................26  
   EVALUATION ............................................................................................................27  
   PACING AND TEACHING .........................................................................................29  
   PACING AND FOCUS OF ATTENTION ......................................................................35  
   STATEMENT OF THE PROBLEM .............................................................................36  
3. CHAPTER THREE: METHOD ............................................................................................38  
   TEACHING STIMULI .................................................................................................38  
   STIMULUS CREATION ...............................................................................................40  
   INDEPENDENT VARIABLE: PACING LAPSES .......................................................40  
   IMPLEMENTATION OF THE INDEPENDENT VARIABLE ........................................43  
   INDEPENDENT VARIABLE: CONSTRUCTS ............................................................44  
   PILOT STUDY 1 .........................................................................................................44  
   PILOT STUDY 2 .........................................................................................................45  
   PARTICIPANTS ..........................................................................................................46  
   DEPENDENT MEASURE: CONTINUOUS RESPONSE DIGITAL INTERFACE ........46  
   MATERIALS ..............................................................................................................48  
   DESIGN ......................................................................................................................49  
   PROCEDURES ............................................................................................................50  
4. CHAPTER FOUR: RESULTS ..............................................................................................53  
   GRAPHIC ANALYSIS ...............................................................................................53  
   STATISTICAL ANALYSIS .........................................................................................62  
   ANOMALOUS DATA ..................................................................................................73  
   RESPONSE FORM DATA ..........................................................................................74
LIST OF TABLES

3.1 Location, Duration, and Description of Pacing Lapses in Stimulus Video...........................42
4.1 Five Lowest-Rated Pacing Lapses across Groups ...................................................................57
4.2 Five Highest-Rated Moments across Groups .........................................................................60
4.3 Approximate Time Spent above and below the Neutral CRDI Position ...............................61
4.4 Time Spent On- and Off-Task by the Teacher in the Stimulus Video .................................61
4.5 Pearson Product-Moment Correlation Coefficients among the
    Four Dependent Variables .....................................................................................................62
4.6 Peak and Nadir Deviations from the Aggregate Mean for the
    Teacher Effectiveness Group .................................................................................................64
4.7 Peak and Nadir Deviations from the Aggregate Mean for the
    Teacher Intensity Group .......................................................................................................65
4.8 Peak and Nadir Deviations from the Aggregate Mean for the
    Teacher Pacing Group ...........................................................................................................66
4.9 Peak and Nadir Deviations from the Aggregate Mean for the Control Group .....................67
4.10 Analysis of Variance Data ....................................................................................................69
4.11 Multiple Comparisons of Peaks and Nadirs of Selected Events ....................................70
4.12 Means, Standard Deviations, and Skewness of Summative Construct Ratings by Group....75
LIST OF FIGURES

2.1 Temporal diagram of Huron’s (2006) ITPRA theory .................................................................26
3.1 Photograph of the Continuous Response Digital Interface ...................................................47
3.2 Continuous Response Digital Interface Overlay ...................................................................48
3.3 Physical Layout of the Research Lab ....................................................................................51
4.1 Graph of Composite Means for all Groups across Time .......................................................54
4.2 Mean Teacher Effectiveness Ratings and Standard Deviations across Time .......................55
4.3 Mean Teacher Intensity Ratings and Standard Deviations across Time ..............................55
4.4 Mean Teacher Pacing Ratings and Standard Deviations across Time ...............................56
4.5 Mean Control Group Ratings and Standard Deviations across Time ...............................56
4.6 Graph of Composite Means with Peaks and Nadirs for between-Group Comparisons .........68
4.7 Graph of Composite Means with Unexpected and Anomalous Results .............................73
ABSTRACT

The purpose of this study was to investigate the construct of pacing within the larger construct of teacher intensity. Specifically, this study attempted to determine the relationship between pacing and teacher effectiveness, and between pacing and teacher intensity in the context of a realistic teaching situation. This study also provided an operational definition for the previously ill-defined concept of effective pacing. A series of pacing lapses were devised and implemented to measure their effects on observers’ ratings of teacher effectiveness, teacher intensity, teacher pacing, and general perceptions. The pacing lapses were categorized as speech, velocity, movement, administrative, and technology pacing lapses. A scripted stimulus video was created in which the teacher demonstrated pre-defined pacing lapses in a counterbalanced order. Participants (N = 164) were college students attending a large comprehensive university in the Southeastern United States. They were randomly assigned to one of four groups (n = 41) to evaluate ongoing teacher effectiveness, teacher intensity, teacher pacing, or general perceptions (control group). Participants evaluated the teacher on their assigned construct using both continuous (Continuous Response Digital Interface) and summative measures (Likert-type scale).

Results showed that the three constructs have strong positive linear correlations with each other. Results of the graphic data obtained from the Continuous Response Digital Interface (CRDI) indicated that ratings from the four groups were similar in contour, indicating distinct high and low points on the graph representing “good” and “bad” moments during the teaching demonstration. There were no differences in summative measures among the groups. Participants recognized intended pacing lapses, and responded similarly to them. It was revealed, however, that the pacing group evidenced a greater response magnitude than the other three groups (effectiveness, intensity, control). The aggregate arithmetic mean CRDI ratings also revealed that the pacing group had the highest aggregate mean rating, thus suggesting that participants in the pacing group may have been reacting differently to some aspect of the teaching demonstration compared to the other groups. Examination of ratings of pacing lapses revealed that no one particular type of pacing lapse was viewed more or less severely than another. There was also a
moderate inverse correlation between pacing lapse duration and group CRDI ratings. Unexpected anomalous data are also discussed.

Results demonstrated that, consistent with previous research, individuals reacted more strongly to negative teaching moments than positive teaching moments. This manifested itself both in the continuous measure (CRDI) and the summative measure (Likert-type scale). Despite spending the majority of the time on-task (75%), the highest mean summative Likert rating was lower than 6 (on a 1–10 scale). It is hypothesized that a good measure of teaching might not be duration of teacher on-task time, but magnitude of observer responses. Thus, suggesting that even short instances of teacher off-task behavior can outweigh a predominantly on-task lesson. Results also support existing research suggesting large-scale agreement regarding ineffective teaching; however, agreement regarding effective teaching is less consistent. Although there were small differences in the pacing group’s ratings, it appears that all participants in all four groups were rating some global aspect of teacher effectiveness despite their group membership (effectiveness, intensity, pacing, control). Results are discussed in the context of practical significance, and suggestions for future research are provided.
CHAPTER ONE

INTRODUCTION

It has been said that human beings are not accurate timekeepers, and that humans have difficulty telling time (Madsen, 2010). Regardless, it seems that the entirety of one’s life is organized as a series of events existing through time. A debate continues, however, regarding the relationship between “instants” and “events” related to time. Does the instant 1:30 PM exist independently of the events that occur within it (Dowden, 2001)? While absolute theorists would answer “yes” to the previous question, relational theorists would answer “no.” Arguing the relationalist position, Aristotle (1970) posited that time does not exist without change, and “we apprehend time only when we have marked motion…[Time is] the number of motions in respect to ‘before’ and ‘after’” (cited in Madsen, 2010, p. 121). However, many prominent philosophers like Newton and Kant supported the absolutist position. Additionally, a debate ensues regarding the flow of time. Although the philosophical underpinnings of time are beyond the scope of this paper, a brief examination of perception of time seems warranted.

Although humans can move in any direction in space, it would appear that we can only move in one direction in time. According to Dowden (2001), there are two categories of theories of time’s flow, the “myth-of-passage theory” and the “dynamic theory” of time. Regarding the former, this theory states that the flow of time is simply an illusion seemingly validated by the human mind, which causes us to believe that we are experiencing a flow of time. However, according to this theory, the flow is not objective. Alternately, dynamic theory implies that time’s flow is a matter of events changing from being indeterminate in the future to being determinate in the present and past. Time’s flow is really events becoming determinate, so dynamic theorists speak of time’s flow as “temporal becoming” (Dowden, 2001). Supporting this position, McTaggart (1968) suggested that the flow is a matter of events changing from being future, to being present, to being past. It would seem that time’s flow is related both to so-called clock time and one’s perception of it in a more phenomenological sense (Madsen, 2010). This relationship between the perception of time and life’s events is evident in a number of areas.

The cliché, “timing is everything” implies the significance of time, and how humans interact in the events within that time. It is generally accepted that the best comedians are said to
have “good timing,” suggesting that they know how to manipulate their comedic material across time to maximize laughter. In sporting events, many of the “best athletes” exhibit a keen understanding of timing. For example, the all-star baseball player knows precisely when to swing the bat to make contact with the baseball. Similarly, his counterpart on the pitcher’s mound is making every attempt to confound the batter’s timing by varying the speed (i.e. “change up”) and direction of the pitches to keep the hitter off balance. Furthermore, the pitcher has the ability to control the pace of the game by increasing or decreasing the amount of time between pitches. In this regard, pacing would seem to be a function of activity within time.

In medical applications, pacing can refer to regulating or changing the timing or intensity of cardiac and diaphragmatic contractions. Specifically, these timing and intensity changes refer to transcutaneous pacing (external pacing), transvenous cardiac pacing (endocardial pacing), and diaphragm pacing. These medical applications seem to add credence to the supposition that pacing can be interpreted as a function of movement or intensity across time.

The word “pace” has its origins in Middle English from the Old French word *pas*, a derivative of the Latin *passus*, which means “a step,” and *pandere*, meaning “to stretch the leg.” This etymology of pacing supports its connection with movement. The definitions of pacing encompass a variety of concepts including the speed of one’s gait, a unit of measurement, the rate of speed at which an activity proceeds, a special type of horse gait, and to set or regulate the speed of something. The focus of this document will be on the last definition of pacing, and its relationship to teaching behaviors with respect to teacher training.

**Background and Importance of Project**

The training of effective teachers has been the source of a multitude of research studies over many years. At its core, effective teaching would seem to encompass knowledge of the subject matter and efficient delivery and sequencing of that subject matter (Madsen, 1988). Research studies have examined the effect of teaching behaviors including eye contact, closeness to students, volume and modulation of voice, gestures, facial expressions, and pacing on student performance and student on-task time (Yarbrough, 1975). Researchers have investigated the relationship between effective teaching and sequential patterns of instruction (Price, 1992; Yarbrough & Price, 1989), teacher feedback (Madsen & Duke, 1985), teacher intensity (Byo, 1990; Hancock, 2003; Madsen, Standley, & Cassidy, 1989), delivery and accuracy of instruction...
(Madsen, 2003), time use (Brendell, 1996; Goolsby, 1996) and timing in the classroom (Arlin, 1979; Barr, 1974; Barr, 1975; Carnine, 1976; Hoadley, 2003; Kounin & Doyle, 1975).

Over thirty years of research on effective teaching has suggested that while teaching behaviors can be taught, they are not necessarily additive properties of a singular quality or skill. A major area of focus in effective teaching is the concept of teacher intensity. According to Standley and Madsen (1987), intensity has been defined as sustained control of the student/teacher interaction with efficient, accurate presentation of subject matter combined with enthusiastic affect and effective pacing (cited in Madsen, 1988). Studies have demonstrated that there is a relationship between effective teaching and intensity, and that it can be behaviorally defined and measured (Madsen, 1988). Moreover, intensity contrasts can be taught, and observers can recognize these contrasts (Madsen, Standley, & Cassidy, 1989). While research has suggested that intensity can be maintained for brief periods of time, this skill does not necessarily transfer to other situations or for longer periods of time. Cassidy (1990) examined the effect of intensity training over the course of a semester. She determined that the most effective use of intensity was when the teacher balanced highly intense moments with teacher-controlled “down time.” The results indicated that participants exhibited a lack of transfer, and were unable to generalize skills from one setting to another.

High teacher intensity can affect ratings of teacher effectiveness. Madsen (2003) conducted a study that paired accurate and inaccurate subject matter with high and low intensity behaviors. Surprisingly, even when paired with inaccurate subject matter, the high intensity conditions were rated higher than the low intensity/accurate subject matter condition. While the aforementioned studies have examined presentation of accurate subject matter and enthusiastic affect (intensity), a paucity of research exists with regard to pacing in the music classroom. One of the few research studies to address this topic was conducted by Duke, Prickett, and Jellison (1998). In this article, the authors admitted to the varied definitions of pacing, and suggested that the timing of various instructional events/interactions has not been a primary focus of research in music. Eight 1- to 3-minute teaching excerpts consisting of four slow-paced and four fast-paced sections of a music teaching setting were selected for analysis in this study. These excerpts were rated post hoc using a six dimensional semantic differential scale. Results indicated that the faster paced excerpts were rated higher compared to the slower paced excerpts. The authors concluded, “the perceived pace of instruction in music is proportional to the rate of student
performance opportunities, rather than to the overall percentage of class time devoted to student performance” (p. 278).

Despite the numerous research studies connected with effective teaching and teacher intensity, an operational definition of pacing is conspicuously absent. If “effective pacing” is a component of teacher intensity, then it would seem to be an important task to formulate a definition of this subset of intensity. This persistence with regard to refining lines of research was echoed by Campbell and Stanley (1963):

We must instill in our students the expectation of tedium and disappointment and the duty of thorough persistence, by now so well achieved in the biological and physical sciences. We must expand our students’ vow of poverty to include not only the willingness to accept poverty of finances, but also a poverty of experimental results. (p. 3)

Through continued research, and isolation of specific variables, one approaches findings that may lead to more enlightened discourse. Therefore, the purpose of this study was to examine the relationship between effective teaching, intensity, and pacing. Specifically, is pacing mutually exclusive of these other constructs, or are they interrelated in some way?
CHAPTER TWO

REVIEW OF LITERATURE

This chapter describes literature relevant to research conducted in the field of teacher education and teacher effectiveness. It is organized in 13 sections: (1) historical overview, (2) teacher training, (3) teacher effectiveness, (4) techniques for effective teaching, (5) traits of effective teachers, (6) teacher intensity, (7) general principles of pacing, (8) pacing in an educational setting, (9) expectation theory, (10) information theory, (11) principles of evaluation, (12) pacing and teaching, (13) and pacing in relationship to focus of attention.

Historical Overview

Teachers have a ubiquitous presence throughout much of human history from early Eastern and Greek philosophers to the present. Debates continue regarding the importance of education, and the role of the teacher in classrooms. Additionally, polarizations appear regarding the dichotomous views related to identifying a “good” teacher. On one side of the spectrum, there are those who believe that the craft of teaching, and the skills associated with it can be taught to anyone (Harrison, 2005). An alternate viewpoint suggests that teaching is an innate ability that can be fostered only within a subset of the larger population. Questions arise regarding the science versus the art of teaching. On the “art” end of the continuum, Eisner (1983) stated:

What I do not believe holds promise in education is a prescriptive view of science. I do not believe that with greater specificity or by reducing the whole to its most essential parts we can produce the kind of prescriptions that have made the space shuttle, radar, or laser beam possible. The aspiration to create a prescriptive science of educational practice is, I believe, hopeless. (p. 9)

On the opposite end of the continuum E. L. Thorndike (1912) stated:

Education is the production and prevention of changes. Its facts are a selection from the changes that go on in the world. Science, or knowledge, is reporting the ways of the world, groups all these changes oftenest according to the objects which change. Thus in astronomy it reports the nature and changes of the stars; in chemistry, those of the atoms;
and in biology, those of plants and animals. The objects whose changes we study under education are living animals, usually those of the human species. (p. 2)

Alternately, teaching may in fact be a conglomeration of both art and science. Ornstein (1991) stated, “there is nothing wrong with considering good teaching to be an art, but we must also consider it to lend itself to a prescriptive science or practice” (p. 69). For if teaching were exclusively an art (or innate characteristic), then teacher education programs would find themselves in a rather tenuous position regarding their justification to both the “consumers” of pedagogical techniques, and to the public in general, who fund their existence.

Regardless of one’s viewpoint, questions surrounding teacher preparation and teacher development abound as teacher education programs continue to research and revise curricula to meet the changing demands of American education. Formal education and teaching seem to be the guiding principles through which society’s knowledge is transmitted to its future members (Kelly, 2009). How suggested knowledge is transmitted/taught is as varied as personality characteristics, social traits and behaviors. Certainly, the same debate has occurred in discussions of artistic creation. While some argue that it is intuition rather than knowledge that provides the foundation of artistic creation, others contend that knowledge is that to which one turns when one cannot rely on intuition alone. The contention states that relying on intuition alone allows one’s behaviors to be dictated by unacknowledged social norms or biological predispositions (Huron, 2006). While the aforementioned characteristics of teachers abound, the question still remains, are not teachers more than the sum of their parts?

As early as 1823, one of the first normal schools (a model school that taught rules for teaching) was founded by Samuel Hall in Concord, Vermont. Other such teacher training schools appeared in Lancaster, Massachusetts in 1827, and in Lexington, Massachusetts in 1846 by James Carter and Horace Mann, respectively. While these institutions were primarily concerned with training elementary school teachers, they were nonetheless the starting point for future teacher training institutions and curricula. These early teacher education schools were concerned with promoting American morality, civilizing the West, and promoting skills useful for the American industrial revolution. As the country continued to expand, normal schools continued to grow, and colleges of education began to appear in the early twentieth century (Spring, 2002). With the changing role of the teacher in the American classroom, approaches to teaching and teacher education followed.
Approaches to teaching are as diverse as teacher education programs. According to Fenstermacher and Soltis (1992), three large-scale categories exist within this hierarchy: the executive approach, the therapist approach, and the liberationist approach. In the executive approach, the teacher’s role is that of an executor, a person charged with bringing about certain knowledge, using the best skills and techniques available. This approach provides the teacher with techniques and understandings to use in the management of the classroom and the production of learning. The therapist approach involves the teacher as an empathetic person, who encourages students to reach self-actualization via beliefs espoused in psychotherapy, humanistic psychology, and existential philosophy. Through this process, students are thought to engage in personally meaningful educational experiences. Finally, in the liberationist approach, the teacher is conceived as a liberator to free students’ minds and encourage the development of a well-rounded, freethinking student. While approval and criticism flourish for each of these conceptual models, each encompass specific “teacher behaviors” that are thought to help increase a teacher’s effectiveness.

Research in education suggests that the teacher-student interaction and structuring of content can have major implications on student learning, and hence teacher effectiveness (Doyle, 1986; Doyle, 1991; Fenstermacher & Stolis, 1992). Isolating specific attributes of effective teachers, however, has proven to be a complex issue in the research literature. How to measure teacher effectiveness has also been the subject of numerous studies. While some have suggested that student achievement is a measure of teacher effectiveness (Blair, 1984; Fraser, Walberg, Welch, & Hattie, 1987; Seidel & Shavelson, 2007), others have been reticent to accept this as the sole measure of an effective teacher (Berliner, 1976, Brand, 1985; Brophy & Evertson, 1976; Cangelosi, 1986; Doyle, 1981; Rowan, Correnti, & Miller, 2002; Seidel & Shavelson, 2007). A noted developer of the process-product research in teacher effectiveness, Brophy (2000) recognized that effective teaching focused on variables other than just student learning outcomes. In referring to teacher effects, Brophy (1988) stated:

“Teacher effectiveness” is a broad term that has meaning only in reference to a set of prioritized educational objectives, and most educators would want to consider several other objectives besides achievement-test gain in defining and assessing teacher effectiveness (developing student interest in subject matter, fostering the personal
adjustment and mental health of individual students, developing a prosocial, cooperative
group atmosphere in the class, etc.). (p. 7)

Effective teachers are able to intertwine a supportive classroom climate, and positive student
attitudes toward school, teacher and classmates.

Not only have the results of teaching been studied through the lens of student
achievement, but also student adjustment, student attitudes, students’ socioeconomic status, and
students’ creativity (Ornstein, 1991). Cangelosi (1986) suggested that while student achievement
might seem to be an accurate measure of teacher effectiveness at face value, a milieu of factors
can impact student achievement. For example, prior experiences and learning can impact how
students perform on standardized tests. Cangelosi addressed the concerns of validity in
standardized tests, and their impact on the curriculum in the classroom. As the construct of
effective teaching has developed over the past three decades, so too have teacher assessment
practices (Wayne & Youngs, 2003). These assessment practices have moved from a process-
product approach to a more context-specific approach. As a result, accrediting bodies have
examined teacher education programs, and devised standards regarding curriculum, resources,
and licensure.

Teacher Training

According to the National Center for Education Statistics (2010), in a typical year, an
estimated 6% of the nation’s teachers leave the profession, and more than 7% change schools.
There is also a 20% attrition rate of all newly hired teachers within three years. Furthermore, the
National Center for Education Statistics has projected a 20% increase in new teacher hires
through the year 2018. Moreover, a continuing line of research has suggested that music teacher
attrition and migration (moving from one position/district to another) is not immune from this
phenomenon. Madsen and Hancock (2002) investigated teacher attrition and revealed that there
is a documented attrition rate of 17% within the first 10 years of teaching and 34% after 6
additional years. In a more recent study, Hancock (2008) found that factors affecting teacher
attrition and migration included young age, private school, secondary school, extracurricular
hours, school concerns, administration support, parent support, salary, and satisfaction with
salary. Findings indicated that salary concerns affected decisions to leave the profession, or
migrate to another position in younger teachers (younger than 40 years of age), and that female
teachers and minority teachers were at a higher risk for attrition or migration. Music teachers in
secondary schools were found to be more at risk than at other levels of schooling, and private school teachers were found to be more at risk than public school teachers for attrition and migration. Interestingly, Hancock’s (2008) study revealed that mentoring did not differentiate teachers who were likely to leave the field. Further research (Hancock, 2009) indicated that many teachers who left the profession did so to return to school to continue their own studies (versus retirement or working outside education). There appears to be a demand for teachers that is being fueled by teacher migration and teacher attrition.

Given the aforementioned information, the importance of filling these open positions with new qualified teachers becomes apparent. While the roles of teachers have been varied, from guardian of morality to champions of the global economy, their function in schools has generally been to help a common society evolve from a number of integrated cultures (Kelly, 2009; Spring, 2002). Central to the issue of teacher training is the postsecondary institution conferring professional teaching degrees. In their meta-analysis, Wayne and Youngs (2003) found that there was a positive relationship between college ratings and the student achievement gains. Student achievement gains were higher when students were taught by graduates from highly rated institutions (Barron’s selectivity ratings, Gourman rating) than from lower rated institutions. D’Agostino and Powers (2009) discovered that while teachers’ test scores (i.e. National Teacher Exams, Praxis, etc.) were moderately correlated with teaching competence, performance in teacher preparation programs was a significantly better predictor of teaching skill. They stated, “after reviewing a rather large body of evidence, we discovered that test scores have been less related to teaching performance than students’ success levels in the preservice programs the tests were designed to hold accountable” (p. 165). There appears to be a relationship between teacher education programs, and their effects on student performance. Therefore, it would seem important to have an understanding of the teaching methods and teacher behaviors espoused in teacher education programs.

In its simplest form, learning to teach involves understanding what kinds of behaviors by what kinds of teachers will elicit desired responses and behaviors from students (Wideen, Mayer-Smith, & Moon, 1998). This understanding is manifested in three traditions: the positivist tradition, the progressive tradition, and social critique. The positivist tradition posits that teacher education stems from the cumulative experiences of preservice teachers in their teacher education programs. Thus, it helps, “prospective teachers make a transition to pedagogical
thinking, to thinking about what teachers do in terms of what pupils can and ought to learn” (Feiman-Nemser & Buchmann, 1989, p. 366). In this tradition, the university provides the preservice teacher with the knowledge and skills to be practiced in the schools as the preservice teacher integrates all of the information (Wideen, Mayer-Smith, & Moon, 1998). The progressive tradition focuses on “frameworks that focus more explicitly on what is learned and that specify more fully how that knowledge is acquired” (Carter, 1990, p. 295). The third tradition, social critique, attempts to prepare teachers to deal with diversity in a multicultural society. Regardless of tradition, each preservice teacher brings with them a host of educational experiences and expectations that have been cultivated throughout their lives.

It seems preservice teachers’ beliefs and expectations of teaching can affect their perception of effective teaching and subsequently their success in the field. Pajares (1992) suggested that these beliefs need much deserved attention in order to inform future educational practice. He stated:

There are good reasons why attempting to understand the beliefs of preservice teachers is essential to teacher education. Researchers have demonstrated that beliefs influence knowledge acquisition and interpretation, task definition and selection, interpretation of course content, and comprehension monitoring…Research on the entering beliefs of preservice teachers would provide teacher educators with important information to help determine curricula and program direction. (p. 328)

Research has investigated preservice teachers’ beliefs regarding effective teachers. Weinstein (1990) examined students who had completed an introductory education course and field experience to determine their opinions regarding good teaching. Although results indicated a significant decrease in optimism as subjects moved from the introductory education course to the field experience, subjects continued to be extremely optimistic about their future teaching performance beyond their field experience. Subjects’ definitions of good teaching indicated a strong emphasis of affective and interpersonal skills. These results were consistent with previous research (Feiman-Nemser & Buchmann, 1989) that indicated “good teaching” was related to caring, understanding, warmth, and the ability to relate to children. Metzger and Wu (2008) suggested that the best teachers often share a particular set of values about education, including caring and persistence. In their meta-analysis, they synthesized results from 24 studies related to a teacher selection instrument, Gallop’s Teacher Perceiver Interview (TPI). Their results
indicated a modest relationship \((r = .28)\) between the TPI and measures of teaching quality. There was, however, a higher correlation between the TPI scores and administrator ratings of teachers. The researchers concluded that the TPI performed about as well as structured employment interviews in other professions. However, they were “not convinced that what it measures relates meaningfully to what matters for teaching effectiveness” (p. 933). This statement echoes that of much educational research regarding the difficulty in measuring teacher effectiveness, and the traits, qualities, and characteristics associated with it.

Focusing on the music classroom, Teachout (1997) compared responses from preservice music teachers with those of experienced teachers to the following question: What skills and behaviors are important to successful music teaching in the first three years of experience? Both groups had seven common responses in their top ten: (1) be mature and have self-control; (2) be able to motivate students; (3) possess strong leadership skills; (4) involve students in the learning process; (5) display confidence; (6) be organized; and (7) employ a positive approach. Interestingly, both groups rated the importance of musical skills lower than teaching skills and personal skills. Despite these expectations, Butler (2001) found that preservice teachers’ understanding of effective teaching was still in the development stage. However, Harrison and Ballantyne (2005) discovered that preservice music teachers felt that content knowledge, delivery, organizational skills, and assessment strategies were important teacher skills and attributes. In this study, most participants considered pedagogical skills (not knowledge of content area) as the most important aspect of their preservice teacher education program, citing practicum as the most useful part of the pre-service program. These results seem to mirror those of novice teachers’ beliefs of important aspects of preservice teacher education courses.

Research has examined preservice music teachers’ perceptions of semester-long student teaching experiences (Fredrickson & Pembrook, 1999). Results indicated that the students’ best and worst aspects of teaching were related to constructive and poor music making experiences, respectively. The issue of control was central in relating to the best (in control of the classroom) and the worst (not in control of the classroom) days. From the existing research literature, it appears that preservice teachers’ identities change as they progress from student to preservice teacher, to novice teacher, to experienced teacher. Through their development, they encounter issues of loneliness, exhaustion, classroom management, content and pedagogy development not necessarily covered in their teacher-training program (Conway, 2002; Conway, Hansen, Schulz,
Stimson, & Wozniak-Reese, 2004; Hargreaves, Welch, Purves, & Marshall, 2007; Harrison, 2005). This appears to add credence to the supposition that the problems encountered by early-career teachers are not “academic” in nature; rather, they involve some social or content delivery component to them.

Wideen, Mayer-Smith, and Moon (1998) conducted a meta-analysis in which they cited studies indicating that student teachers rated “teaching personality” as more important than cognitive skills, pedagogical knowledge, or subject-matter knowledge. This seems to exemplify the importance of content delivery and classroom management as well as the content itself. Furthermore, Kagan (1992) reported that preservice teachers enter teacher education programs with preconceptions regarding images of “good” teaching, which remain unchanged unless modified and reconstructed. Preservice teachers’ beliefs, which are sometimes difficult to articulate, act as filters allowing in or filtering out new knowledge that is either compatible or incompatible with existing beliefs (Kane, Sandretto, & Heath, 2002). As such, the training of effective teachers seems to be rooted in understanding preservice teachers’ personalities and experiences. Examining preservice teachers’ beliefs may provide teacher educators with a better understanding of how to train and prepare future teacher candidates. Having a better understanding of preservice teachers’ expectations may provide insight into their perceptions of teacher effectiveness.

**Teacher Effectiveness**

Nurturing and producing effective teachers would seem to be the goal of every teacher training program. An examination of vision and mission statements of music education programs at comprehensive universities in the United States reveals a desire to teach students how to interact positively with other students, teachers, community members, etc. as they develop in moving from their student role to their teacher role. The goal, it would seem, is to create “good” teachers. As Porter and Brophy (1988) stated, “[good teaching is a] tightly coupled rational process in which background and milieu factors influence teachers’ development of professional pedagogical knowledge and routines” (p. 75). Furthermore, they opined that teacher behaviors are developed through prior experiences, and automatically activated in relevant situations. Therefore, the ability to automatically activate teacher behaviors (from prior learning experiences) could be considered a component of effective teaching. Effective teaching has been said to be the blending of energy, enthusiasm, organization, positive self-efficacy, motivation,
and knowledge of subject matter, pedagogy, and students (Brophy, 1988; Tschannen-Moran, Hoy, & Hoy, 1998).

Blair (1984) developed what he called the seven fundamentals of effective instruction. These included: (1) useful time (the coverage of material and academic engaged time); (2) diagnosis; (3) direct instruction, where the teacher is in control of the learning as much as possible; (4) transfer of skills; (5) flexible grouping; (6) positive mind set (self-efficacy); and (7) management. Of particular importance to this study is Blair’s seventh category, management. In describing this fundamental, Blair indicated that management includes reducing unproductive time and disturbances in the classroom. This includes the management of teaching materials, and the planning of transitions. All of these management issues could be considered aspects of pacing in the classroom.

Research conducted by the Institute for Research on Teaching at Michigan State University has focused on three main issues: (1) the roles of teachers and the thoughts and actions involved in carrying out teaching activities, (2) the problems of practice, and (3) planning, thinking, and decision making that lead to teachers’ classroom behaviors. Porter and Brophy (1988) suggested that effective teachers convey to students what is expected of them and why, providing structured learning, and opportunities for independent learning activities. However, even after teachers have learned effective teaching techniques, they often revert back to their previous practices, and often cannot transfer learned skills to other teaching situations.

Techniques for Effective Teaching

According to Needels and Gage (1991), the search for relationships between teaching processes and learning outcomes (process-product) began in earnest about 1960. Previously, research was focused on teacher behaviors, with little attention being paid to student behavior or student performance (Ornstein, 1991). Additional paradigms include: Process-Anecdotal, Process-Systematic, Experimental, Process (teacher)-Process (student), and Process (teacher)-Process (student)-Product (pupil). While the first two paradigms, predominant during the early- and mid-twentieth century, focused solely on teacher behaviors, the subsequent paradigms (including Process-Product) focused on how teacher behavior correlated with student behaviors and learning outcomes (Borich, 1986). However, just as effective teachers are “more than the sum of their parts,” so too are the above teaching methods. As Brophy (2000) posited, “no single
teaching method (e.g. direct instruction, social construction of meaning) can be the method of choice for all occasions” (p. 6).

Process-product researchers concede, however, that many factors are associated with student learning in addition to the influence of the teacher. In the process-product research literature, “[these] unalterable variables have been controlled either statistically or through random assignment of teachers and their classes to different treatments” (Needels & Gage, 1991, p. 7). Other teacher variables emerged throughout the process-product research including: clarity, flexibility, enthusiasm, task-related and/or businesslike behavior, criticism, indirect activity, providing pupils an opportunity to learn criterion material, making use of stimulating comments, and varying the level of cognitive questions and interactions (Scheerens & Bosker, 1997). In addition to process and product variables, other teacher- and student-related variables include presage variables and context variables (Ornstein, 1991). Presage variables consist of preexisting teacher/student attributes such as gender, age, ethnicity, etc. Context variables include grade level, subject, class size, and ability grouping (homogeneous vs. heterogeneous). A number of teacher-related variables fall under the heading of “process variables.” As a result, traits of effective teachers would seem to be subsumed by this part of the teacher-student variables hierarchy.

Generally speaking, teacher effects can be separated into two broad categories, quantity of academic instruction and quality of academic instruction. Quantity of academic instruction refers to opportunity to learn, that is, exposure to content. This is determined by the degree to which teachers: (1) are businesslike and task oriented, and who allocate most classroom time to activities with academic objectives; (2) maximize the time students spend in academic activities, and minimize time spent getting organized, handling transitions, etc.; (3) pace the students briskly through the curriculum; and (4) spend most of their time actively instructing students (Brophy, 1988). Quality of academic instruction variables include: (1) sufficient enthusiasm of delivery, clarity, logical sequencing; (2) asking clear questions at appropriate levels of difficulty; (3) providing clear and specific feedback; (4) seeking to elicit improved responses; (5) incorporate and answer relevant student comments and questions; (6) prepare students for follow-up assignments; and (7) circulate the classroom to provide supervisions (Brophy, 1988).

Some specific traits of effective teachers include the following six phased functions of explicit teaching: (1) daily review, homework check, and if necessary, re-teaching; (2) rapid
presentation of new content and skills in small steps; (3) guided student practice with close monitoring by teachers; (4) corrective feedback and instructional reinforcement; (5) independent practice in seatwork and homework with a high, more than 90 percent success rate; and (6) weekly and monthly review (Walberg, 1991). Additional non-measurable traits include “withitness,” overlapping, instructional judgments, quick cognitive leaps, informal guesses, and a “feel” for what works in the classroom (Kounin, 1970; Rubin, 1985). Kounin’s (1970) watershed work described “withitness” as, “a teacher’s communicating to the children by her [sic] actual behavior (rather than by simple verbal announcing: ‘I know what’s going on.’) that she knows what the children are doing, or has the proverbial ‘eyes in the back of her head’” (p. 80–81). An important aspect of this teacher trait is that teachers must communicate that they know what is going on in the classroom. Kounin defines “overlap” as, “what the teacher does when she [sic] has two [disruptive] matters to deal with at the same time” (p. 85).

Another area that has received considerable attention in the research literature as it relates to effective teaching is the concept of direct instruction. Direct instruction has been defined as explicit, low-inference instruction (Gersten, Baker, Pugach, Scanlon, & Chard, 2001). While direct instruction has its origins in non-music areas (reading, science, math), it has been studied in a variety of music applications under the terms “teaching units” and “sequential patterns of instruction,” which consist of (1) teacher instruction, (2) student response, and (3) teacher feedback (Blocher, Greenwood, & Shellahamer, 1997; Bowers, 1997; Goolsby, 1997; Hendel, 1995; Jellison & Wolfe, 1987; Price, 1992; Price & Yarbrough, 1993/1994; Yarbrough & Price, 1989). Results obtained from this research suggest that the element most often missing in incomplete teaching units is teacher feedback. Although, incomplete 1–2 teaching units have been observed, it has been suggested that teachers delay reinforcement to accelerate the lesson pace (Hendel, 1995). Furthermore, research suggests that a 1–2 teaching unit need not have teacher feedback, since music performance could be considered reinforcement for the student response (Yarbrough, Price, & Bowers, 1991). The research literature suggests that complete teaching units can elicit positive ratings from students, lower off-task behavior (Price, 1983), and can be improved with training (Goolsby, 1997). However, correlations between complete teaching units and teacher effectiveness have met with mixed results (Bowers, 1997; Price & Yarbrough, 1993/1994).
In addition to direct instruction in the music classroom, time use has been extensively studied. Results of this research suggest that effective teachers tend to allocate most of the classroom time on instructional activities (Brophy, 2000; Cassidy, 1988; Cassidy, 1990; Cox, 1986; Duke, Prickett, & Jellison, 1998; Goolsby, 1996; Hancock, 2003; Hendel, 1995; Hoadley, 2003; Kelly, 2003; Moore, 1981; Waxman & Eash, 1983; Wyne & Stuck, 1982). It has been argued that simply extending the school day to increase time does not necessarily lead to improved student performance. It appears that how effectively time is spent has a greater effect on student performance than sheer time on task (Brophy, 1986). Although studies have indicated that observers are inaccurate in estimating their time usage (Duke, 1987; Madsen & Duke, 1985), results have nonetheless indicated that more experienced teachers devote more time to performance than verbal instruction (Goolsby, 1996; Wagner & Strul, 1979). Furthermore studies suggest that student off-task behaviors increase during non-performance time intervals (Forsythe, 1977; Spradling, 1985; Yarbrough & Price, 1981). It appears that in performance classes, teachers spent less time in nonperformance activities as the concert date got closer (Cox, 1986), and that a large portion of class time was spent in nonverbal behaviors (Kelly, 2003). Moore (1981) examined time usage differences between American and British elementary music teachers. Data were obtained regarding student attentiveness, time in an activity, frequency of feedback, and demographic information. Results revealed that American teachers spent significantly more time in rhythmic activities and movement than the British teachers. There were no other significant differences between the two groups on any of the other variables. Based on the aforementioned research, it appears that experienced teachers are better able to manage instructional time in the music classroom.

**Traits of Effective Teachers**

Researchers have made attempts to differentiate between expert teachers and novice teachers. In fact, the taxonomy proposed by Dreyfus and Dreyfus (cited in Sogin & Wang, 2002) describes the five stages of teaching as: (1) novice; (2) advanced beginner; (3) competent performer; (4) proficient performer; and (5) expert. Studies have illustrated that expert teachers are able to make inferences when describing classroom events, while novices describe interactions in a more literal manner (Standley & Madsen, 1991). However, as preservice teachers develop into novice teachers, and then early-career teachers, their perceptions of the skills necessary for success in music teaching shift from music performance skills to
communication and interpersonal skills (Hargreaves & Marshall, 2003; Harrison & Ballantyne, 2005). Expert teachers generally have command of domain-specific knowledge, are efficient in the use of teaching time by making meaningful connections in less time, and demonstrate insight with regard to pedagogy (Sogin & Wang, 2002). Both students and teachers have listed enthusiasm, organizational skills and communication skills as requisite traits of effective music teachers (Harrison, 2003).

While no one teacher attribute encompasses the knowledge and skills necessary for effective teaching, some characteristics have been noted. For example, effective teachers have been said to create cohesive and supportive classroom climates through cheerful and caring dispositions, friendliness, emotional maturity, and sincerity (Brophy, 2000). Other traits studied include warmth, indirectness (guided discovery), cognitive organization (teacher’s intellectual grasp), and enthusiasm (Gage, 1972). Still others have included clarity, content, “with-it-ness,” smoothness, flexibility, time management, skills in managing technology, and proper pacing (Good & Brophy, 1986; Harrison & Ballantyne, 2005). Despite these traits, there is an inherent subjective nature of defining “good” teaching, and measures used to identify it. According to Brand (1985, 1990), among the characteristics of effective music teachers are: musical ability, intelligence, and personality. Additional characteristics of effective music teachers include: enthusiasm for teaching, fair discipline, observable student enjoyment, diagnosing and correcting problems, high magnitude, pacing, and energy. Essentially, effective teachers must have a concept of timing in the rate and intensity of their instruction.

It has also been suggested that social skill development is related to teaching effectiveness. Hamann, Lineburgh, and Paul (1998) discovered that preservice teachers with higher scores on the Emotional Expressivity, Emotional Sensitivity, and Social Control categories of the Social Skills Inventory (SSI) had higher total scores on the Survey of Teaching Effectiveness (STE). According to the researchers, there appeared to be a relationship between teaching effectiveness scores and three social skills scores on the SSI. They hypothesized that preservice teachers who were emotionally sensitive might be better at interpreting emotional cues. As a result, there appears to be a link between effective teachers and social intelligence. Juchniewicz (2010) examined the influence of social intelligence on effective music teaching. Results indicated that social attributes influenced evaluators’ ratings of teachers in more than 85% of all responses. Teachers who demonstrated effective social skills and communication
skills were perceived as effective teachers. Those who were not were said to have poor classroom management skills, and were rated as ineffective.

In a meta-analysis of 86 research studies published over the course of 25 years (1972–1997), Duke (1999/2000) examined the dependent measures used to measure instructional effectiveness. His findings revealed that only 13 of the 86 studies reviewed used student achievement as a dependent measure. Furthermore, those studies using student achievement as a dependent measure found only weak correlations between teacher behavior and student outcome. Duke’s results revealed that research findings were consistent across multiple investigations indicating that student attentiveness was related to the nature of the activity, teacher experience level influences time use, and teacher feedback is the most common and prominent variable that has been studied. In describing results obtained from experimental and descriptive analyses, Duke stated the following:

The results of these investigations illustrate quite clearly that observers from a variety of backgrounds and experiences are able to identify good teaching, perhaps irrespective of the labels used to define it, and are especially accurate and consistent in evaluating teaching quality when contrasting examples of better and worse teaching are juxtaposed in a stimulus presentation. (p. 9)

These findings suggest that both inexperienced and expert observers alike recognized the global nature of teacher effectiveness, even when it was not explicitly defined. However, these same observers (including the experts) were inconsistent when describing specific variables that contribute to their global evaluations.

As was noted earlier, the teacher effectiveness research literature contains examples of student achievement as the dependent measure for teacher effectiveness. Additionally, student attitudes and level of on- and off-task behavior have been measures of teacher effectiveness. Perhaps the seminal work in the music literature that incorporated all three dependent measures was a study by Yarbrough (1975). The purpose of her study was to examine the effect of conductor magnitude on performance rating, student on-task behavior, and student attitude. Following a baseline period (regular conductor), students from mixed choruses (N = 207) were rehearsed under two experimental conditions, high magnitude and low magnitude. Both experimental conditions were operationally defined, and consisted of a number of observable teacher behaviors (eye contact, closeness, volume and modulation of voice, gestures, facial
expressions, and rehearsal pace). Results yielded no significant differences in any of the three dependent measures; however, the low magnitude condition received relatively lower ratings than either the high magnitude or baseline conditions. Furthermore, the students were the least off-task during the high magnitude condition, and students preferred (not significantly) the high magnitude conductor to the low magnitude conductor. Following Yarbrough’s study were a series of studies relating to teacher intensity, which was defined as sustained control of the student/teacher interaction evidenced by efficient, accurate presentation and correction of the subject matter with enthusiastic affect and effective pacing (Madsen & Geringer, 1989). This study also determined that there was a relationship between teacher intensity and teacher effectiveness.

**Teacher Intensity**

According to Madsen (1988), there are two elements of effective teaching: (1) knowledge of the subject matter, and (2) effective delivery and sequencing of the material. The operational definition of teacher intensity appears to encompass this taxonomic structure of effective teaching. Research in the field of teacher intensity has revealed that it is a teaching skill that can be operationally defined, easily taught, demonstrated, and easily recognized (Byo, 1990; Madsen, 1990b; Madsen, Standley, & Cassidy, 1989). Madsen, Standley, and Cassidy (1989) revealed that prospective music education student teachers could learn and demonstrate high and low contrasts in teacher intensity, which was described as enthusiasm combined with effective timing while managing the classroom environment, and presenting accurate subject matter. This study also demonstrated that other music education majors, not trained in the concept of intensity could also recognize the high/low contrasts. Byo (1990) applied similar techniques to gestural intensity in a conducting situation. His findings revealed that beginning conductors could recognize intensity contrasts, and demonstrate them accurately. Even non-music majors with little knowledge of the subject matter were able to correctly identify high/low contrasts in gestural intensity.

Intensity can be sustained for brief periods of time, but becomes increasingly more difficult for longer durations. Cassidy (1990) agreed with this supposition when she opined, “the length of time teachers can teach with intensity before allowing some teacher-controlled ‘down time’ probably differs with the ages of students and is an important area that needs extensive researching” (p. 173). According to Madsen (1990b), there is a high relationship between teacher
intensity assessments and teacher effectiveness ratings. Thus, this finding suggests that teacher intensity might be a variable influencing general teacher effectiveness, but lack of subject matter knowledge can negatively affect teacher intensity. Kaiser (1998) examined the effect of high/low intensity teaching on band musicians’ evaluations of teacher effectiveness within a band rehearsal setting. Results indicated that high intensity teaching was rated as being more effective than low intensity teaching. The high intensity performances were perceived as being more effective than the low intensity performances, despite the fact that a Cleveland Winds recording was used to provide the audio for both high and low intensity presentations. This study also revealed a strong positive correlation (.83) between evaluations for teacher intensity and teaching effectiveness.

Three components of teacher intensity that may inhibit overall teacher effectiveness include inaccurate presentation of subject matter, unenthusiastic affect, and an inability to maintain control of the student/teacher interaction (Cassidy, 1988). Other studies have addressed the effect of teaching setting, on teacher intensity (Colwell, 1995), the relationship between high-intensity teaching and teacher retention and attrition (Hancock, 2002, 2003), and the effect of multiple modes of assessment on conductor intensity (Johnson & Fredrickson, 1995).

While the constituent parts of teacher effectiveness may not necessarily be specifically defined, it does appear that observers can recognize global competence both in evaluation of others, and for self-evaluation. In their meta-analysis, Shavelson and Dempsey-Atwood (1976) concluded that of all the measures of teacher behavior they examined, only global ratings of teacher effectiveness appeared to be the most stable. Those behaviors that were moderately stable across the effectiveness studies were: teacher presentation, positive and neutral feedback, probing, and direct teacher control (i.e. classroom management). These results appear similar to those obtained by Madsen, Standley, Byo, and Cassidy (1992), which revealed that instrumental music student teachers were able to recognize global competence but not specific behaviors during self-evaluation. Murray (1983) found that both trained observers and student observers recorded similar low-inference teacher behaviors when observing low-, medium-, and high-rated college teachers. Results indicated that the teaching behaviors that showed the largest raw score differences between the three groups of college teachers were: Speaks expressively/emphatically, shows strong interest in subject matter, moves about while teaching, uses humor, and shows facial expression. Murray suggested that these behaviors share elements of stimulus variation,
expressiveness, and spontaneity. It appears that maintaining student attention is an important factor in successful university teaching. Overall, clarity and enthusiasm appeared to be factors separating outstanding lecturers from merely average ones.

Madsen (2003) examined three components of teaching (accuracy of instruction, teaching delivery, and student attentiveness) as they related to perceived teacher effectiveness to better understand which component or components lead to higher ratings of teacher effectiveness. Her results indicated that middle and high school students rated high teaching delivery segments relatively high despite inaccurate information presented by the teacher. This study also complemented previous research that suggested adults would rate lecturers higher despite inaccurate information if the delivery were enthusiastic (Hamann, Baker, McAllister, & Bauer, 2000).

**General Principles of Pacing**

Many of the existing definitions of pacing often refer to the elements of time/timing, motion, or both. For example, the origin of the word dates back to the late 13th century meaning to walk with a measured tread, or to move along. Pacing as a transitive verb refers to measuring off a certain distance, to set an example, or to set or regulate the speed of something at a particular rate or tempo. As a measure of distance, pace has a variety of meanings such as a unit of length equal to 30 inches, a unit of length equaling five feet (geometric pace), and the distance from the point at which the heel of one foot is raised to the point at which it is set down again after an intervening step by the other foot (Kleinedler et al, 2005). Another specific reference to pacing as a description of motion occurs regarding horsemanship. Reminiscent of ancient Greek and Roman chariot races, pacing is a harness racing sport that gained prominence in the United States in the early part of the 19th century. In such a setting, pacing refers to the leg motion of the animal such that it is spaced in perfect cadence and rapid succession, with the legs on either side moving together, and the hind leg striking the ground slightly before the foreleg. This is known as a two-beat gait (Pacing.com, 2010).

Pacing, as it relates to the medical profession encompasses similar meanings of timing and motion. In its most basic sense, pacing is the regulation or change in the timing or intensity of cardiac contractions. This can be accomplished either naturally, or via artificial means (i.e. an artificial pacemaker). In healthy animals, chemical impulses cause contractions of the cardiac muscle; the heart rate is controlled by the speed and regularity at which these impulses fire. The
cells that facilitate these impulses are called pacemaker cells. In instances where a patient’s pacing is irregular, other forms of external pacing are used to regulate the function of the cardiac muscle. Two such examples include transcutaneous pacing and transvenous pacing. Transcutaneous pacing is a procedure by which the patient’s heart is stimulated by administering electric pulses, causing the heart to contract. The most common indication for this type of pacing is an abnormally slow heart rate, like bradycardia, which is a heart rate of less than 60 beats per minute in adult patients (Hazinski, Field, & Gillmore, 2008). Although, normal resting heart rates can vary widely between individuals, and heart rates tend to slow as one ages. Similarly, transvenous pacing is designed to correct bradycardia; however, it involves threading a pacing electrode through a vein into the chambers of the heart, and is more invasive than transcutaneous pacing.

Another medical reference to pacing includes diaphragm pacing. This treatment is used with patients who have suffered spinal cord injuries that inhibit breathing. The procedure requires electrical stimulation (pacing) of the phrenic nerve. While not appropriate for all cases of spinal cord injury, in cases where the phrenic nerves, the chest wall, lungs, and diaphragm are intact, diaphragm pacing has been known to stimulate the phrenic nerve, and subsequently the diaphragm. The pacing is accomplished via electrodes surgically implanted into the diaphragm, which is innervated by the phrenic nerve. The stimulation of the phrenic nerve causes the diaphragm to contract, which sucks air into the lungs. When stimulation of the nerve ceases, the diaphragm relaxes, and air is exhaled from the lungs (Aiyar & Mortimer, 2001).

The aforementioned references suggest that pacing is understood to mean a regulation of speed and/or events. Other instances that add credence to this supposition include pacing with regard to traffic violations and in motorsport. A police officer may issue speeding tickets by estimating a motorist’s speed. This process of estimating one’s speed is known as pacing. Similarly, in motorsports, a pace car is one that sets the speed of the race, especially when there is an obstruction on the track. In such an instance, the pace car sets a pre-determined safe speed, and racers are not allowed to pass the pace car until it leaves the track. Another area of sports in which reference to pacing is made is in racing (cycling, marathon, etc.). While some research indicates that runners might fare better starting at a below average speed, and accelerating in the final moments of the race (Robinson, Robinson, Mountjoy, & Boullard, 1958), other research supports a more even distribution of pace throughout the physical activity (Foster, Snyder,
Thompson, Green, Foley, & Schrager, 1993; Palmer, Hawler, Dennis, & Noakes, 1994). This appears to be the case for both shorter races, and longer races such as a marathon. It is generally agreed that since the distance covered in a marathon is so extreme, few runners are able to effectively pace their way through a marathon entirely by feel, as they do in shorter races (Fitzgerald, 2010). This idea may transfer to the concept of pacing within a teaching situation. Runners are able to pace themselves in shorter segments; teachers are usually successful when teaching a 2–3 minute lesson. Some runners encounter difficulties when faced with pacing a much longer race; some teachers encounter challenges when pacing an hour-long lesson. As humans are not accurate timekeepers, it is difficult to foresee problems in either the latter portions of a long race, or the latter portions of a long lesson.

**Pacing in an Educational Setting**

Ornstein (1991) stated, “it is not an exaggeration to say that the literature on teaching is a morass of ill-defined and changing concepts” (p. 63). While teacher intensity has been defined and well-documented, the construct “pacing” has not had the widespread acceptance as intensity in the music research literature. Biddle (1964) lamented on the abundance of confusion regarding teacher effectiveness. In addition to mentioning the difficulty in defining and measuring teacher competence, he also pointed out the disagreement over the effects a teacher is called upon to produce (student achievement, attitude development, etc.). It has been suggested, however, that for certain ill-defined constructs, the aggregate circumstance is of the most importance, since the numerous individual variables of such a construct are difficult to isolate and control (Geringer & Madsen, 1995/1996; Madsen & Geringer, 1990). Of particular salience with regard to pacing research, Biddle (1964) stated, “Research on teacher competence becomes effective only with an agreement upon language and the variables for which words stand” (p. 4). Therefore, an agreed upon definition of pacing, and recognizing it in an educational setting would seem consequential. Pacing can be defined as a process variable (in process-product research) if it refers to teacher-student interactions as an antecedent to student outcomes. Thus, it might have an impact on such product variables as student learning, adjustment, attitudes, creativity, and so on.

While pacing may be universally understood, it has not yet been globally (or specifically) defined. Despite the fact that this construct is universally understood, it has not been subject to the rigors of empirical verification. Gage (1972) cautions drawing conclusions based on seemingly obvious characteristics of good teachers in absence of the scientific method:
The ease with which others have told us such truths in the past is matched by their untrustworthiness. Glib insights based on uncontrolled experience can lead us astray. Research on teaching—the effort to apply scientific method to the description and improvement of teaching—is much more laborious and usually makes much less interesting reading than the essay of the shrewd, compassionate, and imaginative observer. (p. 39)

Similarly, as implied above, good teaching can be identified even if it cannot be specifically defined. As Stodolsky (1984) stated, “the source of the stability in global ratings (rater of teacher) is not known, but is similar to other data that suggest very global positive or negative assessments can be made with high levels of agreement” (p. 13). Despite not knowing why a teacher receives a certain rating, there is agreement among raters for the assigned rating. Many of the commonly understood definitions of pacing revolve around events unfolding over time, flowing in a somewhat predictable fashion. The absence of such predictability, or lack of continuity, results in a lack of flow. In relating this unpredictable nature to music listening, Meyer (1956) implied that apprehension and anxiety could be aroused in the listener. The listener approaches the listening experience with a predetermined set of expectations regarding what is to be heard. Meyer suggested that emotions were evoked when musical events deviated from expected stylistic norms. He stated:

As soon as the unexpected, or for that matter the suprising [sic], is experienced, the listener attempts to fit it into the general system of beliefs relevant to the style of the work…Three things may happen: (1) The mind may suspend judgment, so to speak, trusting that what follows will clarify the meaning of the unexpected consequent. (2) If no clarification takes place, the mind may reject the whole stimulus and irritation will set in. (3) The expected consequent may be seen as a purposeful blunder. Whether the listener responds in the first or third manner will depend partly on the character of the piece, its mood or designative content. The third response might well be made to music whose character was comical or satirical. (pp. 29–30)

As Meyer noted, unexpectedness in music arouses an emotional response in the listener. In transferring this music analogy to pacing within an educational setting, a disruption in pacing is noticed when the lesson content or lesson delivery does not proceed in the expected direction. An emotional response may be aroused in the observer/student when a teacher exhibits a breakdown.
in the expected direction of the lesson (poor pacing). Therefore, good pacing might be defined as the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material.

**Expectation Theory**

Similar to Meyer’s theory, violations in pacing could be considered expectancy violations. Much like pacing, the object of expectation is an event in time (Huron, 2006). In describing his *ITPRA theory* (a psychological theory of expectation), Huron explains the two components of expectancy: the *what* (i.e. subject matter), and the *when* (i.e. pacing of the teacher). In an effectively paced lesson, an observer would expect the *what* to be accurate, and the *when* to be presented in a logical, continuous, and uninterrupted manner. Just as unexpectedness in music can evoke emotional responses, the same can happen in other scenarios, like teacher evaluation. In this case, the accepted norm, appraisal/perception of teacher competence, is violated when one (or both) component(s) of expectation does/do not come to fruition. Huron suggests that expectations can evoke a variety of emotions through a number of different psychological systems: imagination, tension, prediction, reaction, and appraisal (ITPRA). When examined through the lens of this psychological theory of expectation, ineffective pacing (pacing lapses) from a teacher can elicit a response from the observer. For example, as Figure 2.1 indicates, the observer sets up certain expectations based on an impending event, in this case, a teaching episode. As the uncertainty of the outcome increases, attention and arousal levels increase. In music, culture and implicit musical knowledge guide musical expectancies through what Dowling and Harwood (cited in Radocy & Boyle, 2003) called *melodic schema*. Analogously, the same can occur in teaching. Based on learned schematic expectations, one would expect a teacher to conduct an effective lesson. However, if this expectation is violated, negative reactions and appraisals will follow. Determining what fits into the accepted model of “good teaching” is similar to the Gestalt organizational laws that govern perceptual organization of tonal sequences (Radocy & Boyle, 2003). A teaching demonstration that conforms to these so-called organizational laws may be perceived as a Gestalt, rather than as disparate events interrupted by pacing lapses. When music does not conform to musical schemata, it can be perceived as strange or different. Similarly, the same can occur in a teaching episode that lacks the cultural or structural redundancy necessary for meaningful perception (Meyer, 1994).
Indeed, the concept of expectation is indelibly linked with time, which is closely related to prediction, a component of Huron’s (2006) *ITPRA theory*. As Huron argued, periodic events are more predictable, and thus conform more readily to one’s expectations, and are positively valenced. This may be why individuals (especially children and young adults) prefer certain poetry that relates familiar experiences (schemata) using a rhyme scheme and regular rhythm (Abrahamson, 2002; Fisher & Natarella, 1982; Kutiper & Wilson, 1993). Huron (2006) suggested that this type of structural organization makes the poetry more predictable, “and so easier to perceive and process” (p. 197). No doubt, this is linked with an organism’s preference for fixed (as opposed to variable) schedules of reinforcement. Moreover, research has illustrated this temporal regularity facilitates accurate perception and prediction of varied stimuli such as

![Temporal diagram of Huron’s (2006) ITPRA theory](image)

Figure 2.1. Temporal diagram of Huron’s (2006) *ITPRA theory*.

simulated tones (Jones, Moynihan, MacKenzie, & Puente, 2002; List & Justus, 2010; Prince, Schmuckler, & Thompson, 2009), metronome clicks (Fujioka, Zendel, & Ross, 2010), light flashes (Busch & VanRullen, 2010), and dynamic visual displays (Correa & Nobre, 2008; MacLean et al, 2009). On the other hand, failing to accurately anticipate when events will occur, or the absence of an expected event can produce negatively valenced emotions (Huron, 2006). This would certainly lend one explanation to negative evaluations of music performance errors (veridical surprise), or so-called ineffectively paced lessons.

**Information Theory**

It is understood that individuals can gain meaning from music, even without formal musical training (Radocy & Boyle, 2003). Indeed, this is one of music’s greatest attributes. The evaluation of music and its meaning are intertwined with musical schemata. In the same way, the meaning of a lecture can be understood and evaluated as “good” or “bad” without any formal training in education, oratory, or specific subject matter. Just as music is a temporal message, so too is teaching, as the message is constructed over time. When viewed through the lens of
information theory, the uncertainty in a musical stimulus is measured against the level of redundancy. An increase in redundancy results in a decrease of both information and uncertainty. Conversely, a decrease in redundancy results in an increase of both information and uncertainty. This principle is bound together with listeners’ expectations as they relate to their musical schemata (implicit knowledge and culture). A stimulus that is too redundant can be judged as uninteresting, and a stimulus that is too complex or unfamiliar (less redundant) can be judged as unpleasant. This principle relates to Berlyne’s (1960) theory of aesthetic response, and the well-known inverted U-shaped curve. As a structural organization, musical schemata is what Meyer (1994) called perceptual redundancy, which was defined as “the totality of patterned structure and orderly process available to the mind of an ideally experienced listener” (p. 277). Essentially, as the information increases and redundancy decreases, the listeners’ expectations become uncertain, and the music will hold little meaning. Similarly, when a teacher strays from the idealized model of an effective teacher, what Jones (1981) called ideal prototypes, the students’/observers’ expectancies are violated, resulting in a reduced ability to identify and recall events (Radocy & Boyle, 2003).

**Evaluation**

In addition to emotional responses, judgments and evaluation in music performance seem to occur informally (Simpson, 2009). Evaluations are made both in the moment, and after the fact. As such, music evaluation is bound up with the temporal unfolding of time. Listeners make evaluations not only based on what they are currently hearing, but also a summative evaluation at the conclusion of the performance. This melding of formative and summative evaluation is similar in thought to Levinson (1997), who coined the term concatenationism. This phenomenon could be described as an appreciation of music through its constituent parts, and not necessarily the form as a whole. Contrasting music theorists, Levinson (1997) stated that, “music of any extent consists of a series of successive events, which cannot be apprehended simultaneously in a single perceptual act” (p. 2). Levinson, however, did not discount the fact that past musical events can be recalled, and future ones anticipated. In fact, this type of musical anticipation is related to Meyer’s writings on the evocation of emotion in music (expected vs. unexpected musical events). However, Levinson suggested that any such act inhibits an appreciation for the music at hand.
This type of evaluative act is not unlike evaluations that supervisors and principals must make when observing teachers in classrooms; their evaluation includes elements observed “in the moment,” and a post-hoc evaluation of the teacher’s overall performance. While arguments can be made for both formative (ongoing/moment-to-moment) and summative (post-hoc) evaluations, research has investigated the effects of both methods of evaluation. Results from extant research have indicated that moment-to-moment and continuous evaluations of the same stimuli can produce different scores. Two such studies (Brittin & Duke, 1997; Duke & Colprit, 2001), which examined listeners’ perception of musical intensity, revealed that while both summative and continuous evaluations exhibited high levels of internal consistency, the summative ratings were higher than the continuous ratings. It should be noted that the Brittin and Duke (1997) study used the Continuous Response Digital Interface (CRDI). The Duke and Colprit (2001) study, while a replication of the Brittin and Duke study, used the Simple Computer Recording Interface for Behavioral Evaluation (SCRIBE). Brittin and Duke (1997) concluded that, “music with greater changes in intensity was more likely to produce larger differences between summative and continuous scores” (p. 254). They suggested that the differences between the arithmetic mean and the “psychological mean” may be attributed to listeners giving greater weight to “high points” in the music than “low points.” This effect could have caused an inflation of summative evaluation scores, indicating that the higher intensity points outweighed the lower intensity points. These studies, however, dealt with listeners’ perception of musical intensity, not evaluation of the performances per se.

Alternately, in examining the evaluation of performance errors over time, Simpson (2009) found that subjects reacted negatively toward performance errors, and then required a long recovery time. This was the case even in predominantly “good” performances. Simpson stated that, “errors have residual effects that persist after they have been ‘passed’ chronologically” (p. 61). Additionally, negative responses were more abrupt and had greater magnitude than positive responses. This is certainly in keeping with the understanding that negative events or verbalizations are remembered more than positive events or verbalizations (Madsen & Madsen, 1998). The results from this study seem to contradict those of Brittin and Duke and Duke and Colprit; however, Simpson’s study dealt with noticeable mistakes in performance, and not musical intensity. Perhaps different independent variables produce different results in continuous versus static evaluations of events.
Pacing and Teaching

Attributes of effective teaching need to be identified if they are to be useful in the training of effective teachers. In addition to feedback and modeling, Knight and Waxman (1991) identify pacing as a “generic teacher behavior.” Despite this assertion, caution is warranted because as Brophy and Evertson (1976) stated:

Effective teaching is not simply a matter of implementing a small number of “basic” teaching skills. Instead, effective teaching requires the ability to implement a very large number of diagnostic, instructional, managerial, and therapeutic skills, tailoring behavior in specific contexts and situations to the specific needs of the moment…effective teaching involves orchestration of a large number of factors, continually shifting needs. (p. 139)

According to Cassidy (1988), pacing may well be a high inference behavior that can be reliably rated by observers. She states, “There appear to be three components which may reduce teacher intensity. These include inaccurate presentation of subject matter, unenthusiastic affect, and an inability to maintain control of the student/teacher interaction” (p. 52). Missing from this definition is a specific mention of pacing, which is a component of the definition of teacher intensity (Madsen & Geringer, 1989). In Cassidy’s study, experimental subjects were asked to identify aspects of high and low intensity behaviors. In defining low intensity variables, “pacing” only appeared in its negative form on the low intensity behaviors list. Its appearance as a “negative” suggests that pacing is most noticeable through its absence.

Similarly, in many classrooms, student misbehavior elicits more teacher attention than performance excellence. As a result, teachers react to inappropriate student behavior, thus drawing attention to it. Alternately, the behaviors exhibited by proactive teachers regarding classroom management might not be as noticeable as reactive “feedback” to unruly students (Duke & Madsen, 1991). Proactive teaching may very well be a component of “teacher effectiveness,” if it reduces the frequency and magnitude of instructional disruptions (i.e. reacting to student misbehavior). Also related to proactive teaching is the sequencing and structure of the delivery of the lesson content. Inaccurate or inefficient presentation of information might be an aspect of poor pacing, for if “the structure [of the lesson] does not set up a high probability of correct responses (errorless discrimination) then the teacher often must respond negatively or not at all” (Duke & Madsen, 1991, p. 11). This corollary of pacing has
received little attention in the research literature, and is no doubt linked to the difficulties related to valid and reliable teacher assessment models.

Lesson flow, complexity of material, and amount of material presented also appear to be related to lesson pace (Murray & Renaud, 1995). Disruptive classrooms cause a breakdown in pacing, and poor pacing can cause classroom disruptions (Harlan & Rowland, 2002). So, good classroom management seems to be interwoven with pacing. As Brophy and Evertson (1976) stated, “teachers who have few discipline problems therefore have most of their time available for teaching and are more likely to teach successfully compared to teachers who spend significant amounts of time fighting for attention or trying to deal with severe disruptions and discipline problems” (p. 54). They went on to say that student engagement by the teacher allows for smoother, well-paced lessons with fewer interruptions. This is further supported by Cotton’s (cited in Scheerens & Bosker, 1997) assertion that effective instructional arrangements include efficient use of time. Maintaining a brisk pace and using smooth, efficient classroom routines accomplish this objective. Additionally, research suggests that teachers who take on the role of classroom manager rather than disciplinarian tend to be more successful teachers (Gump, 1964). For as Scheerens and Bosker (1997) stated, “it emerges that in classes where there is disruptive behavior, pupil performance is lower: disruption, naturally enough, is at the cost of effective learning time” (p. 149). Brand (1985) considered pacing the minimizing of transitions from one activity to the next. Using this description it appears that classroom managers are better able to encourage productive interactions and allow for smoother transitions between activities (Brophy, 2000; Tobin & Fraser, 1991).

While not specifically labeled as “pacing,” Kounin (1970) outlined several factors related to the flow of instruction, which he called “movement management.” The two main categories of movement management include smoothness and momentum. While he was interested in their relationship to classroom management, the concepts of smoothness and momentum can be applied to instructional pacing. A number of studies in the research literature have shown that disruptions in classroom management (off-task behavior) are especially prevalent during transitional periods (Arlin, 1979; Brendell, 1996; Cassidy, 1988; Forsythe, 1977; Moore, 1987; Wyne & Stuck, 1982). Cassidy stated, “effective teachers minimize transition time, give information efficiently, and increase time spent in lesson activities” (p. 12). Brendell (1996) observed high school choral rehearsals, and noticed increased off-task behavior during “getting
ready” activities, physical warm-ups, and teacher instruction prior to the first selection of choral literature. Brendell concluded that off-task behavior was a function of the activity. Arlin (1979) found that teachers who used more structured transitions, however, reduced incidents of off-task behavior to their instructional time levels. Furthermore, there was a significant correlation between time-off-task during transitions and time-off-task during other class time. This suggests that transition periods might be an effective indicator of the overall level of on- and off-task behavior in a classroom.

However, as noted by Kounin (1970), “not all teachers’ behaviors relating to the dimension of smoothness-jerkiness occur at transition points” (p. 94). Therefore, breakdowns in the continuous flow of instruction (i.e. pacing) can occur both at transition points and within an ongoing lesson. These breakdowns, or poor pacing episodes are characterized by five of Kounin’s dimensions of smoothness-jerkiness: (1) stimulus-bound episodes; (2) thrusts; (3) flip-flops; (4) dangles; and (5) truncations. Stimulus-bound episodes refer to teachers reacting to irrelevant stimuli that remove them from the primary focus of the lesson. Thrusts can be conceived as abrupt shifts in the quantity of or quality of the presentation of information. While flip-flops describe an unorganized shifting of activities/instruction, dangles result in leaving students “hanging in midair” by unexpectedly leaving an activity/instruction. A truncation is a long dangle that occurs when the teacher leaves a topic prematurely, and never returns to it.

Another component of movement management is what Kounin (1970) called momentum. His concept of momentum is very closely related to pacing as it is defined here. Kounin remarked:

Another aspect of activity movement concerns the rate of flow, or momentum. Is momentum sustained? Do activities keep moving in an appropriate pace? Or, are activities slowed down, held back, and made to appear draggy? More importantly, what is it that teachers do to keep activities moving forward or to hold them back? (p. 95)

Thus, impediments to momentum are analogous to poor pacing. Hence, poor pacing is something defined through its absence; it is the absence of momentum. As a result, effective pacing might not be as noticeable as ineffective pacing, for “it is easier to notice and categorize those behaviors of teachers that are disruptive of activity movement than it is to denote concrete behaviors that are conducive to effective movement” (Kounin, 1970, p. 96). Tangentially related
to forward momentum is the concept of satiation. Forward momentum helps to prevent satiation, as Kounin opined here:

A feeling of progress is the most essential variable influencing the rate of satiation. Satiation does not occur, or occurs very slowly, when there is a feeling of progress since the essential condition for producing satiation is repetitiousness: doing the same thing over and over without getting anywhere. When there is a feeling of progress there is no feeling of repetition and no consequent satiation. (p. 127)

Subcategories of momentum include “slowdowns,” which are further divided into “overdwelling” and “fragmentation.” As the name would imply, slowdowns are teacher behaviors that impede or inhibit the forward momentum of an activity. Overdwelling is simply dwelling on an issue beyond what is necessary for the students’ comprehension of the instructional material or activity. Fragmentation is a slowdown procedure in which a teacher unnecessarily breaks down an activity into sub-parts when the activity could be performed as a single unit. In his research, Kounin discovered that smoothness and momentum were significantly correlated with each other (.75). That is, teachers who engaged in jerkiness also tended to engage in slowdown behaviors. However, when momentum and smoothness were controlled for separately, Kounin discovered that momentum was more highly associated with student behavior than by smoothness alone. Therefore, he came to the conclusion that, “it is more important to maintain momentum by avoiding actions that slow down forward movement than it is to maintain smoothness by avoiding sudden starts and stops” (p. 108).

Effectively paced lessons include a number of behaviors related to continuity of momentum. For example, they begin and end on time, transitional periods are brief, and students are introduced to activities quickly while maintaining focus. The continuity of the lesson is not interrupted by the teacher having to consult instructional materials, or having to locate visual aids/manipulatives. Any discontinuity can cause a disruption in the lesson, and may cause student disruption or boredom (Brophy, 2000). Research supports the implementation of advance organizers or previews to establish an orderly start to the lesson, rather than a “jerky” or abrupt commencing of the lesson (Ausubel, 1960; Brophy, 2000). Furthermore, Brophy (2000) suggested that an effectively paced lesson adheres to the following conditions:

The teacher presents new information with reference to what students already know about the topic; proceeds in small steps sequenced in ways that are easy to follow; uses pacing,
gestures and other oral communication skills to support comprehension; [and] avoids vague or ambiguous language and digressions that disrupt continuity...The discourse is not limited to rapidly paced recitation that elicits short answers to miscellaneous questions. Instead, it features sustained and thoughtful development of key ideas (pp. 18, 19)

Brophy’s statement suggests that pacing and continuity (momentum) are aspects of effective teaching.

A number of studies have been conducted attempting to determine a relationship between instructional pacing and student success, especially on the topic of reading. Some studies have focused on the concept of pacing as it relates to the amount of instructional material covered in the classroom; fast-paced lessons cover more material than slow-paced lessons (Barr, 1974; Barr, 1975; Carnine, 1976; Hoadley, 2003). Results from these studies have suggested that there is a relationship between differential pacing and ability level. Barr (1974) indicated that differential pacing resulted in a highly varied group of readers, while homogeneous pacing did not. In general, a more rapid pace was associated with higher learning. Highly able students paced at a moderate level achieved below what was expected based on their ability. While the effect was linear, there was a point where a drop in student outcomes occurred when paced either extremely slowly or extremely rapidly. This appears to echo a statement by Grobe, Pettibone, and Martin (1973) that, “a slow pace may have bored students to the point of generating their own communications; a fast pace may have lost students...while a moderate pace may have maximized student attention” (p. 75). Furthermore, Barr (1974) concluded that homogeneously paced classes proceeded at slower rates as compared to the “middle” group of differentially paced classes. Differential pacing, however, did not seem to help those students in the low ability groups. Additionally, Barr (1975) discovered that pacing was influenced by colleague interaction and “steering groups” (students identified as being between the 10th to 25th percentile of readiness).

Brophy and Evertson (1976) stated that students’ willingness and readiness to respond to teachers was related to their socioeconomic status, and the pacing of the lesson. In contrast to Barr’s (1974, 1975) studies, Brophy and Evertson’s findings stated that “it was better for teachers in low SES schools to teach less, but to teach it thoroughly to the point of overlearning, than to try to move too fast and leave some children confused” (p. 83). This slower pace
facilitated student responses. However, a faster pace was suggested for high SES students since, “the children usually knew most of the answers and because they were likely to get restless and distracted if forced to wait too long for someone to try to think out a problem and come up with a response” (p. 84).

Not only have faster-paced lessons positively influenced student outcomes, but they also appear to evidence a reduction in off-task behaviors, noise level, and an increase in correct answers and student participation (Carnine, 1976; Grobe et al., 1973; Kounin & Doyle, 1975). Kounin and Doyle (1975) sought to answer the question: Do more continuous and unlagging lessons provide greater task involvement of a group of children? This study was a continuation of a previous study (Kounin & Gump, 1974), which attempted to predict student behavior while examining signal systems. The results of the 1974 study indicated that the individualized lessons evidenced the least amount of off-task behavior, followed by teacher-led continuous signals. Results from the 1975 study confirmed the previous finding, revealing that multiple shifting sources were more prone to high off-task behavior than a single continuous system. The researchers concluded that the continuity of a lesson’s signal system could be used to account for why smoothness and momentum were correlated with task involvement in a classroom setting.

Additional studies have made specific references to pacing as determining the rate of work in an activity (Stodolsky, 1984; Waxman & Eash, 1983; Wyne & Stuck, 1982). While the term “pacing” was not specifically defined by Waxman and Eash (1983), their results indicated that effective pacing had a significant positive effect on achievement tests, especially those students with low socioeconomic status. In drawing parallels between teaching machines and classroom learning, Gage (1972) suggested that the “pacing unit” was the teacher’s speed of reaction to pupils’ responses, and the teacher’s rate of proceeding from one statement/question to the next based on how well the class proceeded through the material. Conceding that the term “pacing” is borrowed from Gump (1967), Stodolsky (1984) referred to pacing as a form of locus of control consisting of four categories: (1) teacher, (2) student, (3) student-teacher (cooperative), and (4) mechanical. Implying that teacher-controlled pacing is most effective, Wyne and Stuck (1982) suggested that pacing is the general category that establishes and regulates smooth and productive flow of learning activities. Efficient pacing reduces wasted time. Their suggestions to improve pacing included: keeping directions to a minimum, using
visual aids to illustrate tasks, directing students to begin only after instructions have been presented, and establishing clear and concise rules. Levie and Lezotte (cited in Scheerens & Bosker, 1997) echoed these ideas in their statement that “appropriate pacing and alignment” refers to the structure and tempo of instruction. The concept of structure here refers to such teaching techniques as direct instruction and mastery learning. However, their reference to tempo as it relates to pacing suggests that there should be “relatively rapid pacing” even for low-achieving groups.

Gump (1964) conceptualized the classroom as a system in which a number of variables interact with each other in a unified environment. In addition to the conspicuous variables of teacher and student, Gump also emphasizes temporal differentiation as a unifying element in the classroom environment. He stated, “[the pupil’s] response is limited, supported, and coerced by a system that integrates these elements. His learning will be determined by the nature of the system and by his ability to utilize its potentials” (p. 166). Gump’s statement lends credence to the supposition that effective pacing, as a temporal element of classroom momentum, is integral to a student’s learning environment.

**Pacing and Focus of Attention**

Pacing can be understood as the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material. When the pacing of a lesson is not effective (not continuous, or contains errors), then one’s focus of attention is drawn to it as an incongruity, or low point in the flow of the lesson. A large body of research supports the theory that “low points” in music are often associated with softer dynamic levels, the beginnings of new sections, and transitional moments within a piece of music (Madsen & Geringer, 2000/2001; Madsen & Geringer, 2008). Similarly, low points in pacing may also be related to focus of attention. As an incongruous event occurs, the observer’s attention is pulled out of the content of the lesson, and is drawn to the lapse in pacing as a distraction. As Madsen (1997) mentioned acutely, “teachers of any subject at every level of instruction are interested in each student’s ability to focus attention and stay on task” (p. 80). In many focus of attention studies, incongruities were purposefully distributed to act as competitions for focus of attention (Madsen, 1987; 1997; Madsen & Geringer, 1981; Madsen & Wolfe, 1979; Southall, 2003). Future research on pacing and focus of attention might also manipulate distracting events across time to determine the
perceived effectiveness of a teacher’s pacing. Much like music listening (Madsen, Geringer, & Madsen, 2009), it appears that the most important task concerning teaching is to keep the students on task, and lapses in pacing might cause students to focus on the lapse rather than on lesson content. Similar to the focus of attention model proposed by Madsen and Geringer (2000/2001), the efficacy of teacher evaluation rests on effective discrimination regarding those behaviors associated with effective and ineffective pacing. If students’ focus of attention over time is the *sine qua non* of effective instruction, then any competing event or lapse in pacing represents a disruption of that focus.

In focus of attention studies (Madsen, Brittin, Capperella-Sheldon, 1993), “aesthetic response” was not specifically defined, but was rather individualized by listeners, and they brought with them logical templates to the listening experience. Similarly, observers may bring with them an ambiguous, yet logical template for evaluating teachers. The definition outlined by Madsen and Madsen (1997) of an aesthetic experience might not be that dissimilar to a definition of pacing. They define an aesthetic experience as “the composite emotional and intellectual responsiveness to music that is modified and reinforced through time and always defined as good” (p. 47). Similarly, a lapse in pacing, as defined here, would run counter to the emotional and/or intellectual expectations of the observer when expecting “good pacing.” Low points in pacing might correspond to topical transitions, disruptions in instruction or delivery, and high points in pacing might occur during sustained delivery periods during which accurate information is being presented. This would be similar to results of the aesthetic response literature (Madsen et al., 1993), the results of which indicated that “points of lesser interest generally occurred during musical transitions and points of higher interest occurred during sustained melodic passages” (p. 63).

**Statement of the Problem**

If one goal of music education programs in the United States is to prepare future music teachers with the skills necessary to develop and teach content knowledge, then both sides of that dichotomous structure should be addressed. Many music education programs in the United States provide students with the content knowledge necessary for classroom instruction in K–12 music classrooms. This is accomplished in a variety of ways from vocal and instrumental methods courses to music literature and rehearsal techniques courses. Research has indicated that the teaching style of subject matter is just as important (if not more so) than the content itself
As a result, it seems necessary to determine what constitutes effective presentation of content. While a singular definition of teacher effectiveness seems somewhat elusive, attempts have been made to isolate subsets of this construct, namely, teacher intensity.

Although research on teacher intensity abounds, little seems to exist on a seemingly fundamental tenet of teacher intensity, effective pacing. A number of studies have examined two of the three major components of teacher intensity (presentation/correction of the subject matter and enthusiastic affect); research on “effective pacing” has been conspicuously absent. If effective pacing is a necessary component of teacher intensity, and teacher intensity is a desirable aspect of effective teaching, then it would seem that it deserves further study. Therefore, this study examined the following research questions:

1. Will participants recognize effective pacing as the continuous flow of instruction (verbal/oral/gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material?
2. What types of lapses in lesson delivery are associated with greater and lesser teacher effectiveness, teacher intensity, and teacher pacing? What is the relationship between pacing lapse duration and group ratings of teacher effectiveness/teacher intensity, teacher pacing/general perceptions?
3. What is the relationship between pacing and teacher effectiveness and teacher intensity? Are these constructs mutually exclusive, or are they related in some way? More specifically, this study was designed to examine this relationship across time in a realistic, but scripted teaching situation.
CHAPTER THREE

METHOD

The purpose of this study was to examine the perception of pacing in music classrooms, and its relationship to teacher effectiveness and teacher intensity. Specifically, this study sought to generate an operational definition of pacing, and to determine if college students perceived pacing as the continuous flow of instruction (verbal/oral/gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material.

Teaching Stimuli

The most challenging aspect of this study was in creating the independent variable (i.e. the teaching stimulus video with the pacing lapses). The teaching stimulus was designed and scripted to represent a typical lecture in a college music appreciation classroom. The topic of the lecture was Peter Grimes, an opera by Benjamin Britten.\footnote{Subject matter for the lecture was derived from Benjamin Britten: A Biography, by H. Carpenter, 2003, New York: Faber & Faber, Inc.} The first two minutes of the lecture began with a brief introduction of Benjamin Britten, and the historical context during which the opera was written (World War II). The lecture continued with an account of Britten’s travel to and activities in the United States (approximately 1 minute). The teacher then spent the next minute describing the poem upon which the opera was based. The next two minutes contained information relevant to the history of English composers, and a discussion of Benjamin Britten’s contemporaries. The teacher then spent approximately two minutes providing a description of the scene of the opera. The next four minutes described the characters contained within the opera. Following this, the teacher spent approximately four minutes discussing the plot of the opera, and provided the class with musical examples. The lesson concluded with the teacher connecting the meaning of the opera with events in the composer’s life. See Appendix B for a complete transcript of the videotaped lesson.

After much deliberation, and several pilot projects, it was decided that a scripted teaching demonstration should provide more information than \textit{in situ} observations of preexisting
videotaped lessons. Thus being scripted, it was the intent that participants analyze a “real”
teaching situation in as “normal” a situation as possible in order to provide their reactions to the
teaching stimuli. While providing more control, this manner of stimulus presentation allowed for
a “believable” situation, as opposed to a “laboratory approach” (Madsen & Geringer, 1990). Of
particular importance was the selection of a “model teacher” to provide the stimulus for the
teaching demonstration. The music education area coordinator at the College of Music was asked
to provide a list of possible candidates to fulfill this role. Selection criteria included: a firm
command of the subject matter, dynamic presentation skills, knowledge of technology,
demonstrated success in public school education, and acting/drama experience was preferred.
After consulting a panel of experts, which included music education, music theory, and music
therapy professors in the College of Music, the model teacher was selected based on his facility
in demonstrating the selection criteria. The model teacher had 10 years of professional teaching
experience. This included experience teaching choral ensembles, music theory, guitar, and piano
classes at the high school level, and choral conducting and choral ensembles at the collegiate
level. He also had experience performing in professional, academic, and community theater
productions.

Since the focus of this study was on teacher effectiveness, teacher intensity, and teacher
pacing, the decision was made to provide participants with a videotaped lesson that focused only
on the teacher. As a result, the lecture format was deemed most appropriate for this study.
Students were purposefully kept out of view of the camera to remove them as possible
confounding variables relating to participants’ ratings. The topic Peter Grimes was chosen after
much deliberation on the subject. After the model teacher was selected, the researcher met with
him to discuss possible topics to demonstrate effective and ineffective teacher effectiveness,
teacher intensity, and teacher pacing. The model teacher was asked to prepare a 15- to 20-minute
lecture on a topic that would be appropriate for a collegiate-level music appreciation or music
history class. Peter Grimes was selected based on its appropriateness for a lecture-style, music
appreciation class, and based on the model teacher’s familiarity with it. The teacher indicated
that Benjamin Britten was his favorite composer, and he was intimately familiar with the opera
Peter Grimes. He was on the production crew of this opera when it was performed at
Tanglewood for the opera’s 50th anniversary in July 1996. It became obvious that he had a true
passion for the topic and the music.
Stimulus Creation

For the initial taping session, the researcher instructed the teacher to prepare a 15- to 20-minute lecture on *Peter Grimes* that would be appropriate for an entry-level music appreciation/music history class at a college or university. The teacher was asked to include at least four instances of technology use in the lecture (audio recordings, video examples, scenery, etc.). Additionally, he was instructed to provide his “best teaching effort” so that the location and intensity of pacing lapses could be determined. After an exhaustive review of literature (see chapter 2), five categories of pacing lapses were devised. These poor pacing lapses were conceptualized as transitions connecting instructional segments of the lesson. Five different pacing lapse categories were devised based on the premise that effective pacing is the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material. The five categories were: speech, movement, technology, administrative, and syllabic/word velocity (rate of speech). Speech was conceptualized as a transition from one idea to another. Movement was considered a transition connecting speech, movement, and speech. Technology was described as a transition from speaking, to technology use, and then to speaking. An administrative lapse was a transition from speaking, to classroom logistics, to speaking. Word/syllabic velocity was defined as a noticeable slowing of speech.

**Independent Variable: Pacing Lapses**

After creating the five categories of pacing lapses, specific examples were constructed. Speech lapses included pauses in speech pattern lasting between two to four seconds. These included statements like, “I lost my train of thought,” or, “what was I going to say?” The length of time for the speech pauses was determined after reviewing research related to language and speech utterances (Boomer & Dittmann, 1962; Goldman-Eisler, 1961). Movement lapses included teacher movement that constituted a disruption in the lesson content. These could include the teacher spending time looking for misplaced materials, writing on the chalkboard, etc. Technology lapses consisted of the teacher having difficulty in seamlessly integrating technology use into the lecture (i.e. having trouble activating/deactivating technology). Administrative lapses were defined as using lecture time for non-instructional purposes (i.e. taking attendance, collecting/distributing handouts). Word/syllabic velocity lapses included the teacher speaking at a slow rate of speech as though he was thinking about something, or lost his
focus of attention. Specific locations, durations, and descriptions of pacing lapses are found in Table 3.1. In an attempt to address possible order effects, four randomized orders of pacing lapses were created. Their temporal placement was randomly assigned for their appearance in the stimulus. Placement order was determined by using the web-based randomizer Research Randomizer (Urbaniak & Plous, 2010). The temporal location of pacing lapses did not follow a strict timeframe (i.e. one every 30 seconds). This was purposefully done to mimic a real-life teaching situation; for in a true teaching situation, feedback, pacing lapses, etcetera are not homogeneously distributed (Duke, 1999/2000).

After the pacing lapses were constructed, and an order was determined, the researcher and model teacher rehearsed the lecture. Each of the rehearsals and the final performance were recorded onto mini digital videocassettes (mini DV). Two cameras were used to provide the best viewing angle of the teacher as he moved about the classroom. The mini DV cameras used for filming were a Canon GL2 and a Sony DCR-HC46. The first attempt involved the researcher cueing the teacher at specific points in time for each of the pacing lapses. After several rehearsals of this format, it was determined that this format was too distracting for the teacher in preparing for the pacing lapses. As a result, the researcher and the teacher agreed that the use of a teleprompter-like device might be more beneficial, and provide a more seamless integration of the pacing lapses within the lesson. This effect was achieved by using an LCD projector, and projecting the image against the back wall of the classroom, out of view of the cameras. This “teleprompter” included a teacher-generated outline of the lecture, with the pacing lapses inserted into the outline. The outline served as an organizer for the teacher, and the scripted lapses allowed him to know which lapses were coming, and how to prepare for them within the structure of the lesson. After comparing this rehearsal with the previous “cued” version of the pacing lapses, a panel of experts determined that the second rehearsal (scripted + teleprompter) appeared to be more “natural.”

A second scripted rehearsal occurred approximately one week after the first. A panel of four experts with a combined 70 years of teaching experience reviewed the second rehearsal. After reviewing the second rehearsal, the panel made the following suggestions: make the pacing lapses longer in duration, focus more on the teacher’s face to capture his affect, and reword some of the lesson to make it less controversial (i.e. change “whore house” to “brothel”). The final rehearsal included student “actors” to sit in the classroom seats to give the illusion that this was
Table 3.1

*Location, Duration, and Description of Pacing Lapses in Stimulus Video*

<table>
<thead>
<tr>
<th>Lapse</th>
<th>Time</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>00:16</td>
<td>31 sec.</td>
<td>Administrative: Teacher collects student homework.</td>
</tr>
<tr>
<td>2</td>
<td>01:27</td>
<td>10 sec.</td>
<td>Technology (negative): Teacher has trouble manipulating the document camera to display destruction of European towns.</td>
</tr>
<tr>
<td>3</td>
<td>02:36</td>
<td>10 sec.</td>
<td>Velocity: Teacher’s speech slows while trying to remember Nazi composers.</td>
</tr>
<tr>
<td>4</td>
<td>03:32</td>
<td>22 sec.</td>
<td>Movement: Uses chalkboard to notate poem title and author.</td>
</tr>
<tr>
<td>5</td>
<td>04:34</td>
<td>26 sec.</td>
<td>Speech: Teacher pauses to wait for student response.</td>
</tr>
<tr>
<td>6*</td>
<td>05:22</td>
<td>N/A</td>
<td>Technology (positive): Teacher seamlessly integrates Powerpoint into lecture.</td>
</tr>
<tr>
<td>7</td>
<td>06:39</td>
<td>37 sec.</td>
<td>Movement: Teacher looks for handout, distributes them.</td>
</tr>
<tr>
<td>8</td>
<td>07:48</td>
<td>17 sec.</td>
<td>Administrative: Teacher inquires as to whereabouts of absent student.</td>
</tr>
<tr>
<td>9</td>
<td>08:25</td>
<td>9 sec.</td>
<td>Speech: Teacher pauses speech.</td>
</tr>
<tr>
<td>10</td>
<td>10:04</td>
<td>9 sec.</td>
<td>Velocity: Teacher slows speech to remember character’s name.</td>
</tr>
<tr>
<td>11</td>
<td>10:57</td>
<td>28 sec.</td>
<td>Movement: Teacher inquires about handout, and crosses room to retrieve another.</td>
</tr>
<tr>
<td>12*</td>
<td>12:19</td>
<td>N/A</td>
<td>Technology (positive): Seamlessly uses audio recording in lecture.</td>
</tr>
<tr>
<td>13</td>
<td>13:33</td>
<td>6 sec.</td>
<td>Speech: Teacher pauses speech.</td>
</tr>
<tr>
<td>14</td>
<td>14:03</td>
<td>11 sec.</td>
<td>Velocity: Teacher slows speech as if trying to remember a part of the opera.</td>
</tr>
<tr>
<td>15</td>
<td>15:02</td>
<td>5 sec.</td>
<td>Speech: Teacher pauses speech.</td>
</tr>
<tr>
<td>16</td>
<td>15:45</td>
<td>20 sec.</td>
<td>Velocity: Teacher slows speech, and overemphasizes his point.</td>
</tr>
<tr>
<td>17</td>
<td>16:19</td>
<td>15 sec.</td>
<td>Administrative: Tardy student enters classroom, and teacher checks watch, and marks the attendance book.</td>
</tr>
<tr>
<td>18</td>
<td>17:15</td>
<td>23 sec.</td>
<td>Technology (negative): Audio recording does not play, teacher cues wrong part of recording.</td>
</tr>
</tbody>
</table>

* = Positive technology example
an intact classroom setting. The final version of the stimulus was recorded in the same room as
the rehearsals using the same technology. The classroom used was a music classroom in the
university’s college of music building. Throughout the taping process, the teleprompter, cameras,
and “student” faces were kept out of view. Two cameras recorded two “takes” of the scripted
teaching demonstration.

The two raw videotapes were edited and mastered by an audio/video editor, who had nine
years of multimedia editing experience, including formal classroom training in digital media
productions, and applications of technology in music education. Additionally, he holds Level 1
certification from the Technology Institute for Music Educators (TI:ME), and has extensive
experience with the software applications used to edit the recorded video in this study. The
stimulus video was created to mimic evaluation of a microteaching experience (Walberg, 1991).

All video was imported directly from both cameras into iMovie™ ’09 using a Universal
Serial Bus (USB) 2.0 cable and port. It was determined that the audio from camera One (left side
of the classroom), take one, would be used for all video clips except for one, which used camera
One, take two. In order to utilize the proper audio for each clip, the corresponding video was
found within the camera One, take one footage, and the audio was detached from the video. The
actual audio level for each video clip was then set to zero, while the applied detached audio level
was set to 100%. The detached audio was then repositioned linearly until it became
synchronized with the video. Cross dissolve transitions were used where appropriate, and a fade
to black transition was used at the end. Where necessary, a sample of ambient noise was used as
a mask over transitions using Adobe Soundbooth CS4™. The clip trimmer tool was utilized to
make precise audio and video edits. Chapter markers were “dragged and dropped” into specific
positions in the film in order to locate the pacing lapses more easily during the reliability
process. When audio and video edits were complete, the movie file was transferred to iDVD™
’09. The menu screen included the text “Play Movie,” and “Chapter Titles,” with 30 seconds of
background music in a continuous loop. The completed iDVD™ ’09 project was burned to a
standard recordable DVD.

Implementation of the Independent Variable

A panel of five experts, with a combined 77 years of professional teaching experience,
determined reliability of the location and type of pacing lapses. The experts were asked to
indicate when they noticed a pacing lapse in the stimulus video. They were then asked to indicate
which type of pacing lapse (speech, movement, technology, administrative, and syllabic/word velocity) they believe they observed. There was near perfect agreement among the panel of experts (.98). Reliability was computed using the formula: agreements ÷ (agreements + disagreements) (Madsen & Madsen, 1998). The panel of experts uniformly agreed that the pacing lapses present in the video would be representative of pacing lapses likely to occur in this type of classroom setting (i.e. lecture format, college music appreciation class).

**Independent Variable: Constructs**

Since the construct of “pacing” has received little empirical study in the research literature, it was determined that preexisting and well-researched constructs should be used for comparisons. Therefore, teacher effectiveness and teacher intensity were used as comparison groups. A control group was also used to make additional comparisons among groups. Careful consideration was given when presenting materials and instructions to the four groups to help reduce the possibility of an expectancy effect. Prior to viewing the stimulus, reference was made only to participants’ assigned constructs. For those in the control group, no reference was made to “teacher effectiveness,” “teacher intensity,” or “teacher pacing.” Control group participants were simply asked to rate their perceptions of the video.

**Pilot Study 1**

In order to determine the feasibility of this study, a pilot study was conducted using the stimulus video. The stimulus video, response forms, and CRDI overlays were piloted on a panel of experts with a combined 20 years of professional teaching experience. Following this pilot study, the experimenter solicited feedback from the panel of experts. The following suggestions/recommendations were made: (1) There was some confusion regarding the wording of the CRDI overlays. The anchors “More/Less” were misinterpreted for the Teacher Pacing group. It was recommended that “Good/Bad” be used for all of the four conditions (Teacher Effectiveness, Teacher Intensity, Teacher Pacing, Control Group). (2) The panel expressed a desire to condense the instructions prior to the stimulus video; however, instructions should specify that participants are encouraged to move the dial throughout the video. (3) The pilot participants expressed dismay over the subject matter questions (see Appendix D, “Draft”) following the stimulus video, and suggested that the questions either be removed or be emphasized more in the instructions. Subjects felt that since they were focusing on evaluating the teacher, they could not devote enough attention to the subject matter. The first two
recommendations were incorporated into the second pilot study. It was decided to retain the subject matter questions as an additional tool to focus participants’ attention on the stimulus video.

**Pilot Study 2**

The second pilot study was conducted approximately three weeks following the first pilot. The second pilot study incorporated two of the three suggestions from the first pilot study in order to refine the procedure: (1) The CRDI overlays were changed so that all four groups used overlays with “Good/Bad” as anchors. (2) The instructions to the participants were condensed, and were written down to clarify the process for subjects. Mention was also made that subjects should move the dial during the video. Additionally, the instructions were reworded to provide more control between the four groups. Much of the wording was identical for the four groups.

For the second pilot study, thirteen students from the target population were used. Subjects were music majors enrolled in a large, comprehensive university in the Southeastern region of the United States. The sample for the second pilot study \( (N = 13) \) consisted mostly of music education majors \( (n = 11) \), but also included one music performance major, and one conducting major. Ten of the thirteen had between one and thirteen years of professional teaching experience. Since the participants of the previous pilot study found the stimulus to be representative of an *in situ* teaching demonstration, the same stimulus video was used for the second pilot study. Suggestions and recommendations were solicited from the participants in the form of both written and oral feedback. Based on the results of the second pilot study, a number of revisions were made both to the data collection instrument, and the procedures.

Regarding the participant response form and questionnaire, the Likert-type scale practice example was deemed unnecessary, and thus removed from the form. A demographic information question was revised by asking participants the number of years “paid professional” experience they had, instead of simply asking for the number of years teaching experience. Rather than providing the definition of “teacher intensity” in prose form, since participants indicated this was too much to comprehend, it was reduced into a bulleted list. The order of questions was changed to reflect an evaluation that moved from specific elements (evaluate the teacher’s pacing, intensity, etc.), to an overall summative assessment of the teacher. Additionally, the demographic information was separated from the questionnaire to prevent off-task behavior in the participants.
The first sheet given to the participants included only demographic information, and the instructions. The questionnaire included static measures of the teacher’s performance, and space for additional free response comments to encourage general comments on any aspect of the study. Since previous research (Madsen & Coggiola, 2001) has demonstrated that the Continuous Response Digital Interface is an effective means of focusing participants’ attention, the need for subject matter questions following the stimulus were deemed unnecessary. Finally, participants were provided more ambient light to complete the response sheet and questionnaire, were reminded to read the instructions, and were alerted aurally when the stimulus video was about to begin.

**Participants**

Participants were 164 college students at a large comprehensive university in the Southeastern United States. Each was given an informed consent form, which had been approved by the university’s institutional research review board (see Appendix A). The form indicated that (1) the study concerned students’ perceptions of teaching, (2) they were not required to participate, and (3) if they chose not to participate, or withdraw at any time, they would not be penalized in any way. All participants signed the form and took part in the study. Participants included undergraduate (n = 120) and graduate students (n = 44). The participants included 75 males and 89 females. The participants represented both music (n = 112) and non-music majors (n = 52). The majority (79.3%) of participants indicated that they had no professional teaching experience. Additionally, 9% indicated that they had between one and three years of professional teaching experience. For this study, participants were recruited haphazardly from the general population of the college of music at the university. For this reason, generalizations to populations should be made with caution. Participants made pre-arranged appointments with the researcher, and “walk-ins” were also encouraged.

**Dependent Measure: Continuous Response Digital Interface**

Much like a listener’s evaluation and enjoyment of music, evaluation of teaching is a situation that unfolds over time. As a result, many of the static measurements available to the teacher evaluator only offer a “snapshot” of the total teaching experience. The Continuous Response Digital Interface (CRDI) is one type of measuring device designed to measure responses over time. Developed in the late 1980s, the CRDI was intended to allow listeners to respond non-verbally during ongoing music and/or during visual presentations (Geringer,
Madsen, & Gregory, 2004). Participants manipulate a dial designed to move in a 255-degree arc (See Figure 3.1). This dial is connected to a potentiometer, which is in turn connected to the interface. The interface acts as an analog-to-digital converter, and sends the voltage fluctuation data (via USB cable) to a computer. The CRDI allows listeners/viewers to respond differentially across time, which is a function not afforded to such static measurements as Likert scales, Osgood semantic differential scales, and behavioral checklists. As a tool to measure ongoing

![Figure 3.1. Photograph of the Continuous Response Digital Interface.](image)

responses, the CRDI has been widely used to measure focus of attention, evaluation, aesthetic response, discrimination, and perception. As Simpson (2009) argued, “static measures may not adequately capture the entirety of the listening experience” (p. 27). Research has shown that continuous evaluations and summative evaluations of the same stimuli can be substantially different (Brittin & Duke, 1997; Brittin & Sheldon, 1995; Duke & Colprit, 2001). Individuals tend to remember peak experiences, experiences that are more emotionally intense, and recency events when providing summative evaluations, suggesting that “the assumption that remembered affect equals the sum of all momentary affects fundamentally misrepresents how listeners encode and label past affective experiences” (Rozin, Rozin, & Goldberg, 2004, p. 15). In essence, listeners’ affective or aesthetic responses change throughout the listening experience.
Much like “aesthetic response,” the construct of “effective teaching” has no singular definition (Lychner, 1998; Madsen, Byrnes, Capperella-Sheldon, & Brittin, 1993). Much like “effective teaching,” pacing is a complex construct, which is difficult to measure, and certainly more research is necessary to improve upon precise terminology. Although, Lychner (1998) found that subjects responded similarly to the constructs: (1) aesthetic response, (2) felt emotional response, and (3) a Less/More continuum even without specifically defining the constructs for participants. The use of the CRDI has been well documented in performance evaluation and observation research (Blocher, Greenwood, Shellahamer, 1997; Brittin & Duke, 1997; Colwell, 1995; Davis, 1998; Fredrickson, 1994; Kelly, 2003; Madsen, 1990a; Siebenaler, 1997). The CRDI has been shown to be a reliable and valid measure for a variety of constructs (Geringer, Madsen, & Gregory, 2004; Gregory, 1995). Based on the use of the CRDI in past research studies in attempting to identify and define complex constructs (felt emotion, aesthetic experience, etc.) over time, it was decided that this measuring device would prove beneficial in measuring observers’ perceptions of teacher effectiveness, teacher intensity, and pacing over time. Additionally, manipulation of the CDRI dial has been shown to focus attention on a task (Madsen & Coggiola, 2001).

**Materials**

One of the benefits of using the CRDI is its great flexibility as a reliable and valid tool to measure ongoing responses (Geringer, Madsen, & Gregory, 2004; Gregory, 1995). As part of its flexibility, the device is constructed such that a variety of visual overlays can be placed over the

![Figure 3.2. Continuous Response Digital Interface Overlay.](image-url)
dial corresponding to a number of different dependent measures. For the purposes of this study, participants viewed a teaching demonstration, and evaluated it based on their perceptions of one of four conditions: the teacher’s effectiveness, the teacher’s pacing, the teacher’s intensity, and generic perceptions of the video (Good/Bad continuum). One master overlay was created to represent a 255-degree arc, representing the corresponding voltage fluctuations by the potentiometer of the CRDI (see Figure 3.2). The overlay was constructed after consulting with two expert researchers with extensive experience in CRDI research. These two researchers have published a combined 35 peer-reviewed articles related to the CRDI over a period of 20 years. All of the overlays for the CRDI dials were identical. To help control for variations in the four groups, group-specific written instructions were provided on the response sheets.

Four separate response forms were constructed to correspond to each of the four groups: (1) Teacher Effectiveness, (2) Teacher Intensity, (3) Teacher Pacing, and (4) Control. The response forms (see Appendix D) were modeled after response forms developed by Madsen, Brittin, and Capperella-Sheldon (1993), Juchniewicz (2010), and Madsen (2003). Much of the original wording from these studies was retained on the response forms for the present study.

Design

The purpose of this study was to determine the relationship between pacing, teacher intensity, and teacher effectiveness. While experimental isolation is desirable in any research setting, “such effective experimental isolation can almost never be assumed in research on teaching methods” (Campbell & Stanley, 1963, p. 7). This study was designed to facilitate a sequential refinement of the dependent variable. It was an attempt to tease out variables within the larger construct of teacher effectiveness and teacher intensity. As a result, the study was developed in such a way that the effect of pacing lapses (of different variety and length) was examined with regard to participants’ ratings of three different constructs present within teacher effectiveness literature. Three different groups represented the three constructs. Group A was asked to evaluate “teacher effectiveness,” group B was asked to evaluate “teacher intensity,” and group C was asked to evaluate “teacher pacing.” To determine if these constructs were related in some way, the participants’ ratings were compared among these groups in an attempt to isolate the pacing variable. In attempting to isolate this variable, it was hoped that an understanding of pacing as a construct would be approached, since “relationships based on very small aggregations of process events can have great theoretical and practical value” (Needels and
Gage, 1991, p. 6). Additionally, a fourth (Control) group was added, and these participants were simply asked to indicate their perceptions of the video. For this study, 164 participants were randomly divided among the four groups. Participants were randomly assigned to the Teacher Effectiveness Group \((n = 41)\), the Teacher Intensity Group \((n = 41)\), the Teacher Pacing Group \((n = 41)\), and the Control Group \((n = 41)\).

As indicated earlier, the type of pacing lapses were chosen after an exhaustive review of literature. The pacing lapses were presented in a variety of ways in an attempt to avoid a pattern of pacing lapses. The pacing lapses were presented in the following order: Administrative, Technology (negative), Velocity, Movement, Speech, Technology (positive), Movement, Administrative, Speech, Velocity, Movement, Technology (positive), Speech, Velocity, Speech, Velocity, Administrative, and Technology (negative).

Based on the pilot studies, no practice example was given for three reasons: (1) It was assumed that the participants were familiar with teacher evaluation, since the population (college students) regularly evaluate their professors both formally (i.e. course evaluation forms), and informally every semester; (2) It would have lengthened the administration process, which could have increased participant fatigue; and (3) The researcher did not want the participants to make comparative judgments from a practice example using a different teacher.

**Procedures**

The final stimulus DVD was played on a Cyber Home DVD player (Model CH-DVD 300) connected to a Samsung television (Model TXC2526D) in a soundproof room in the College of Music. The audio was routed through a Solo-Phone (Shure Brothers, Inc.), model SA-1 using standard RCA composite audio/video cables. The audio was then split to four AKG K-2405 Semi-Open Studio Headphones. Participants were seated at two tables in groups of four or fewer, and were partitioned from each other so that participants were out of view from each other. Thus, each participant was isolated in his/her own listening and viewing station with a CRDI dial placed in front of him/her on the table. The initial position of the CRDI dial was in the vertical, or neutral position, which corresponded to a measurement of 128 degrees on the device, half way between each Good/Bad anchor. The CRDI produced numerical data, which was time sampled once every .5 seconds. Lighting in the room was dimmed so that participants could better see the television without a glare from overhead lights.
When participants entered the room, they were seated at one of the listening/viewing stations (Figure 3.3), and asked to complete a consent form (see Appendix A). Participants then completed a response form, which asked for demographic information (see Appendix D). Participants were then asked to follow along as the experimenter read the instructions aloud:

In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about *Peter Grimes*, an opera by Benjamin Britten. Please move the dial during the video to indicate your perceptions of ongoing teacher effectiveness (Group A)/your perceptions of ongoing teacher intensity (Group B)/your perceptions of ongoing pacing (Group C)/your perceptions (Group D). Please move the dial back and forth now. Do you have any questions?

![Figure 3.3. Physical Layout of the Research Lab.](image)

Participants were not given any specific definitions of the constructs (effectiveness, intensity, pacing, control). While watching the stimulus DVD, the participants manipulated the CRDI dial to indicate their perceptions. Following the teaching demonstration, the experimenter asked the participants to complete a brief questionnaire (see Appendix D), which contained a summative evaluation of the teacher, and a free response portion. The experimenter collected the response
form and questionnaire, and the participants exited the room. For a full transcript of events, please refer to Appendix C.
CHAPTER FOUR

RESULTS

This study was designed to examine the perception of pacing in music classrooms, and its relationship to teacher effectiveness and teacher intensity. Specifically, this study generated an operational definition of pacing, and attempted to isolate the pacing variable from the existing definition of teacher intensity. This study was designed to determine if college students perceived pacing defined as the continuous flow of instruction (verbal/oral/gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material.

Graphic Analysis

Data were collected in numerical format via the Continuous Response Digital Interface (CRDI), which collected data points for participants every 1/2 second. The teaching stimulus lasted for nineteen minutes and twenty-one seconds, which resulted in 2,322 data points for each participant. Participants’ mean CRDI ratings and standard deviations were charted graphically for all four groups (teacher effectiveness, teacher intensity, teacher pacing, and control). A composite graph plotting all groups’ mean ratings was charted. Visual analysis of the composite mean ratings (see Figure 4.1) revealed that participants were able to discriminate among the various pacing lapses. Based on visual inspection, it also appears that almost all of the pacing lapses functioned as intended (see Appendix E for authentication of each graph). Further inspections of each group’s mean ratings (see Figures 4.2–4.5) revealed a relatively small standard deviation, indicating general agreement regarding CRDI ratings within each group. Graphic data also suggest that all four groups differentiated between “Good” and “Bad” moments of their assigned construct (teacher effectiveness, teacher pacing, teacher intensity, and ongoing perceptions) resulting in “peaks” and “nadirns” displayed on the graph.

While differences in ratings occurred among the four groups, the overall contour of the composite graph suggests that participants viewed all constructs similarly. However, differences do appear among the four groups with regard to the peaks and nadirs. Visual inspection of the peaks reveals that with one exception, the Pacing group rated these peaks the highest among the four groups. Interestingly, the one exception (at approximately 16:00) coincides with an intended
pacing lapse, a slowing of speech while the instructor overemphasizes his point. Additionally, the pacing group rated the nadirs the lowest among the four groups. Conversely, the Control group rated the peaks the lowest among the four groups, and the nadirs the highest of the four groups. This suggests that the magnitude of response was the highest for the Pacing group, and the lowest for the Control group. Analysis of the composite graphic data also revealed that participants used a large portion of the dial (from 0 to 255). An inspection of individual ratings indicated that some participants used the full range of the dial, while others used only a limited portion of the dial.

Figure 4.1. Graph of Composite Means for all Groups across Time

Across all four groups, the teacher was rated the lowest following pacing lapse 11. This “movement” pacing lapse lasted 28 seconds in duration, and consisted of the teacher asking a student if he received a handout, then crossing the room to retrieve another, a purposeful long
Figure 4.2. Mean Teacher Effectiveness Ratings and Standard Deviations across Time.

Figure 4.3. Mean Teacher Intensity Ratings and Standard Deviations across Time
Figure 4.4. Mean Teacher Pacing Ratings and Standard Deviations across Time.

Figure 4.5. Mean Control Group Ratings and Standard Deviations across Time.
interruption. Also rated among the lowest was pacing lapse 8. This was categorized as an “administrative” pacing lapse, and consisted of the teacher inquiring about an absent student. Ratings following this 17-second lapse were the second lowest across all four groups. Table 4.1 illustrates the five lowest-rated pacing lapses across all four groups, and their subsequent durations.

Table 4.1

Five Lowest-Rated Pacing Lapses across Groups

<table>
<thead>
<tr>
<th>Pacing Lapse &amp; Description</th>
<th>Duration</th>
<th>Rank (from low to high) by Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Movement</strong>: Teacher inquires about handout, and crosses room to retrieve another.</td>
<td>28 sec.</td>
<td>1 1 1 1</td>
</tr>
<tr>
<td><strong>Administrative</strong>: Teacher inquires about absent student</td>
<td>17 sec.</td>
<td>2 2 2 2</td>
</tr>
<tr>
<td><strong>Speech</strong>: Teacher pauses speech</td>
<td>9 sec.</td>
<td>3 4 4 4</td>
</tr>
<tr>
<td><strong>Velocity</strong>: Teacher slows speech as if trying to remember a part of the opera</td>
<td>11 sec.</td>
<td>4 5 xxx 3</td>
</tr>
<tr>
<td><strong>Movement</strong>: Teacher looks for handout, distributes them</td>
<td>37 sec.</td>
<td>5 3 3 5</td>
</tr>
<tr>
<td><strong>Technology</strong>: Audio does not play, cues wrong section</td>
<td>23 sec.</td>
<td>xxx xxx 5 xxx</td>
</tr>
</tbody>
</table>

Note: xxx = Did not appear in group’s five lowest-rated lapses.
The presence of all five types of pacing lapses in this table suggests that no one-type of lapse (speech, velocity, movement, etc.) was consistently viewed as most egregious. Due to the small sample size ($N = 20$), and subsequent small expected frequencies, a Kolmogrov-Smirnov test was used to determine if any particular pacing lapse appeared significantly more times among the five lowest-rated pacing lapses across the four groups. There were no significant differences in the number of times each pacing lapse category appeared, $D = 0.55, p > .05$. It is curious, however, that the technology pacing lapse only appeared in one of the groups’ lowest rated lapses (Pacing Group). Pearson correlation coefficients were calculated to determine the relationship between length of pacing lapse (in seconds), and group CRDI ratings. The group CRDI ratings for all of the pacing lapses were calculated by obtaining the mean CRDI rating for the duration of each pacing lapse. The variables of time and rating had moderate inverse correlations for the effectiveness group $r(14) = -.55, p < .05$; intensity group $r(14) = -.55, p < .05$; pacing group $r(14) = -.69, p < .01$; and the control group $r(14) = -.59, p < .05$, indicating that as the duration of the pacing lapse increased, the ratings decreased.

Peaks were also graphically inspected, and revealed that there were some similar trends across the four groups. Table 4.2 describes the five highest rated peaks across all four groups. Although graphic data suggest similarities among these constructs (effectiveness, intensity, pacing, control), there do appear to be differences in the manner in which groups interpreted the constructs.

The CRDI dial was set such that a vertical position of the dial corresponded to a neutral rating from the participants. This vertical position corresponded to a numerical reading of 128 of the dial’s 255-degree arc. Based on the graphic data, it appears that the teacher demonstrated instances of effective and ineffective teaching, high and low intensity, effective and ineffective pacing, and good and bad moments overall (control group). There were intervals of time when the ratings were above and below the neutral position (i.e. above/below 128 on the graph). Table 4.3 illustrates the percentage of time each groups’ ratings were above and below neutral (a rating of 128). Participants spent significantly more time with the dial in the positive (“Good”) direction than in the negative (“Bad”) direction for the Teacher Effectiveness group $\chi^2(1, N = 1155) = 82.67, p < .001$, the Teacher Intensity group $\chi^2(1, N = 1162) = 76.42, p < .001$, and the Teacher Pacing group $\chi^2(1, N = 1157) = 130.79, p < .001$. There was no significant difference
between time spent above and below the neutral position for the control group \( \chi^2(1, N = 1161) = 0.19, p > .05 \). These results suggest that the participants viewed the majority of the lecture as positive. This supposition is supported by two independent viewings of the teaching stimulus by an observer trained in behavioral analysis. Two independent viewings confirmed that the teacher in the stimulus spent the majority of the lecture on-task. Time on- and off-task with corresponding percentages are reported in Table 4.4.
Table 4.2  
*Five Highest-Rated Moments across Groups*

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Time (approx.)</th>
<th>Effectiveness</th>
<th>Intensity</th>
<th>Pacing</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio recording ends; 13:29 teacher describes trial</td>
<td>13:29</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Following velocity pacing lapse</td>
<td>16:16</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Teacher summarizes lecture</td>
<td>19:14</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Follows positive technology use; teacher describes English opera</td>
<td>6:33</td>
<td>4</td>
<td>xxx</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>First musical example</td>
<td>12:26</td>
<td>5</td>
<td>xxx</td>
<td>xxx</td>
<td>xxx</td>
</tr>
<tr>
<td>Teacher describes characters in opera</td>
<td>9:48</td>
<td>xxx</td>
<td>3</td>
<td>4</td>
<td>xxx</td>
</tr>
<tr>
<td>Teacher describes fight between characters; death of apprentice</td>
<td>14:54</td>
<td>xxx</td>
<td>5</td>
<td>xxx</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: xxx = Did not appear in group’s five highest-rated moments.
Table 4.3  
*Approximate Time Spent above and below the Neutral CRDI Position*

<table>
<thead>
<tr>
<th>Group</th>
<th>Time above Neutral (in seconds)</th>
<th>% total time</th>
<th>Time below Neutral (in seconds)</th>
<th>% total time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Effectiveness</td>
<td>732</td>
<td>63%</td>
<td>423</td>
<td>36%</td>
</tr>
<tr>
<td>Teacher Intensity</td>
<td>730</td>
<td>63%</td>
<td>432</td>
<td>37%</td>
</tr>
<tr>
<td>Teacher Pacing</td>
<td>773</td>
<td>67%</td>
<td>384</td>
<td>33%</td>
</tr>
<tr>
<td>Control Group</td>
<td>588</td>
<td>51%</td>
<td>573</td>
<td>49%</td>
</tr>
</tbody>
</table>

Note: Teacher Effectiveness percentage does not equal 100 due to rounding.

Table 4.4  
*Time Spent On- and Off-Task by the Teacher in the Stimulus Video*

<table>
<thead>
<tr>
<th>Reliability Observer</th>
<th>Time On-Task (in seconds)</th>
<th>% total time</th>
<th>Time Off-Task (in seconds)</th>
<th>% total time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>882</td>
<td>76%</td>
<td>279</td>
<td>24%</td>
</tr>
<tr>
<td>2</td>
<td>888</td>
<td>76%</td>
<td>273</td>
<td>24%</td>
</tr>
</tbody>
</table>
Statistical Analysis

The purpose of this study was to determine the relationship among the constructs of teacher effectiveness, teacher intensity, and teacher pacing. To determine if these constructs were related, mean CRDI data for each group were used in the analysis. Means for each group were obtained by averaging data points across each participant for the all of the time samples. Pearson product-moment correlation coefficients were computed to assess the relationship among teacher effectiveness, teacher intensity, teacher pacing, and control group mean ratings. There were strong, positive correlations between each paired dependent variable (see Table 4.5), indicating a significant linear relationship between the paired variables. Since the Pearson product-moment correlations revealed a relationship among these constructs, further analysis was conducted to investigate individual peaks and nadirs from the CRDI data.

For each of the four groups, the overall aggregate mean was computed by averaging all of the data points for all participants for the duration of the video. This procedure resulted in four aggregate means, one for each of the four groups (effectiveness, intensity, pacing, and control). To determine the general magnitude of participants’ responses within groups, several peaks and nadirs were compared to the aggregate mean within each of the four groups. These data support

Table 4.5
Pearson Product-Moment Correlation Coefficients among the Four Dependent Variables

<table>
<thead>
<tr>
<th></th>
<th>Effectiveness</th>
<th>Intensity</th>
<th>Pacing</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>1</td>
<td>.966*</td>
<td>.959*</td>
<td>.972*</td>
</tr>
<tr>
<td>Intensity</td>
<td>1</td>
<td>.964*</td>
<td>1</td>
<td>.970*</td>
</tr>
<tr>
<td>Pacing</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = Correlation is significant at the .01 level (2-tailed).
what is graphically represented in Figure 4.1. The range of possible ratings for the CRDI is 0 to 255, inclusive representing the 255 degree arc of the dial. “Peaks” were operationally defined as CRDI data points that were graphically represented as occurring above the neutral position (i.e. greater than 128). These consisted of the average of the top 10 data points (5 seconds) occurring at the highest points on the graph. “Nadirs” were operationally defined as CRDI data points that were graphically represented as occurring below the neutral position (i.e. less than 128). These consisted of the average of the lowest 10 data points (5 seconds) occurring at the lowest points on the graph. The five highest peaks and the five lowest nadirs from each group were analyzed to determine their relative magnitude. These peaks and nadirs were then compared to the aggregate mean CRDI ratings for each of the four groups to calculate their deviation from the aggregate mean (see Tables 4.6–4.9).

The lowest aggregate mean with the smallest standard deviation among the four groups was the Control group, as would be expected. The aggregate mean of the control group reveals that despite spending more time above the neutral position (128), the aggregate mean was 122.67, indicating that the control group viewed the teaching demonstration negatively, overall. The magnitude of their responses lowered the aggregate mean, despite spending more time above the neutral position. The aggregate mean for the Pacing group was the highest (136.28) among the four groups, and it also had the largest standard deviation (70.74). Each group’s distance from the aggregate mean (in SD units) with regard to peaks and nadirs suggests that the negatively rated moments were of a higher magnitude than the positively rated moments. It appears that despite having many positive moments demonstrated by the teacher, the magnitude of the negative ratings seemed to outweigh the positive ratings.

For each group, the peaks were compared with the nadirs to test for differences. A series of t tests (corrected via Tukey) confirms the information summarized in Tables 4.1 and 4.2. As might be expected, the mean scores for the top five peaks were significantly higher than the mean scores for the top five nadirs for the Effectiveness group, $t(59.3) = 83.12, p < .001$; the Intensity group, $t(81.15) = 71.45, p < .001$; the Pacing group, $t(98) = 81.23, p < .001$; and the Control group, $t(98) = 89.69, p < .001$. The differences between peaks and nadirs within groups were significant.

Data were analyzed to determine if differences existed among the mean ratings of the four groups at selected peaks and nadirs. Five separate one-way ANOVAs were calculated to test
for differences among the four groups for five selected peaks. Five separate ANOVAs were also calculated to test for differences among the four groups for five selected nadirs. Raw data consisted of mean ratings for predefined peaks and nadirs. Peaks and nadirs were chosen by visually inspecting the composite ratings graph in correspondence with the purposeful design to include pacing lapses. These consisted of 10 data points (5 seconds) from the same points in time across the four groups (see Figure 4.6). Results of the analyses revealed that there were

Table 4.6
Peak and Nadir Deviations from the Aggregate Mean for the Teacher Effectiveness Group

<table>
<thead>
<tr>
<th>Peaks</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>187.65</td>
<td>132.9 (66.11)</td>
<td>54.75</td>
<td>0.83</td>
</tr>
<tr>
<td>2</td>
<td>185.99</td>
<td>132.9 (66.11)</td>
<td>53.09</td>
<td>0.80</td>
</tr>
<tr>
<td>3</td>
<td>181.12</td>
<td>132.9 (66.11)</td>
<td>48.22</td>
<td>0.73</td>
</tr>
<tr>
<td>4</td>
<td>180.16</td>
<td>132.9 (66.11)</td>
<td>47.26</td>
<td>0.71</td>
</tr>
<tr>
<td>5</td>
<td>178.04</td>
<td>132.9 (66.11)</td>
<td>45.14</td>
<td>0.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nadirs</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.45</td>
<td>132.9 (66.11)</td>
<td>-106.45</td>
<td>-1.61</td>
</tr>
<tr>
<td>2</td>
<td>34.17</td>
<td>132.9 (66.11)</td>
<td>-98.73</td>
<td>-1.49</td>
</tr>
<tr>
<td>3</td>
<td>53.07</td>
<td>132.9 (66.11)</td>
<td>-79.83</td>
<td>-1.21</td>
</tr>
<tr>
<td>4</td>
<td>51.79</td>
<td>132.9 (66.11)</td>
<td>-81.11</td>
<td>-1.23</td>
</tr>
<tr>
<td>5</td>
<td>51.58</td>
<td>132.9 (66.11)</td>
<td>-81.32</td>
<td>-1.23</td>
</tr>
</tbody>
</table>
Table 4.7
Peak and Nadir Deviations from the Aggregate Mean for the Teacher Intensity Group

<table>
<thead>
<tr>
<th>Peaks</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>186.64</td>
<td>131.49 (67.42)</td>
<td>55.15</td>
<td>0.82</td>
</tr>
<tr>
<td>2</td>
<td>182.99</td>
<td>131.49 (67.42)</td>
<td>51.5</td>
<td>0.76</td>
</tr>
<tr>
<td>3</td>
<td>175.04</td>
<td>131.49 (67.42)</td>
<td>43.55</td>
<td>0.65</td>
</tr>
<tr>
<td>4</td>
<td>173.8</td>
<td>131.49 (67.42)</td>
<td>42.31</td>
<td>0.63</td>
</tr>
<tr>
<td>5</td>
<td>167.69</td>
<td>131.49 (67.42)</td>
<td>36.2</td>
<td>0.54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nadirs</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.85</td>
<td>131.49 (67.42)</td>
<td>-104.64</td>
<td>-1.55</td>
</tr>
<tr>
<td>2</td>
<td>42.79</td>
<td>131.49 (67.42)</td>
<td>-88.7</td>
<td>-1.32</td>
</tr>
<tr>
<td>3</td>
<td>46.68</td>
<td>131.49 (67.42)</td>
<td>-84.81</td>
<td>-1.26</td>
</tr>
<tr>
<td>4</td>
<td>56.33</td>
<td>131.49 (67.42)</td>
<td>-75.16</td>
<td>-1.11</td>
</tr>
<tr>
<td>5</td>
<td>56.2</td>
<td>131.49 (67.42)</td>
<td>-75.29</td>
<td>-1.12</td>
</tr>
</tbody>
</table>

significant differences among the four groups’ peaks and nadirs (see Table 4.10). Tukey’s HSD was used to determine the nature of the differences among the groups. Multiple comparisons revealed that there were a number of significant differences among mean ratings across the four groups, suggesting that the magnitude of the ratings differed among the four groups (see Table 4.11). These results suggest that every pacing lapse was viewed negatively, but some more so than others.
Table 4.8
Peak and Nadir Deviations from the Aggregate Mean for the Teacher Pacing Group

<table>
<thead>
<tr>
<th>Peaks</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>196.97</td>
<td>136.28 (70.74)</td>
<td>60.69</td>
<td>0.86</td>
</tr>
<tr>
<td>2</td>
<td>191.43</td>
<td>136.28 (70.74)</td>
<td>55.15</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>191.22</td>
<td>136.28 (70.74)</td>
<td>54.94</td>
<td>0.78</td>
</tr>
<tr>
<td>4</td>
<td>178.96</td>
<td>136.28 (70.74)</td>
<td>42.68</td>
<td>0.60</td>
</tr>
<tr>
<td>5</td>
<td>176.6</td>
<td>136.28 (70.74)</td>
<td>40.32</td>
<td>0.57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nadirs</th>
<th>$M$</th>
<th>Aggregate $M$ (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate $M$ (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25.72</td>
<td>136.28 (70.74)</td>
<td>-110.56</td>
<td>-1.56</td>
</tr>
<tr>
<td>2</td>
<td>35.67</td>
<td>136.28 (70.74)</td>
<td>-100.61</td>
<td>-1.42</td>
</tr>
<tr>
<td>3</td>
<td>34.9</td>
<td>136.28 (70.74)</td>
<td>-101.38</td>
<td>-1.43</td>
</tr>
<tr>
<td>4</td>
<td>49.53</td>
<td>136.28 (70.74)</td>
<td>-86.75</td>
<td>-1.23</td>
</tr>
<tr>
<td>5</td>
<td>51.51</td>
<td>136.28 (70.74)</td>
<td>-84.77</td>
<td>-1.20</td>
</tr>
</tbody>
</table>
Table 4.9
Peak and Nadir Deviations from the Aggregate Mean for the Control Group

<table>
<thead>
<tr>
<th>Peaks</th>
<th>M</th>
<th>Aggregate M (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate M (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>179.16</td>
<td>122.67 (60.32)</td>
<td>56.49</td>
<td>0.94</td>
</tr>
<tr>
<td>2</td>
<td>169.65</td>
<td>122.67 (60.32)</td>
<td>46.98</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>169.46</td>
<td>122.67 (60.32)</td>
<td>46.79</td>
<td>0.78</td>
</tr>
<tr>
<td>4</td>
<td>163.14</td>
<td>122.67 (60.32)</td>
<td>40.47</td>
<td>0.67</td>
</tr>
<tr>
<td>5</td>
<td>162.47</td>
<td>122.67 (60.32)</td>
<td>39.8</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Nadirs

<table>
<thead>
<tr>
<th>Nadirs</th>
<th>M</th>
<th>Aggregate M (SD)</th>
<th>Difference</th>
<th>Distance from Aggregate M (in SD units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38.63</td>
<td>122.67 (60.32)</td>
<td>-84.04</td>
<td>-1.39</td>
</tr>
<tr>
<td>2</td>
<td>47.54</td>
<td>122.67 (60.32)</td>
<td>-75.13</td>
<td>-1.25</td>
</tr>
<tr>
<td>3</td>
<td>54.29</td>
<td>122.67 (60.32)</td>
<td>-68.38</td>
<td>-1.13</td>
</tr>
<tr>
<td>4</td>
<td>55.86</td>
<td>122.67 (60.32)</td>
<td>-66.81</td>
<td>-1.11</td>
</tr>
<tr>
<td>5</td>
<td>56.49</td>
<td>122.67 (60.32)</td>
<td>-66.18</td>
<td>-1.10</td>
</tr>
</tbody>
</table>
Figure 4.6. Graph of Composite Means with Peaks and Nadirs for between-Group Comparisons
Table 4.10
*Analysis of Variance Data*

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Peak 1 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>4255.83</td>
<td>3</td>
<td>3588.24</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>14.23</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak 2 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3712.18</td>
<td>3</td>
<td>2523.04</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>17.66</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak 3 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2903.18</td>
<td>3</td>
<td>173.13</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>201.23</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak 4 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3458.78</td>
<td>3</td>
<td>175.65</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>236.30</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Peak 5 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>3311.16</td>
<td>3</td>
<td>1539.78</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>25.81</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nadir 1 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>2778.42</td>
<td>3</td>
<td>372.50</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Within Groups</td>
<td>89.51</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nadir 2 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>1614.33</td>
<td>3</td>
<td>17.67</td>
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</tr>
<tr>
<td>Within Groups</td>
<td>1096.30</td>
<td>36</td>
<td></td>
<td></td>
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<tr>
<td><strong>Nadir 3 Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between Groups</td>
<td>292.48</td>
<td>3</td>
<td>7.57</td>
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</tr>
<tr>
<td>Within Groups</td>
<td>463.62</td>
<td>36</td>
<td></td>
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<tr>
<td><strong>Nadir 4 Rating</strong></td>
<td></td>
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<tr>
<td>Between Groups</td>
<td>1250.11</td>
<td>3</td>
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<td>Within Groups</td>
<td>19.12</td>
<td>36</td>
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<td><strong>Nadir 5 Rating</strong></td>
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<tr>
<td>Between Groups</td>
<td>3449.82</td>
<td>3</td>
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<td>Within Groups</td>
<td>157.00</td>
<td>36</td>
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Table 4.11
Multiple Comparisons of Peaks and Nadirs of Selected Events

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<th>$p$</th>
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<td>Pacing</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>n.s.</td>
</tr>
<tr>
<td></td>
<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
</tr>
<tr>
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<td>Intensity</td>
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</tr>
<tr>
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<td></td>
<td>Pacing</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Peak 3</td>
<td>Effectiveness</td>
<td>Intensity</td>
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<td>Pacing</td>
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<tr>
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<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
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<td>Control</td>
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<td>Control</td>
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<tr>
<td>Peak 4</td>
<td>Effectiveness</td>
<td>Intensity</td>
<td>n.s.</td>
</tr>
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<td></td>
<td></td>
<td>Pacing</td>
<td>&lt; .001</td>
</tr>
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<td></td>
<td>Intensity</td>
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(Table 4.11 continued)

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<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
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<tr>
<td></td>
<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
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<td><strong>Nadir 1</strong></td>
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<tr>
<td></td>
<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
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<td>n.s.</td>
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<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
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<tr>
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<td><strong>Nadir 3</strong></td>
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<td>Pacing</td>
<td>n.s.</td>
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<td></td>
<td>Intensity</td>
<td>Pacing</td>
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<tr>
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<td>Control</td>
<td>n.s.</td>
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<tr>
<td></td>
<td>Pacing</td>
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71
(Table 4.11 continued)

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<thead>
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<th>Nadir 4</th>
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<th>Intensity</th>
<th>n.s.</th>
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<tbody>
<tr>
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<td>Pacing</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
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<table>
<thead>
<tr>
<th>Nadir 5</th>
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<th>n.s.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pacing</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>&lt; .01</td>
<td></td>
</tr>
<tr>
<td>Intensity</td>
<td>Pacing</td>
<td>&lt; .001</td>
<td></td>
</tr>
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<td></td>
<td>Control</td>
<td>n.s.</td>
<td></td>
</tr>
<tr>
<td>Pacing</td>
<td>Control</td>
<td>&lt; .001</td>
<td></td>
</tr>
</tbody>
</table>

Note: n.s = not significant at the .05 level
Anomalous Data

While the graphical data indicate that participants were able to differentiate between effective and ineffective pacing, there were some instances where the graphic data contradicted expected results. While the participants recognized nearly all of the pacing lapses, there was an instance during the lecture where all groups evidenced a negative reaction to the teacher’s delivery that was not one of the intended pacing lapses. At the spot marked “1” in Figure 4.7, there was a decline in CRDI ratings just prior to intended pacing lapse 5 (Speech: Teacher pauses to wait for student response), which occurred at 4 minutes and 34 seconds into the lecture.

![Composite Ratings across Time](image)

*Figure 4.7. Graph of Composite Means with Unexpected and Anomalous Results*

However, as noted on the graph above, the “dip” in CRDI ratings happened from approximately 4:23 to 4:31, which corresponded to the following statement by the teacher, “Now if you’re talking about English music...well OK, let’s play a little game.” At the spot marked “2” in Figure 4.7, there was a distinct “dip” in the CRDI ratings across all four groups from approximately
12:29 to 12:43. While it is most pronounced in the Effectiveness, Intensity, and Control groups, the Pacing group also evidenced a decrease in CRDI ratings at that moment. This moment corresponds with the playing of a musical example. Ten seconds after the music begins, the ratings decrease as the teacher stands in front of the class silently focusing on the music. The CRDI ratings do not increase until the teacher talks over the music to describe what is being heard while the music is playing. Another unexpected result occurred at the point marked “3” in Figure 4.7. This moment corresponds to a “velocity” pacing lapse (teacher overemphasizes his point), which occurred approximately from 15:45 to 16:05. This point is curious for two reasons: (1) this pacing lapse did not evidence the same magnitude of a response as the other pacing lapses, and (2) unlike the other “peaks,” the pacing group did not have the highest CRDI ratings. At the spot marked “4” (Figure 4.7), all groups evidence a momentary increase in CRDI ratings in the middle of a “technology” pacing lapse, where the teacher has trouble activating an audio recording. While initially this increase in CRDI ratings may seem curious, it corresponds with the start of the audio recording. However, the ratings quickly decrease once the teacher indicates that he has selected the wrong part of the recording. The ratings do not increase again until the music begins, and the teacher speaks over the music while describing its content.

**Response Form Data**

In addition to the CRDI data, participants were also asked to complete a *post hoc* questionnaire (see Appendix D) following the video. Of the 164 participants, all but six (3.7%) indicated that they observed instances of effective teaching in the video. Similarly, all but six indicated that the movement of the dial roughly corresponded to their evaluation of teacher effectiveness/intensity/pacing/perceptions. This finding represents a major internal validity measure for the study. Participants were also asked if they recognized the teacher on the video, since the model teacher was an instructor at the university. Results obtained indicated that 58.5% of the participants did not recognize the teacher (n = 96), while 41.5% of the participants did (n = 68). Since there were significantly more participants that did not recognize the teacher than did, $\chi^2(1, N = 164) = 4.44, p < .05$, it was decided to test for differences between these two groups. No differences were found in participants’ ratings for effectiveness, $F(1, 39) = .07, p > .05$; intensity, $F(1, 39) = .34, p > .05$; or pacing, $F(1, 39) = 2.27, p > .05$, between those that recognized the teacher, and those who did not. Therefore, these data were combined in subsequent analyses.
Using a ten-point Likert-type scale, participants were asked to provide a summative subjective rating of teacher effectiveness (Groups A and D), teacher intensity (Groups B and D), and teacher pacing (Groups C and D). Mean ratings (see Table 4.12) for each of the three constructs were compared among the three groups (Effectiveness, Intensity, and Pacing). Results of a one-way ANOVA revealed no significant differences among the ratings of these three constructs, $F(2, 120) = 2.35, p > .05$. This appears to confirm the results of the Pearson Correlation Coefficient stated above. Since participants in the Control group were asked to provide ratings for all three constructs, mean ratings of the three constructs within the Control group were compared with the ratings of the other groups’ constructs. Results revealed that there were no significant differences in mean ratings between the Control group and the Effectiveness group, $t(78) = .42, p > .05$; the Control group and the Intensity group, $t(78) = 1.30, p > .05$; and the Control group and the Pacing group, $t(78) = .31, p > .05$. This finding appears common within teacher effectiveness studies.

Table 4.12  
Means, Standard Deviations, and Skewness of Summative Construct Ratings by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>M</th>
<th>SD</th>
<th>Sk</th>
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</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>5.95</td>
<td>1.60</td>
<td>-.73</td>
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<tr>
<td>Intensity</td>
<td>5.29</td>
<td>1.82</td>
<td>-.38</td>
</tr>
<tr>
<td>Pacing</td>
<td>5.20</td>
<td>1.74</td>
<td>-.11</td>
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<tr>
<td>Control</td>
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<tr>
<td>Effectiveness</td>
<td>5.80</td>
<td>1.63</td>
<td>-.32</td>
</tr>
<tr>
<td>Intensity</td>
<td>5.83</td>
<td>1.91</td>
<td>-.56</td>
</tr>
<tr>
<td>Pacing</td>
<td>5.07</td>
<td>1.95</td>
<td>-.04</td>
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</table>

Note: No significant differences among mean ratings of constructs.
All participants were also given the definition of teacher intensity, and asked how effective the teacher was in meeting those criteria. Raw data consisted of subjective ratings among the four groups. With regard to meeting the criteria of teacher effectiveness, there were significant differences among the ratings of the four groups, $F(3, 160) = 3.21, p < .05$, partial $\eta^2 = .06$. Tukey’s HSD was used to determine the nature of the differences among the groups. Multiple comparisons revealed that there were significant differences between the Effectiveness ($M = 5.83, SD = 1.64$) and Intensity ($M = 4.61, SD = 1.87$) groups ($p < .05$). However, the effect size and the sample size appear to mitigate the significance, indicating that the practical significance of these differences is somewhat limited.

One hundred twenty-two participants (74%) provided some written commentary in the free response section of the response form. Because of the exploratory nature of this study, and the descriptive nature of participants’ free responses, the responses were analyzed descriptively rather than scientifically. This type of descriptive analysis has some precedent in preexisting teacher effectiveness literature (Madsen, 2011). For heuristic reasons, the post hoc free responses were examined for content, and to serve as a reliability and validity measure for the CRDI and summative ratings. Overall results and individual responses are presented for illustrative purposes. Many of the comments contained both positively and negatively valenced statements, and some provided pedagogical suggestions for the teacher on the video. Many of the positive statements alluded to moments of effective teaching in the lecture.

Overall, responses were examined to determine the number of appearances reflecting positive evaluations of the lecture, even if paired with negative responses from the same participant. This examination revealed that 33 participants indicated that the teacher evidenced moments of “effective” or “good” teaching. Fifteen comments revealed that the teacher was effective in the presentation of the subject matter by stating the teacher “enjoyed the topic,” was “knowledgeable,” and had a “passion” for the topic being discussed. Five comments indicated that the teacher appeared “enthusiastic” and “excited” about the presentation of the topic. An additional five stated that they “enjoyed the lecture,” and found it “interesting.” Interestingly, despite the numerous comments to the contrary, five stated that the teacher was “organized” and “clear” in his presentation of the subject matter.

Responses were also examined to determine the number of negatively valenced comments. This examination revealed 33 occurrences referring to the teacher “losing his train of
thought,” “a lack of concentration,” or “memory slips.” There were 28 instances where participants reported that the lapses were “distracting” them from the content of the lecture. Twenty-seven comments referred to “interruptions” or “pauses” in the teacher’s delivery as being ineffective. Twenty-one comments also indicated that the teacher appeared “unprepared,” “off-task,” and “inefficient. Finally, three comments reflected that certain participants were “annoyed” by the pacing lapses. This examination of overall free response data revealed that the number of “negative” comments (112) far outweighed the number of “positive” comments (63).

This study was concerned with participants’ perception of pacing, and how it was related to teacher effectiveness and teacher intensity. Of particular interest were those comments that specifically addressed “pacing,” and how the individual participant perceived that construct. Not surprisingly, “pacing” appeared more times (16 total) in the Pacing group’s responses than in the Effectiveness group (5 total), Intensity group (2 total) or the Control group (3 total). The following are some illustrative examples taken from the free response portion of the response form:

These participants appeared to view pacing as a separate entity from intensity, and seem to reflect a view of pacing as the amount of subject matter covered in a period of time.

Subject 37 (Group B): The intensity, though very good, was tarnished when he had to stop the pace of the lecture for things like technical difficulties, forgetting information, or checking a late student’s attendance. It disrupts the flow of the presentation and probably makes it more difficult for the student to maintain focused energy.

Subject 35 (Group D): There was not much student/teacher interaction, which can be viewed as ineffective; however, he was very enthusiastic about what he was teaching. The correction of the student response could have been handled differently – perhaps let him try again? Also, he lost his train of thought frequently, which made focusing slightly difficult. The overall pace of the lesson was good as there was a lot of material to fit in. At times, the instructor taught a little too quickly.
This foreign student viewed the construct of pacing as maximizing on-task time for the teacher, and makes the point that even student-initiated interruptions (outside the control of the teacher) can influence pacing.

*Subject 3 (Group C)*: “Pacing” is a difficult concept for this non-American viewer. I tried to interpret/translate this term as relevance to the lecture topic and minimizing (in “good” pacing) wasted time. Hence my not giving the lecturer maximum grades. When he is on topic, he is really good (including a fast delivery that is clear). But of course there were interruptions (as if he were unprepared or not staying on the subject matter), including some that were not of his own making that I rated as “bad” because they were distracting.

The following participant appears to echo the statement that pacing is noticed by its absence.

*Subject 8 (Group C)*: The interruptions in the teacher’s presentation (tech problems, passing out handouts, etc.) were even more noticeable because when he was pacing effectively he was so enthusiastic that he really sparked an interest in the subject matter.

The following statement makes the case that pacing is intertwined with other constructs such as “flow” and “continuity.”

*Subject 25 (Group C)*: Creating interaction with students is a crucial element of establishing pace and could have greatly helped flow of the lecture and offset periodic breaks in continuity.

It appears that this participant proposed that effective pacing is possible only when presenting subject matter.

*Subject 28 (Group C)*: Teacher did a wonderful job of pacing when actually teaching about subject matter. The amount of distractions and length of distractions really affected his overall effectiveness.
The following two comments refer to memory lapses as detrimental to effective pacing, since the flow of information is not continuous.

*Subject 32 (Group C):* While forgetting material is a normal, human mistake, I found the greatest obstacle to “effective pacing” was interruption of enthusiastic lecture to take care of menial tasks such as writing down a tardy entrance. It took me some time to get back on track with his enthusiasm after these interruptions. Also, technology needs to be set up ahead of time!

*Subject 21 (Group D):* The moments of forgetfulness greatly broke up relatively good pacing (and enthusiasm) of the lecture. The viewer lost a little faith in the teacher’s grasp of the subject, each time becoming more annoying; he recovered fairly well. I was impressed with the correction of the incorrect student responses. Not only was the response corrected but they were told why/given a piece of information. The teacher did not have very good control over student/teacher interaction.
CHAPTER FIVE

DISCUSSION

Summary

The purpose of this study was to experimentally isolate the pacing variable within the definition of teacher intensity. Specifically, this study sought to answer the following:

1. Will participants recognize effective pacing as the continuous flow of instruction (verbal/oral/gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes/verbal tics), and without presenting irrelevant material?
2. What types of lapses in lesson delivery are associated with greater and lesser teacher effectiveness, teacher intensity, and teacher pacing? What is the relationship between pacing lapse duration and group ratings?
3. What is the relationship between pacing and teacher effectiveness and teacher intensity? Are these constructs mutually exclusive, or are they related in some way? More specifically, this study was designed to examine this relationship across time in a realistic, but scripted teaching situation.

An examination of the data revealed several important findings regarding the relative differences and similarities among the three constructs used in this study. Perhaps the most important aspect of this study was that it provided an operational definition of effective pacing, and that it experimentally controlled this variable. It “teased out” this component from the existing definition of teacher intensity. This study also showed that individuals could recognize intended pacing lapses, and responded similarly to them. The research questions guiding this study were: (1) Would participants be able to recognize pacing lapses defined as the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material? (2) Would particular types or durations of pacing lapses be viewed as more or less severe than others? (3) What is the relationship among the constructs of teacher effectiveness, teacher intensity, and teacher pacing?

To address these research questions, a scripted teaching demonstration was developed to delineate various combinations of five types of pacing lapses (speech, velocity, administrative,
technology, and movement). Extreme care was taken in scripting and preparing the stimulus video, and most participants accepted it as a real teaching situation. It should be noted, however, that the free response data revealed that eight participants felt the teaching demonstration was contrived. A panel of experts (see Method) determined that the video exhibited both on-task teacher behavior and off-task behavior, with the majority of the lesson being on-task. The stimulus video was shown to participants in one of four groups: teacher effectiveness, teacher intensity, teacher pacing, and control. Participants were asked to provide subjective ratings based on their assigned construct. These ratings were in the form of both continuous data (CRDI), and summative data (Likert-type scale). The group CRDI data resulted in a “teaching footprint” (Lychner, 1995; Madsen & Fredrickson, 1993) of the lesson’s positive and negative moments. Examination of graphic data presented in Chapter 4 indicate that participants were able to differentiate between “good” and “bad” moments in the lesson, and could recognize the intended pacing lapses. Graphic data also revealed that overall responses were similar; however, the magnitude of responses (peaks and nadirs) differed among groups.

**Research Questions**

The first research question asked whether or not participants would be able to recognize pacing lapses defined as the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics, etc.), and without presenting irrelevant material. The graphic data supports the suggestion that participants were indeed able to differentiate among the pacing lapses, with one exception, the velocity pacing lapse that occurred at 15:45 (teacher slows speech, and overemphasizes his point). This instance will be discussed in further detail below (see Anomalous Data). The five types of pacing lapses (speech, velocity, administrative, technology, and movement) were created to address each subset of the aforementioned definition.

The first part of the definition addresses “continuous flow of instruction (verbal, oral, gestural).” Several of the pacing lapses were used to disrupt the continuity of the lesson, most notably the speech pacing lapses. The speech lapses were evidenced by a cessation of instruction. Each of these lapses was accompanied by a distinct decline in CRDI ratings indicating that the participants reacted negatively to the discontinuity. The movement and administrative lapses also addressed this first part of the definition. These lapses were designed such that the teacher’s movements about the room and addressing logistical issues caused the flow of instruction to
These lapses were met with negative ratings across all four groups. The second part of the definition of pacing addressed “unnecessary interruptions,” and arguably, all of the pacing lapses used in the present study could be viewed as “unnecessary interruptions.” Specifically, the velocity, technology, and administrative lapses were designed to fulfill this component of the definition. The velocity lapses contained unnecessary interruptions as the teacher slowed his presentation to remember details of the lesson, and all of the administrative details addressed could have waited until the end of the lecture. The technology problems should have been addressed prior to the beginning of the lecture to maximize teacher on-task time. For the purposes of this study, the final two components of the pacing definition, without presenting “unnecessary sounds” or “irrelevant material,” were addressed via the technology pacing lapses. The teacher’s cueing of the wrong recording seemed to address both of these aspects. In all of the cases above, the participants did recognize the pacing lapses, and reacted negatively toward them.

The second research question sought to determine if particular pacing lapses were viewed more or less negatively than others. Would trends emerge based on the types of pacing lapses (administrative, speech, velocity, movement, technology) or their duration? Based on the data obtained in this preliminary study on the perception of pacing, it appears that no trends have surfaced. As stated in chapter 4, all five categories of pacing lapses appeared among a listing of the five lowest-rated pacing lapses across the four groups (see Table 4.1), yet none appeared more times than any other. What was curious was that among the four groups’ five lowest-rated pacing lapses, the technology pacing lapse only appeared on the pacing group’s list. While it received the fifth lowest rating in the pacing group, it did not appear among the five lowest-rated pacing lapses across the other three groups. Perhaps participants were more forgiving overall regarding the technology errors. This supposition is tempered, however, since the pacing group reacted differently to technology errors. Further examination of the authenticated graphs (see Appendix E) provides support for the contention that the pacing group viewed the technology lapses more negatively than the other three groups. While the effectiveness, intensity, and control groups were fairly consistent in their group ratings for the two negative technology lapses, the pacing group’s ratings for these same two events were substantially lower. Those participants who were tracking pacing reacted to this type of discontinuity with a greater magnitude than the other three groups. It should be noted, however, that all of the groups reacted negatively to the
technology lapses. Perhaps technology errors are more linked with a teacher’s pacing than the other constructs. Further research is needed before more definitive statements can be made connecting the use of technology and effective pacing.

The second research question also examined the relationship between pacing lapse duration and group CRDI rating. It would appear that duration of pacing lapses is moderately and inversely correlated with participants’ ratings. This moderate correlation may suggest that perhaps the disruption itself, and not its duration is what causes the negative reaction. However, the coefficient of determination for the pacing group (.45) indicates a stronger effect size for this group as compared to the effectiveness (.30), intensity (.30), or control (.35) groups. The purposeful pacing lapses were viewed negatively regardless of how long they lasted; however, the negative ratings were more pronounced for the pacing group. It seems clear that duration of pacing lapses are inversely correlated with observer ratings, but the ratings may also be intertwined with recovery time immediately following pacing lapses. The recovery time following lapses may have affected ratings if there was only a short duration of “good teaching” immediately following the pacing lapses. These short duration of “good teaching” moments following pacing lapses may not have allowed participants enough time to return the dial to the neutral position and higher. A similar result was evidenced in Simpson’s (2009) study examining recovery time following music performance errors. It appears that not only the duration of pacing lapses affects observers’ ratings, but also the continuous flow of “good teaching” that separates moments of discontinuity.

The third research question attempted to ascertain the relationship among the following constructs: teacher effectiveness, teacher intensity, and teacher pacing. Based on the data obtained, it appears that these constructs are very closely related. A number of measures used in this study add credence to this statement. Perhaps the most convincing data come from the composite CRDI ratings graph (Figure 4.1). Overall, analysis of the graph shows distinct similarities among the four groups (effectiveness, intensity, pacing, and control) as they rise and fall together to form the various peaks and nadirs. Consistent with previous research (Hancock, 2003; Kaiser, 1998; Wang & Sogin, 1997), the Pearson correlation coefficients also indicated a very strong, positive, linear relationship among the three constructs as well as the control group. Similarities among the four constructs are also evident when examining the summative ratings provided by participants (see Table 4.12). There were no differences in mean ratings among the
constructs; however, the pacing construct did evidence a smaller negative skew than the other constructs, indicating a more “normal” distribution of scores. Since the participants were drawn from the same sample, it is possible that the terminology of the construct, and not a sampling bias attenuated the pacing group’s summative ratings.

These data imply that the participants appeared to perceive the terminology similarly both among those with education training (pedagogical knowledge), and those without (common usage), even when no specific construct or definition was provided (control group). This adds to the existing body of research supporting the global attribute of effective teaching (Duke, 1999/2000; Madsen, 2003; Madsen, Standley, Byo, Cassidy, 1992; Shavelson & Dempsey-Atwood, 1976; Stodolsky, 1984).

While several measures indicated similarities among the four groups, other data indicated relative differences. When examining the magnitude of responses of the four groups, both the graphic data presented in Figure 4.1 and the aggregate mean data presented in Tables 4.6–4.9 suggest differences in how participants rated the teaching episode. Graphic data presented in Figure 4.1 reveals that the pacing group had the highest magnitude of response, for both positive and negative moments, among the four groups. This is corroborated by the data in Tables 4.6–4.9. The arithmetic means for selected peaks were the highest for the pacing group, and the lowest for the control group. The means for selected nadirs were the lowest for the pacing group, and the highest for the control group. When examining the data in aggregate, the pacing group had the highest aggregate mean with the largest standard deviation, while the control group had the lowest aggregate mean with the smallest standard deviation. It appears that the pacing group had the greatest response magnitude, while the control group had the smallest. Perhaps this attribute of the pacing group implies that participants were responding differently to some aspect of the teaching lesson than the other three groups. Another measure of the differences among the construct is illustrated in Table 4.11 and Figure 4.6, showing the many differences in peaks and nadirs across the four groups. This appears to add credence to the supposition that participants in the pacing group may have been reacting differently to some aspect of the teaching demonstration compared to other groups.

**Results in the Context of Existing Research**

Similar to previous research conducted on undefined or generally defined constructs (i.e. aesthetic response), no attempt was made to specifically define the terminology for the
participants. Even when the constructs were not explicitly defined for the participants, all of them could identify good and bad teaching. An examination of the questionnaire’s free response data also implied that while there was global agreement regarding good and bad moments, there was little agreement regarding the specific attributes or behaviors that demonstrated effective and ineffective teaching. Similar to Lychners’s (1995) results, the constructs, while using different terminology, were viewed much in the same way. Although, Lychners discovered that while the terms/groups aesthetic response, felt emotional response, and a more/less continuum (contact control) were viewed similarly, the group tracking “perceived tension” evidenced marked differences from the other groups. While the differences among pacing and the other three groups are not as pronounced as Lychners’s, there does appear to be some element within the pacing group that was viewed differently than the other three groups.

Previous studies have revealed a positive linear relationship between teacher intensity and teacher effectiveness. Kaiser (1998) and Wang and Sogin (1997) found a strong positive relationship between these constructs ($r = .83$ and $r = .92$, respectively). Consistent with Hancock’s (2003) study, the construct of teacher effectiveness correlated very highly with teacher intensity ($r = .96$), as it did in the present study ($r = .97$). Hancock’s study also revealed that intensity was positively correlated with time on task ($r = .89$). This appears to be consistent with the results obtained in this study regarding the inverse relationship between duration of pacing lapses and group CRDI rating. Based on his study, Hancock (2003) concluded that, “although measuring teacher intensity produces a global evaluation of effective teaching, specific elements of the definition seem to affect evaluations of intensity more than other elements do” (p. 174). Similarly, the specific elements of the definition of teacher pacing represented by the pacing lapses may have affected participants’ ratings more than the global evaluation of effective teaching. This might account for the slight differences evidenced when comparing the pacing group with the other three groups. The results of this study also conflict with Hancock’s (2003) study, which found significant differences in mean ratings between teacher effectiveness and teacher intensity, despite being highly correlated. This was not the case with the results of the present study. While there were high correlations among all of the constructs, there were no significant differences in the post hoc mean ratings among the four groups.
Anomalous Data

As indicated in Figure 4.7, there were a number of anomalies represented in the CRDI graphic data. The first occurred immediately following the phrase, “Now if you’re talking about English music…well OK, let’s play a little game.” The CRDI ratings immediately dropped following this statement from the teacher. This anomaly might be explained as a methodology judgment on the part of the participants, despite the fact that observers should refrain from such judgments during the observation process (Madsen & Madsen, 1998). This is echoed in Hancock’s (2003) statement, “while judgments about choice of methodology and ‘teaching philosophy’ should be restrained during observation…the subtle bias that comes from individual experience still permeates assessment of preservice teaching” (p. 175). This seems to have been the case when the teacher said, “Let’s play a little game.” The observers may have viewed it as contrary to their teaching philosophies of not putting students “on the spot.” Or, it might have been viewed as age-inappropriate for a college-level music appreciation class. There were also many “corrective” and “suggestive” comments provided by participants in the free response section of the questionnaire, indicating that individual experiences and teaching philosophies biased their ratings.

Two other anomalous events occurred during the listening portion of the teaching lesson. The groups evidenced a decrease in CRDI ratings during one of the positive technology uses, despite seamlessly integrating an audio recording into the lecture (at approximately 12:29–12:43). The ratings decreased while the teacher listened passively to the musical example, and did not increase again until the teacher began to talk over the recording to describe the musical events. A number of studies have been conducted that examine music listening and student attending behavior and appreciation of the music stimulus. While certain studies indicate that teacher behaviors like sustained eye contact, high magnitude facial expressions, and student activity increase on-task behaviors in students (Moore, 2002; Sims, 1986), other studies indicate mixed results when examining the effect of listening skills on student behavior and attending behavior (Bernhart, 1991; Hedden, 1981; Prince, 1974). In these studies, however, the dependent variable was student-directed in nature. The present study was teacher-directed as the participants were evaluating teacher effectiveness, intensity, pacing, and perceptions. Results obtained via the CRDI dial indicate that participants preferred it when the teacher provided instruction while the music was playing, as opposed to passively listening to it. It should be
noted, however, that the “dip” in CRDI ratings while passively listening to the music was not as pronounced for the pacing group. Perhaps the pacing group participants viewed the music stimulus as an effective component to propel the pace of the lesson forward, regardless of whether or not the teacher was actively involved in guiding the students’ listening. It would seem, however, that the pacing group was focused on some aspect of the teacher’s presentation that differed from the other three groups, making the case for group differences among constructs.

While this sample consisted of college students, the studies mentioned previously included samples of younger individuals (preschool, elementary, and junior high school students). Examination of the composite graph also shows that the drop in CRDI ratings is not as extreme as the other pacing lapses. Thus, it might suggest that the magnitude of response was diminished because not all of the groups’ participants reacted negatively to this moment during the lecture. Examinations of individual participants’ graphic data seem to support this supposition. It is also difficult to state with any degree of certainty the cause of the decline in ratings. Was it caused by a lack of directed listening on the part of the instructor? Was it caused by his passive facial affect and lack of eye contact? The increase in ratings as the teacher begins to talk over the music seems to suggest the former; however, due to the isolated nature of this anomaly, more definitive conclusions are tenuous at best.

Another anomalous instance occurred during the second technology lapse as the instructor struggled to play a musical example (17:15–17:38). As would be expected, ratings declined quickly as the instructor manipulated the technology. Ratings began to increase as the recording began playing, until the teacher revealed that he cued the wrong spot in the recording. While the participants would not know whether or not the wrong part of the recording was playing, it became clear once the teacher acknowledged his error. This instance illustrated that as long as a stimulus was occurring, the participants viewed the teacher as being on task, indicating that something happening during the lecture was better than nothing. This notion is further demonstrated during the speech pacing lapses. During these lapses, the teacher ceased instruction, and the ratings declined rapidly. Thus, this indicates that any instruction, even if seemingly unconnected to the lecture, is better than no instruction at all. If the teacher had kept talking after losing his “train of thought,” the ratings might not have declined so markedly as
they did when he said nothing. This phenomenon is similar to radio broadcasters trying to avoid “dead air” in which normal programming comes to an unexpected halt.

**Response Magnitude**

Both approval and disapproval are effective in changing behavior, and it is generally understood that negatives often have a higher emotional magnitude than positives (Madsen & Madsen, 1998). Although, Brittin and Duke (1997) concluded that listeners gave greater weight to “high points” in music compared to the “low points.” This phenomenon was evidenced in participants’ summative (Likert scale) scores being higher than their continuous (CRDI) scores. This inflation of the summative scores suggests that the higher intensity points outweighed the lower intensity points upon listener reflection. This study, however, dealt with listeners’ perception of musical intensity, not evaluation of the performances. While the Brittin and Duke study indicated that the “high points” in the music were more memorable than the “low points,” it was not an evaluation of the effectiveness or quality of the composition. The present study was concerned with observers’ evaluation of the stimulus.

It would appear that humans tend to recognize and remember negative events more clearly than positive events. This has certainly been the case in the existing research literature pertaining to teacher effectiveness. Regarding teacher intensity, Hancock (2003) suggested that, “long periods of teacher off task may be more consequential to evaluations of teacher intensity for preservice teachers than shorter or longer periods of teacher on task” (p. 174). This principle appears to be manifested within the context of this study. Despite the teacher spending 75% of the time on-task, the off-task moments affected the evaluations more strongly than on-task time. So it appears that even short periods (seconds) of teacher off task can be more consequential than longer periods of teacher on-task. Despite being 75% on task, the highest mean summative Likert rating (Table 4.12) was lower than 6 (on a 1–10 scale). Perhaps a measure of good teaching may not be how long the teacher is on-task, but the magnitude of observers’ responses. It seems that even short instances of teacher off-task behavior can outweigh a predominantly on-task lesson.

The data presented in Tables 4.6–4.9 appear to support the aforementioned conclusion. The large distance (in SD units) of nadir means from the aggregate means indicates the pacing lapses during the teaching episode were perceived with a greater magnitude than the on-task teaching moments. The relative strength of negatives in general is illustrated in Table 4.1 (see Chapter 4). In determining the five lowest-rated pacing lapses across all four groups, it was
revealed that all four groups agreed on the two worst pacing lapses. There was near perfect agreement regarding the third-worst pacing lapse as well. This result is in stark contrast to the five highest-rated moments during the lecture. While there was more agreement on the negatives overall, there was less agreement regarding the positive moments during the lecture. Perhaps this is indicative of the level of variability regarding components of effective teaching. While nearly everyone can agree on what constitutes ineffective teaching, and recognize it in context, such agreement regarding effective teaching appears much more elusive. Results presented in Table 4.2 indicate that the effectiveness and intensity groups appeared to agree regarding the best moments of the lecture. This table also suggests that the pacing and control groups had similar perceptions of the best moments of the lecture. Additional research in pairing these constructs together is needed before more definitive conclusions can be made regarding their similarities.

**Strengths of the Study**

While a number of studies concerning teacher effectiveness have been conducted over the past five decades, agreement on the characteristics of effective teachers has been problematic. One definition of effective teaching prevalent in the research literature has been teacher intensity, defined as the accurate presentation and correction of subject matter with enthusiastic affect and effective pacing. Although this definition has been used in a number of studies of teacher effectiveness, a description of all of its components has been incomplete. Specifically, the aspect of effective pacing has not been studied as extensively as correct subject matter, and enthusiastic affect, thus indicating that an understanding of teacher intensity may not be complete. The present study attempted to address this gap in the research literature in order to improve on the existing definition of teacher intensity.

A survey of the research literature suggested that pacing might be linked with the timing and speed of events as they unfolded in the classroom. As a result, it was determined that a continuous measuring device (CRDI) would prove most useful as participants made judgments over time. In order to examine the effect discontinuity would have on observing a lesson, five types of pacing lapses were created to mimic those that might occur in a typical college-level classroom. If, as suggested, pacing is the continuous flow of instruction (verbal, oral, gestural) without unnecessary interruptions and/or unnecessary sounds (wrong notes, verbal tics), and without presenting irrelevant material, then the pacing lapses must disrupt that continuity. To provide more control over interpreting the results, a scripted teaching lesson was created such
that the experimenter was able to determine the timing and order of the pacing lapses. Validity was strengthened through the use of a professionally trained actor-musician with “real world” experience in the production and performance of *Peter Grimes*.

The design of this study was purposefully constructed such that comparisons could be made between ratings obtained for the construct of pacing and teacher intensity (groups C and B), and pacing and overall teacher effectiveness (groups C and A). The presence of the control group (group D) aided in the understanding of the effect of the terminology used within the other three groups. If major differences in ratings were found among the groups, then the experimenter could attribute these differences to the participants’ perception of their assigned construct. The addition of a summative rating was used to determine if overall post hoc ratings would differ among groups, or differ substantially from the continuous ratings. Extreme care was taken in designing and piloting the questionnaires and the instructions to prevent unintended biasing of the interpretation of the constructs. Despite these strengths, this study was not without limitations.

**Limitations**

Despite the great care in the design of this study, the results obtained should be interpreted cautiously, since it is one of only a few empirical research reports to address the construct of pacing in a music classroom setting. As a result, subsequent studies will continue to refine the process, and experimentally manipulate and control more variables. Without further study, it will be difficult to say with any degree of certainty what specifically participants were reacting to while observing the teaching demonstration. This study used only one teacher as the stimulus; personality and/or teaching “style” could have biased the participants’ ratings and responses. Although the statistical analysis did not necessarily confirm this supposition, it is possible that participants’ familiarity of the teacher in the video may have biased their ratings. Future studies might use this stimulus video in other settings to see if familiarity of the teacher truly biased participants’ ratings.

The sample from this study was drawn from only one school, and it is possible that perceived meanings of the terms used (effectiveness, intensity, pacing) might be idiosyncratic to that institution. Further, the length of the teaching stimulus should be addressed in future iterations of this study. While a conscious effort was made to prevent participant fatigue, the length of the stimulus video (approximately 19 minutes) may have negatively affected
participant ratings. Perhaps excerpts from the larger lesson could be used (in a counterbalanced order) to obtain ratings from observers in subsequent studies, thus reducing the chances of participant fatigue. Other limitations include the possibility of sampling bias. Despite the relatively large sample size of music and non-music majors, all of the participants were college students at a large, comprehensive university. Different results might well be obtained if studying other age groups with varying levels of education and development.

**Implications**

Based on the results obtained in this study, the global ratings of participants did not differ substantially based on the construct provided to them. It appears that participants were all rating some global aspect of teacher effectiveness despite their group membership (effectiveness, intensity, pacing, control), although, there were instances where participants in the pacing group did react differently to the pacing lapses. Their magnitude of response was more extreme than the other three groups suggesting that the pacing group viewed the pacing lapses more negatively. The pacing group’s ratings were also more highly correlated with duration of lapse than the other three groups.

Despite the teacher spending the majority of the lecture on-task, the ratings indicated that participants reacted strongly to the pacing lapses. This appears to confirm Duke, Prickett, and Jellison’s (1998) conclusion that, “the perceived pace of instruction in music is proportional to the rate of student performance opportunities, rather than to the overall percentage of class time devoted to student performance” (p. 278). In transferring that statement to the present study, perhaps the perception of pacing in the music classroom is more affected by the number of lapses that interrupt the continuity of the lesson, rather than total teacher on-task time. Perhaps fewer lapses that are longer in duration might be viewed more forgivingly than more lapses of shorter duration. Regardless, it would appear that continuous instruction might evidence higher ratings than when interrupted with pacing lapses, as one might expect.

The control group in this study represents an interesting finding. Although they were not given any specific attribute on which to focus, it appeared that they were evaluating some global aspect of teacher effectiveness. This study seems to add to existing studies supporting the contention that global evaluations of teacher effectiveness are consistent, while there is disagreement regarding the details and specific behaviors supporting those evaluations. Since the evaluations of the control group were so similar to the other three constructs, it might be that any
term could be used as a measure of global teacher effectiveness. Perhaps the terms “flow,” “continuity,” “momentum,” or “poise” might be just as accurate in evaluating the teacher’s overall effectiveness.

**Directions for Future Research**

While the results indicated a great degree of similarity among the constructs, some of the measures used did indicate differences in the perception of the constructs. The Pearson correlation coefficients, the graphic analysis of CRDI ratings, and the summative ratings suggest that the labels “teacher effectiveness,” “teacher intensity,” and “pacing” might be used interchangeably with only slight differences in perception occurring among them. The groups’ aggregate means and the ANOVA data suggest slight differences in magnitude of response. Based on these contradictions, further study seems warranted.

Future research should continue to refine and experimentally test the definition of pacing offered here. This line of research might mimic the methodologies utilized in the teacher intensity studies. Can effective pacing be recognized, taught, and demonstrated? At what level? If future studies continue to refine and develop this definition of pacing, then perhaps pacing, as a component of teacher intensity, can be manipulated in ways similar to Madsen’s (2003) study. Can a teacher present accurate subject matter, with high affect, and ineffective pacing, and still be viewed positively? How might this type of experiment be structured? Which of the three components of teacher intensity (subject matter, affect, pacing) is “most important” if the dependent measure is observer ratings?

Lacking from this study was a detailed examination of the recovery time following the pacing lapses. What is the relationship between the pacing lapses among the groups, and their recovery time in returning to the neutral position on the CRDI dial? Is recovery time correlated with duration of pacing lapse, type of pacing lapse, number of pacing lapses, and/or duration until the next pacing lapse? Will more lapses exhibit slower recovery time, or will longer lapses exhibit slower recovery time? How many and how long can pacing lapses be in a teaching episode for the teaching episode to be judged positively?

While this study dealt exclusively with pacing in a classroom setting, additional studies might expand into rehearsal settings (band, orchestra, chorus), and examine the perception of pacing with other age groups and educational levels (early childhood, elementary, secondary schools, experienced teachers, etc.). The number of years teacher effectiveness has been studied
is a testament to both its importance and its ambiguity. The importance of education and quality teacher training is evident within the greater context of educational reform, seemingly part of every politician’s platform, and every education department’s mission/vision statement. While it is generally agreed that good teaching can be recognized, it is incumbent upon teacher educators to continue to develop techniques for identifying and preparing competent future educators.
APPENDIX A

IRB APPROVAL AND CONSENT FORMS

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 12/2/2010

To: Jason Silveira

Dept.: MUSIC SCHOOL

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Perception of Pacing in Music Classrooms and its Relationship to Teacher Effectiveness

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 11/29/2011 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any
unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Clifford Madsen, Advisor
HSC No. 2010.5100
FSU Behavioral Consent Form

The Perception of Pacing in Music Teaching and its Relationship to Teacher Effectiveness and Teacher Intensity

You are invited to be in a research study related to students’ perceptions of teacher effectiveness. You were selected as a possible participant because you are a college student (undergraduate/graduate) between the ages of 18 and 40. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Jason M. Silveira, College of Music, Florida State University.

Background Information:

The purpose of this study will be to examine issues concerning effective teaching. You will be asked to view music lessons, and identify instances of high/low teacher effectiveness. This study will aid in the understanding of perceptions of teacher effectiveness and in the development of music education curricula.

Procedures:

If you agree to be in this study, we would ask you to do the following things:
View short music lessons of adults (over 18) teaching other adults (over 18). You will then be asked to rate teachers on the basis of their perceived effectiveness. The entire process should take no more than thirty minutes.

Risks and benefits of being in the Study:

The study has no risks; since viewing teachers and teaching is a task college students do every day. If you agree to participate, you will simply be viewing the lessons in a normal classroom in the College of Music.

Should you agree to participate, you will gain practice in using an observation instrument, which may prove useful throughout your educational and professional careers. Additionally, the results may aid in a greater understanding of teacher education pedagogy.

Compensation:

You will receive no payment or compensation (class points/extra credit) for your participation in this study.

Confidentiality:

The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report we might publish, we will not include any information that will make it possible to identify a participant. Research records will be stored securely and only researchers will have access to the records. Records will be destroyed after a period of five years.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free not to answer any question, or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Jason M. Silveira. You may ask any question you have now. If you have a question later, you are encouraged to contact him at Florida State University College of Music, Housewright Music Building, Room 101A, the researcher’s advisor is Dr. Clifford Madsen, and he can be reached at in the Kuersteiner Music Building, Room 042D

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the FSU IRB at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or 850-644-8633, or by email at humansubjects@magnet.fsu.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature ___________________________ Date ___________________________

Signature of Investigator ___________________________ Date ___________________________

FSU Behavioral Consent Form

The Perception of Pacing in Music Teaching and its Relationship to Teacher Effectiveness and Teacher Intensity

You are invited to be in a research study related to students’ perceptions of teacher effectiveness. You were selected as a participant because you are a certified teacher who has a demonstrated history of success in the public school system. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Jason M. Silveira, College of Music, Florida State University.

Background Information:

The purpose of this study will be to examine issues concerning effective teaching. You will be asked to conduct a scripted music lesson utilizing predetermined instances of high/low teacher effectiveness and high/low teacher pacing. This study will aid in the understanding of perceptions of teacher effectiveness, perceptions of teacher pacing, and the development of music education curricula.

Procedures:

If you agree to be in this study, we would ask you to do the following things:
Conduct a scripted music lesson in which you demonstrate “good” and “bad” pacing behaviors. You will have several opportunities to practice the script before participants evaluate your lesson. The final demonstration lesson will be approximately 20 minutes in length. Participants (adults over 18) will view this short music lesson, and then be asked to provide ratings of perceived teacher effectiveness.

Risks and benefits of being in the Study:

The study has no risks, since teaching music lessons to students is a task you do every day. If you agree to participate, you will receive training in demonstrating “good” and “bad” pacing behaviors.

While there is no direct benefit to you for your participation, the results of the study may aid in a greater understanding of teacher education pedagogy.

Compensation:

You will receive no payment or compensation (class points/extra credit) for your participation in this study.

Confidentiality:

The records of this study will be kept private and confidential to the extent permitted by law. In any sort of report we might publish, we will not include any information that will make it possible to identify a participant. Research records will be stored securely and only researchers will have access to the records. Records will be destroyed after a period of five years.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free not to answer any question, or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Jason M. Silveira. You may ask any question you have now. If you have a question later, you are encouraged to contact him at Florida State University College of Music, Housewright Music Building, Room 101A

   The researcher’s advisor is Dr. Clifford Madsen, and he can be reached at in the Kueersteiner Music Building, Room 042D.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the FSU IRB at 2010 Levy Street, Research Building B, Suite 276, Tallahassee, FL 32306-2742, or 850-644-8633, or by email at humansubjects@magnet.fsu.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature ___________________________ Date ___________________________

Signature of Investigator ___________________________ Date ___________________________

APPENDIX B

TRANSCRIPT OF SCRIPTED TEACHING LESSON

Teacher:

(Teacher is in the front and center of the classroom) Today we’re going to do one of my favorite things, which is to talk about music. And it just so happens we’re going to talk about a piece that I truly love from a composer I really admire for many reasons. Not the f- ... well, it’s...oh wait...Before...before we go on, I’ve got to collect your homework. Would you get that out please? And pass it...(gestures to the left side of the classroom, and collects homework – ADMINISTRATIVE Pacing Lapse).

Benjamin Britten, composer of the opera Peter Grimes. Benjamin Britten had, I respect him because there were so many personal obstacles that he had to overcome in his life, the conviction that he had in the face of great adversity both personal, and also societal adversity. Before we talk about any piece of music we have to define the envelope of time and the circumstance that that piece was created in. There’s a singular consciousness. And, if you’re talking about 1939 European theatre, you’re talking pretty much about only one thing. (Teacher moves behind an audio/video station, and has trouble activating the technology.) That should be on. (Pause – TECHNOLOGY Pacing Lapse)...World War II. (Teacher moves out from behind A/V station, and to the front and center part of the classroom.)

England in the 1939 European theater. Destruction, death, air raid sirens every night. I can’t even imagine what it’s like to live in that kind of fear. Now if we’re talking about World War II, we’re talking about the Conscription Act Great Britain signed into law, which is basically like our draft. Now Britten, Benjamin Britten the composer, is a pacifist, so he registers as a conscientious objector. He doesn’t feel as though he can participate in this conflict. Now, a lot of conscientious objectors were often impressed into service as medics. So, they still were participating, and Britten knew he could not be a part of this conflict. He had to get out. So, Britten exiles himself to America during this time. Now if you remember last week we were talking about the music of Nazi composers. We were talking about...(pause and slowing of speech – VELOCITY Pacing Lapse)...Sch…Schoenberg…we talked about uh…Sh…Strauss, and Schoenberg, like Britten had to get out of Nazi Germany. He had to get out; he could not
stay. Whereas Strauss stayed in the Third Reich, had a pretty sizeable music career, and sort of weathered the storm.

Now with Britten, he took along with him his own personal partner; this is Peter Pears. Britten was a homosexual. Also coming along with him to this trip to America was W. H. Auden, the poet, Christopher Hogwood, the conductor, and Aaron Copland, sort of his contemporaries, and they create this little community where they live, work, and create new art. Now during the time spent in America, Britten comes across this poem (turns to move to chalkboard; writes on chalkboard without speaking – *MOVEMENT Pacing Lapse*). It’s by an author named George Crabbe, and the poem is called *The Borough*. Now this poem is about a fisherman who is vilified through gossip and inquest in a small little community, a small little town, a fishing village. And Britten can relate to this, because he’s from Aldeburgh, which is itself a sort of prehistoric fishing community in England. This is where his hometown is, this is where his roots are. So, right away you have connections to his home. Now if you’re talking about English music...well OK, let’s play a little game. Can you name me an English composer, pre-20th century who is not named Purcell? (Teacher pauses waiting for student response – *SPEECH Pacing Lapse*)

Student (off camera):
Handel???
Teacher:

Um, no. Handel was not English. English composers like to claim him as one of their own, but he was actually German. (Teacher pauses again for student response) Well you see, there’s a dearth of contributions to the repertoire throughout the Classical and Romantic periods from British composers. And for whatever reason, that music just didn’t survive, whether it wasn’t preserved, or considered part of the repertoire.

(Teacher moves to A/V station and successfully integrates technology into presentation. *Positive use of TECHNOLOGY*) Now Britten had some contemporaries he was working with during the 20th century that for me define his entire output. We’ve got a great deal of English composers. Charles Stanford who was one of Britten’s teachers, and a church music composer. We have Edward Elgar, who was a symphonic composer who used different mediums, symphonic chorus, creating all different kinds of ideas. We have Ralph Vaughan Williams, who probably is the most famous composer from this time period, and another one of Britten’s
teachers. A true contemporary, Roger Quilter, was a song composer who was particularly good at conceiving melody. And Britten in his writings ascribes a lot of the credit for his melodic writing to Quilter. And then probably the most important person was Frank Bridge. (Teacher moves back to center of classroom) Bridge was Britten’s teacher and mentor, and introduced to him his love of opera. Perhaps the most important member of this group is Frank Bridge, who was Britten’s teacher and mentor, and who created a love of opera in Benjamin Britten.

Now, oratorio, symphonic repertoire, song, English language is becoming a viable medium again. We can start to write operas in English. Before it was considered we don’t do that. It’s not a beautiful language. Now the last English opera of any significance was probably *Dido and Aeneas*, Purcell. So we have a dearth in the repertoire of almost 500 years.

We get to *Peter Grimes*, 20th century, the scene...we have a 19th-century fishing village...wait (pause)...I have a handout (moves to table on left side of classroom - *MOVEMENT Pacing Lapse*)...that has (does not find handout on table, moves to piano on opposite side of the room)...all of those (finds handout on piano)...composers. This is a handout of all those composers that I just mentioned. (Instruction ceases as teacher distributes handouts) Will you pass that down? (Distributes papers, moves to center of classroom. Pause) Nineteenth century fishing village. We’ve got huts, the town pub. There’s a town justice, docks, where the product goes in and out. Children in this community are like indentured servants. They’re not really parts of the community. We have orphanages. Now, fishermen...it’s a rough job. We need to create help for ourselves. We can’t hire other fisherman to do it, so we find a child. Now fishermen who needed help, they went and they bought apprentices at orphanages. (Pause) Uh, where’s Mary? (Pause – *ADMINISTRATIVE Pacing Lapse*)

Student (off camera):
I think she’s at a conference.

Teacher:
(To himself) Oh that’s right, she told me that. (To the class) The characters of this opera, Grimes is like an anti-hero. He could be our protagonist; he could be our antagonist. We’re not really sure until the end of the opera. And he has this nasty habit of losing apprentices at sea. Grimes is a malcontent; he’s anti-social. He arouses suspicion just by his very existence. And yet (pause – *SPEECH Pacing Lapse*)...I lost my train of thought...(pause)...and yet he doesn’t really say anything about these, and creates more suspicion, more town angst.
Characters...our sympathetic character, we have Ellen, who is the heroine. She’s a schoolteacher. She offers to take care of the apprentice while Grimes is preparing to go out at sea. We have Balstrode, who is the veteran fisherman, somebody who Grimes respects. And there’s a great conflict in act two where Balstrode and Grimes have this fierce duet where Balstrode tells Grimes, why don’t you move to a bigger city? You could catch more fish, make more money. But Grimes says no, I’m rooted here. This is where I have to be; this is my home. Another connection to Aldeburgh, and Britten’s love for his homeland, and having to be exiled away from it. Another sympathetic character is Auntie, the pub owner. She’s a “ma” to her two little nieces. Now, auntie runs a brothel in town, and her nieces are her employees. There are unsympathetic characters throughout this piece too, which sort of create the angst, and this is an angsty [sic] piece. The Swallow, who is the bumbling judge in the town, kind of corrupt. You’ll hear his voice in a moment on one of our audiotapes. He draws the ire of Grimes by not really passing judgment on him, but allowing the town to continue to, sort of, work up gossip and negative energy. The town gossip, who also creates a lot of trouble for Grimes...and her name (slowing of speech, pause, and looks at ceiling – VELOCITY Pacing Lapse)...is…her name is Mrs. Sedley. And she is a drug addict, the big town gossip, creates a lot of inquest within the town. It gets people very upset. Ned, who is the quack, the apothecary, and sort of enables Mrs. Sedley and her drug habits. There’s Bob Boles, who’s the bible-thumping hypocrite, who creates a lot of Peter Grimes’s angst and upsetness [sic]. Grimes hates Boles, and a lot of that comes from Britten’s own experiences with religion, and what he feels is a hypocritical treatment of people. Probably the person who can fix all this, the town reverend, well he plays the role of the coward in this...And as you can see...(looks at student)...Do you not have the handout?

Student (off camera):

No.

Teacher:

(Pause) I made enough. (Pause) Does somebody have two? (Pause, and turns to piano to retrieve another handout for student. – MOVEMENT Pacing Lapse) The person that could probably fix all this, the reverend, well, he’s a coward. We lose that opportunity.

The chorus plays a central role in any opera, but in this opera specifically, they’re made up of the townspeople. They’re easily swayed by these main characters, and they sort of act like a Greek chorus, commenting on the things that are happening throughout the plot in the opera.
Now, the chorus in this particular opera is very involved. This is not just a pop in, pop out. The chorus is there the entire time.

The plot of this opera, and the meaning of this piece is all wrapped up in the opening sequence. The opera begins with a trial. We’re going to listen to something, and I want you to really focus on the first voice you hear, the Swallow. And listen, he’s a bumbling bass. And then you’ll hear the chorus sort of reenter, and create this angst. And you’ll hear Grimes respond. (Teacher moves to A/V station, pushes one button, and seamlessly integrates technology into presentation. Positive use of TECHNOLOGY. Teacher stands and listens without talking.) Now you hear the chorus enter, and they start to get very angry. They start to talk about Grimes. You hear the bailiff tell everybody, “Silence!” Now Grimes enters, and he says, no, I want the trial to happen. I want to be inquested [sic]. I want to stand up in front of all the people of our town, and let them know that I didn’t do this. I want to be found not guilty. But the Swallow doesn’t allow that to happen. And instead he allows the town to continue to sort of drum up this hatred for Grimes. Ultimately, he’s found not to be responsible. So, he goes to the orphanage, buys another boy. This creates even more rumor mongering, which...(pause – SPEECH Pacing Lapse)...which really propels the action forward. It’s not about what happened, it’s about the perception of what happened.

Now despite really no evidence, the town begins to stir up, and Grimes, as his person, really doesn’t do anything to refute what’s happened. He tries to change. The sympathetic characters though soon become unsympathetic. There’s a scene in act...(slowing of speech – VELOCITY Pacing Lapse)...two...where...uh...act three...(pause)...there’s a...there’s a scene in act three where there’s a powerful conflict between Grimes and Ellen. And Ellen is complaining about Grimes’s treatment of the boy, saying no, he has to have one day off a week. Imagine one day off a week. Grimes says no, I see a shoal. I’ve got to get out there. Ellen says no, you can’t do this. This is what you said you wouldn’t do. And Grimes (mimics slapping someone) slaps her across the face. A powerful moment. The music comes to a head. Grimes recoils, and exiles himself. Can you see the connections and the transfers in Britten’s own personal life? Now, for whatever reason, the second apprentice dies. Fishing was a dangerous business in this time period. You could be out to sea for days on end, no water, storms. And yet...(pause – SPEECH Pacing Lapse)...the second apprentice falls off a cliff, dies. Grimes naturally is blamed. The
town rises up against Grimes, and I’m talking pitchforks, torches. They’re going to his hut; they’re going to kill him. This is a lynching.

Well, the sympathetic characters come to Grimes’s rescue. They hide him, and they convince him to go down to the beach, and get in his boat. This is a particularly powerful part of the opera because this is the only part that’s not sung. This is particularly [sic] spoken text. He gets in the boat...and in the only part of the opera that is not sung...(teacher overemphasizes for effect – VELOCITY Pacing Lapse)...this is spoken...absolute silence, no music behind it...they tell Grimes to get in the boat, sail it out to sea...and sink the boat...the only part of the piece that has no music...absolute spoken word.

The meaning of this piece is particularly poignant. It’s a literary idea that is often used. It’s the individual against the masses. We see this in all sorts of literature...there’s this powerful idea...and it...(The classroom door opens off camera, student enters, and takes a seat in the front row. Teacher ceases instruction, follows the student to her seat, checks his watch, and marks the student as tardy in the roll book. – ADMINISTRATIVE Pacing Lapse)...It’s a powerful idea that transfers to Britten’s own personal struggle. He was openly gay; he was a pacifist, and he was living in this small community that he felt was judging him.

Now the musical structure of this piece is very interesting, and makes it unlike any other piece of music. The scenes are delineated by interludes. And these are programmatic orchestral works about storms, the daily bustle of everyday work. Now, listen, I don’t normally do this. Normally when we listen to music, we just listen to the music. (Teacher moves over to the A/V station) So, I’m going to talk over the music just a little bit while we’re going through this. So, try to listen. There will be some times when we do that, but definitely listen to what we’re talking about...and that should be playing (Teacher has trouble activating the audio recording – TECHNOLOGY Pacing Lapse)...why isn’t it...not playing...(pause)...ok, that’s not the right spot (plays wrong part of audio track)...(pause, finds correct spot)...the four Sea Interludes. They’re often excerpted, and performed as a symphonic set; taken out of the opera. This first one is about the daily bustle of town life, where you have little old ladies going to church. A hobbling man walking across the street. You see the stray dogs walking over, and there’s an energy to this music that’s really palatable. Well probably my favorite interlude is the one you’re hearing now, and you might have heard it before. It’s called “The Storm.” Now just listen for a moment. (Teacher pauses to listen to the music). You hear the waves crashing over the boat? You hear the
violence of the music? There’s this sort of connected tension that just builds and builds and builds. (Teacher pauses to listen to music)

This opera is like any other opera. It’s structured the same way. We’ve got arias, we’ve got recitatives, we’ve got ensembles. And yet, throughout it all, these Sea Interludes kind of create the glue for the whole work. In any piece of theater, we have to talk about what the basic idea is. The basic idea of *Peter Grimes* is about the duality of man. We all have two sides, and really it’s about the choices that we make that depends on which direction we go. Now, Grimes didn’t get to make his choices; they were made for him. But, that should show you that there’s really little difference between a hero and a villain in these types of stories. It’s about what we do, and about sometimes about what’s done to us that creates our path. I think you’re really going to enjoy *Peter Grimes* by Benjamin Britten.
APPENDIX C

EXPERIMENTER INSTRUCTIONS

BEFORE SUBJECTS ENTER:
1. Post the appropriate signs.
2. Turn on desk lamp and halogen lamps.
3. Turn off the room lights.
4. Turn on computer.
5. Turn on TV, and press the TV/Video button once.
6. Turn on the DVD player.
7. Turn on the Solo-Phone.
8. Plug in the CRDI USB into the computer.
9. In the dock at the bottom of the computer screen, click on the CRDI icon to open the CRDI software.
10. Go to the “Input” dropdown menu, and click “Select.” Choose the number of dials that you will actually be using for this session (1–4). Click on OK. The number of dials in use will appear on the screen.
11. Go to the “Input” dropdown menu, and click “Load Saved Settings” to load the dial calibration. Click OK.
12. Go to the “File” dropdown menu, and click “Open Control File.”
13. Locate “pacing.CTR” on the desktop. Click on it, then click OK.
14. Press the “Title” button on the DVD remote control to get to the DVD title menu.

SUBJECTS ENTER ROOM
1. Ask participants to turn off all electronic devices.
2. Distribute participant consent forms and instruct subjects to complete the form.
3. Collect consent forms.
4. Distribute response forms (NOT the questionnaire), and instruct subjects to complete the demographic information, and read the instructions. (pause)
5. Ask subjects to “Please read the instructions while I read along with you.” (pause)
6. Carefully read the instructions at the bottom of the response form.
7. Ask subjects to put on their headphones, and tell them that the video is about to begin.
8. In the pacing.CTR window, click on “Collect Data.”
9. Simultaneously click “Start” while pressing play on the DVD remote control. You are now collecting data.

SAVING DATA
1. When the stimulus has finished, push “Stop” on the DVD remote.
2. Distribute the questionnaire. Ask subjects to complete the questionnaire.
3. On the computer, the session data window will appear. Click on “View in CRDI format,” then click on “Save in this format.”
4. Name the data file by identifying the date, group (effectiveness, intensity, pacing, or control), and timeslot (using 24-hour clock). For example: 1/18control0930.DAT
   a. This name indicates that these data were collected on January 18th from the control group in the 9:30 AM time slot.
5. Find the appropriate folder, and click “Save.” A window should appear telling you that the save was successful. Click OK.
6. In the Session Data window, click “View in SPI format,” then click on “Save in this format.”
7. Name the data file just as you did in step 4.
8. Repeat step 5.
9. Be sure that checkmarks appear next to “Saved in CRDI format” and “Saved in SPI format.”
10. Click “Close.”
11. Collect the response forms and questionnaires, and staple them together.
12. Place them face down on the filing cabinet.
13. Repeat steps beginning at “SUBJECTS ENTER ROOM” for each group of subjects.
APPENDIX D

PARTICIPANT RESPONSE FORMS

Draft

A

Effective Teaching Response Form

Please complete the demographic information below.

- Gender (circle one): Male Female
- Current level of education (circle one): Undergraduate Masters Doctorate
- What is your major? (e.g., music education, musicology, music therapy, English, etc.)
- If you are a music major, what is your instrumental/vocal?
- Number of years of professional teaching experience (check one):
  - 0
  - 1-3
  - 4-6
  - 7-9
  - 10-12
  - 13+

Instructions:

In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about Peter Grimes, an opera by Benjamin Britten. Please move the dial to indicate your perceptions of engaging teacher effectiveness. At the end of the video, you will be asked a few questions about the subject matter. Please move the dial back and forth now. Do you have any questions?

STOP. Do not go on until instructed to do so.

3 of 4

A

QUESTIONNAIRE

PRACTICE EXAMPLE

Instructions: Please circle the number that corresponds with your rating.

1. How would you rate the overall effectiveness of the course during your most recent dining experience?

Not effective at all: 1 2 3 4 5 6 7 8 9 10

2. Have you experienced lectures in classrooms before?

Yes No

3. At any point in the lecture, did you observe what you would consider effective teaching?

Yes No

4. Did you feel that your engagement of the class roughly corresponded to variations in effectiveness teaching?

Yes No

Please turn to next page.

4 of 4

A

One interpretation of effective teaching has been defined as sustained control of the student/teacher interaction evidenced by efficient, accurate presentation and correction of the subject matter with enthusiastic effect and offline pacing.

5. How effective was the teacher in meeting these criteria?

Not effective at all: 1 2 3 4 5 6 7 8 9 10

6. Please circle the number that corresponds with your rating of the overall teacher effectiveness during this lecture.

Teacher Effectiveness:

Not effective at all: 1 2 3 4 5 6 7 8 9 10

Please turn to next page.

3 of 4

A

After watching the video, please answer the following questions by circling your answer:

1. What nationality was Benjamin Britten?

- American
- English
- German
- Swedish
- None

2. Which of the following best describes Peter Grimes?

- Orchestral piece
- Chamber piece
- Oratorio
- Chamber music
- Opera

3. What was the name of the poem that inspired Britten to write Peter Grimes?

- The Cradle
- The Lighthouse
- The Fisherman
- The Butterfly

4. What is the name of Peter Grimes’s friend?

- Eros
- Nest
- Eliza
- Balconade
- Mrs. Siddley

Additional comments:

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________
STOP. Do not go on until instructed to do so.

1 of 1

B

Teacher Intensity Response Form

Please complete the demographic information below:

Gender (circle one): Male Female

Current level of schooling (circle one): Undergraduate Masters Doctorate

What is your major?

If a music educator, musicology, music therapy, English, etc.: __________

If you are a music major, what is your instrument/voice?

Number of years of professional teaching experience (check one):

_____________ 0 0–1 1–3

_____________ 4–6 6–9

_____________ 10–12

_____________ 13+

Instructions:

In music, there can be good and bad moments in the music progression. Analogously, in teaching the same can occur. You are going to view a 20-minute lecture about Peter Grimes, an opera by Benjamin Britten. Please move the dial to indicate your perceptions of ongoing teacher intensity. At the end of the video, you will be asked a few questions about the subject matter. Please move the dial back and forth now. Do you have any questions?

STOP. Do not go on until instructed to do so.

2 of 2

B

QUESTIONNAIRE

PRACTICE EXAMPLE

Instructions: Please circle the number that corresponds with your rating.

How would you rate the overall effectiveness of the lecturer during your most recent dining experience?

Not effective at all _______ Moderately effective _______ Highly effective _______

[Good water]

1 2 3 4 5 6 7 8 9 10

1. Did you recognize the teacher in the video?

_____ YES _____ NO

2. Have you experienced lectures in classrooms before?

_____ YES _____ NO

3. At any point in this lecture, did you observe something you would consider teacher intensity?

_____ YES _____ NO

4. Did you find that your movement of the dial roughly corresponded to variations in teacher intensity?

_____ YES _____ NO

Please turn to next page.

3 of 3

B

One interpretation of effective teaching has been defined as sustained control of the student/teacher interaction evidenced by efficient, accurate presentation and correction of the subject matter with enthusiastic affect and effective pacing.

5. How effective was this teacher in meeting these criteria?

Not effective at all _______ Moderately effective _______ Highly effective _______

1 2 3 4 5 6 7 8 9 10

6. Please circle the number that corresponds with your rating of the overall teacher intensity during this lesson.

Teacher intensity:

Low intensity _______ Moderate intensity _______ High intensity _______

1 2 3 4 5 6 7 8 9 10

Please turn to next page.

4 of 4

B

After watching the video, please answer the following questions by clicking your answer:

1. What nationality was Benjamin Britten?

_____ American _____ Russian _____ Italian _____ Swiss _____ Irish

2. Which of the following best describes Peter Grimes?

_____ Orchestral piece _____ Choral piece _____ Oratorio _____ Concert music _____ Opera

3. What was the name of the poem that inspired Britten to write Peter Grimes?

_____ The Lark Ascending _____ The Cradle Song _____ The Birthday _______ The Afternoon _______ The Devil

4. What is the name of Peter Grimes’s friend?

_____ Peter _____ Bob _____ Edna _____ Bill _____ Alice

Additional comments

________________________________________________________________________________________

________________________________________________________________________________________
STOP. Do not go on until instructed to do so.
**Response Form**

Please complete the demographic information below:

- Gender (circle one): Male  Female
- Current level of schooling (circle one): Undergraduate  Masters  Doctorate
- What is your major?  (If music education, musicology, music therapy, English, etc.)
- If you are a music major, what is your instrument/voice?
- Number of years of professional teaching experience:
  - ___ 0  ___ 1–3
  - ___ 5–6  ___ 7–9
  - ___ 10–12  ___ 13+

**Instructions:**
In music, there can be good and bad moments in the music progression. Analogously, in teaching the same can occur. You are going to view a 10-minute lecture about Peter Grimes, an opera by Benjamin Britten. Please move the dial to indicate your perceptions. At the end of the video, you will be asked a few questions about the subject matter. Please move the dial back and forth now. Do you have any questions?

STOP. Do not go on until instructed to do so.

**Questionnaire**

**Practice Example**

**Instructions:** Please circle the number that corresponds with your rating.

How would you rate the overall effectiveness of the video during your most recent dining experience?

<table>
<thead>
<tr>
<th>Not effective at all</th>
<th>Moderately effective</th>
<th>Highly effective</th>
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<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
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</tr>
</tbody>
</table>

1. Did you recognize the teacher in the video?

   ____ YES  ____ NO

2. Have you experienced lectures in classrooms before?

   ____ YES  ____ NO

3. At any point in this lecture, did you observe what you would consider effective teaching, effective pacing, and/or teacher intensity?

   ____ YES  ____ NO

4. Did you feel that your movement of the dial roughly corresponded to variations in effective teaching, effective pacing, and/or teacher intensity?

   ____ YES  ____ NO

Please turn to next page.
**Effective Teaching Response Form**

Please complete the demographic information below.

**Gender (circle one):**

- Male
- Female

**Current level of schooling (circle one):**

- Undergraduate
- Masters
- Doctorate

**What is your major?**

(i.e. music education, musicology, music therapy, English, etc.)

______________________________

**If you are a music major, what is your instrument/voice?**

______________________________

**Number of years of paid professional teaching experience (check one):**

- 0
- 1–3
- 4–6
- 7–9
- 10–12
- 13+

**Instructions:**

In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about *Peter Grimes*, an opera by Benjamin Britten. Please move the dial during the video to indicate your perceptions of ongoing teacher effectiveness. Please move the dial back and forth now. Do you have any questions?
QUESTIONNAIRE

1. Did you recognize the teacher in the video?
   _____ YES  _____ NO

2. At any point in this lecture, did you observe what you would consider effective teaching?
   _____ YES  _____ NO

3. Did you feel that your movement of the dial roughly corresponded to variations in effective teaching?
   _____ YES  _____ NO

4. Please circle the number that corresponds with your rating of the overall teacher effectiveness during this lesson.

   Teacher Effectiveness:
   Not effective at all (Bad teaching)               Moderately effective               Highly effective (Good teaching)
   1  2  3  4  5  6  7  8  9  10

Please turn to next page.
One interpretation of effective teaching has been defined as including the following:

- Sustained control of the student/teacher interaction
- Efficient and accurate presentation of the subject matter
- Correction of incorrect student responses
- Enthusiastic affect
- Effective pacing

5. How effective was this teacher in meeting these criteria?

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<thead>
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<th>Not effective at all</th>
<th>Moderately effective</th>
<th>Highly effective</th>
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Any additional comments:

______________________________________________________________________________
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______________________________________________________________________________
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Group B (Intensity)

Teacher Intensity Response Form

Please complete the demographic information below.

Gender (circle one): Male   Female

Current level of schooling (circle one): Undergraduate   Masters   Doctorate

What is your major? (i.e. music education, musicology, music therapy, English, etc.)

If you are a music major, what is your instrument/voice?

Number of years of paid professional teaching experience (check one):

______ 0

______ 1–3

______ 4–6

______ 7–9

______ 10–12

______ 13+

Instructions:
In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about Peter Grimes, an opera by Benjamin Britten. Please move the dial during the video to indicate your perceptions of ongoing teacher intensity. Please move the dial back and forth now. Do you have any questions?
QUESTIONNAIRE

1. Did you recognize the teacher in the video?
   _____ YES  _____ NO

2. At any point in this lecture, did you observe what you would consider teacher intensity?
   _____ YES  _____ NO

3. Did you feel that your movement of the dial roughly corresponded to variations in teacher intensity?
   _____ YES  _____ NO

4. Please circle the number that corresponds with your rating of the overall teacher intensity during this lesson.

   Teacher Intensity:
   Low intensity  Moderate intensity  High intensity
   1     2     3     4     5     6     7     8     9     10

   Please turn to next page.
One interpretation of effective teaching has been defined as including the following:

- Sustained control of the student/teacher interaction
- Efficient and accurate presentation of the subject matter
- Correction of incorrect student responses
- Enthusiastic affect
- Effective pacing

5. How effective was this teacher in meeting these criteria?

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Any additional comments:
Effective Pacing Response Form

Please complete the demographic information below.

Gender (circle one): Male Female

Current level of schooling (circle one): Undergraduate Masters Doctorate

What is your major?
(i.e. music education, musicology, music therapy, English, etc.)

If you are a music major, what is your instrument/voice?

Number of years of paid professional teaching experience (check one):

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Instructions:
In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about *Peter Grimes*, an opera by Benjamin Britten. Please move the dial during the video to indicate your perceptions of ongoing pacing. Please move the dial back and forth now. Do you have any questions?
QUESTIONNAIRE

1. Did you recognize the teacher in the video?
   _____ YES  _____ NO

2. At any point in this lecture, did you observe what you would consider effective pacing?
   _____ YES  _____ NO

3. Did you feel that your movement of the dial roughly corresponded to variations in effective pacing?
   _____ YES  _____ NO

4. Please circle the number that corresponds with your rating of the overall teacher pacing during this lesson.

   Teacher Pacing:
   Ineffective pacing (Bad pacing)  Moderately effective pacing  Highly effective pacing (Good pacing)
   1   2   3   4   5   6   7   8   9   10

Please turn to next page.
One interpretation of effective teaching has been defined as including the following:

- Sustained control of the student/teacher interaction
- Efficient and accurate presentation of the subject matter
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- Enthusiastic affect
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Any additional comments:

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**Group D (Control)**

**Response Form**

Please complete the demographic information below.

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**Instructions:**

In music, there can be good and bad moments as the music progresses. Analogously, in teaching, the same can occur. You are going to view a 20-minute lecture about *Peter Grimes*, an opera by Benjamin Britten. Please move the dial during the video to indicate your perceptions. Please move the dial back and forth now. Do you have any questions?
QUESTIONNAIRE

1. Did you recognize the teacher in the video?
   _____ YES  _____ NO

2. At any point in this lecture, did you observe what you would consider effective teaching, effective pacing, and/or teacher intensity?
   _____ YES  _____ NO

3. Did you feel that your movement of the dial roughly corresponded to variations in effective teaching, effective pacing, and/or teacher intensity?
   _____ YES  _____ NO

4. Please circle the number that corresponds with your rating of the overall teacher effectiveness, teacher pacing, and teacher intensity during this lesson.

   **Teacher Effectiveness:**
   Not effective at all  Moderately effective  Highly effective
   (Bad teaching)                  (Good teaching)

   1  2  3  4  5  6  7  8  9  10

   **Teacher Pacing:**
   Ineffective pacing  Moderately effective pacing  Highly effective pacing
   (Bad pacing)                  (Good pacing)

   1  2  3  4  5  6  7  8  9  10

   **Teacher Intensity:**
   Low intensity  Moderate intensity  High intensity

   1  2  3  4  5  6  7  8  9  10

Please turn to next page.
One interpretation of effective teaching has been defined as including the following:

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Any additional comments:

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124
APPENDIX E

AUTHENTICATION OF GRAPHEd PACING LAPSES

Mean Effectiveness Ratings and Standard Deviations across Time
APPENDIX F

ANSWERS TO FREE RESPONSE SECTION

Teacher Effectiveness Group (Group A)

Subject 1:
His passion for this piece is very noticeable. He lost his train of thought/forgot character names so maybe should have had the handout in front of him. Handouts should be given at the beginning of class and attendance could have waited. His side track with kid not there (Mary) and late student could have waited and/or should have kept teaching over student walking in and hand handout as he continued. He looked annoyed at the kids with no handout but should have made sure before he moved on the first time.

Subject 2:
It was distracting when the teacher forgot what he was going to say, forgot to hand out notes, or recorded the entering student. Some parts of the lecture were jumbled and could have been better prepared with supplemental materials. That said, when the teacher was effective he was incredibly effective and dynamic! For example, when he was discussing the musical interludes – I genuinely wanted to hear more!

Subject 3:
The lecture started off great (very enthusiastic) but there were way too many breaks of concentration.

Subject 4:
Like a piece of music or any experience you remember most what happened last. At the end he was very effective in conveying concepts and gaining interest; however, throughout he was distracted, unprepared, absent minded, and a bit annoying. His technique at the end was excellent to speak over the music and vocalize tension and release. The beginning and middle were mediocre at best. Especially taking note of a student’s tardiness in front of the class. This was fun and insightful! Thank you! Good luck!

Subject 5:
I didn’t include the beginning of the lecture as effective because it had nothing to do with Peter Grimes.

Subject 7:
Teacher was mostly effective. There were rough places where lecture was inefficient and pacing was lost in classroom management tasks. But the good points outweighed the negative.

Subject 9:
I never realized how distracting it can be when technology does not work. I found myself forgetting everything he had said prior to that point and I had to refocus myself to what he was saying.

Subject 11:
Most of the ineffectual teaching happened during pauses or when the teacher was distracted. But overall the pacing was good and he kept the material somewhat interesting by getting into the back-story. There were just too many pauses and distractions to keep a student’s focus.

Subject 12:
It is possible that a student could get used to a teacher’s style and learn more effectively after more time. At first, however, many of the things we saw the teacher do in this video would be very distracting and perhaps help form a negative opinion of the teacher going forward.

Subject 13:
I feel that effective teaching is similar to quality music in its ability to engage the student/listener AND to sustain this interest. Like music, teaching includes a “flow” that holds attention, and when a teacher gets off topic or off-task, it becomes very easy for a student to lose interest.

Subject 14:
Teacher generally seemed knowledgeable about the subject matter. Lapses in memory along with inappropriate responses toward student severely affected his effectiveness.

Subject 15:
Overall he did very well but he started to do poorly when he did not remember certain material or diverted from the lecture. I did like the times when he went further to explain the significance of something.

Subject 17:
The amount of apparent memory slips were distracting. The knowledge presented was very well defined and tied together nicely. Pacing was good and used audio to enhance lecture, but unprepared media was also distracting. Being prepared with handouts and beginning of class would have made effectiveness better.

Subject 18:
He said he enjoyed this opera and you could see it in his face in the beginning, but really seemed that he just put something together in a day. It just confused me on someone who really enjoys the opera can get off track. Also with him getting distracted with other things like the lateness and missing of handouts really made me lose my interest.

Subject 19:
I learned things, but I didn’t enjoy it until the end. Because of all the interruptions to the lecture, I could not rate the overall effectiveness as good even though the teacher seemed knowledgeable. So, I left the dial in the middle for a good portion of the time.

Subject 20:
His uncertainty with some of the lecture helped take away from the effectiveness of his teaching. Had he not done things like lose his train of thought or forget information about the opera (character names, scene/act #s) he would have a much more effective lesson.

Subject 21:
Preparation and class control are other important aspects of effective teaching that overall did not come through in his lesson. He used effective teaching aids, PowerPoint and music excerpts, which enhanced his teaching effectiveness. Easy distractions took away from the effective dramatic and informative moments.

Subject 22:
The teacher would too often got [sic] distracted. The flow of thought and learning would be disrupted by something that should have been done before certain spots in his lecture. He was really great at informing his students, just the abrupt moments in his lecture, where he got distracted or lost train of thought [sic] threw off the flow of the lecture.

Subject 23:
Shouldn’t have spoken over the music at all. Let the students read/lecture/explain, and THEN let them listen alone. Don’t get side-tracked, you’re wasting my time. Know your lesson fully, don’t just approach the class with an idea of what you want to talk about. Make connections. Telling historical content and then connecting to the subject matter 10 minutes later is really ineffective.

Subject 24:
The eye contact with the class while he was on task with the lecture was very important to me. The many interruptions outwayed [sic] the fact that he really knew the material. He should have focused more on the music rather than the background since the lecture was on the opera.
Subject 26:
I thought that during the first “listening section” when he played an excerpt of the opera, he could’ve been more enthusiastic. He was stoic and still in the beginning, but when he began to move with the music it became much more engaging. I believe he handled the late student well – wrote a note to himself and continued where he left off. At times, though, he lost his train of thought, which was very distracting to me. However, I enjoyed the lecture and thought he did well considering the circumstances.

Subject 27:
The teacher met the criteria, but allowed smaller interruptions to disrupt the flow of his teaching, and thus students’ attention. Lost train of thought and technology issues can sometimes not be helped, but handouts, questioning the whereabouts of students, and frowning on late students can be taken care of at more appropriate times than mid-sentence in a lecture. Otherwise, his actual teaching skills when he was on task were very good!

Subject 28:
Lack of memory was not good. The use of music excerpts to back claims made lecture more engaging as an audience. He lacked organization and seemed to be speaking off the cuff.

Subject 29:
I thought the teacher had good knowledge of subject matter, which was effective, but he was often bothered by student interruptions and often lost in his own words. Pacing was excellent though.

Subject 30:
After reading the above interpretation, I thought of more things in the video that were neglected that I should have considered “bad.” Enjoyed the lecture in general, but found the interruptions and distractions irritating after a while.

Subject 31:
The teacher seemed to lose his train of thought a little too frequently to be really effective. Not bad altogether however.

Subject 32:
Many times the teacher was unprepared and/or lost his train of thought, taking away from the subject matter at hand.

Subject 34:
The teacher needed more student interaction. Also, there were way too many pauses from the teacher. He should of [sic] had the computer and music set up already, as well as handing out the handouts before the lecture.

Subject 35:
Needed a bigger vocab (used the word angst more than I’ve ever heard). It also looked as if he was doing those mistakes on purpose occasionally. He had very little flow to the lecture and I don’t think I would have learned much because of his ineffectiveness.

Subject 36:
Not much pacing. If he looked like he was thinking when he stopped it would have been more effective. He looked more like he was just staring into space.

Subject 37:
The ranking would be far higher, but the breaks in attention ruined almost all of his effectiveness.

Subject 38:
Aside from the way the teacher dealt with interruptions and blank moments, I found the lecture interesting. He made some interdisciplinary connections, which I liked.

Subject 40:
If this teacher hadn’t interrupted himself (passing out papers, asking where a student was, etc.) it would have improved the flow of the lecture and not distracted students from him. Some interruptions are understandable, but teacher initiated one ought to be avoided in my opinion.

Subject 41:
I don’t doubt his credibility to speak on the subject matter, but I felt he could have been more prepared. And you just HAVE to be prepared to give an effective lecture. And it’s pointless to stop and stare at someone who is late. Just keep talking, put a check by her name, and move on. She knows she’s late.

**Teacher Intensity Group (Group B)**

Subject 1:
The presentation of the subject was clear and passionate, but sometimes the stopping made the listener lose him.

Subject 3:
Bad pacing and no organization to what the teacher was going to discuss. Bad enthusiasm, which made the students zone out. No student interaction or discussion was attempted by the teacher.

Subject 4:
Moments of teacher intensity were destroyed by interruptions, loss of thought, etc. Teacher intensity must be sustained to hope to have any effectiveness. Even though the teacher seemed competent, organization and preparation was his downfall (although staged).

Subject 5:
Teacher got overall point and meaning across, but was quite dull throughout the whole lecture. There was one moment (during a music selection) that he actually displayed real emotion and intensity on the topic. But besides that, I thought the lecture was dull, and I, most likely would have been uninterested.

Subject 7:
Mostly good, but seemed overly distracted by brain farts [sic] and student interaction. Did not see the point in handing out the handout in the middle. At the end as a recap or electronically would seem more logical and conducive to sustained “intensity.”

Subject 8:
The lecture really lost intensity when there were long pauses in the monologue for whatever reason.

Subject 9:
To me, the level of intensity is defined by how captivated the audience is from the lecture. The teacher demonstrates intensity by the level of attention from the students.

Subject 10:
Video seemed staged at times.

Subject 11:
Whenever the teacher seemed to catch my attention I turned the dial up. The more passionate he got on the material the higher the dial. Whenever I lost interest with the presentation, for instance when he forgot to pass out a paper, the dial went down.

Subject 12:
Instructor allowed moments where intensity was good and had steady momentum, but allowed distractions or lose train of thought [sic] that killed that intensity. Each moment increasingly worse.
Subject 13:
Any breaks in the teacher’s lecture to pass out handouts or pull up various media items seemed to greatly detract from the overall intensity of the teaching.

Subject 14:
The teacher got side-tracked. The teacher was not consistent at all.

Subject 15:
Being prepared with the material, especially interactions with students (illegible) have nothing to do with the lesson was the biggest negative contribution.

Subject 16:
The teacher was too easily distracted by what was going on in class. He also forgot what he was saying several times and that did not seem effective in keeping his intensity.

Subject 17:
He always stopped right when I started really listening. He didn’t seem well prepared at all times.

Subject 21:
The teacher seemed to get distracted easily, which caused a drop in his intensity. He became flustered when things outside of his control happened (i.e. student walking into class late). This led to the teacher losing his train of thought and a subsequent intensity level drop.

Subject 22:
Distraction was an issue. Losing train of thought throughout lecture. Background information and details were helpful to understand the piece – good organization. More interaction with the student can help engage with the lecture.

Subject 23:
Train of thought often lost. Many things were not ready to be used at the start of class, such as handouts, media, etc. Even if there are distractions in the classroom, the teacher must continue with the lesson, which was not necessarily done here.

Subject 25:
I gave a 6 because the teacher stopped too frequently. When attention was there, he dropped it and had to almost start all over again.

Subject 32:
No interaction with students. Showed too much reaction to a negative situation.
Subject 33:
The disorganized moments and other interruptions disrupted the continuity of the story. Music history and explaining the storyline of an opera requires story-teller energy and continuity.

Subject 36:
I interpret intensity as focus and passion of the material discussed. The teacher was intense when he was excited and fully immersed in what he was discussing. Intensity was lost when the teacher and students lost focus of the lesson and lesson material.

Subject 37:
The intensity, though very good, was tarnished when he had to stop the pace of the lecture for things like technical difficulties, forgetting information, or checking a late student’s attendance. It disrupts the flow of the presentation and probably makes it more difficult for the student to maintain focused energy.

Subject 38:
The instructor should have prepared better! Passed out sheet, checked media, etc. before starting the lecture. Seemed as though he was easily distracted. However, when he was on topic, he had a really good flow to his lecture. The most interesting demonstration of his effectiveness was when he combined the recorded music with his dialogue.

Subject 39:
The teacher was very disorganized and all over the place. Should use teaching tool (PowerPoint, etc.) to stay on track. More student interaction.

Subject 40:
I felt like the long pauses really hurt his intensity levels. The frequent pauses to stop and consider if he was right also hurt and finally the speaking throughout the entire listening portion at the end of class.

Teacher Pacing Group (Group C)

Subject 1:
Aside from the pauses that were due to unexpected occurrences (e.g. a student coming in late, the audio not working, losing his train of thought), there seemed to be a lack of energy/enthusiasm, which negatively impacted the pacing, making the lecture seem slow. However, when he was speaking without the unintended pauses, his explanations were very clear and he spoke at a pace that made what he was saying able to be easily understood.
Subject 2:
Teacher was easily distracted by situations of the room – did not multitask in logistics and presentation aspects to keep class moving. When he was focused, there were great presentation moments – he was clearly knowledgeable but also seemed uncomfortable at times. It also would have been a good idea to have a backup plan for the audio excerpts (a CD or an iPod connection).

Subject 3:
“Pacing” is a difficult concept for this non-American viewer. I tried to interpret/translate this term as relevance to the lecture topic and minimizing (in “good” pacing) wasted time. Hence my not giving the lecturer maximum grades. When he is on topic, he is really good (including a fast delivery that is clear). But of course there were interruptions (as if he were unprepared or not staying on the subject matter), including some that were not of his own making that I rated as “bad” because they were distracting.

Subject 4:
There were times when the same phrase was repeated in different words, which adversely affected pacing.

Subject 5:
The teacher’s pace was much better when prompted by the PowerPoint display as well as at the end during the opera.

Subject 6:
Very good, then very bad – very little middle ground. Seemed obviously contrived.

Subject 7:
Along with improved pacing of presentation, an initial overview would give the material’s presentation some tangible form, which would help.

Subject 8:
The interruptions in the teacher’s presentation (tech problems, passing out handouts, etc.) were even more noticeable because when he was pacing effectively he was so enthusiastic that he really sparked an interest in the subject matter.

Subject 9:
Non-functioning technology shows poor planning and results in poor pacing because the teacher is troubleshooting rather than teaching.
Subject 10:
Only when the teacher had “lapses in memory” or interrupted his lecture with “administrative chores” did I feel the pacing suffered. Otherwise, a very interesting presentation on a subject he seemed to know well.

Subject 13:
The student-teacher interaction was so minimal! While his enthusiasm for the lecture was apparent, he did not appear excited to be teaching.

Subject 14:
His teaching was very drastic. It would go from full steam ahead to what the heck am I doing.

Subject 15:
Presenting a lecture often invites bad pacing. Unless the teacher is extremely organized, several lapses in focus from the students can occur. A future study might present various scenarios (rehearsals, elementary classrooms, etc.) for review. I really enjoyed participating. The study was definitely well thought out.

Subject 16:
I think one of the most distracting things was when he interrupted his lecture to pass out a handout or stopped because he couldn’t remember something. This did not demonstrate effective pacing.

Subject 18:
I don’t have a good record of being attentive during lectures, but the constant interruptions made it difficult to care or listen to what he was saying. Whenever he picked up with the teaching again I was always lost as to what he was talking about.

Subject 19:
This was a fascinating project! It really points out how the magic can be lost in an instant if the teacher or an outside intrusion interrupts what is taking place.

Subject 20:
This video gave me examples in teaching that I would prefer to avoid.

Subject 21:
Some of his actions (writing on the board, passing out papers, giving too much attention to the person walking in late, etc.) took away from the pacing of the lesson; however, I think the pacing was still effective.
Subject 22:
Teacher was mostly effective, but I definitely lost interest when he paused to think of something or spent too long with the technology. I particularly enjoyed when he was speaking about the opera and also speaking over the music. It was very visual and interesting at that point.

Subject 23:
Overall, the pacing of the lecture was quite clear and appropriate. Where the lecture was broken up completely offset whatever good lecturing was occurring – such as the recurring memory slips, student entering late, not having the music cued up, writing a title on the board, etc.

Subject 25:
Creating interaction with students is a crucial element of establishing pace and could have greatly helped flow of the lecture and offset periodic breaks in continuity.

Subject 26:
Interruption by student coming late handled very well (didn’t make a big deal of it). Interrupting his own train of thought was more disturbing (handouts, absences, forgetting key facts, like names) – showed possible lack of interest or amount of time spent on subject matter. More interaction with students would have been good.

Subject 27:
The pauses where he “lost his train of thought” caused me to lose focus of his point. Also, his lesson needs to be more structured so that he won’t have interruptions in his lecture to, for example, pass out the handout.

Subject 28:
Teacher did a wonderful job of pacing when actually teaching about subject matter. The amount of distractions and length of distractions really affected his overall effectiveness.

Subject 29:
Moments of excellent pacing, especially at the end when he was talking over the music.

Subject 30:
The lecture was overall good and the information was very well given. However, there were moments of awkwardness especially when forgetting certain bits of information. For example, like the part when he was making a reference to a very powerful moment, and he couldn’t determine if it was Act II or III. There was this blank stare on his face with his mouth gapped open. Maybe, the staring and gaping combination should be handled differently. There was some
interaction between the students but that was really only one time, but since it’s a lecture you wouldn’t really expect that much interaction. However, voice inflection was good therefore since it is a lecture without much interaction the inflection makes it more interesting. Overall, good lecture. Just the few times when information was forgotten was the only thing that was not so great.

Subject 31:
The distraction of a student should not disrupt the teacher from teaching. Even though it is a common error, having audio pieces in the lecture should be ready to play when you want. Hand out all papers before the (illegible) of the lecture. Don’t begin lecturing then stop to pick up homework. Attendance should be known before the lecture starts. Don’t go “uh” and “ummm” when you forget something or lose your train of thought.

Subject 32:
While forgetting material is a normal, human mistake, I found the greatest obstacle to “effective pacing” was interruption of enthusiastic lecture to take care of menial tasks such as writing down a tardy entrance. It took me some time to get back on track with his enthusiasm after these interruptions. Also, technology needs to be set up ahead of time!

Subject 33:
Teacher had too many pauses (forgetfulness), jumped from teaching to “Where’s…?” Couldn’t recall previous lecture, marked student for (illegible) (illegible), etc.

Subject 35:
The lecture seemed staged. It seems when he paused, he did so intentionally, it did not look natural. The parts where he was most relevant in pacing were when he compared the duality of Britten’s conflicted personal life to the character’s conflicted personal life, and when he finally got to the music example how the music portrayed it. I found it a little disconcerting to see the observer peeking at our dialed responses. I really wish we had a privacy guard over the dials, like we had for the people sitting next to us, for true privacy.

Subject 36:
The hand motions were almost distracting. It would be interesting to see how people with ADHD respond to this. The music with words was the most effective.

Subject 37:
More good moments than bad. He needed to keep going through interruptions to keep the class attention.

Subject 40:
Excellent attempt to use technology in the classroom, but seemed unprepared to use it.
Unnecessary to write on blackboard when it could have been put in the PowerPoint. Let too many things a few students were doing affect the lesson quality for the majority of the class.

Subject 41:
It was slightly obvious that the teacher’s behaviors were staged. Overall, the teacher should have had more interaction with the class, and he should not have let minor interruptions of the class affect him so much.

**Control Group (Group D)**

Subject 1:
The teacher lectured and didn’t give room for any student interaction – bad teaching. Hand motions were also distracting from anything he ever said. Pausing in between speaking was distracting. Talking over the music seems ineffective when learning.

Subject 2:
He seemed to lose his train of thought too often or too long at a time. That was the main negative I noticed.

Subject 3:
The teacher seemed to have knowledge of the subject and he had prepared beforehand, however, his timing of interruptions and the passing out of papers disturbed the rhythm of the class, therefore hindering the learning experience.

Subject 7:
Having done research similar to this before, I found myself being more aware of “expected” results…responding how the researcher felt I should…watching for cues, etc. Very well put together!

Subject 8:
The teacher got off task several times and would explain information that was irrelevant to the topic. He was very distracted, which takes away from the learning experience.

Subject 9:
Teaching in this style may be very different than how music therapists are taught to teach and interact with students. The teacher seemed effective when lecturing but I did not like his stopping for comments to students.

Subject 10:
Teacher seemed easily distracted by things that could have been handled at a later time (such as the handout and recording, the late student, etc.). It disrupted the flow of the lecture and I found it annoying.

Subject 11:
In my opinion, he lacked enthusiasm and passion. I felt like he was reading from a script. It almost put me to sleep a few times. He was in fact very knowledgeable of the subject matter. He definitely knew what he was talking about.

Subject 12:
Good lecture for the most part. The parts when he lost focus and randomly said stuff made it less enjoyable.

Subject 13:
I felt that the teacher was effective but at times where he stopped to address student issues or lost his train of thought, the intensity went away, thus diminishing the effectiveness.

Subject 14:
My reasons for a five were because how the teacher responded to the student who tried to answer a question about the English composers. Instead of helping the class he didn’t. Also when he lost his train of thought it was distracting, or when he would go to something else he forgot. Overall he wasn’t bad, he just needs to refine and polish his flow and effectiveness.

Subject 15:
I feel like the lecture was slightly out of context and while individual ideas were presented cohesively and well, I didn’t always understand the main point and purpose of why he was teaching.

Subject 16:
Pauses in the lecture were most distracting and made my brain scatter a bit. Lecture wasn’t as fluid as I would like even though the information we were receiving was correct and intellectual.

Subject 17:
The teacher seemed to enjoy the material but was not consistently prepared with his materials. The main thing that took away from the lecture in my opinion were the pauses when he did not know the material and when he stopped lecturing randomly.

Subject 18:
The instruction just seemed to jump from great to awful. When he was on subject and connected different ideas together that were relevant to his point, he was very effective. However, there were two main things that detracted from this: (1) He gave too much information at times, which became very confusing and hard to follow and (2) He let minute distractions completely halt the flow of the lecture as well as created his own distractions from the lecture.

Subject 19:
All of the interruptions caused by the teacher not being prepared or losing the train of thought were really distracting.

Subject 20:
If he had not taken those moments to hand out/take in papers, the pacing and effectiveness would have been much better. Even adding in some talking during the moments of total silence would have created a much better presentation. Lastly, his lapses in knowing the material really hindered effectiveness of intensity of the lecture.

Subject 21:
The moments of forgetfulness greatly broke up relatively good pacing (and enthusiasm) of the lecture. The viewer lost a little faith in the teacher’s grasp of the subject, each time becoming more annoying; he recovered fairly well. I was impressed with the correction of the incorrect student responses. Not only was the response corrected but they were told why/given a piece of information. The teacher did not have very good control over student/teacher interaction.

Subject 22:
The man teaching had a lot of good moments where he seemed very well informed. However, there were lapses in focus and attention to the class (door opening, passing out papers) instead of pushing along like he had [sic]. His inconsistency was very distracting.

Subject 25:
Overall, my personal thoughts on the method of teaching would place this guy quite low. Despite promising moments, there was faltering, loss of thought. However, there was good organization, which made the ending of the lecture effective.
Subject 26:
The main problem I had with this lecture were [sic] the pauses…Stopping the lecture to mark in his book, fumbling for words, being unsure of the correct act to discuss. In the end, he knew what he was talking about, but it was nonetheless distracting.

Subject 27:
Constantly losing his train of thought was distracting.

Subject 29:
He stopped in mid thought a lot.

Subject 32:
He was an effective teacher except for when he would go on random spats about various things.

Subject 35:
There was not much student/teacher interaction, which can be viewed as ineffective; however, he was very enthusiastic about what he was teaching. The correction of the student response could have been handled differently – perhaps let him try again? Also, he lost his train of thought frequently, which made focusing slightly difficult. The overall pace of the lesson was good as there was a lot of material to fit in. At times, the instructor taught a little too quickly.

Subject 36:
Think the biggest issue was when the teacher had awkward pauses while trying to remember the information. This made me believe that the teacher maybe needs to know the material better before teaching. Also seemed the teacher was not very organized and didn’t have a well set plan for how to run the lecture. This was apparent when the handouts were forgotten at several points during the lecture.

Subject 37:
I think he displayed effective teaching methods overall; however, the way he handled incorrect answers and students being disruptive in the class (entering late, not having the paper) was distracting. When teachers bring attention to other students it distracts the students more than it distracts the teacher. If he was more prepared with the papers and didn’t blank out mid-sentence, it may have been more enjoyable during those parts. Since the information was all history, it may be helpful to relate it to more recent historic events that we as students study in school.

Subject 39:
There were some slow moments where I as a listener dozed away, especially when the teacher was trying to recall something. Otherwise, the sudden door opening and closing was the worst thing that happened.

Subject 40:
Teacher often seemed unconcentrated [sic] in his own teaching or ill prepared. When drawing out the importances [sic] of each musical selection he was most effective. His background information on the opera bogged down the music and its significant points. I have had worse teachers, but this guy was dull, and I would not enjoy his class even though I would learn some things.
REFERENCES


BIOGRAPHICAL SKETCH

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