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## Personality Temperament's Influence on Instructional Strategy Type Selection by Nebraska and Iowa High School Band Directors in a Concert Band Setting

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Personality Temperament's Influence on Instructional Strategy Type Selection by  
Nebraska and Iowa High School Band Directors in a Concert Band Setting

by

Matthew D. Herrick

A DISSERTATION

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Under the Supervision of Professor Brian R. Moore

Lincoln, Nebraska

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Personality Temperament's Influence on Instructional Strategy Type Selection by  
Nebraska and Iowa High School Band Directors in a Concert Band Setting

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University of Nebraska, 2011

Advisor: Brian R. Moore

The field of education is constantly searching for techniques to efficiently select effective instructional strategies in order to differentiate instruction for students. Why do teachers select the types of instructional strategies they do to promote learning in the music classroom? Most teachers believe a mixture of educational goals, teacher experience, research, student ability, aptitude, interest, and learning style intuitively guide their strategy selection process (Tomlinson et al., 2003). One possible theory is that teachers' personalities are guiding the intuition that selects the instructional strategies. The purpose of this study was to determine if the high school band director's personality temperament significantly influences his/her instructional strategy selection in the context of a high school band rehearsal. Videos of 14 Midwestern high school band directors were coded to determine the instructional strategy types they used. These strategy type selections were analyzed between personality temperaments looking for independent relationships. Significant effects between personality temperament and instructional strategy type selections were found as well as differences in how high school band directors differentiate instruction. It was found all four personality temperaments chose to use Verbal Dictated instructional strategies more than any other instructional strategy type. However, the proportions in which they chose the instructional strategy types differed greatly. The intuitive-thinker personality temperament had the highest

percentage in 60% of the instructional strategy types. This means intuitive-thinkers had the greatest differentiation of instruction. Differences in chi-square contributions showed significant differences in each personality temperament's choice of instructional strategy types. For example, sensory-perceivers were more likely to choose behavioral cues than any personality temperament was to choose any instructional strategy type. A person of the intuitive-thinker temperament was less likely to use verbal dictated strategy types than 95% of the other personality temperament-strategy type pairings. Since personality is a preference for behaviors rather than a cause of behavior, the instructor can use categorized instructional strategy types to increase the breadth of instructional choices. Using a wider variety of strategy types statistically improves the chance of finding a strategy to meet the needs of each student.

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## **CHAPTER ONE**

### **INTRODUCTION TO THE STUDY**

#### **Statement of the Problem**

A key goal of teaching should be the efficient transfer of knowledge and skills. Many types of instructional strategies have been developed to improve the efficient transfer of knowledge and skills. However, why do teachers select the types of instructional strategies they do to promote learning in the music classroom? Most teachers believe a mixture of educational goals, teacher experience, research, student ability, aptitude, interest, and learning style intuitively guide their strategy selection process (Tomlinson et al., 2003). One possible theory is that teachers' personalities are guiding the intuition that selects the instructional strategy types. However, research on personality in music education has been previously focused on attempting to use personality to make predictions.

Many studies (Wubbenhorst, 1991, 1992, & 1994; Dyson, 1977; Shutter-Dyson 2000; Bergee, 1992; Krueger, 1976) focus on the predictive possibilities of personality. These studies show consistency in a dominant personality in the music field. On the other hand, they fail to show that the dominant personality holds any predictive power for success in either postsecondary study or a musical career. The fields of science and engineering have presented a few studies connecting personality to success (Egins, 1980; Rosati, Dean, and Rodman, 1988). While personality alone fails to be predictive, the interaction between specific learning theories and specific personality temperaments does seem to hold a predictive power for academic success.

The major flaw with the hypothesis that personality holds some sort of predictive power is in an assumption derived from correlations. Correlations do not indicate causality; however, there seems to be a common assumption that personality is the cause of success and participation in music. A new hypothesis may be *students' success in music is a by-product of their personality matching the personality oriented instructional strategies used by the teacher*. In others words, the more you resemble the teacher, the more successful you will be in that teacher's class. If this new hypothesis is valid, then adjusting strategies based on students' personalities should produce greater participation and a more diverse personality temperament among successful musicians.

This idea also provides an explanation for the existence of a dominant personality in music. If teachers choose instructional strategy types based on their own preferences, a dominant personality temperament could emerge from a cyclic evolution of teaching. In other words, a teacher of personality temperament X will teach in a way that students of personality temperament X are most successful; who in turn become the teacher and continue the cycle. This idea challenges the common belief that there is some unknown characteristic inherent in the field of music that draws a particular personality temperament. If teachers learn to select instructional strategy types based on the learning preferences of their students, they will likely find more students achieve in the course. This study attempts to address the first step in this line of inquiry – Do teachers choose instructional strategy types based on their own preferences? Personality temperament is a collection of all behavior preferences an individual has that determines how he/she functions. Therefore we can categorize the problem by asking - Do teachers choose instructional strategy types based on their personality temperament?

If a connection is found, teachers would have a strong and efficient way to make differentiated choices of instruction. It is reasonable to hypothesize that teachers who broaden instructional strategy type selection across multiple personality temperaments would be more likely to meet the individual learning needs of their students. Increases in achievement, participation, and student efficacy will likely occur when selecting instructional strategy types that are most beneficial for each student.

### **Purpose of the Study**

The purpose of this study was to determine if the high school band director's personality temperament significantly influences his/her instructional strategy type selection in the context of a high school band rehearsal.

### **Research Questions**

The following research questions provided focus for this study:

1. Which instructional strategy types utilized by Midwestern high school instrumental music educators are chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*?
2. Which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type?
3. Does choice of instructional strategy types by Midwestern high school instrumental music educators change with teaching experience?

### **Definition of Terms**

For the purpose of this study, the following definitions were used to guide the conceptual framework of the study:



## **Personality Type**

*Personality type* groups people by similarities in how he/she functions. "Human behavior is not due to chance; it is in fact the logical result of a few basic, observable preferences" (Myers & McCaulley, 1985, p. 11). Myers-Briggs' personality types are built by combining factors of extroversion vs. introversion, intuition vs. sensing, thinking vs. feeling, and judging vs. perceiving; resulting in a four letter code. When certain factors are combined, individuals are expected to have the same functions as those with the same factors. Personality type serves to understand how one individual is the same as another. For Myers-Briggs theory, functions are linearly independent. That is, all extroverts act one way and all introverts act another way; regardless of any other factor they possess.

## **Personality Temperament**

*Personality temperament* is a collection of all behavior preferences an individual has that determines how he/she functions. "Types emerge from temperaments by way of differentiation instead of being built up by way of combination of functions" (Keirsey and Bates, 1984, p. 29). Certain functions are examined and classified to better understand how one individual differs from another. Keirsey believes complex interactions between factors create one's temperament. For example, the factor of intuition affects the function of a thinking person differently than a feeling person. Keirsey identified four personality temperaments through differentiating behavior functions: intuitive-feeler (NF), intuitive-thinker (NT), sensory-judger (SJ), and sensory perceiver (SP).

## **Instructional Strategies**

*Instructional strategies* are specific behaviors performed by the instructor with the intent to transfer knowledge to a student or to influence a student to develop a skill. An instructional strategy may be a single behavior such as modeling how to hold a violin bow or it may be a string of behaviors such as multiple questions about *volume* leading to the total concept of dynamics.

## **Instructional Strategy Types**

*Instructional strategy types* are behavioral and organizational categories into which specific instructional strategies can be divided. For example, the instructional strategies of modeling how to hold a bow and modeling first position are both of the *modeling* instructional strategy type. The *List of Instructional Strategy Types* (LIST) was developed by the researcher for this study. A review of literature created a list of instructional strategy types that were then categorized by the researcher. These categories were then entered into a binary tree to analyze any missing dichotomous relationships. The full LIST is presented in Chapter Two. While the LIST is not comprehensive, the binary tree framework should provide a large enough variety of instructional strategy types to sufficiently answer the research questions.

**Binary tree analysis.** Breiman, Friedman, Olshen, and Stone (1984) described how to use classification and binary trees to analyze for missing data. Starting with the all-encompassing root node, data is successively split in half based on statistical criterion. Breiman et al (1984) split groups based on their impurity. Impurity is a measure for the extent to which nodes differ. The division with the lowest impurity, that is the least difference in outcomes, is selected for the binary split. The process is then repeated until

no more binary splits can be made. Though Breimen et al (1984) prescribe statistical methods for binary splitting, the assumption of all strategies being equal led to an intuitive method of division to create the LIST.

Cognitive theories of learning, questioning, lecture, behavioral conditioning, and listening were randomly selected as the initial root data. Many iterations of splitting the data were intuitively made. The split of instructional organization and behavioral strategies was chosen as the initial split because it was deemed to have the lowest impurity. The lowest impurity was deduced by realizing the two divisions were similar in that they could both be split by the other divisions identified.

The behavioral strategies node was then intuitively split into instructional and behavioral using a similar process to that of the root node. At this point, a search for additional strategy types occurred to balance the number of strategy types in the existing nodes. The process of splitting then balancing nodes occurred until a diametric counterpart to each strategy type was found without further division being possible.

The binary tree analysis through the level of abstraction used for this study is presented in Figure 1-1. The level of abstraction used for this study was arbitrarily chosen to maintain variety of instructional strategy types while maximizing inter-rater reliability. The black squares represent the instructional strategy types used for this study. These instructional strategy types are verbal dictated, verbal questions, directed non-verbal, instructional modeling, repetition, reinforcement, punishment, behavioral cues, behavioral proactive, and behavioral reactive. The full LIST is presented in Chapter Two.

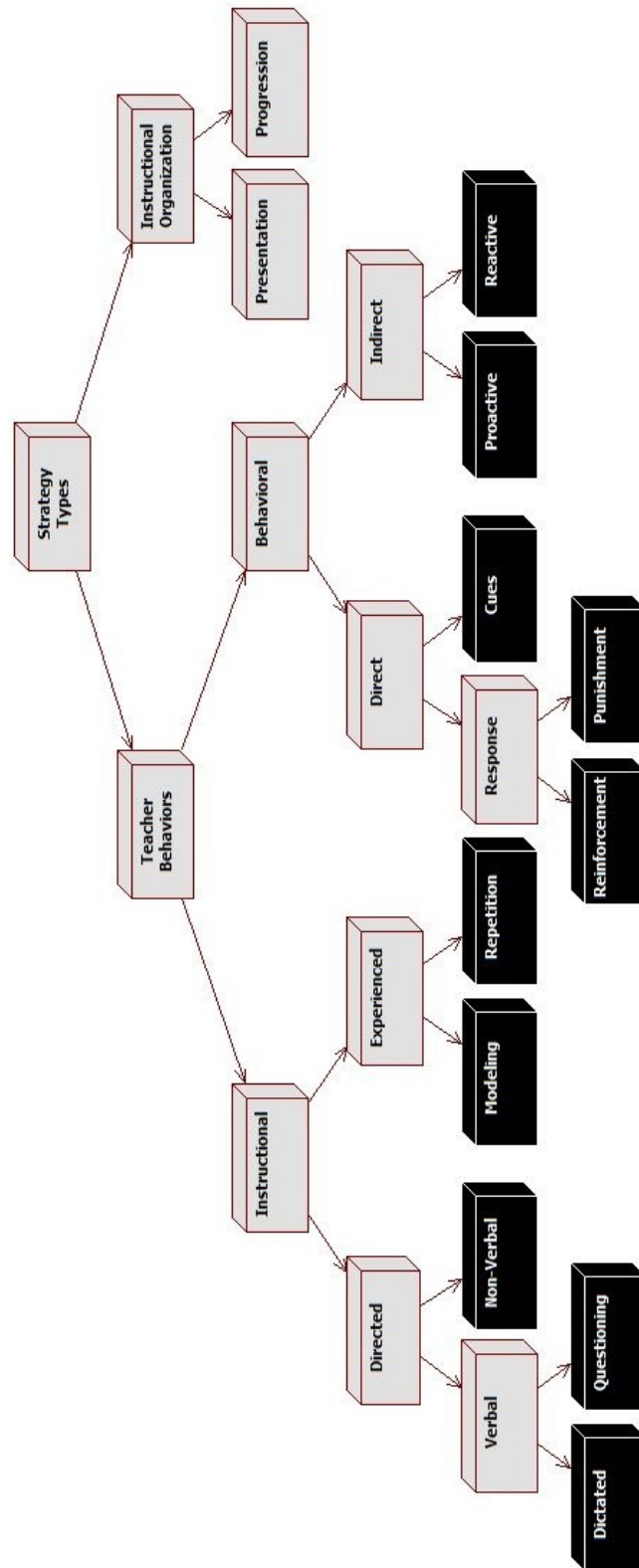


Figure 1-1. Binary Tree Analysis of the List of Instructional Strategy Types

## Teaching Experience

For the purposes of this study, teaching experience is defined by the number of years in a full time contracted teaching position. Teaching behaviors may be “shaped by earlier successes” (Lunenberg and Korthagen, 2009, p. 229). Given more experience, teachers have a greater chance of producing successes that could ultimately shape their behavior preferences and instructional strategy choices. Therefore, experience may be a confounding variable hiding the effect of personality.

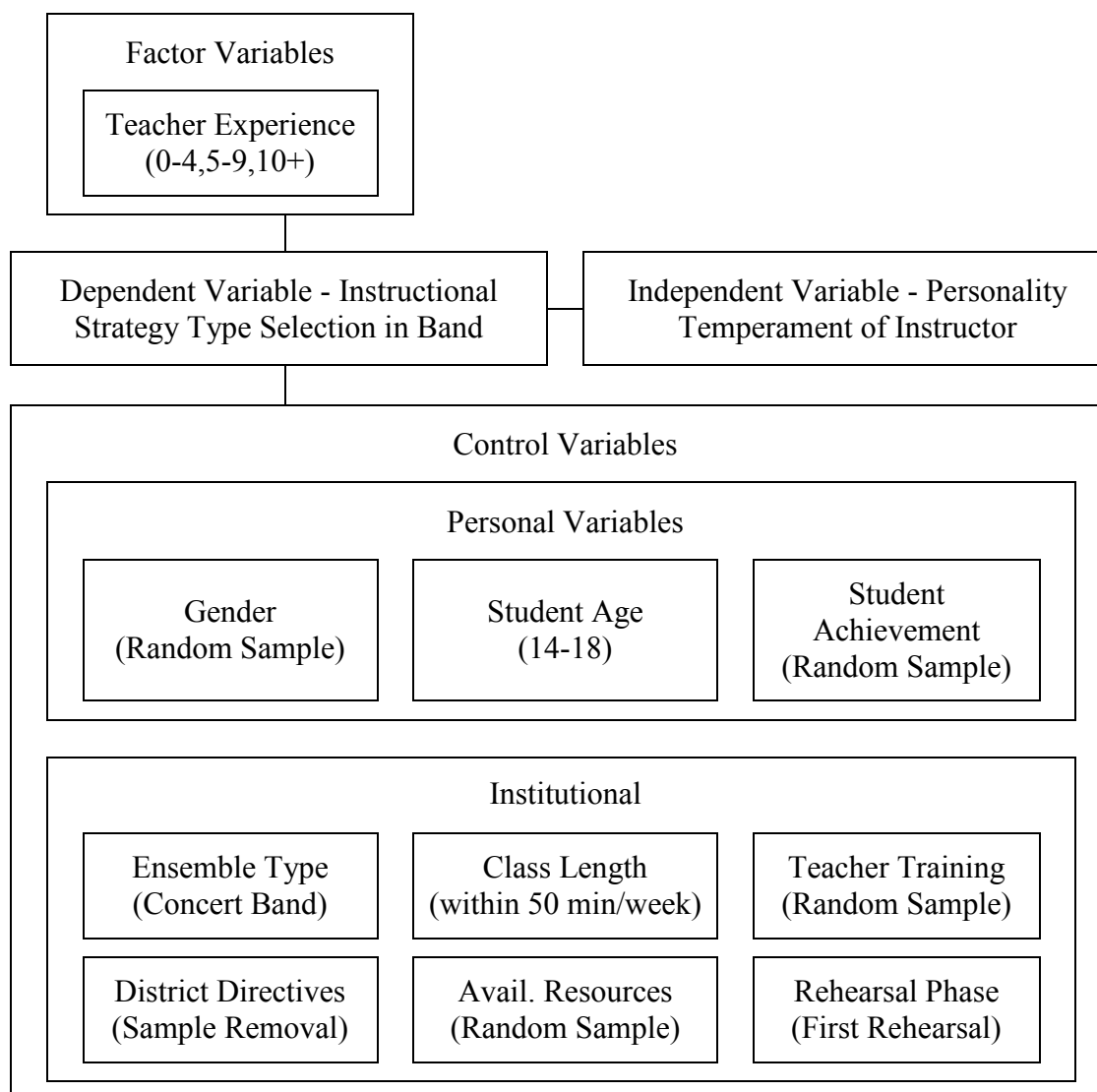
## Theory

The design of the study was descriptive. The independent variable was the personality temperament of the high school band director as measured by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. The dependent variable was the high school band director’s selection of instructional strategy types. A conceptual model was developed to identify factors possibly influencing the dependent variable. The conceptual model discovered the variable of the high school band director’s experience as a possible confounding variable needing to be factored. Figure 1-2 shows the conceptual model developed to identify factors possibly influencing the dependent variable.

## Personal Variables

This study sought to determine if the following personal variables had any significant effect on the relationship between the band director’s personality temperament and his/her selection of instructional strategies.

**Personality temperament.** Eggins (1980) found “there are interactions between the personality type of learners and the teaching approach used” (p. 144) in a study of 400 sixth-grade science students. Students categorized by Myers-Briggs to be *intuitive*



*Figure 1-2. Conceptual Model of Study*

performed better on a vertebrate classification activity when taught using a Bruner Constructivist Theory. Students categorized to be *sensory* performed better when taught using an approach modeled after Gagne's Conditions of Learning. While a learning preference has been established, left to be investigated is whether the connection continues into teaching preferences.

**Experience.** Personality types do not change with age. "One's type remains stable throughout life, although the way it is expressed at different developmental stages can differ" (Quenk, 2000, p. 79). Temperaments do become more pronounced as age increases. "Type development is seen as a lifelong process of gaining greater command over the functions or powers of perception and judgment" (Myers and McCaulley, 1985, p. 15). That is, an agreeable person tends to become more agreeable with age. However, teaching behaviors may be "shaped by earlier successes" (Lunenbergh and Korthagen, 2009, p. 229). Therefore, experience may be a confounding variable hiding the effect of personality. For this study, years of teaching experience was arbitrarily grouped zero to four years, five to nine years, and 10 years or more.

### **Institutional Variables**

This study sought to determine if the following institutional variables had any significant effect on the relationship between the band director's personality temperament and his/her selection of instructional strategy types.

**Available resources.** Herrick (2005) studied differences in high school band budgets. General fund allocations ranged from \$0 to \$17,000, activity funds ranged from \$0 to \$30,000 and booster organizations accounted for between \$0 and \$47,000 of the high school band budget. Budgets were so widespread "many standard deviations were

greater than their corresponding means" (Herrick, 2005, p. 27). Therefore, strategies chosen to observe for this study were carefully selected to be independent of available resources.

**District directives.** Some districts and/or school buildings have been known to dictate required instructional strategies as part of a school/district wide initiative.

Obviously, if a teacher is required to choose a strategy it may or may not match the said teacher's preference. For the purpose of this study, high school band directors held to such requirements were excluded.

**Rehearsal phase.** The amount of time spent rehearsing a piece reasonably affects the strategies a teacher chooses. The strategies a teacher uses when first introducing a piece likely differs from those chosen for the last rehearsal before the concert. Rehearsal phase must therefore be controlled to ensure differences in instructional strategy type selection are due to differences in personality temperaments. Teachers selected to participate in the second phase of this study chose a piece their concert band had not rehearsed before. Observations were of the first rehearsal of that piece.

### **Basic Assumptions**

#### **Class Length**

Music ensembles in Iowa high schools of 150 to 274 students had an average weekly contact time of 208 minutes (Iowa High School Music Association, 2008.) Music ensemble class time statistics for Nebraska could not be located. All schools studied were within 50 minutes of Iowa's mean class meeting time per week. It was assumed 50 minutes per week is too short of a time to have a significant impact on the director's selection of instructional strategies.



### **Ensemble Type**

Different ensemble types (marching band, brass quintet, concert band, etc.) have many identical strategies for similar concepts. Many unique strategies exist as well for differing concepts. For example, strategies to teach students how to march are utilized in marching band but unnecessary in other music ensembles. It was assumed, however, that personality temperament would have a similar impact regardless of the ensemble type for similar concepts. Preferences that guide the band director's instructional strategy type selection are likely to remain the same. The reason for focusing on only one ensemble type in this study was to merely keep the LIST to a manageable size.

### **Student Achievement**

It is reasonable to believe that if any one set of strategies was proven to produce greater student achievement, all band directors would use those strategies. Since differences in instructional strategy selection exist, it was assumed that all strategies have a similar impact on student achievement as a combined group. If one instructional strategy was found to work better than others, it would be used by everyone. At the same time, if an instructional strategy was found to never work, no one would use it. It was also assumed that the variety in individual students' achievement for each director was diverse enough not to have a significant impact on the director's selection of instructional strategies as a whole.

### **Teacher Preparation**

All high school instrumental directors in both Iowa and Nebraska are licensed by their respective state to meet a K-12 music certification. The institutions in which they were trained were therefore accredited by their respective state. It was therefore assumed

teacher preparation was likely similar across institutions. It was further assumed any missing concepts in teacher preparation were likely later introduced through mentoring and informal discussions with other band directors throughout the respective states. It was also assumed the possibility of a director's experience being limited to only one possible set of instructional strategy types to be highly unlikely.

### **Types of Instructional Strategies**

The instructional strategy types included in the study were chosen by means of dichotomous binary deductive reasoning. This was due to the abstract nature of cognitive learning theories. The immense breadth and lack of standard terminology within the area of teaching strategies makes it virtually impossible to create a complete and comprehensive list. The focus of this study was to look at differences in preferences. This study was not making any strives towards identifying best instructional strategy type practices. Therefore, it was assumed the LIST created for this study had a wide enough variety of instructional strategy types to sufficiently answer the research questions.

### **Delimitations of Study**

For the purpose of this study, variables were delimited to personality temperament, teacher experience, and strategy selection. Participating band programs were limited to the states of Iowa and Nebraska due to time restrictions of the design of this study; however, it is assumed participants in the study were representative of other Midwestern high school band directors in terms of academic freedom, ethnic, cultural, and socioeconomic status.

This study intended to see how personality temperament affects teachers' choices of instructional strategy types. Therefore, it had to be ensured use of instructional strategy

types were not forced upon the subjects. Some schools/districts are known to have institution wide directives requiring every teacher in their employ to use one or more required instructional strategies regardless of the teacher's personal preferences. The goal in these instances is usually to have an in-depth understanding of a single strategy or to perform a small-n study on a single strategy. These goals differ from this study's goal to differentiate instruction. Therefore it was deemed necessary to exclude any high school band directors hindered by school/district initiatives requiring specific instructional strategies.

Due to time constraints, many factors were limited to reduce the scope of the study. Student level was limited to high school due to more consistency in class meeting time from school to school than at lower levels. Band was arbitrarily chosen over orchestral, vocal, and general music. Concert band was chosen due to it being the overwhelming most common ensemble for the time of year in which the study took place.

## **Methodology**

### **Subjects**

The subjects of this study included high school band directors in Iowa and Nebraska. One hundred high school band directors were randomly chosen from a total of 715 as listed in the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010) and the *Nebraska Education Directory* (Nebraska Department of Education, 2010). These 100 high school band directors were invited to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. The eight most prominent scores for each personality temperament were to be selected for recording video examples for a maximum of 32 possible participants. No personality temperament

had more than eight respondents so all respondents were invited. Participating band programs were limited to Iowa and Nebraska due to time restrictions of the design of this study; however, it is assumed participants in the study were representative of other Midwestern high school band directors in terms of ethnic, cultural, and socioeconomic status.

### **Personnel and Facilities**

#### **Personnel**

Personnel for this study included high school band directors in Iowa and Nebraska, the researcher, and three video coders. The high school band directors were recruited by random selection from the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010) and the *Nebraska Education Directory* (Nebraska Department of Education, 2010). The three video coders were colleagues of the researcher and each video coder had at least a Master's degree in music education with more than 15 years teaching experience in the music education field.

#### **Facilities**

The facilities used were the respective instrumental music classrooms of the participants. All classrooms were representative of high school instrumental music classrooms located throughout Iowa and Nebraska. The three video coders coded the video examples alone in their respective places of residence.

### **Materials and Equipment**

Materials used in this study included the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010), the *Nebraska Education Directory* (Nebraska Department of Education, 2010), invitation to first stage (see

Appendix B), follow-up letter (see Appendix C), invitation to second stage (see Appendix E), coding of videos of classroom proceedings (see Appendix F), and the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* (see Appendix D).

### **Gray-Wheelwright-Winer 4-Letter Type Indicator Test**

Drs. Horace Gray and Joseph Wheelwright were two American psychiatrist physicians at Stanford University Medical Center in the 1930s. Gray and Wheelwright were students of Jung and Jungian analysts leading to their development of the first version of the test. Dr. Winer modified the test's 81 questions in 2002 to calculate a 4-letter type Myers-Briggs temperament profile. A thorough reworking of the type test questions was done in 2006 in efforts to correlate better with the Myers-Briggs Type Indicator and Keirsey Temperament Sorter II test results (Winer, 2009).

The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is a 70-item binary response preference questionnaire. Respondents must choose between two diametric behaviors based on their personal preference. It resembles both the Myers-Brigg Type Indicator and the Keirsey Temperament Sorter II. A four letter personality type code is calculated based on behavioral preference responses regarding the functions extroversion vs. introversion, intuitive vs. sensory, thinking vs. feeling, and judging vs. perceiving.

**Reliability.** Consistency between survey questions on the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* needed to be established in order to assume highest scores were the most pronounced temperaments. Kuder-Richardson #20 (KR<sub>20</sub>) estimates were calculated to test internal consistency reliability. KR<sub>20</sub> uses proportion of test-takers correctly answering each item against the proportion of test-takers incorrectly answering an item. While there are no correct or incorrect answers for the *Gray-Wheelwright-Winer*

*4-Letter Type Indicator Test*, a diametric relationship does exist. Therefore extraversion, sensory, thinking, and judging were selected for the "correct" leg and introversion, intuitive, feeler, and judger were considered as part of the "incorrect" leg. The  $KR_{20}$  for the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* resulted in  $\rho = .82$  and was considered reliable because  $\rho > .70$ .

The predictive performance of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was tested using 2-fold x 2 cross-validation. The number of participants for each personality temperament was calculated for each of the eight data-subsets. Group A data-subsets were then correlated with group B data-subsets using Pearson's Product Moment Correlation Coefficients. The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was considered to pass cross-validation because the majority of correlations were significant at the  $p < .05$  level.

**Validity.** Each personality function is divided into diametric pairs: extraversion vs. introversion, sensory vs. intuitive, thinking vs. feeling, and judging vs. perceiving. Each question of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was designed with one function in mind. Each question had two diametric answers that fall toward one side of the dichotomy or the other. Answers are taken from function descriptions of Keirsey and Bates (1984) as well as Myers and McCaulley (1985).

### **Coding of Classroom Videos Using the LIST**

The *List of Instructional Strategy Types* (LIST) was developed by the researcher for this study. An extensive review of literature created a list of instructional strategies that were then categorized by the researcher. These categories were then entered into a binary tree to analyze any missing dichotomous relationships. A dichotomous

relationship was considered an opposite or competing strategy. The purpose of the binary analysis was to ensure a substantial breadth of strategies. While the LIST is not comprehensive, the binary tree framework should have provided a large enough variety of strategy types to sufficiently answer the research questions.

**Reliability.** Inter-rater correlations between LIST coders were calculated using Pearson's Product-Moment Correlation Coefficient. Scores for each pair of coders were correlated. Data was selected from one reliable coder for each participant through random selection. The generalized Spearman-Brown formula was used to adjust the reliability ratings due to a reduction in raters (Fan & Chen, 2000). Results of the LIST for each observation were deemed reliable because all three combinations of coder pairs were found to be significant at the  $p < .05$  level.

**Validity.** This study was looking to see if different personality temperaments made different instructional strategy type selections. Since personality temperaments are derived from dichotomous behavioral functions, dichotomous relationships in instructional strategies were necessary to create a list with sufficient breadth of options. A binary tree analysis was completed on reviewed literature to create a broad list of research-based instructional strategy types in order to meet content validity.

Participants were observed to see what combinations of choices they made in these dichotomous relationships. No effort was taken to find best practices. Therefore, the LIST is considered to meet criterion validity because the study was looking for differences in choice as opposed to specifics on the choice itself. In other words, the list is intended for looking at consistency in the teacher's choice of instructional strategy types; not the effectiveness of the strategy that was selected.

### Procedure

The subjects of this study included high school band directors in Iowa and Nebraska. One hundred high school band directors were randomly chosen from a total of 715 as listed in the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010) and the *Nebraska Education Directory* (Nebraska Department of Education, 2010). After receiving approval from the Institutional Review Board (see Appendix A), these 100 high school band directors were invited via electronic mail (see Appendix B) to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* (see Appendix D). A reminder letter (see Appendix C) was sent ten days later to selected directors who had not yet completed the survey.

Request to participate in the second stage of the study was included on the survey. Once the survey results were tallied, eight band directors with the highest scores of each personality temperament were to be selected from those indicating a willingness to participate in the second stage of the study. Nineteen band directors total indicated a willingness to participate in the second stage of the study. Since this sample provided less than eight band directors for each personality temperament, all nineteen were selected. These 19 were invited via electronic mail to select a piece their concert band had not yet rehearsed and schedule a video recording session with the researcher (Appendix E). In cases where there was no response within three working days, the invitation was sent to them again. Fourteen of the 19 who indicated a willingness to participate in the second stage of the study responded to the invitation to the second stage of the study.

Appointments were made with the 14 high school band directors to film the first concert band rehearsal of a never before rehearsed piece selected by the teacher. Video



recordings were all made with the same digital video camera. Classroom videos were reviewed by three independent coders who coded strategies for analysis using the LIST. Coders were each randomly assigned half of the videos so that all videos were coded and half of the videos were coded by two separate coders. Videos were randomly assigned numbers for each coder and recorded to DVD. The DVD, video coding tally sheet, and copies of the full LIST were given to each coder. Each coder reviewed the videos and tallied the frequency of each behavior type using the video coding tally sheet (see Appendix F). Coders reviewed the videos privately in a time and setting of their choice. DVDs and video coding tally sheets were then returned to the researcher for analysis.

### **Design of the Study**

The design of the study was descriptive. The independent variable was the personality temperament of the high school band director. The dependent variable was selection of instructional strategy types. Correlations were also factored for the variable of the high school band director's experience range. Figure 1-2 shows the conceptual model developed to identify factors possibly influencing the dependent variable.

### **Data Analysis**

Personality temperaments were categorized as intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), and sensory-perceiver (SP) as defined by Keirsey and Bates (1984). Personality temperaments and tallies of instructional strategies used were tabulated and calculated by the computer program Microsoft Excel. Statistical significance was determined using an alpha level of .05.

Research question one and three were investigated using proportional descriptive statistics. The total proportions were calculated for all band directors per each personality

temperament category. The total proportions were also calculated per each personality temperament category for each subpopulation of director experience: 0-4 years, 5-9 years, and 10 or more years.

Research question two was investigated using chi-square statistics. Post-hoc pairwise comparisons were made on chi-square contributions. Cramer's V Coefficient was calculated to determine strength. The total proportions were calculated for all band directors per each instructional strategy type. This was done by calculating the difference in chi-square contributions between each pair. A pair was considered significant if the difference in chi-square contributions was greater than or equal to the critical value for one degree of freedom ( $\alpha = 3.841$ ). All significant pairings were identified and a calculation of the percentage of significant pairings for each personality temperament and instructional strategy type combination were also calculated.

### **Significance of the Study**

Personality theory has been utilized in education mostly as a predictive tool. It has been used to aid in career development plans and to predict who will be most successful in certain classes. What has been overlooked is the possible role personality can play in gaining insights into students' learning preferences. Knowledge into students' learning preferences would be invaluable in instructional planning.

The first step in this line of thinking is to discover what teachers are doing now. The old adage says, "Teachers teach the way they were taught." Teachers must know the content and therefore are likely to teach in fields where they successfully learned the material. Hence, the methods used to teach them were effective for them as learners. One cannot assume those methods were equally effective for all students. This leaves the

question of what motivated the strategy selection. Are teachers already taking into account their students' learning preferences or is it merely "teachers teach the way they themselves learn?"

This study investigates if there is a connection between the teacher's personality temperament and the instructional strategy types they choose. Personality temperament can be used to categorize instructional strategy types if such a connection is found. Personality is a preference for behaviors; not a cause of behavior. Therefore, the instructor can use categorized instructional strategy types to increase the breadth of instructional choices. A wider variety of instructional strategy types is more likely to meet the needs of all students. Further study may contribute to matching effectiveness of instructional strategy types with personalities. If progress can be made in this line of research, personality can become an invaluable tool for planning efficient and meaningful instruction.

## CHAPTER TWO

### REVIEW OF THE LITERATURE

#### Introduction

The literature review began by gaining a deeper understanding of the current and historical theories about personality. Research applying various personality theories to music education was then surveyed and digested. A commonality emerged in using personality as a predictive tool. The possibility of using personality as a monitoring tool instead began to materialize. Further literature review outside of music uncovered attempts to connect personality to different cognitive theories of learning. Major cognitive theories of learning were then reviewed. It soon became evident that cognitive theories of learning are realized through types of instructional strategies.

A pre-existing comprehensive list of instructional strategy types could not be found. Therefore, it was recognized a list would have to be created. Literature was reviewed to create an initial list of instructional strategy types. Dichotomous relationships between instructional strategy types and groups of instructional strategy types were organized into a binary tree. Some of the original instructional strategy types did not have a diametric counterpart. These gaps in the binary tree were filled after further literature review.

#### Personality Theory

Early psychologists believed all people are fundamentally the same. Sigmund Freud believed everyone was motivated by the *Eros*, Alfred Adler said everyone is seeking power, and Erich Fromm thought everyone was in search of the *Self*. Then at the beginning of the 20<sup>th</sup> century, Carl Jung brought forth a new idea declaring people are

fundamentally different through a preference of archetypes which he called functions (Keirsey and Bates, 1984).

In the 1940's, Raymond Cattell used factor analysis to discover and measure the fundamental traits of human personality which he called the Sixteen Primary Factors (Cattell, 1946). Once these factors were identified, Cattell developed the first standardized personality test called the Sixteen Personality Factors Questionnaire (16PF) which still stands today as one of the leading personality assessments. Later researchers used factor analysis to further narrow the list to five traits ultimately becoming known as the *Big Five*. While Cattell agreed there were five second-order traits, he refused to accept the theory of limiting research to the five factors (Cattell, 1995). Regardless, the *Big Five* is widely accepted today as the most dominant theory.

Carl Jung's theories were revived by Myers and Briggs and personality *types* became the dominant thought through the late 20<sup>th</sup> century. This was the beginning of placing people into defined groups. Judging by their dominant behaviors, people could be categorized by a personality type. Myers and Briggs developed the *Myers-Briggs Type Indicator* (MBTI) which type-casted individuals into sixteen different groups based on the four traits of extroversion versus introversion, intuition versus sensory, thinking versus feeling, and judging versus perceiving. (Myers & McCaulley, 1985.)

The four basic types (*sensing-judging* [SJ], *sensing-perceiving* [SP], *intuitive-thinking* [NT], and *intuitive-feeling* [NF]) are defined as temperaments by Keirsey and Bates (1984). Temperament theory groups through differentiation rather than combining type functions. In other words, personality is not considered as being factors that attribute to whom a person is, but as dividing up a group of individuals based on personality.

“Who you are” is not as important as “who you are not.” The focus is on a systematic view of the interactions of the functions rather than grouping individuals by single functions. While there is no published data on reliability for Keirsey’s Temperament Sorter, it does correlate highly with the MBTI which does have favorable validity and reliability scores (Keirsey and Bates, 1984).

Some felt personality theory was too multifaceted to be described by simple bipolar models. Therefore, a more scalar model was developed by Costa and McCrae to describe people without having to forcibly confine them to any certain group (McCrae, 2000). Built on the *Big Five*, and come to be known as the *Five-Factor Model* (FFM, also known as NEO-PI for Neuroticism-Extroversion-Openness Personality Inventory), people are scored on a scale for each of the factors. This method reveals peoples’ dominant factor and also displays the intensity of each factor. For example, on the scale a person might fall near the middle between extraversion and introversion. While this is a fairly balanced person, type-casting might call him/her an extravert. The *Five-Factor Model* does give a better picture of an individual’s personality; however, type is still more useful in differentiation of groups.

The *Big Five/Five-Factor Model* was also developed to try and draw a consensus among the leading personality theories. Table 1 shows how three popular personality models transpose on each other based on the work of John (1990).

Table 1

*Transposition of Popular Personality Models*

	Myers-Briggs Type Indicator	Cattell 16PF	Costa & McCrae's NEO-PI
I	Extraversion vs. Introversion	Exvia vs. Invia	Extraversion
II	Feeling vs. Thinking	Pathemia vs. Cortertia	Agreeableness
III		Super Ego Strength	Conscientiousness
IV	Judging vs. Perception	Adjustment vs. Anxiety	Neuroticism
V	Intuition vs. Sensing	Independence vs. Subduedness	Openness

Personality was quickly identified for possible use in the educational field because of its strong connection with how people perceive and process information. Myers and McCauley (1985) stated, "...environmental factors can foster development of each person's natural preferences, or it can discourage their natural bent by reinforcing activities that are less satisfying and less motivating, making skill development more difficult." However, the use of personality in music education has been quite narrow.

### **The Dominant Thought of Personality in Music Education**

The most common research in music education with regard to personality has been (a) describing personality differences between musicians and the general population and (b) finding correlations with success to predict which types of personalities will be most successful in music and music teaching. Wubbenhorst (1991, 1992), for example, attempted to identify which personality type was most dominant in music educators through multiple studies using the *Myers-Briggs Type Indicator* (MBTI). Wubbenhorst's

(1991) first study found the type *intuitive-feeler-judger* to be the most common personality type among music educators. This type tends to be charismatic, and place value on cooperation, but they also assume they are understood and take communication for granted. *Intuitive-feeler-judgers* make logical decisions, are socially adept, organized, and perfectionists (Keirse and Bates, 1984). Comparatively, the *intuitive-feeler-judger* type is found in only 6.45% of the general population (Myers & McCaulley, 1985). However, these studies left the question of why the type *intuitive-feeler-judger* is most dominant in music. Is there something about music that attracts this type or is it simply *intuitive-feeler-judgers* breed more *intuitive-feeler-judgers*?

A pilot study by Dyson (1977) attempted to correlate personality assessed by the *Cattell 16PF* with musical ability using a sample of secondary students. Results were inconclusive, but data sparked enough interest for a follow up study comparing the personality of music students versus the general population (Shuter-Dyson, 2000). This later study, using the *Francis Attitude to Christianity Scale and Revised Eysenck Personality Questionnaire*, showed music students were more extroverted, female music students were more tender-minded and more neurotic, and male music students were more religious than the general population. However, the question of why certain personalities are prevalent was left unanswered. Between these two Dyson studies, there seems to be a tendency of music participants to have a certain personality, but using personality to predict ability or success does not seem to be effective. Therefore, music in and of itself is a less likely candidate for predicting personality than commonly believed.

Later studies (Wubbenhorst, 1992, 1994) looked for differences between musicians and music educators but found no significant differences. In other words,



music performers and music educators are more similar than different. These studies give us an idea of which personality type is most commonly found in music, at least at a collegiate level and beyond, regardless of the subtype of performer or educator. Therefore, music teachers and music students are both high in the personality type intuitive-feeler-judger. However, the idea of matching music student personality to music teacher personality has not been thoroughly investigated as of yet.

There is a common assumption that if a personality is dominant in a field, people of that personality type must be the most successful. However, studies which looked at correlations between personality and “good” music teachers have failed to support that assumption. Regressing *Missouri Pre-Teacher Interview* (MPTI) results on conventional success indicators (class rank, grade point average, ACT, and performance juries), Bergee (1992) discovered high correlations for *Stimulator* and *Developer and Command* while finding low correlations on *input drive*. However, performance juries were the only music specific indicators of success; therefore, results were affected by the general population.

Krueger (1976) found relationships between music teaching success and personality when comparing the *Cattell 16PF* and *Motivation Analysis Test* against Colwell’s *Music Achievement Tests I-IV* and the *Illinois Teacher Evaluation Questionnaire*. However, cross validation failed for Krueger meaning the study could not be generalized to a large scale. Further analysis found it to be motivation that accounted for 12-17% of the success, diminishing the importance of personality’s ability to predict success.

Additional studies looked for correlations between personality and success when using more subjective tools for determining success. While looking at correlations with the MBTI and *Adjective Checklist* (ACL) against teacher ratings of applied music teachers, Schmidt (1991) found the MBTI yielded no significant results while the ACL resulted in a few significant correlations. Teachout (2001) also found no significance when comparing personality and teacher effectiveness when using the *Vocational Preference Inventory* and *My Vocational Situation* to assess personality and the *Survey of Teaching Effectiveness* to identify “good” music teachers. It is quite possible that all measures of effectiveness are poor measures; however, after multiple attempts, a pattern of failure seems to be occurring. Therefore, it is reasonable to believe personalities do not predict teacher effectiveness. Effectiveness rather seems to be related to the teacher's ability to choose the appropriate instructional strategy type at the right time for the right student.

Looking at all of these studies as a whole, identifying “good” music teachers through personality has proved inconclusive. What we can conclude is either (a) the studies were having trouble identifying what a “good” music teacher was, and/or (b) a teacher's personality only makes a difference when compared to his or her students. A large amount of research has been done to identify “good” teachers in an effort to warrant merit pay; however, little work has been done in comparing “good” teachers with their students.

Studies akin to these have formed the hypothesis *students will be successful in music if they can adjust their personalities toward the dominant musician type*. For example (Pollack & Simons, 1996), a collegiate choir director was identified as an

*introverted-intuitive-thinker-judger* on the MBTI. Along with a psychologist, the director recognized “strengths” and “weaknesses” in her teaching. Strengths described in the article line up with *intuitive* and weaknesses described in the article line up with *judger* and *thinker* (notice the agreement with Wubbenhorst, 1991.) A change in strategies described in the article can be summarized to teach more like a *feeler* instead of a *thinker* and using strategies of a *perceiver* rather than those of a *judger*, which resulted in the director finding less “bad rehearsals”. As discussed earlier, most musicians are *intuitive-feeler-judgers* so teaching as an *intuitive-feeler* probably reached more students, but it is unclear if it reached *all* students. Teaching using the strategies of a *perceiver* rather than a *judger* may account for even more students. The ongoing issue is looking at the group as a whole still presses toward an ideal personality. Meanwhile, it is difficult to identify what is working when looking at one against many. Looking at students individually may yield more conclusive results.

Topping, Holmes, and Bemner (2000) showed a strong belief in the statement *students will be successful in music if they can adjust their personalities toward the dominant musician type* when they reviewed 700 studies in promoting social competence. They were able to arrange all studies into seven categories of “intervention”: behavior analysis and modification interventions, counseling and therapeutic interventions, social skills training, peer-mediated interventions, cognitive and self-managed interventions, multiple interventions, and miscellaneous. An intervention is an effort to show an individual how the person’s behavior is not the expected behavior. All of these categories focus on changing the individual’s personality (i.e. behavior preferences) and/or social relations. The assumption lies in that there is one best behavior for learning. Since one

cannot change their personality, those who already have a preference for the "one best behavior" will be the most successful. Others would simply have to deny their preferences in order to succeed.

### **A New Thought of Personality in Music Education**

Literature has shown using personality to predict success in music has proved problematic. Alternatively, literature supporting the hypothesis that *people's success in music is a by-product of their personality matching the personality oriented strategies used to teach them* was also reviewed. In others words, the more you resemble the teacher, the more successful you will be in that teacher's class. No music studies addressed the idea of matching personality with personality oriented strategies as their primary research question; however, many provided evidence that supported the hypothesis.

Schmidt (1989) showed teachers' personalities affect strategies they most often use. Schmidt looked for correlations between the MBTI and researched based successful teaching behaviors (approvals, reinforcement rate, modeling, questioning, and pacing.) Results unearthed significant differences between *extrovert/introvert* on reinforcement rate and approvals and also found significant differences between *sensory/intuitive* on rate of reinforcement, approvals, modeling, and pacing. Similarly, Thompson (1984) also found tendencies for Myers-Briggs' types towards role of the teacher, ideas for teaching, planning, typical method, student evaluation, and self-evaluation. Therefore, teachers' own personalities are more prone to dictate their teaching strategies than the needs of their students.

A hypothesis to counter this common trend was suggested by Reckinger (1980) who suggested that schools should “adopt learning and teaching styles that nurture students' inner potential and provide for individual differences of both teachers and students” (p. 1). Reckinger (1980) simply states, “learning style theory is telling us that since all of our students do not learn the way we teach them, everyone would be better off if we taught them the way they learn” (p. 4). That is, teachers need to select strategies that foster each student’s learning style. Rather than evaluate each student’s learning from the strategies we use, we need to evaluate how our strategies match each student’s learning. The speech furthermore provided advice for teachers to adjust their teaching styles to fit various types of students by categorizing four basic personality types of students based on the Myers-Briggs indicators. The types Reckinger discussed coincidentally fell in line with Keirsey and Bates (1984) temperament theory.

This new hypothesis was also hinted at by Miriani (1992) who divided personalities into three types: *Deflator* (recognition and praise – set short intermediate objectives), *Worrier* (over-prepares, likely to burn out – diversify interests, help them enjoy the process), and *Controller* (lacks follow-through, reluctant to advice, vulnerable to influence – avoid rigid schedules, encourage commitments.) However, Miriani’s focus was on improving student motivation by taking into account students’ feelings rather than attempting to improve student musical success. She stated “it is important to understand personality types and adapt motivational techniques to the personality of each student. A technique inappropriate to a personality can easily backfire, resulting in discouragement, rebellion or even performance anxiety” (p. 18). With motivation being a key prerequisite to learning, it is reasonable to hypothesize applying this idea to student success.

Kemp had data that could be explained by this new hypothesis, but came short of drawing the same conclusion. Kemp found, “It can be seen that, in professional musicians, for example, the male and female musicians invariably show a tendency to minimize the differences shown by the non-musicians” (1996, p. 112). In other words, the personality difference between male and female musicians is less extreme than males and females in the general population. Kemp further studied this phenomenon to discover it was limited to 15 years of age or older. Kemp therefore speculates, “it would appear likely that any study of musical populations in ordinary secondary schools, as opposed to schools for the musically gifted, is likely to reveal a significant change at this point due to high drop-out rates” (1996, p. 114). This speculation covers why there is a difference between musicians and the general population, but stops short of why male and female start to draw closer to a dominant type. What could be causing the focusing of personality type? The hypothesis presented earlier would say the focus is toward the teacher’s personality type and drop-outs consist of those students that differ personality wise from the teacher.

Research outside the concentration of music, on the other hand, has investigated type differences in student learning and how teachers are intervening to improve learning as a function of type. In the area of biology, Eggins (1980) had sixth graders separate animals into vertebrates and non-vertebrates after using Bruner’s inductive approach, Ausubel’s advanced organizer, and Gagne’s concrete to abstract model as three well-defined teaching strategies. Eggins found significant correlations between certain personality types with certain models indicating success when strategies are matched to personalities. The existence of Bruner’s, Ausubel’s and Gagne’s approaches shows that

there are already a number of strategies to reach the various personality types. However, as Schmidt (1989) pointed out earlier in this paper, the teacher's personality guides strategy selection most. Occasionally teachers will randomly try different strategies in an attempt to reach students; however, Eggins gives us a more efficient way of strategy selection.

In the area of engineering, more research focuses on varying instruction based on students' personalities. Rosati, Dean, and Rodman (1988) categorized units of a university thermodynamics course as either sensory or intuitive in presentation. Results showed significantly higher preferences for units of the same type as the students' personalities. That is, sensory students tended to prefer units "containing detailed routine work with practical applications" and intuitive students tended to prefer units that "focused more on concepts, new problems, and ideas" (p. 208). While the discipline of engineering tends to be more intuitive, sensory students still preferred their way of thinking rather than conforming to the most common personality. Similar research in the field of music education however has proved difficult to locate.

### **Sequential Patterns of Instruction**

Yarbrough and Price (1989) were the first to investigate the use of direct instruction in the music classroom. The purpose was to determine "how much time was being spent in various activities and whether teachers were using the correct sequence of teacher presentation of task, student response, and reinforcement" (p. 181). Both time spent and percentage of correct sequential patterns were found to differ at various stages of experience and in instrumental versus choral instruction. However, consistencies

within groups were not discussed and investigation of strategies was focused on priorities rather than selection.

Goolsby (1996, 1997, & 1999) completed three similar studies looking at sequential patterns of instruction and time spent on various aspects of the music rehearsal. Each study used varying lists of strategy types. The list in the first study was limited to broad categories of verbal instruction, non-verbal instruction, verbal discipline, and student performing behaviors. The second and third study included more specific strategy types, but only under the constraint of verbal instruction. All three studies showed differences in observed strategy use in regards to time; however, discussions focused on the teachers' musical priorities at the three experience levels.

Hendel (1995) completed another study looking at sequential patterns of instruction. The study was purely descriptive with an independent variable of each of the nine teachers. Unlike the previously mentioned studies, she identified behavioral differences of "eye contact, closeness, volume and modulation of voice, gestures, and facial expressions" (p.191) rather than instructional strategies. Results showed both similarities and differences between each teacher in both sequential patterns of instruction and teacher behaviors. When compared with studies by Goolsby (1996, 1997, & 1999) and Yarbrough and Price (1989), experience may not be the key factor in explaining differences in teaching behaviors.

These studies on sequential patterns of instruction provide excellent models for observing and analyzing teacher behaviors. However, these focus on ratios between strategies selected. That is, how much more time a teacher spends on selected strategy A than selected strategy B. They do not investigate selected strategies versus not selected



strategies and therefore do not answer the question as to why strategies were selected.

Therefore, a significant and broad list of instructional strategy types must be created in order to compare selected and not selected strategies.

### **Cognitive Theories of Learning**

*Ausubel's Subsumption Theory.* Ausubel (1960) believed, "Cognitive structure is hierarchically organized in terms of highly inclusive concepts under which are subsumed less inclusive subconcepts and informational data" (p. 267). That is, an outline that starts with the broadest topic and narrows down to more detailed information. Using this theory, students who struggle are those who cannot organize the detailed information into its correct place in the hierarchy. Consequently, a teacher should design and present instruction in the hierarchal order starting with what students already know to help them efficiently encode and store information. "Teaching and learning, therefore, are largely matters of erecting cognitive structures (scaffolding) to hold new information" (Ivie, 1998, p. 37).

The most well-known way of conveying the hierarchal schema is through Ausubel's famous *advance organizer*. An advance organizer creates a framework for the student into which the new material can be organized. An advance organizer bridges "the gap between what the learner already knows and what he needs to know if he is to learn new material most actively and expeditiously" (Ausubel, 2000, p. 11). Therefore, the framework should consist of broad topics the student already knows and illustrate where the new information belongs. A good advance organizer does two things, "(a) gives him a general overview of the more detailed material in advance of his actual confrontation with it, and (b) also provides organizing elements that are inclusive of and take into

account most relevantly and efficiently the particular content contained in this material.” (Ausubel, 1963, p. 221).

*Bruner’s Constructivist Theory.* “Bruner contends that the most important type of learning is discovery learning: i.e., using problem-solving techniques for acquiring knowledge” (Lawton, Saunders, & Muhs, 1980, p. 133). The student starts out with a belief. Next, the teacher causes disequilibrium in the student’s understanding by adding a level of abstraction. The student must then draw on current knowledge, reasoning, and testing to create a new belief. That new belief is what the student learned. The teacher continues to present information in order to force a student to keep adjusting his/her understanding until the concept is fully learned. However, abstract ideas have multiple viewpoints and can always be expanded upon; therefore, no one can truly reach a full understanding (Stone, 2006).

Bruner argues the crucial part of learning is the adaptation process. The adaptation process “consists of an inference testing procedure for approximating reality” (Lawton, Saunders, & Muhs, 1980, p. 130). “Concepts should be developed and redeveloped in a “spiral” sequence towards greater levels of abstraction to facilitate the acquisition of generic codes” (Lawton, Saunders, & Muhs, 1980, p. 133). This concept is usually referred to as the *spiral learning model*.

*Gagne’s Conditions of Learning.* The central concept of the theory is that through the process of task analysis, one must detect prerequisite learning that is essential to facilitate further learning. The task analysis starts with the desired target skill and works backwards; finding simpler required skills by asking what the student needs to know to

accomplish the skill. All identified steps are provided to the student sequentially from the simplest skill through the target skill. (Gagne, 1979).

In addition to conditions of learning, Gagne (1965) also suggested there is a linear process of learning which he referred to as instructional events:

1. gain learners' attention
2. inform learners of the objectives
3. learners recall prior learning
4. provide a stimulus to learners
5. guide the learners' learning
6. learners' performance
7. provide feedback to learners
8. assess performance of learners'
9. enhance retention and transfer of the learners'

### **Instructional Strategy Type Descriptors**

It became evident that a well-constructed list of instructional strategy types would need to be created for this study. Cognitive theories of learning, questioning, lecture, behavioral conditioning, and listening were initially selected and literature reviewed. A binary tree analysis found additional instructional strategy types and the literature review continued as the LIST evolved. A review of instructional strategy type descriptors will be presented here within the organizational context of the LIST. The LIST through the level of abstraction used for this study is presented in Figure 2-1. Instructional strategy types discussed in the literature review are found at the lowest level of the LIST and their LIST context is illustrated in Figures 2-1 through 2-9.

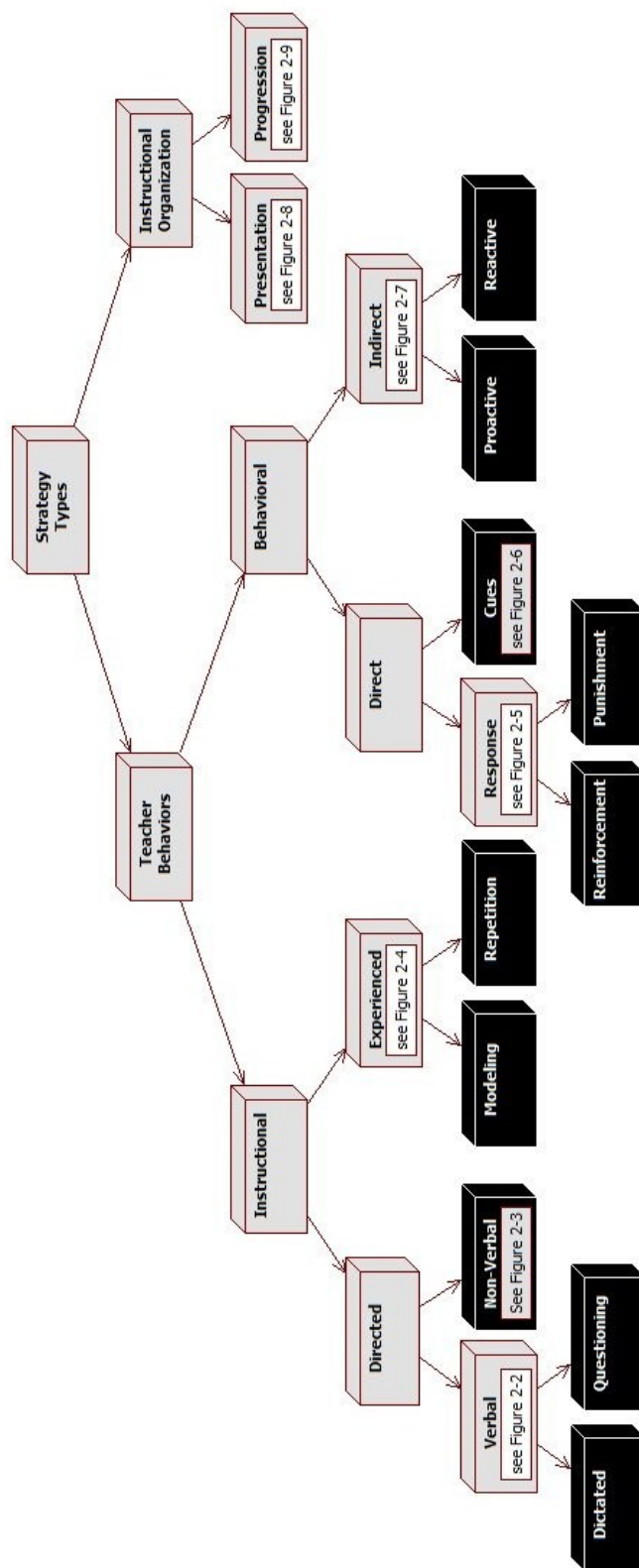


Figure 2-1. Binary Tree Analysis of the List of Instructional Strategy Types

**Verbal Directed Instructional Strategies.** The verbal leg of directed instructional strategies is split into dictated and questions (see Figure 2-2). Dictated verbally directed instructional strategies are teacher-centered comments where information is given to students. Comments may be direct dispensing of information such as with corrective feedback and lecture or may be indirect associations such as with figures of speech and abstract descriptions.

Among directed verbal instructional strategies, *corrective feedback* seems to be especially common within the music classroom. Many teachers believe they provide a lot of feedback to students. However, feedback is often limited in scope as "the traditional form of feedback generally involves verbal correction of student errors" (Ciardiello, 1998, p. 218). Errors refer not only to actual mistakes, but often include the students' failure to guess the teacher's meaning. For example, a teacher may say, "Sing loud... No, sing louder." The students probably sang loud but did not match the teacher's intent.

A teacher can frequently anticipate errors students are likely to make. These anticipations and other facts are often presented in another directed verbal instructional strategy type known as *lecture*. Lecture is extremely common in all classes even though "education is not an experience of 'telling and being told,' but an active and constructive process. Even though this was realized over ninety years ago, lecture, which is clearly a method of telling, is still widely used today" (Rieg & Wilson, 2009, p. 279).

The nature of music makes it difficult to directly dispense information. Abstract concepts cannot be communicated by simply stating fact. Most of the time, lecture is constructed of concrete facts. Teachers must find other methods for communicating abstract ideas, especially in the field of music. Many times teachers must rely on *implied*

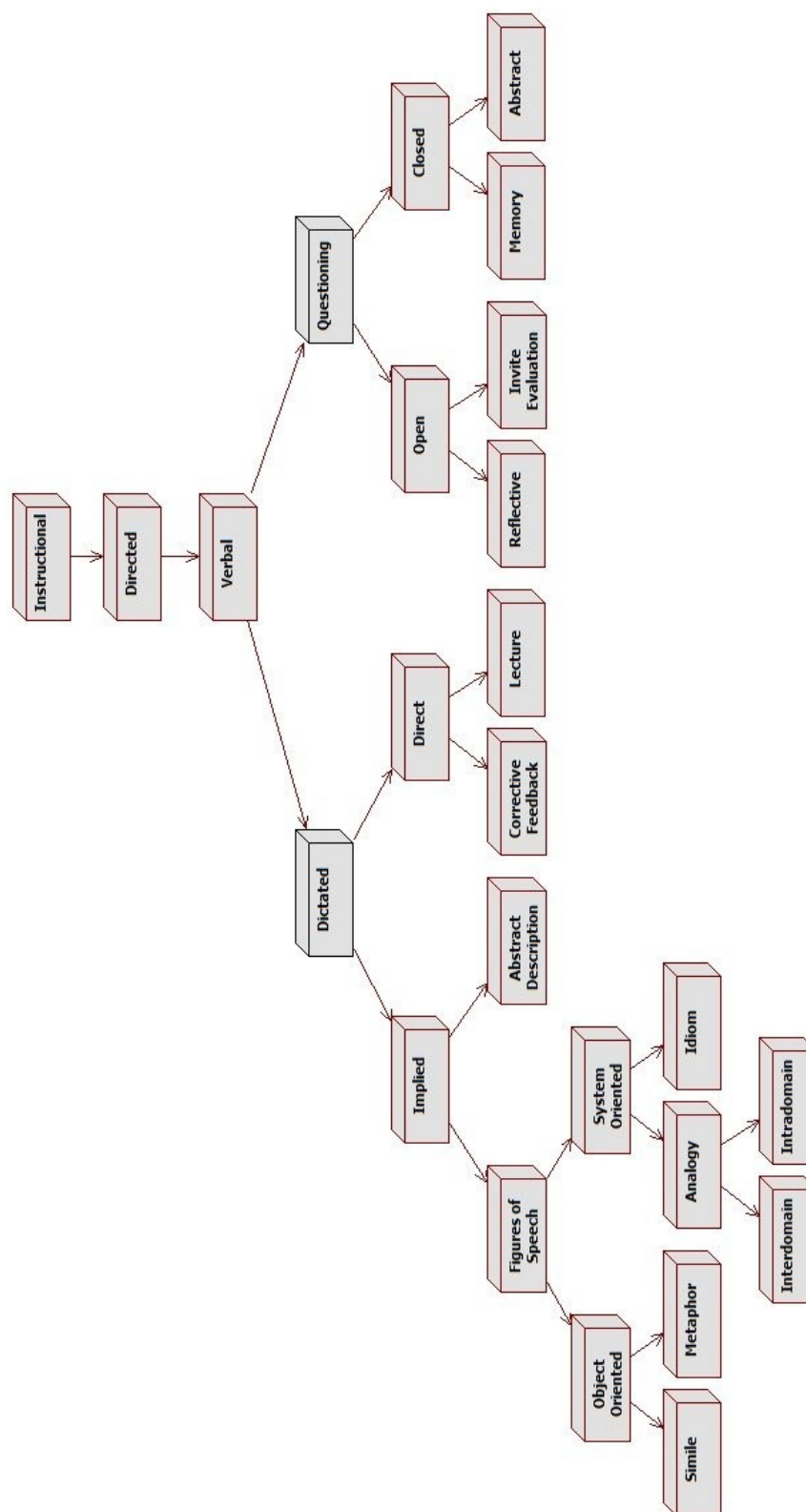


Figure 2-2. Binary Tree Analysis of the Verbal Leg of the LIST

associations within their verbal directives (see Figure 2-2).

*Figures of speech* are a common method of implying verbal directives. *Similes* and *metaphors* are often used in music classrooms to illustrate abstract ideas. Similes and metaphors both "bring together two domains that are distinct and somehow incongruous, but whose juxtaposition can be made sense of" (Cameron, 2002, p. 674). Similes explicitly state the distinction with words "like" and "such as". The distinction is implied in metaphors.

When similes and metaphors are extended to systems of interactions, they are known as *analogies*. Analogies can further be divided by the "function of the level of similarity between the object and the analogue" (Oliva, Azcarare, Navarrete, 2007, p. 49). An analogy can be *inter-domain* "that only have a figurative sense with no intention of going further than mere comparison" (Oliva, Azcarare, Navarrete, 2007, p. 49). For example, "a crescendo should be smooth like when you turn the volume dial on your stereo." There is no further connection between a crescendo and a stereo other than the smoothness of volume change.

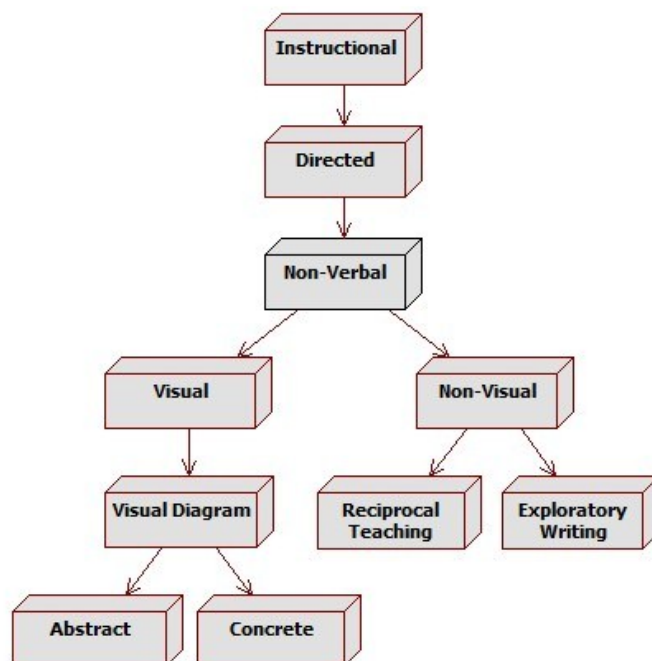
In contrast, analogies can be *intra-domain* which "relate phenomena for which a single unifying theory exists" allowing for generalization (Oliva, Azcarare, Navarrete, 2007, p. 49). For example, Prokofiev's *Peter and the Wolf* uses the analogy of the grandfather for the bassoon melody because of his size which leads to a lower timbre matching that of the bassoon. Additionally his age and associated energy represents the slower melody. At the same time, the bird represents the flute melody because it's small size and high pitch matches that of the flute. The bird's speed and agility also matches the speed and complexity of the melody.

Opposite of dictated verbal instructional strategies is the use of *questioning* (see Figure 2-2). Questioning serves as "a comprehension-monitoring and regulating process" (Ciardiello, 1998, p. 212). Questions can either check that students understand the material or can regulate the level of thinking skill the students are using in the lesson. For example, a teacher may ask a question that forces the student to apply knowledge to a new situation rather than simply recite facts.

Questions are often categorized by the answers they invite (see Figure 2-2). *Reflective* questions have no set answer. Reflective questions require the student to communicate their perspective on the material. *Evaluative* questions require students to make a value judgment drawing on forms of information from all cognitive levels. *Memory* questions are low-level questions. Students merely recite facts as answers. *Abstract* questions have set answers that cannot be explicitly described. Students must make inferences to communicate their understanding.

**Non-Verbal Directed Instructional Strategies.** Verbal presentation is not the only method of transferring knowledge. The opposite revealed by the LIST are *non-verbal* strategy types (see Figure 2-1). The non-verbal leg of directed instructional strategies is split into *visual* and *non-visual* strategies (see Figure 2-3). *Concrete* and *abstract* visualizations are often used as non-verbal strategy types. "Visualizations have been shown to have added value for learning compared to purely textual representations" (Prangasma et al, 2009, p. 372). This is attributed to the idea that visualizations "can be processed both verbally and visually, resulting in more elaborate encoding" (Prangasma et al, 2009, p. 372). Visualizations are not limited to only transference of knowledge but can also be used to communicate expectations.





*Figure 2-3.* Binary Tree Analysis of Non-Verbal Leg of the LIST

The non-verbal leg also contains *non-visual* directives. "As the students become more proficient they and their peers serve as the primary source" (Ciardiello, 1998, p. 217). These situations are known as *reciprocal teaching*. Reciprocal teaching is when "students become their own mentors" and share their understanding with their peers (Ciardiello, 1998, p. 219). Students can together gain a deeper understanding of the content through collaboration of ideas.

*Exploratory writing* is another *non-verbal, non-visual* strategy type that enhances students' critical thinking and asks them to think at multiple cognitive levels. It is beneficial in that it requires every student to be active in the thought process; however, it loses the collaborative aspect. Exploratory writing comes in many forms. For example learning journals, learning logs, double-entry notebooks (summarizing course material and recording their own reflections), and creativity exercises such as writing dialogues, biopoems, metaphor games, and extended analogies (Rieg & Wilson, 2009).

**Experienced Instructional Strategies.** Apart from directed instructional strategies are experienced instructional strategies (see Figure 2-1). One of the most common experienced instructional strategies within the music classroom is *concept repetition* (see Figure 2-4). Repetition is known to aid in encoding information into long term memory. The "belief that daily repetition will inevitably lead advantageously to automaticity of motor skills" (Duke et al, 2009, p. 311) is most likely the driving idea behind use of concept repetition in the music classroom. Concept repetition is also often used for music reading in addition to motor skills. Students are often asked to repeat performances of musical symbols and vocabulary to encode the symbols into long term memory.

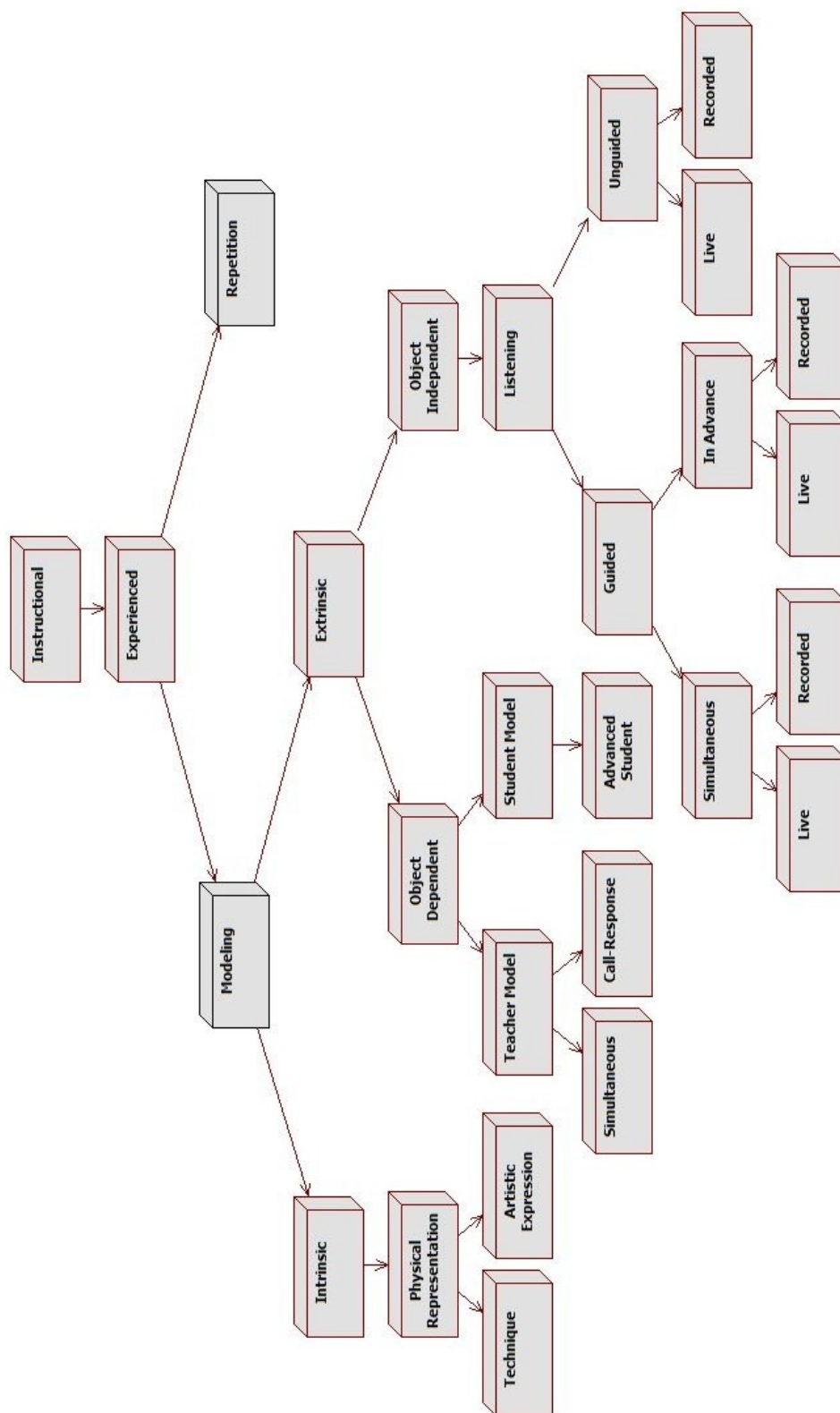


Figure 2-4. Binary Tree Analysis of Experienced Leg of the LIST

*Modeling* is also a very common form of *experienced* instructional strategies (see Figure 2-4). Modeling begins with the teacher demonstrating the desired behavior; preferably in conjunction with normal behavior rather than as a separate performance of the behavior. Students will begin to mimic the teacher's behavior as they strive to meet the academic challenges before them. Models may be teachers, students, or analogues.

Modeling can be done through *physical representations*. Physical representation is when a student is requested to make a specific physical movement. Movement requests are made through a number of methods such as verbal, visual, or the teacher physically moving the student. These representations can be either the *exact physical movement* needed to perform the task or a similar movement that serves as a *kinesthetic analogy*.

An example of an exact physical movement is having the student move their trombone slide through the various positions. An example of a kinesthetic analogy is having the student take a breath “like they were about to go under water” in order to simulate a quick, deep breath. Kinesthetic exercises in the rehearsal can "strengthen technique and musicianship skills and enhance artistic expression" (Baily, 2007, p. 22).

Alternately, a teacher may use extrinsic modeling such as *call-response*, *simultaneous modeling*, or an *advanced student model* (see Figure 2-4). Call-response is when a teacher models a behavior then asks the students to replicate the behavior. Simultaneous modeling is when the teacher asks students to mimic the behaviors at the same time as the teacher performs the behavior. An advanced student model uses a student rather than the teacher. An advanced student model can be either a call-response model or simultaneous model as well.

Perhaps more used in the music classroom than anywhere else are *listening strategies*. Due to the aural nature of music, listening is a crucial component to music education. Listening also falls under the experienced leg of the LIST (see Figure 2-4). Teachers often serve "as mediators between the recorded model and the students" (Montemayor & Moss, 2009, p. 236). Teachers often guide students in advance of listening with anticipatory keys to listening. Other times, teachers will guide listening by simultaneously pointing out key points as they happen in the piece. Occasionally, listening will be unguided which focuses on students' evaluation skills.

**Behavioral Response Strategies.** Aside from conveying knowledge, teachers must also utilize *behavioral* management strategy types in their classroom. One of the most influential concepts in education is *behavioral conditioning* (see Figure 2-5). To condition a student to associate a cue with a behavior, the connection must be followed by a reinforcer. Skinner (1938) categorized reinforcers as *positive reinforcement*, which gives the organism something it desires; *negative reinforcement*, which removes something the organism detests; *punishment I*, which gives the organism something they detest; and *punishment II*, which removes something the organism desires.

**Behavioral Cue Strategies.** Opposite of responding to behaviors is indicating desired behaviors through use of *cues* (see Figure 2-6). Most often, *visual cues* serve as a stimulus for a desired behavior. Visual cues are non-verbal "prompts that can be associated with the task materials or the response. Because prompts are supplementary, educators usually attempt to fade them in such a manner that the student learns to respond appropriately to the natural cue" (West, 2008, p. 229).

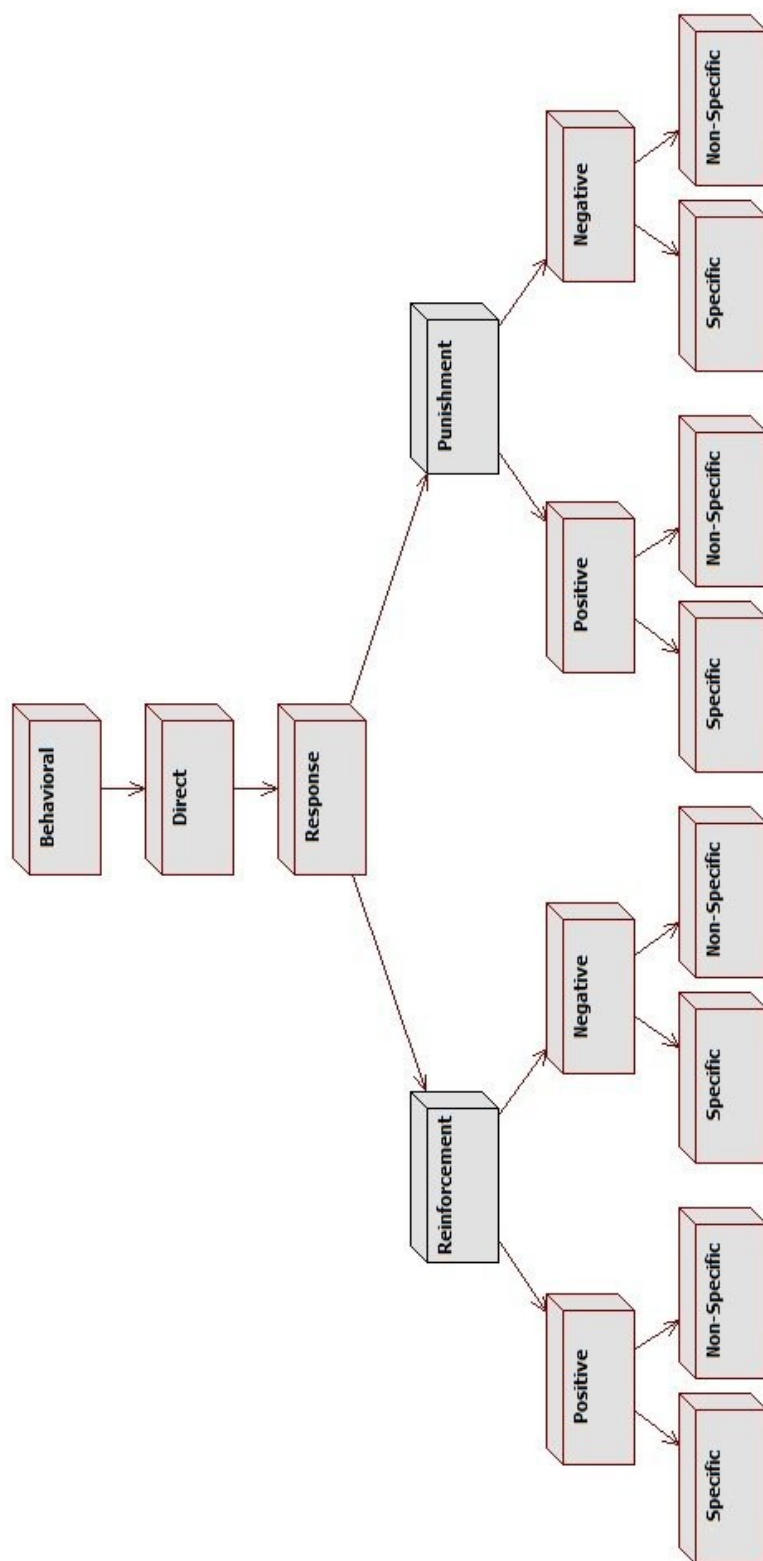
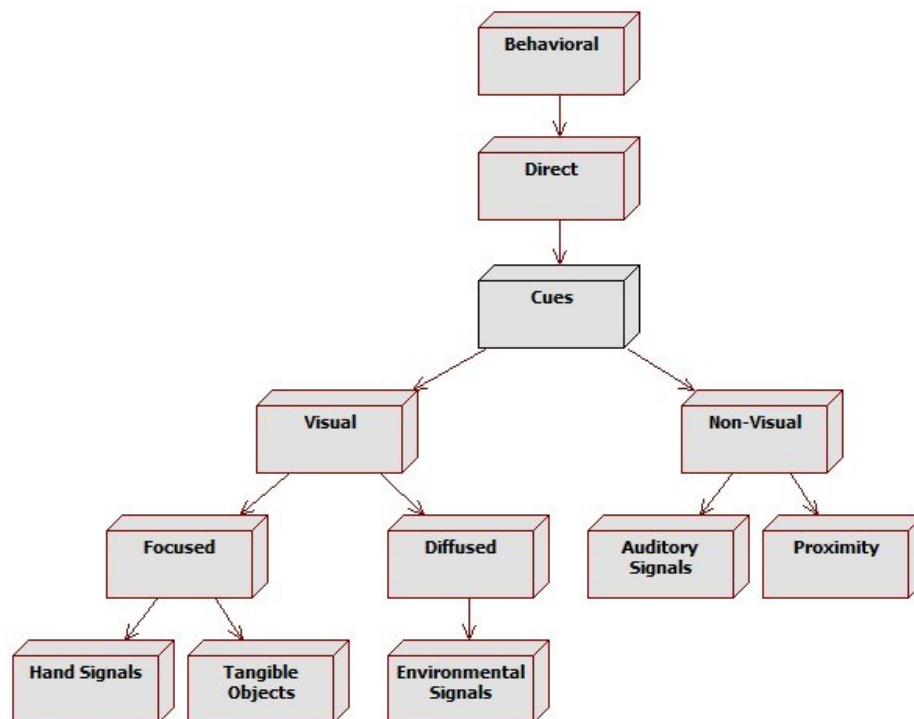


Figure 2-5. Binary Tree Analysis of Response Leg of the LIST



*Figure 2-6.* Binary Tree Analysis of Cues Leg of the LIST

Common visual cues for behavior expectations are *hand signals* and *eye contact*. For example, a teacher holding up two fingers may signal to a class to be quiet. Research evidence suggests both eye contact and hand signals increase childhood compliance (Everett et al, 2005). Teachers may also use *tangible objects* as visual cues. For example, showing students a specific stuffed animal may signal the beginning of story time. A teacher may also take the focus off himself or herself through use of *environmental signals*. For example, turning off the lights may signal the class to get quiet.

**Indirect Behavioral Strategies.** As human psychology shifted from behaviorism toward cognition, additional *reactive* indirect methods for behavior management evolved (see Figure 2-7). Examples of cognitive strategies of behavior management include *empathy*, *moral reasoning*, and *negotiation* (Bear, 1998). Empathy is when the instructor expresses they understand the student's motivation and relate to the student how to progress in the desired direction. Moral reasoning is the process of moving from a punishment-avoidance value of the behavior toward an ethical principle value (Kohlberg, 1981). Negotiation is a discussion that leads to a compromise between the desired behavior and the occurring behavior.

**Presentation of Instructional Organization.** Instructional behaviors only make up part of the list. The remaining strategies fall under *instructional organization* (see Figure 2-1). Instructional organization can be divided into *presentation* and *progression*. There are both *open presentations*, in which the result can be any number of possibilities, and *closed presentations* in which the goal is to arrive at the answer. Open presentation is usually done through *discussion* (see Figure 2-8).



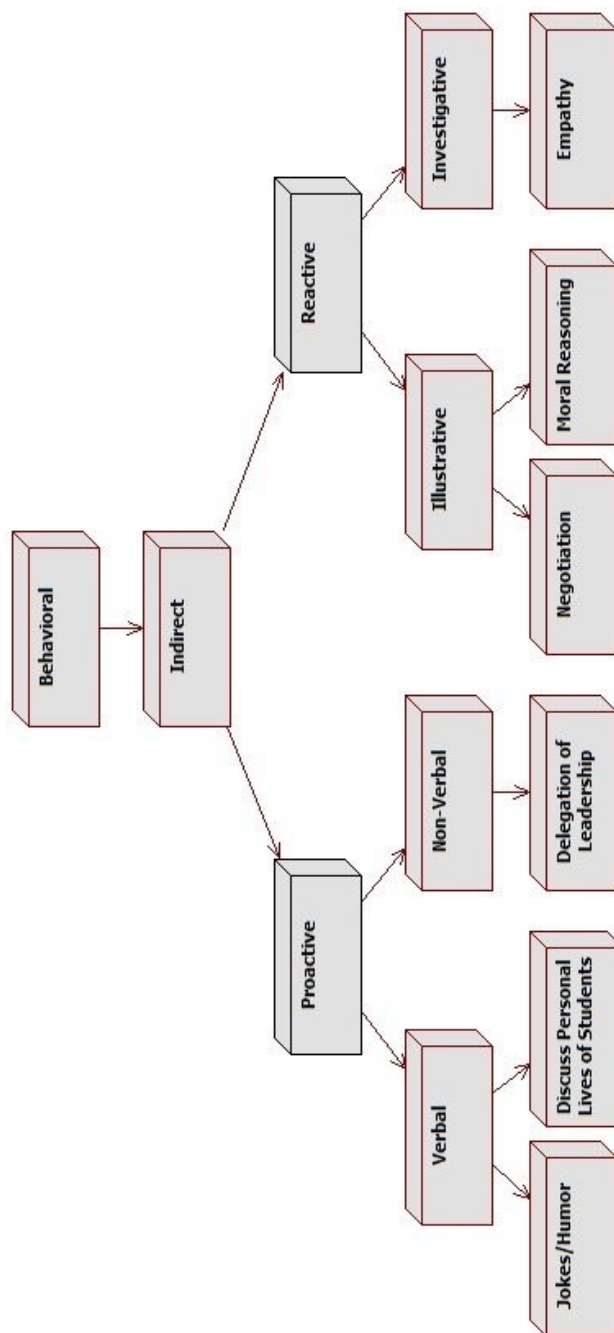


Figure 2-7. Binary Tree Analysis of Indirect Leg of the LIST

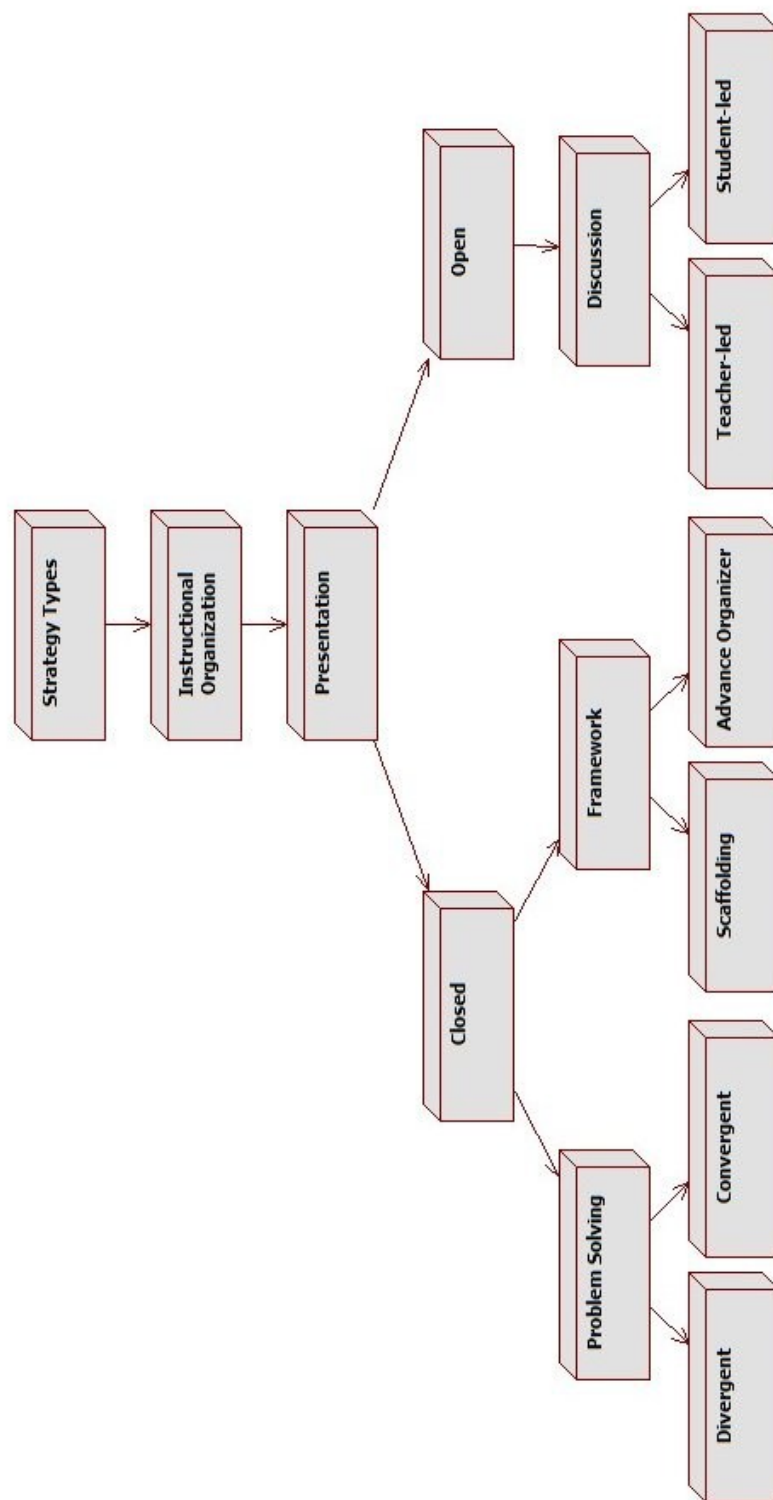


Figure 2-8. Binary Tree Analysis of Presentation Leg of the LIST

Discussion is a conversation that explores the topic (Rieg & Wilson, 2009). Most of the time, these discussions are *teacher-led*. The teacher asks various probing questions to get students to think at various cognitive levels. Occasionally, students will disagree on an answer and begin to dominate the conversation. When students begin to ask each other questions to illustrate their point on multiple cognitive levels, the discussion becomes *student-led*.

Closed presentation is illustrated through *problem solving* (see Figure 2-8). Ideally, the problem solving process begins with "knowledge-seeking and hypothesis-generating questions. These types of questions have no standard responses and can be answered in many different ways. They stimulate divergent thinking and encourage independent learning" (Ciardiello, 1998, p. 213). This type of problem solving with open-ended results is known as *divergent problem solving*. However, they are still categorized as closed because they are solution driven. Many students often do not possess the skills to achieve a divergent style of problem solving. In this case, teachers set up problem solving activities that funnel students towards a preset solution or answer. This is known as *convergent problem solving*.

One common way to accomplish convergent problem solving is through *scaffolding*. Scaffolding in its most basic form is when a teacher gives small hints along the investigative process in order to keep the student from diverging too far from the intended solution. "Scaffolding procedures include modeling, think-aloud protocols, guided teacher practice, and independent practice, or tools such as procedural prompts (signal words and question types)" (Ciardiello, 1998, p. 217).

Ausubel (1960) believed, “Cognitive structure is hierarchically organized in terms of highly inclusive concepts under which are subsumed less inclusive subconcepts and informational data” (p. 267). Essentially, mental storage of knowledge is an outline that starts with the broadest topic and narrows down to more detailed information. The most well-known way of conveying the hierarchal schema is through Ausubel’s famous *advance organizer*. An advance organizer creates a framework for the student into which new material can be organized. An advance organizer bridges “the gap between what the learner already knows and what he needs to know” (Ausubel, 2000, p. 11).

**Progression of Instructional Organization.** *Cognitive theories of learning* make up a significant portion of the *progression* leg of instructional organization (see Figure 2-9). These theories are Ausubel’s *Subsumption Theory*, Bruner’s *Constructivist Theory*, and Gagne’s *Conditions of Learning*. A dichotomous relationship exists in that while Gagne’s *Conditions of Learning* is linear in its organization; both Ausubel’s *Subsumption Theory* and Bruner’s *Constructivist Theory* are more systems organized.

*Bruner’s Constructivist Theory* “contends that the most important type of learning is discovery learning: i.e., using problem-solving techniques for acquiring knowledge” (Lawton, Saunders, & Muhs, 1980, p. 133). The student starts out with a belief. Next, the teacher causes disequilibrium in the student’s understanding by adding a level of abstraction. The student must then draw on current knowledge, reasoning, and testing to create a new belief. That new belief is what the student learned. The teacher continues to present information in order to force a student to keep adjusting his/her understanding until the concept is fully learned.

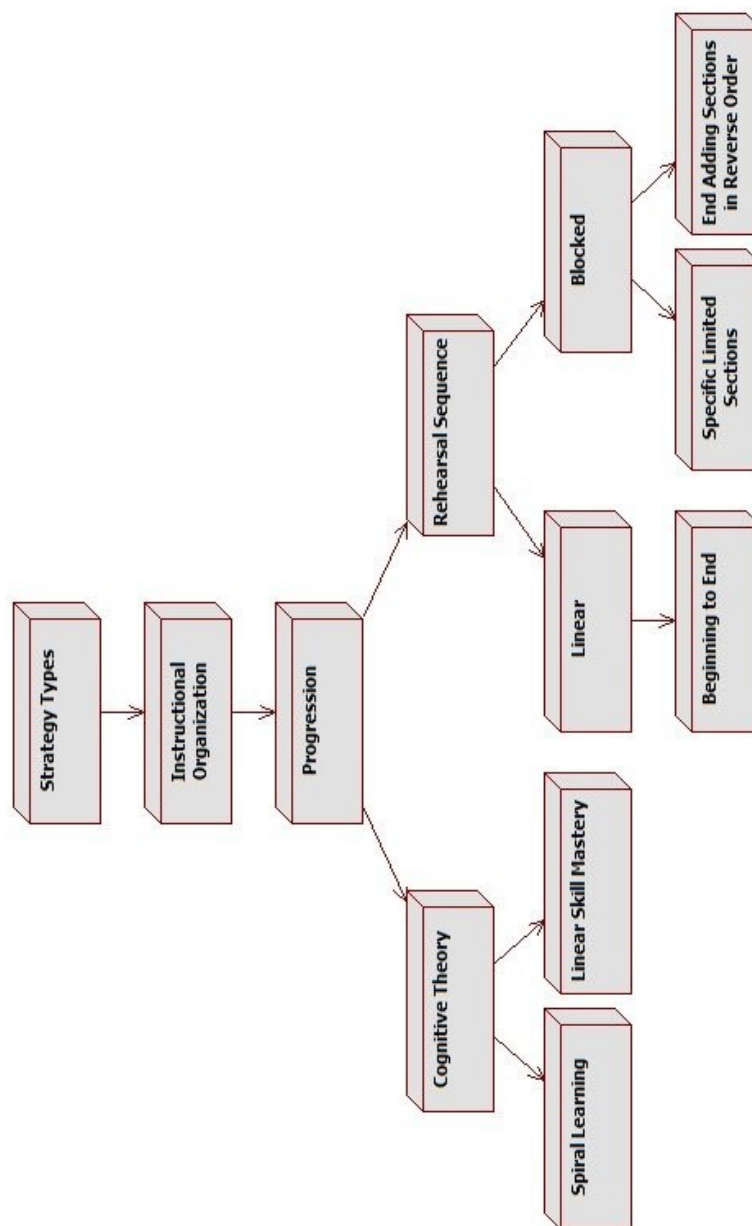


Figure 2-9. Binary Tree Analysis of Progression Leg of the LIST

Bruner argues the crucial part of learning is the adaptation process. The adaptation process “consists of an inference testing procedure for approximating reality” (Lawton, Saunders, & Muhs, 1980, p. 130). “Concepts should be developed and redeveloped in a ‘spiraling’ sequence towards greater levels of abstraction to facilitate the acquisition of generic codes” (Lawton, Saunders, & Muhs, 1980, p. 133). This concept is usually referred to as the *spiral learning model*. The student forms a theory of understanding then tests their theory for accuracy. The teacher aids by introducing tests that force the student to adjust their understanding and form a new hypothesis. The process continues until the student’s hypothesis is an acceptable understanding.

The central concept of *Gagne’s Conditions of Learning* is that through the process of task analysis, one must identify prerequisite learning that is essential to facilitate further learning. The task analysis starts with the desired target skill and then works backwards; finding simpler required skills by asking what the student needs to know to accomplish the skill. All identified steps are provided to the student sequentially from the simplest skill through the target skill. (Gagne, 1979). This theory leads to a *linear skill mastery* approach to organizing instruction.

In addition to conditions of learning, Gagne (1965) also suggested there is a linear process of learning which he referred to as instructional events. These, in order, are: gain learners’ attention, inform learners of the objectives, learners recall prior learning, provide a stimulus to learners, guide the learners’ learning, learners’ performance, provide feedback to learners, assess performance of learners, and enhance retention and transfer of the learners. Gagne argues that information must be presented in the logical and sequential order purposed by the process of learning.

One last area to be discussed is the practical organization of the lesson; again under the progression of instructional organization leg of the LIST (see Figure 2-9). In music, this is known as the *rehearsal sequence*. Rehearsal sequence is often considered by music teachers as a critical area of instruction. The obvious method is to start at the beginning and move forward. Another popular method is to "organize teaching of the piece into blocks that can be successfully mastered in a single rehearsal" (Demorest, 1996, p. 25). Blocks can then be rehearsed in various orders. One common method is to start with the last block and work in a backwards progression. Another common method is to rehearse blocks by their similarities with other blocks.

### **Summary**

Personality theory has drastically evolved over the last 100 years. There seems to be a loose agreement over which behavioral factors contribute to the classification of personalities as a result. However, there is still serious disagreement about the extent to which those behavior functions contribute. One area of disagreement lies in whether it is more appropriate to view personality functions as polar or scalar. The other major area of disagreement is whether the dominant function or the interaction of functions should play a stronger role in the classification of personalities.

It is commonly held that personality is a predictor of success in various fields, including music. A causal assumption is usually followed that there is something within music that allows certain personalities to be more in tune with the content and performance. Review of literature shows that beyond a population phenomenon, little other support for a relationship exists. Multiple attempts to link personality with ability and achievement proved to be inconclusive.

A review of literature found two interesting phenomenon. First, evidence showed that music teachers' personalities affected the instructional strategy types they used (Schmidt, 1989). Second, there appears to be a relationship between students' personalities and the types of instructional strategies used to teach them when looking at student achievement (Eggins, 1980; Rosati, Dean, and Rodman, 1988). While it seems possible that teaching each student based on their individual personality may be more beneficial than teaching toward the population ideal, no study has ventured that far.

Many cognitive theories of learning are available from systems worldview theories such as Bruner's constructivist theory and Ausubel's subsumption theory to more linear approaches such as Gagne's conditions of learning. Studies show variances in achievement when using the different approaches can be related to differences in personality. A review of literature on specific instructional strategies however, shows a tendency to provide support for one strategy over another rather than to investigate what type of student finds the strategy most beneficial.



## CHAPTER THREE

### METHODOLOGY

#### Introduction

The design of the study was descriptive. The dependent variable was the high school band director's selection of instructional strategies. Instructional strategies were tallied using the List of Instructional Strategy Types (LIST). The independent variable chosen for this study was the personality temperament of the high school band director. The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was chosen to classify each high school band director's personality temperament.

#### Subjects

##### Directors

The subjects of this study included high school band directors in Iowa and Nebraska. One hundred high school band directors were randomly chosen from a total of 715 as listed in the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010) and the *Nebraska Education Directory* (Nebraska Department of Education, 2010). Participating band programs were limited to Iowa and Nebraska due to time restrictions of the design of this study; however, it is assumed participants in the study were representative of other Midwestern high school band directors in terms of ethnic, cultural, and socioeconomic status. These 100 high school band directors were invited to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. A follow-up invitation was sent 10 days later to those who had not responded. Ten days after the follow-up invitation, a total of 46 directors had responded with 19 indicating a willingness to participate in the second stage of the study.

Those high school band directors completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* included 36 males and 10 females. The ratio between male and female high school band directors completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was consistent with the ratio between male and female high school band directors in Iowa and Nebraska. Those high school band directors completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* included 28 from Iowa and 18 from Nebraska. The number of high schools in Iowa is approximately the same as the number of high schools in Nebraska. Of the 100 high school band directors invited to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*, 50 were from Iowa and 50 were from Nebraska. Therefore, the ratio between Iowa high school band directors and Nebraska high school band directors completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was not representatively distributed.

The eight most prominent scores for each personality temperament were to be selected for recording video examples. No personality temperament had more than eight respondents so all 19 directors were invited. One participant indicated he no longer wished to participate in the second stage of the study and four never responded to the second stage invitations. Appointments were made with the remaining 14 participants.

Those high school band directors participating in the second stage of the study included 11 males and 3 females. The ratio between male and female high school band directors participating in the second stage of the study was consistent with the ratio between male and female high school band directors in Iowa and Nebraska. Those high school band directors participating in the second stage of the study included 10 from Iowa and 4 from Nebraska. The ratio between Iowa high school band directors and

Nebraska high school band directors was not representative of the ratio between the number of high schools in Iowa and the number of high schools in Nebraska; however, the ratio was similar to those completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*.

High school band directors participating in the second stage of the study were asked for their years of experience teaching band. Five indicated they had taught for 4 years or less, three indicated they had taught between five and nine years, and six indicated they had taught for 10 years or more. The range of experience was between two and 38 years with a mean of 11.5 years.

### **Personnel and Facilities**

#### **Coders**

The three video coders were colleagues of the researcher. Each video coder had at least a Master's degree in music education with 15 years teaching experience in the music education field. The coders had no knowledge of the personality temperament of the directors they were viewing. The researcher was not used as a coder because he was aware of each director's personality temperament.

#### **Facilities**

The facilities used were the respective instrumental music classrooms of the participants. All classrooms were representative of high school instrumental music classrooms located throughout Iowa and Nebraska. The three video coders coded the video examples alone in their respective places of residence.

## **Equipment and Materials**

Materials used in this study included the Iowa Bandmasters Association 2010-2011 Directory (Iowa Bandmasters Association, 2010), the *Nebraska Education Directory* (Nebraska Department of Education, 2010), invitation to the first stage of the study (see Appendix B), follow-up invitation to the first stage of the study (see Appendix C), invitation to the second stage of the study (see Appendix E), coding sheet for videos of classroom proceedings (see Appendix F), and the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* (Appendix D).

### **Gray-Wheelwright-Winer 4-Letter Type Indicator Test**

The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is a 70-item binary response preference questionnaire. Respondents must choose between two diametric behaviors based on their personal preference. Demographic questions were included requesting the participant's name, if they were required by their district to use any specific instructional strategies, and their weekly rehearsal time.

### **Classroom Videos**

Appointments were set up with each of the 14 participants in stage two of the study in order to film teaching examples. Classroom videos were taken by the researcher using a digital video camera. The camera was placed on a tripod behind the ensemble between 10° and 45° off center to the director's right. Videos were framed around the director and did not include any students. Recordings were then downloaded to a password protected computer. Videos were recorded to a DVD and placed in a random order on the DVD menu. Videos were identified by only a number on the DVD menu. Three copies of the DVD were made and one sent to each of the coders. DVDs were

returned to the researcher after coding was finished then destroyed. Videos stored on the computer were deleted after completion of the study. Videos ranged from 25 minutes, 10 seconds to 48 minutes, 42 seconds for a total of 9 hours, 7 minutes, 34 seconds ( $M = 39$  minutes 7 seconds,  $SD = 6$  minutes, 11 seconds).

### **List of Instructional Strategy Types (LIST)**

The *List of Instructional Strategy Types* (LIST) was developed by the researcher for this study. An extensive review of literature created a list of instructional strategies that were then categorized by the researcher. These categories were then entered into a binary tree to analyze any missing dichotomous relationships. A dichotomous relationship was considered an opposite or competing strategy. The purpose of the binary analysis was to ensure a substantial breadth of strategies.

The binary tree analysis resulting in the LIST is presented in Figure 3-1 through the level of abstraction used for this study. The level of abstraction used for this study was arbitrarily chosen to maintain variety of instructional strategy types while maximizing inter-rater reliability. The black squares represent the instructional strategy types used for this study. While the LIST is not comprehensive, the binary tree framework should have provided a large enough variety of strategies to sufficiently answer the research questions.

### **Reliability**

Consistency between survey questions on the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* needed to be established in order to assume highest scores were the most pronounced temperaments. Kuder-Richardson #20 ( $KR_{20}$ ) estimates were calculated to test internal consistency reliability.  $KR_{20}$  uses proportion of test-takers correctly

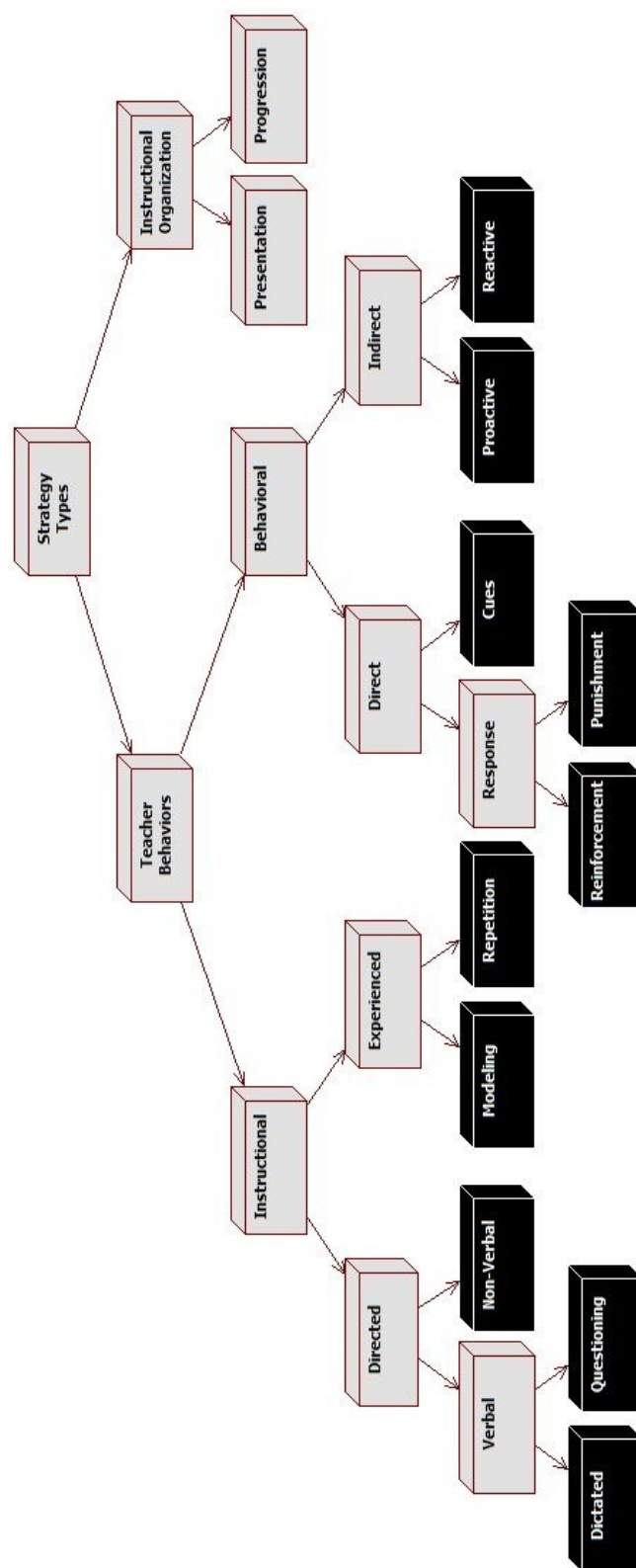


Figure 3-1. Binary Tree Analysis of the List of Instructional Strategy Types

answering each item against the proportion of test-takers incorrectly answering an item. While there are no correct or incorrect answers for the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*, a dichotomous relationship does exist. Therefore extraversion, sensory, thinking, and judging were selected for the "correct" leg and introversion, intuitive, feeler, and judger were considered as part of the "incorrect" leg. The test was considered to have an acceptable internal consistency because the alpha level was greater than .70. Details on the reliability results may be found in Chapter Four.

The predictive performance of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was tested using 2-fold x 2 cross-validation. All participants were randomly divided into groups A and B. The participants in each group were placed into a random order. Each group was then split between the first half and the second half to create version one sets A and B resulting in four data-subsets. Groups A and B were split again odd numbered and even numbered participants to create version two sets A and B for four more data-subsets. The number of participants for each personality temperament was calculated for each of the eight data-subsets. Group A data-subsets were then correlated with group B data-subsets using Pearson's Product Moment Correlation Coefficients resulting in 16 correlations. The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was considered to pass cross-validation because the majority of correlations were significant at the  $p < .05$  level. Again, details on the reliability results may be found in Chapter Four.

Inter-rater correlations between LIST coders were calculated using Pearson's Product-Moment Correlation Coefficient. Scores for each pair of coders were correlated. Data was selected from one reliable coder for each participant through random selection.

The generalized Spearman-Brown formula was used to adjust the reliability ratings due to a reduction in raters (Fan & Chen, 2000). Results of the LIST for each observation were deemed reliable since all three coder pairs were found to be significant at the  $p < .05$  level. Details on the reliability results may be found in Chapter Four.

### **Validity**

Each personality function is divided into diametric pairs: extraversion vs. introversion, sensory vs. intuitive, thinking vs. feeling, and judging vs. perceiving. Each question of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was designed with one function in mind. Each question had two diametric answers that fall toward one side of the dichotomy or the other. Answers are taken from function descriptions described by Keirsey and Bates (1984) as well as Myers and McCaulley (1985).

This study was looking to see if different personality temperaments made different instructional strategy type selections. Since personality temperaments are derived from dichotomous behavioral functions, dichotomous relationships in instructional strategies were necessary to create a list with sufficient breadth of options. A binary tree analysis was completed on reviewed literature to create a broad list of research-based instructional strategy types in order to meet content validity.

Participants were observed to see what combinations of choices they made in these dichotomous relationships. No effort was taken to find best practices. Therefore, the LIST is considered to meet criterion validity because the study was looking for differences in choice as opposed to specifics on the choice itself. In other words, the list is intended for looking at consistency in the teacher's choice of instructional strategy types; not the effectiveness of the strategy that was selected.



### Procedure

After receiving approval from the Institutional Review Board (see Appendix A), 100 high school band directors were invited to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* (see Appendix D) via electronic mail (see Appendix B). A reminder letter (see Appendix C) was sent ten days later to selected directors who had not yet completed the survey. The electronic mail invitation and reminder letter both included a link to an online version of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*.

The participant was first presented with an informed consent statement. Declining the informed consent directed the participant away from the test. Accepting the informed consent directed the participant to the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. Test results were sent to a database upon the participant clicking the submit button at the bottom of the test.

Request to participate in the second stage of the study was included on the test. All 19 directors indicating a willingness to participate were invited via electronic mail to select a piece their concert band had not yet rehearsed and schedule a video recording session with the researcher (see Appendix E). In cases where there was no response within three working days, the invitation was sent to them again. Fourteen of the 19 responded to participate in the second stage of the study.

Appointments were set up with each of the 14 participants in stage two of the study in order to film teaching examples. Classroom videos were taken by the researcher using a digital video camera. The camera was placed on a tripod behind the ensemble between 10° and 45° off center to the director's right. Videos were framed around the director and did not include any students. Videos were then downloaded to a password

protected computer. Since video of classes were to be taken on normal educational routine and focused on the band director, no informed consent was obtained on behalf of students and parents.

Classroom videos were reviewed by three independent coders who coded strategies for analysis using the video coding tally sheet (see Appendix F). Coders were randomly assigned seven videos so that all 14 videos were coded and seven of the videos were coded by two separate coders. Videos were randomly assigned numbers for each coder and recorded to DVD. The DVD, copies of the tally sheet (see Appendix F), and a copy of the full LIST was given to each coder. The primary researcher met with each coder individually and answered any questions for clarification of any of the instructional strategy types on the LIST. Each coder independently reviewed each of their randomly assigned videos privately in a time and setting of their choice. Each coder tallied each instructional strategy they saw in one of the 10 instructional strategy type categories on the tally sheet while viewing each video. DVDs and tally sheets were then returned to the researcher for analysis.

### **Statistical Analysis**

Personality temperaments were categorized as intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), and sensory-perceiver (SP) as defined by Keirsey and Bates (1984). Personality temperament category and tallies of instructional strategies used were tabulated and calculated by the computer program Microsoft Excel. Statistical significance was determined using an alpha level of .05.

Research question one and three were investigated using proportional descriptive statistics. The total proportions were calculated for all band directors per each personality

temperament category. The total proportions were also calculated per each personality temperament category for each subpopulation of director experience of 0-4 years, 5-9 years, and 10 or more years.

Research question two was investigated using chi-square statistics. Post-hoc pairwise comparisons were made on chi-square contributions. Cramer's V Coefficient was calculated to determine strength. The total proportions were calculated for all band directors per each instructional strategy type. This was done by calculating the difference in chi-square contributions between each pair. A pair was considered significant if the difference in chi-square contributions was greater than or equal to the critical value for one degree of freedom ( $\alpha = 3.841$ ). All significant pairings were identified and a calculation of the percentage of significant pairings for each personality temperament and instructional strategy type combination were also calculated.

### Summary

This chapter presented details pertaining to the participants, design, *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*, LIST construction, coding procedures, and statistical analyses in regards to this study. The purpose of this study was to see if the high school band director's personality temperament as indicated by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* significantly influences his/her instructional strategy selection in the context of a high school band rehearsal. Participants were identified by completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* and video recordings of their rehearsals made. Three independent coders tallied the instructional strategies they saw using a tally sheet based on the LIST. Descriptive

statistics and chi-squares were then used to analyze the relationship between the high school band director's personality temperament and their instructional strategy selections.

## **CHAPTER FOUR**

### **PRESENTATION AND ANALYSIS OF DATA**

#### **Introduction**

Personality temperaments were categorized as intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), and sensory-perceiver (SP) as defined by Keirsey and Bates (1984). Personality temperament category and tallies of instructional strategies used were tabulated and calculated by the computer program Microsoft Excel. Statistical significance was determined using an alpha level of .05.

The chi-square statistic was run to check for significant differences. The total proportions were calculated for all band directors per each personality temperament category. The total proportions were also calculated per each personality temperament category for each subpopulation of director experience of 0-4 years, 5-9 years, and 10 or more years. Cramer's V Coefficient was calculated to determine strength.

#### **Assumptions**

Chi-squares were used because the data was made up of nominal data. Chi-squares rely on a sample size large enough so that expected frequencies are sufficient (Huck, 2008). When 80% of cells have an expected frequency of five or higher, the sample is generally regarded as sufficient. All expected frequencies must be greater than zero.

Chi-squares require that each observation be independent of each other. While the participant performs more than one behavior, the chi-square subjects are actually each instance of a behavior. The teacher can choose from any of the strategy types at any given time; therefore, each behavior is independent from other behaviors. The purpose of

this study is to see if the teacher making the choice makes a difference. If the teacher was the subject, chi-square statistics would require you to assume they do make a difference. Therefore, to answer the research questions, a lower abstraction level of subjects needs to be used.

Chi-square indicates if there is a significant relationship between variables but does not show how significant the relationship is. Cramer's V Coefficient is used as a post-test to determine strengths of association after the chi-square has determined significance. It is useful for comparing multiple  $\chi^2$  test statistics in tables which have more than 2 x 2 rows and columns. Cramer's V is generalizable across contingency tables of varying sizes. It is not affected by sample size. It is interpreted as a measure of the relative strength of an association between two variables (Cramer, 1999).

Rather than making a 2 x 2 contingency square for each possible combination, Cox and Key (1993) showed one can determine significance by comparing the difference between chi-square contributions of two cells against the critical value for one degree of freedom. The post-hoc multiple pair-wise comparisons not only determine relevant differences between population proportions, but also identify possible cause for rejection of the null hypothesis (Cox and Key, 1993).

Inter-rater reliability using the Pearson Product Moment Correlation Coefficient determines the agreement with the mean of the two scores. Using only one of the raters therefore decreases the reliability. The correlation can be adjusted using the generalized Spearman-Brown formula when a change in the number of raters occurs. This adjustment more accurately represents the reliability for only one rater for each video.

## Reliability

### Gray-Wheelwright-Winer 4-Letter Type Indicator Test

Consistency between survey questions on the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* needed to be established in order to assume highest scores were the most pronounced temperaments. Kuder-Richardson #20 estimates for the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* summarized in Table 2 were calculated to test internal consistency reliability. According to Nunnally (1998), the alpha of a scale should be greater than .70 for items to be used together as a scale. Therefore, the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* passes reliability for the research population as well as for each individual subgroup.

Table 2

*KR-20 Estimates for Gray-Wheelwright-Winer Test*

	Iowa	Nebraska	Total
Gender			
Male	.83	.83	.83
Female	.70	.92	.84
Total	.80	.85	.82

The predictive performance of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was tested using 2-fold x 2 cross-validation. The number of participants for each personality temperament was calculated for each of the eight data-subsets. Group A data-subsets were then correlated with group B data-subsets using Pearson's Product Moment Correlation Coefficients. Table 3 shows the coefficients for each pair. Fifteen out of 16 correlations were found to be significant. Therefore, the *Gray-*

*Wheelwright-Winer 4-Letter Type Indicator Test* passes cross-validation. The test is deemed reliable since it passed cross-validation.

Table 3

*Correlations for 2-Fold x 2 Cross-Validation Subsets*

	Group B			
	Version 1		Version 2	
	Set A	Set B	Set A	Set B
Group A				
Version 1 Set A	.26	.91*	.98*	.78*
Version 1 Set B	.97*	.97*	.96*	.92*
Version 2 Set A	.34*	.91*	.96*	.88*
Version 2 Set B	.95*	.98*	.97*	.91*

\*  $p < .05$

### List of Instructional Strategy Types

Inter-rater correlations between LIST coders were calculated using Pearson's Product-Moment Correlation Coefficient. The generalized Spearman-Brown formula was used to adjust the reliability ratings due to a reduction in raters (Fan & Chen, 2000). Reliability scores for each pair of coders were compared. Coder A against Coder B resulted in a significant correlation,  $r(18) = .664, p = .00254$ . Coder A against Coder C also resulted in a significant correlation,  $r(18) = .701, p = .00029$ . Coder B against Coder C resulted in a significant correlation as well,  $r(28) = .554, p = .00006$ . All three correlation coefficients were found to be significant at the  $p < .05$  level. Therefore, results



of the LIST for each observation were deemed reliable since there was a significant consistency between coders.

## Descriptive Statistics

### Demographics

One hundred high school band directors from Nebraska and Iowa were invited to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. Twenty-eight Iowa high school band directors and 18 Nebraska high school band directors completed the survey for a total of 46 participants. Table 4 shows demographics of personal variables and temperament results for all participants completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. Personality temperaments were categorized as intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), and sensory-perceiver (SP) as defined by Keirsey and Bates (1984).

Table 4

#### *Gray-Wheelwright-Winer Results for All Participants*

	NT	NF	SJ	SP	Total
<b>State</b>					
Iowa	10 (22%)	6 (13%)	10 (22%)	2 (4%)	28 (61%)
Nebraska	3 (7 %)	7 (15%)	7 (15%)	1 (2%)	19 (39%)
<b>Gender</b>					
Male	10 (22%)	10 (22%)	13 (28%)	3 (7%)	36 (78%)
Female	3 (7%)	3 (7%)	2 (9%)	0 (0%)	10 (22%)
Total	13 (28%)	13 (28%)	17 (37%)	3 (7%)	n = 46

From the 46 directors responding to the first stage of the study, 19 indicated a willingness to participate in the second stage of the study. Invitations to the second stage of the study were sent to all 19 directors indicating a willingness to participate in the second stage of the study. Fourteen ultimately responded and participated in the second stage of the study. Demographics for the second stage of the study are summarized in Table 5.

Table 5

*Demographics of Personalities in the Second Stage of the Study*

	NT	NF	SJ	SP	Total
<b>State</b>					
Iowa	4 (29%)	1 (7%)	4 (29%)	1 (7%)	10 (71%)
Nebraska	1 (7%)	2 (14%)	1 (7%)	0 (0%)	4 (29%)
<b>Gender</b>					
Male	4 (29%)	2 (14%)	4 (29%)	1 (7%)	11 (79%)
Female	1 (7%)	1 (7%)	1 (7%)	0 (0%)	3 (21%)
<b>Experience</b>					
0-4 Years	1 (7%)	3 (21%)	1 (7%)	0 (0%)	4 (29%)
5-9 Years	1 (7%)	0 (0%)	1 (7%)	1 (7%)	3 (21%)
≥ 10 Years	3 (21%)	0 (0%)	3 (21%)	0 (0%)	6 (43%)
Total	5 (36%)	3 (21%)	5 (36%)	1 (7%)	n = 14

## Presentation of Results

### Research Question 1

Proportional descriptive statistics were calculated to answer research question one: Which instructional strategy types utilized by Midwestern high school instrumental music educators are chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*? For example, is a sensory-judger more likely to use corrective feedback while a sensory-perceiver is more likely to use behavioral cues? The mean number of strategies per rehearsal for each personality temperament was also calculated. The sum of frequency distributions of instructional strategy types for each personality temperament was divided by the total number of strategies observed for each personality temperament to create an average proportion for each instructional strategy type within each personality temperament. Means and percentages for each personality temperament are listed in Table 6.

Verbal dictated was the most selected instructional strategy type for all four personality temperaments; followed by verbal cues, and verbal questioning respectively. Punishment was least likely for all four temperaments. Therefore, the order of preference is quite similar for all four temperaments. However, the variance in percentages shows a noticeable difference in the extent.

Table 6

*Percentage Each Strategy Used from Mean per Rehearsal for Each Personality*

	NT	NF	SJ	SP
Mean Observed Strategies per Rehearsal	65.2	69	82.8	52
Proportions of Observed Strategies				
Verbal Dictated	33%	57%	53%	33%
Verbal Questions	12%	7%	9%	17%
Directed Non-Verbal	5%	4%	6%	0%
Instructional Modeling	9%	5%	5%	4%
Repetition	7%	6%	4%	6%
Reinforcement	5%	4%	3%	10%
Punishment	2%	1%	1%	0%
Behavioral Cues	16%	11%	11%	31%
Behavioral Proactive	9%	6%	7%	0%
Behavioral Reactive	1%	1%	1%	0%

## Research Question 2

Chi-square contributions were calculated to answer research question two: Which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type? For example, which personality uses questioning strategies the most? It was found that the instructional strategy choice of those tested is

significantly dependent on personality temperament when calculating the chi-square,  $\chi^2(30, N=999) = 75.102, p = .000009, \phi_c = .158$ .

Post-hoc pair-wise comparisons of the chi-square were made. This was done by calculating the difference in chi-square contributions between each personality temperament-instructional strategy type pair. Chi-square contributions of each personality temperament/strategy type pair are reported in Table 7. Personality temperaments in Table 7 were categorized as intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), and sensory-perceiver (SP) as defined by Keirsey and Bates (1984).

Table 7

*Chi-Square Contributions of Each Temperament/Strategy Pair*

	Verbal Dictated	Verbal Questioning	Directed Non-Verbal	Instructional Modeling	Repetition
NT	8.133*	0.254	0.811	5.672*	2.202
NF	2.739	0.009	1.369	$0.988 \times 10^{-3}$	0.861
SJ	3.340	0.0280	0.456	3.435	3.919*
SP	1.74	2.376	3.331	0.634	$0.367 \times 10^{-3}$
	Reinforcement	Punishment	Behavioral Cues	Behavioral Proactive	Behavioral Reactive
NT	0.029	0.249	1.511	1.467	0.058
NF	0.097	0.395	3.177	1.509	0.071
SJ	0.479	0.099	1.293	0.226	0.030
SP	4.617*	0.781	13.592*	3.696	0.416

\*  $\geq 3.841$

A pair was considered significant if the difference in chi-square contributions was greater than or equal to the critical value for one degree of freedom ( $\alpha = 3.841$ ). For example, the NT-Verbal Dictated contribution of 8.133 less the NF-Verbal Dictated contribution of 2.739 results in a difference of 5.394. The difference in these selections is therefore significant as the result is greater than 3.841. In other words, the chance a NT chooses a verbal dictated strategy is significantly different than the chance a NF will choose a verbal dictated strategy.

All significant personality temperament-instructional strategy type pair differences were identified and a calculation was made of the percentage of significant pair differences for each personality temperament-instructional strategy type pair (see Table 8.) The higher the number of significant relationships, the more likely the choice of the instructional strategy type will be different than other temperaments as well as the possibility of choosing different instructional strategy types. Five personality temperament-instructional strategy type pairs were found to have at least one significant difference when compared with other personality temperament-instructional strategy type pairs.

SP-Behavioral Cues was found to be significant against all other chi-square contribution pairs. NT-Verbal Dictated was found to be significant against all pairs except NT-Instructional Modeling and SP-Reinforcement. NT-Instructional Modeling was found to be significant against all pairs except NT-Verbal Dictated, NT-Repetition, NF-Verbal Dictated, NF-Behavioral Cues, SJ-Verbal Dictated, SJ-Directed Non-Verbal, SJ-Repetition, SP-Verbal Questioning, SP- Directed Non-Verbal, SP-Reinforcement, and SP-Behavioral Proactive.

Table 8

*Percentage of Significant Pairings for Each Personality Temperament*

Temperament	Strategy Type	% Significant	Likelihood
NT	Verbal Dictated	95%	Less
NT	Instructional Modeling	70%	More
SJ	Repetition	20%	Less
SP	Reinforcement	42.5%	More
SP	Behavioral Cues	100%	More

To know if the personality temperament-instructional strategy type pair is more or less likely than its significant counter-part, a comparison was made with the percentage each instructional strategy type was used (see Table 6.) For example, a person of the NT temperament is less likely to use verbal dictated strategy types than 95% of the other personality temperament-strategy type pairings.

**Research Question 3**

Frequency distributions were used to answer research question three: Does choice of instructional strategy types by Midwestern high school instrumental music educators change with teaching experience? Frequency distributions were calculated per experience group as a whole to illustrate if experience played a role in instructional strategy choice regardless of personality temperament. The interaction of experience with personality temperament was not investigated as personality temperaments were not represented normally in each experience group. Distribution of personality temperaments per the three experience ranges for the second stage of the study are presented in Table 9.

Table 9

*Distribution of Personality Temperaments per Experience*

	NT	NF	SJ	SP	Total
0-4 Years	1	3	1	0	5
5-9 Years	1	0	1	1	3
10 or More Years	3	0	3	0	6

Also, the sample was not large enough to calculate chi-squares for each personality temperament once divided into experience groups. Chi-squares were not calculated for experience alone as the non-normal distribution of personality temperaments would disallow any conclusions to be made. Therefore it is not determined if the change in strategy selection is significant. The mean of the number of instructional strategies observed and the average percentage of each strategy type chosen by each experience level is presented in Table 10.



Table 10

*Percentage Each Strategy for Each Level of Experience*

	0-4 Years	5-9 Years	10 or more Years
Mean Strategies per Rehearsal	75	81	63
Verbal Directed	46%	42%	46%
Verbal Questioning	10%	6%	13%
Directed Non-Verbal	7%	5%	7%
Instructional Modeling	8%	7%	5%
Repetition	11%	1%	3%
Reinforcement	3%	5%	4%
Punishment	1%	2%	2%
Behavioral Cues	6%	25%	11%
Behavioral Proactive	7%	7%	7%
Behavioral Reactive	1%	1%	1%

### Summary

The *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was completed by 46 high school band directors from Iowa and Nebraska. Fourteen of the 46 agreed to participate in the second stage of the study. Frequency distributions were used to describe the demographic variables for each stage of the study.

Frequency distributions were calculated to answer research question one: Which instructional strategies utilized by Midwestern high school instrumental music educators are most likely to be chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*? All four temperaments chose to use

Verbal Dictated instructional strategies more than any other instructional strategy type. Behavioral Cues were second most likely and Verbal Questioning was third most likely for all four personality temperaments.

Chi-square contributions were calculated to answer research question two: Which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type? It was found that instructional strategy choice of those tested is significantly dependent on their personality temperament when calculating the chi-square,  $\chi^2(30, N=999) = 75.102, p = .000009, \phi_c = .158$ . Post-hoc pair-wise comparisons of chi-squares were made. NT-Verbal Dictated, NT-Instructional Modeling, SJ-Repetition, SP-Reinforcement, and SP-Behavioral Cues were found to have significant comparisons.

The sample size was not sufficient to fully answer research question three: Does choice of instructional strategy types by Midwestern high school instrumental music educators change with teaching experience? Personality temperaments were not represented normally in each experience group. Therefore, frequency distributions were only calculated per experience group as a whole to illustrate if experience played a role in instructional strategy choice regardless of personality temperament. All three experience categories chose to use Verbal Dictated instructional strategies more than any other instructional strategy type.

## CHAPTER FIVE

### SUMMARY, DISCUSSION, AND RECOMMENDATIONS

#### Summary

##### Purpose of the Study

The purpose of this study was to see if the high school band director's personality temperament significantly influences his/her instructional strategy selection in the context of a high school band rehearsal.

##### Research Questions

The following research questions provided focus for this study:

1. Which instructional strategy types utilized by Midwestern high school instrumental music educators are chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*?
2. Which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type?
3. Does choice of instructional strategy types by Midwestern high school instrumental music educators change with teaching experience?

##### Procedure

One hundred high school band directors from Iowa and Nebraska were invited via electronic mail to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* in an online format. It is unknown how many of the directors successfully received the electronic mail invitation. Ten directors responded their attempt to submit the results of the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* was blocked by their schools'

internet filters. Forty-six directors ultimately successfully submitted their results to the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*.

Nineteen of the 46 directors completing the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* indicated an interest in participating in the second stage of the study. All 19 were invited; however, one indicated they no longer wished to participate in the second stage of the study and four did not respond. Therefore, 14 directors were filmed for the second stage of the study. Each of the 14 directors were categorized into one of four personality temperaments: intuitive-thinker (NT), intuitive-feeler (NF), sensory-judger (SJ), or sensory-perceiver (SP). Past research suggested the NF temperament should have been the largest sub-population. However, both NT and SJ were found to have a greater representation in this study than NF by a ratio of five to three. SJ was the largest subpopulation on the first stage of the study and therefore likely to be high on the second stage. The NT temperament is traditionally considered the “scientific” temperament, so it is possible participants in that temperament are more likely to volunteer for a scientific study.

### **Design of the Study**

The design of the study was descriptive. The independent variable was the personality temperament of the high school band director. The dependent variable was selection of instructional strategies. Correlations were also factored for the variable of the high school band director’s experience range.

**Analysis.** Personality temperament category and tallies of instructional strategies used were tabulated and calculated by the computer program Microsoft Excel. Statistical significance was determined using an alpha level of .05.

Research question one and three were investigated using proportional descriptive statistics. The total proportions were calculated for all band directors per each personality temperament category. The total proportions were also calculated per each personality temperament category for each subpopulation of director experience of 0-4 years, 5-9 years, and 10 or more years.

Research question two was investigated using the chi-square statistic. Post-hoc pair-wise comparisons were made on chi-square contributions. Cramer's V Coefficient was calculated to determine strength. The total proportions were calculated for all band directors per each instructional strategy type. This was done by calculating the difference in chi-square contributions between each personality temperament-instructional strategy type pair. A pair was considered significant if the difference in chi-square contributions was greater than or equal to the critical value for one degree of freedom ( $\alpha = 3.841$ ). All significant pair differences were identified and a calculation was made of the percentage of significant pair differences for each personality temperament-instructional strategy type pair.

**Results of Data Analysis.** Frequency distributions were calculated to answer research question one: Which instructional strategies utilized by Midwestern high school instrumental music educators are most likely to be chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*? All four temperaments chose to use Verbal Dictated instructional strategies more than any other instructional strategy type. Behavioral Cues were second most likely and Verbal Questioning was third most likely for all four personality temperaments.

Chi-square contributions were calculated to answer research question two: Which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type? It was found that instructional strategy choice of those tested is significantly dependent on their personality temperament when calculating the chi-square,  $\chi^2(30, N=999) = 75.102, p = .000009, \phi_c = .158$ . Post-hoc pair-wise comparisons of the chi-square were made. NT-Verbal Dictated, NT-Instructional Modeling, SJ-Repetition, SP-Reinforcement, and SP-Behavioral Cues were found to have significant comparisons.

The sample size was not sufficient to fully answer research question three: Does choice of instructional strategy types by Midwestern high school instrumental music educators change with teaching experience? Personality temperaments were not represented normally in each experience group. Therefore, frequency distributions were only calculated per experience group as a whole to illustrate if experience played a role in instructional strategy choice regardless of personality temperament. All three experience categories chose to use Verbal Dictated instructional strategies more than any other instructional strategy type.

## **Discussion**

### **Research Question One**

The first research question examined which instructional strategy types utilized by Midwestern high school instrumental music educators are chosen by each personality temperament as identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test*. All four temperaments chose to use Verbal Dictated instructional strategies more than

any other instructional strategy type. Behavioral Cues were second most likely and Verbal Questioning was third most likely for all four personality temperaments.

Therefore, all high school band directors seemed to prefer the same strategies regardless of their personality temperament.

However, the proportions in which they chose the instructional strategies differed greatly. Both NF and SJ temperaments chose Verbal Dictated instructional strategies more than half of the time while NT and SP temperaments chose Verbal Dictated instructional strategies one-third of the time. The NT personality temperament had the highest percentage in 60% of the instructional strategy types indicating the greatest differentiation of instruction. This might be because people of the NT temperament prefer to look for better ways of doing things (Kiersey and Bates, 1984). People of the NT temperament will likely take the time to experiment with different instructional strategies to find the most effective and efficient one.

The SP personality temperament had the lowest percentage in 60% of the instructional strategy types indicating the least differentiation of instruction. This may be because people of the SP temperament focus on what is right in front of them and prefer the quick and easy action (Kiersey and Bates, 1984). Therefore, they most likely will focus on instructional strategies they know rather than experiment with new, untested instructional strategies.

It was also found that the SJ personality temperament performed an average of 20% more instructional strategies in a rehearsal than the NF personality temperament and 26% more instructional strategies in a rehearsal than the NT personality temperament.

The SJ personality temperament is defined by being authoritative and process oriented; therefore, this result is not surprising.

Similarly, the SP personality temperament performed an average of 33% less instructional strategies in a rehearsal than the NF personality temperament and 25% less instructional strategies in a rehearsal than the NT personality temperament. The SP personality temperament is defined by being perceptive; taking in information through their senses. Therefore, this result is not surprising either.

### **Research Question Two**

The second research question investigated which personality temperament of Midwestern high school instrumental music educators identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* is most likely to choose each instructional strategy type. It was found that instructional strategy choice of those tested is significantly dependent on their personality temperament. That is, certain instructional strategies are more or less likely to be chosen by certain personality temperaments than others.

The SP personality temperament was more likely to choose Behavioral Cues than any other personality temperament was to choose any instructional strategy. First inspection would therefore believe directors of the SP personality temperament to be far more likely to use Behavioral Cues than directors of the other personality temperaments. However, there was only one director of the SP personality temperament participating in the study. It is therefore possible that this one person chooses to use far more Behavioral Cues than the average high school band director. Therefore, this finding is not conclusive.



Likewise, the SP personality temperament was found to be more likely to choose Reinforcement instructional strategies than 42.5% of the other possible pairings. Again, since there was only one director of the SP personality temperament participating in the study, it is possible that this one person chose to use far more Reinforcement instructional strategies than the average high school band director. Therefore, this finding is also not conclusive.

The NT personality temperament was found to be less likely to choose Verbal Dictated instructional strategies than 95% of the other possible pairings. Since the NT personality temperament still chooses Verbal Dictated instructional strategies more than any of the other instructional strategy types, this does not diminish the importance the NT personality temperament places on the Verbal Dictated instructional strategy type. Instead, this illustrates the NT personality temperament is significantly more likely to differentiate instruction than the other three personality temperaments.

The NT personality temperament was found to be more likely to choose Instructional Modeling instructional strategies than 70% of the other possible pairings. This means high school band directors of the NT personality temperament are more likely to resort to choose Instructional Modeling instructional strategies when differentiating instruction than the other three personality temperaments. The SJ personality temperament was found to be less likely to choose Repetition instructional strategies than 20% of the other possible pairings. This means high school band directors of the SJ personality temperament are less likely to resort to choose Repetition instructional strategies when differentiating instruction than the other three personality temperaments.

### Research Question Three

The third research question asked if the influence of personality temperament identified by the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* on choice of instructional strategy types by Midwestern high school instrumental music educators changes with teaching experience. Coincidentally, personality temperaments were not evenly distributed across the three experience levels. Therefore, the sample was not large enough to calculate significant differences nor can any inferences be confidently generalized.

Again, Verbal Directed instructional strategies appear to be the most common across all experiences levels. Behavioral Cues appeared to be frequent for the experience level of 5-9 years. However, this is the group in which the one SP personality temperament participant was a member. Therefore, this percentage was more likely influenced by either the individual or the personality temperament than the experience level.

Likewise, Repetition appeared to be frequent for the experience level of 0-4 years. The inclusion of the SP personality temperament participant in the experience level of 5-9 year may account for the difference between those two experience groups. The same explanation does not exist between the experience level of 0-4 years and the experience level of 10 or more years. It may be possible that experience level affects the selection of Repetition instructional strategies. However, there is little confidence in making that statement since there were no NF personality temperament members in the experience level of 10 or more years.

The remaining instructional strategy types appeared to be more evenly distributed. Additionally, the order of preference for the last six instructional strategy types was the same for all three experience levels. However, it is unknown if the appearance is deceiving without having a large enough sample to perform chi-square statistics. Therefore, the influence experience plays on instructional strategy selection is inconclusive.

### **Summary**

The study showed that high school band directors in Iowa and Nebraska favored Verbal Dictated instructional strategies more than other instructional strategies regardless of personality temperament or experience. The order of preference of instructional strategies was the same for high school band directors in Iowa and Nebraska regardless of personality temperament. It was also found that half of the instructional strategy types were likely to be chosen similarly across all personality temperaments.

Significant differences were found for the instructional strategy types Verbal Dictated, Instructional Modeling, Repetition, Reinforcement, and Behavioral Cues. This finding shows personality temperament has some influence on instructional strategy selection. The greatest influence, however, may most likely be in the amount of differentiation of instructional strategy types among high school band directors in Iowa and Nebraska. The NT personality temperament was found to be significantly more likely to differentiate instructional strategies across a broader array than the other personality temperaments.

The sample size was fairly small causing issues in the distribution across subpopulations. The sample also did not reflect personality temperament proportions

found in a majority of previous studies among music educators. Therefore, the confidence in the results is not high. Results on the confounding variable of experience level are especially suspect.

Questions about literature choice and whether this study should have limited rehearsals to one identical piece arose. The assumption made for this study was that different elements of literature allow for greater ease or greater difficulty in performing instructional strategy types as the instructor intended. Therefore, to give the director their choice of literature would allow the director more freedom to choose their preference of instructional strategies. It was also believed allowing the director to choose their own literature was more reflective of standard daily practice where few directors are assigned literature to work on with their ensemble. However, the question of to what extent does instructional design influence instructional delivery still exists.

### **Future Implications**

#### **Implications of the LIST**

Through literature review and analysis, 58 instructional strategy types were identified and included on the LIST. It is impossible to create a completely comprehensive list of instructional strategy types due to the sheer number of instructional strategies and continual advancements in the field. However, use of a multi-layered binary tree for analysis should provide for at least a broad selection of instructional strategy types. Additionally, binary trees are highly scalable allowing for the LIST to easily grow; providing for the possibility of even greater breadth and depth in future revisions.

The LIST should be a useful aid for teachers who wish to reflect on the breadth of their instructional strategy choices. Teachers may use the LIST to quickly tally their instructional strategy type choices through reflection, watching a video recording of themselves, or utilizing an outside observer. The LIST ought to prove a useful tool in helping each teacher visualize where their instructional strategy choices lie and where gaps in their teaching methods might exist. Teachers will then have a narrower scope of research based strategies to learn by focusing on their personal gaps.

Beginning teachers and teacher educators may also find the LIST a useful resource. The LIST is a simple reference of multiple teaching strategy types that ensures a wide range of possible choices. Beginning teachers may choose to use the LIST while trying a variety of teaching styles in the search for their own style. Teacher educators may utilize the LIST while trying to ensure their students have been exposed to a large scope of instructional strategies.

The LIST may also prove useful to educational researchers; especially in the field of differentiated instruction. Researchers can now start analyzing where tendencies and gaps occur in instructional strategy choices when looking at various factors. The LIST provides for similar research that extends past cognitive learning theories into specific teaching behaviors. The LIST could be utilized in research trying to identify connections between instructional strategies and student learning preferences.

### **Implications for Music Educators**

It is clear there is a heavy reliance on Verbal Dictated instructional strategies. Coding of the full LIST for each participant by the primary research suggests this is specifically true for corrective feedback. Music educators in ensemble courses should

work to use more of the other instructional strategies found on the LIST. Directors of the NT personality temperament need to improve as well, but can serve as an initial model for greater differentiation of instruction. Educators should realize from the results of this study that they are far from effectively differentiating instruction.

The results of this study should not be interpreted to limit employing teachers of a specific personality temperament. Just because a personality temperament may appear to draw from a limited scope of instructional strategy types does not mean they cannot differentiate instruction. Personality is merely a preference for behavior; not a requirement. The results should indicate a need for more effort in differentiated instruction and give teachers a clearer picture of what they are most likely currently doing. The results show teachers must make a conscience effort to monitor their differentiation of instruction rather than what “feels” appropriate.

### **Teacher Preparation**

Personality temperament cannot be changed through teacher preparation courses. Instead, teacher preparation should focus on influencing a future educator’s willingness to move past their preferences. Teacher educators should encourage future teachers to find and practice a greater variety of instructional strategies. Future educators should be taught how to monitor their instructional strategy choices rather than relying on what feels appropriate. The results of this study could help teacher educators ensure future educators are practicing strategies outside of their likely preferences.

## **Recommendations**

### **Suggestions for Further Study**

Significant findings were produced by this study. However, the small sample size lends doubt to the confidence in the results. This study should be repeated with a much larger sample size to (a) increase the number of participants in the SP personality temperament and (b) ensure every personality temperament is represented in each experience level subpopulation. Three areas need to be addressed to achieve a larger sample. First, the sample size for the initial invitation to take the *Gray-Wheelwright-Winer 4-Letter Type Indicator Test* needs to be significantly increased. Second, steps need to be taken to reduce conflicts with internet filters. The most likely cause with this study was the data flow included cross-domain transmission of data which likely triggered internet filters. Discussions with Dr. Winer have already taken place to eliminate this limitation in the future. Third, extrinsic motivators should be included to generate a more representative sample in the second stage of the study.

This study selected a high abstraction level on the LIST in order to increase inter-rater reliability by minimizing categories. The inter-rater reliability was quite high in this attempt. Future attempts should select a lower abstraction level on the LIST to create more categories. More categories will likely result in a lower but acceptable inter-rater reliability. Using more categories could give greater detail and more insight into differences in instructional strategy choice among different personality temperaments.

Further research should address student learning preferences through personality temperament. Studies similar to the science and engineering studies by Rosati, Dean, and Rodman (1988) and Eggins (1980) need to be completed for music. Utilizing the LIST in

future studies involving student preferences will help music education researchers look at gaps between what students prefer and what teachers are doing. Studies may even be able to go farther and look at students' achievement comparing student personality temperament and instructional strategy types from the LIST. The ultimate goal of this line of study should be to try to find a successful and efficient way to monitor and differentiate instruction.



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## Appendix A

### IRB Submission Form

University of Nebraska-Lincoln  Institutional Review Board (IRB)  312 N. 14th St., 209 Alex West  Lincoln, NE 68588-0408(402) 472-6965  Fax (402) 472-6048  irb@unl.edu	FOR OFFICE USE ONLY  IRB #:  IRB Decision Date:  Date Received:  Code #:
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1. Project Title: Personality Temperament's Influence on Instructional Strategy Type

Selection by High School Band Directors of Iowa and Nebraska in a Concert Band

Setting

Project ID: 11266

2. (3.) Principal and Secondary Investigators:

Principal	Matthew Herrick	Secondary	Brian Moore
Investigator:	Matthew.Herrick@huskers. unl.edu	Investigator:	bmoore1@unl.edu  (402)472-2537
Department:	School of Music	Department:	School of Music

4. Type of Project: Research

5. Does the research involve an outside institution/agency other than UNL? No



6. Where will participation take place (e.g., UNL, at home, in a community building, schools, hospitals, clinics, prisons, unions, etc)? Please specify and give location if not already listed above.  
Randomly selected public and private high schools in Nebraska and Iowa.

7. Briefly describe the facilities available for the research (e.g., there will be a quiet room in the school to

conduct interviews, a secure lab space is available, etc).

Data collection will occur in each participating school's band rehearsal room.

8. Present / Proposed Funding Source: None

9. Study Start Date: 1/10/2011

1. Study End Date: 07/29/2011

11. Is this a multi-institutional study? No

Page 2. Project Information Continued:

1. Does the research involve Prisoners? No

2. Will the research only be conducted in schools or educational settings? Yes

2.a. Does the research study involve only normal education practices (such as research on regular

and special education instructional strategies, or research on effectiveness of or the comparison

among instructional techniques, curricula, or classroom management methods.)? Yes

3. Does the research involve only the use of educational tests, survey procedures, interview

procedures, or observation of public behavior? Yes

3.a. Does the research involve children (under 19 years of age)? No

4. Does the research involve only the collection or study of existing data, documents, records,

pathological specimens, or diagnostic specimens? No

5. Does the research involve only studying, evaluating or examining public benefit or service programs?

No

6. Does the research involve only a taste and food quality evaluation or food consumer acceptance

study? No

7. Does the research present more than minimal risk to human subjects? No

☐ Clinical studies of drugs and/or medical devices.

☐ Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture.

Prospective collection of biological specimens for research purposes by noninvasive means.

☐ Collection of data through noninvasive procedures routinely employed in clinical practice, excluding procedures involving x-rays or microwaves.

☐ Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for non-research purposes (such as medical treatment or diagnosis).

☒ Collection of data from voice, video, digital, or image recordings made for research purposes.

☒ Research on individual or group characteristics or behavior (including but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior).

☒ Research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

7.a. Does the research involve only procedures included in the previous 8 categories? Yes

7.b. Could identification of subjects put them at risk of criminal or civil liability, or be socially or economically damaging? No

### 3. Description of Participants:

1. In the table below, please the estimated number of participants per category:

	Male	Female	Unspecified	Total
Adults	70	30	0	100
Children	0	0	0	0
Totals	70	30	0	100

☒ Adults, Non Students

☐ UNL Students

☐ Children (under age 19)

☐ Decisionally Impaired

☐ Institutionalized Persons

☐ Students

☐ Pregnant Women/Fetuses/Neonates

☐ Persons with Neurological  
Impairment

☐ Persons with Limited Civil Freedom

☐ Language Impaired

☐ Persons with HIV/AIDS

☐ Prisoners

☐ Persons with Psychological  
Impairment

☐ Persons with Mental Retardation

☐ Adults w/ Legal Representatives

☐ Handicapped

☐ Employees

☐ Other

3. Will participants of both sexes/genders be recruited? Yes

4. Will participation be limited to certain racial or ethnic groups? No

5. Describe the participant population to be included in this research and how they are selected, including any special characteristics targeted for inclusion.

The subjects of this study will include high school band directors in Iowa and Nebraska.

One hundred high school band directors will be randomly chosen from approximately 600 as listed in the Iowa Bandmasters Association 2010-2011 Directory and the Nebraska Education Directory. These 100 high school band directors will be invited to take the personality survey. The eight most prominent scores for each personality temperament will be selected for recording video examples for a total of 32 participants.

6. Describe your access to the population that will allow recruitment of the necessary number of participants.

As state employees, participants are listed as public record in the Iowa Bandmasters Association 2010-2011 Directory and the Nebraska Education Directory.

7. The research plan should have adequate provisions to protect the privacy interests of participants.

Explain provisions to protect privacy interests of participants. This refers to how investigators will access private information from or about participants during and after their involvement in the research (e.g., time, place, etc of research procedures)

Only the principal investigator will have access to results of the personality questionnaire which will be password protected. Participants may elect at any time to withdraw from the study in which case their results will be immediately deleted. For the video coding portion, clips will be assigned random number identifiers. The coders will not have any access to personality temperament or the participant nor identifying information other than possible facial recognition. The coders names will be provided to the participants before sending videos. Participants will then be asked if the named coders are allowed to view their video. Each participant will also have the option to review their video at any time during the study.

8. Describe your process to ensure that all persons assisting with the research are adequately informed about the protocol and their research-related duties and functions.

All three coders will be trained in how to complete the coding and will review and sign a statement of responsibility.

9. If not already described above, will any groups or categories of participants be excluded from this research? No

10. Will some or all subjects likely be vulnerable to coercion or undue influence? No



#### 4. Unique Research Methodology or Data Sources

1. Will your project involve audio taping? No

2. Is this project web-based research? Yes

2.a. For web-based studies, how will the data be handled? Will the data be sent to a secure server? Will the data be encrypted while in transit? Will you be collecting IP addresses?

Only the initial qualifying questionnaire to identify personality temperament will be web-based.

Answers will automatically be stored in a secure database. No information will be collected beyond what the participant divulges.

3. Is this study utilizing Protected Health Information (PHI; e.g., information obtained from a hospital, clinic, or treatment facility)? No

4. Does this project involve genetic data, sampling, or analysis? No

5. Does this project ask questions about illegal drug use or criminal activity that places the participant at

risk for legal action? No

6. Does this project involve photography? No

7. Does this project involve videotaping? Yes

7.a. How long will videotapes be kept? Where will they be stored? Who will have access to the tapes?

Digital video will be downloaded from the digital camera to the researcher's secure computer as quickly as possible. No one other than the primary investigator will have access to the camera nor computer while videos are contained on them. DVDs will be created containing only the videos assigned to each coder. After coding, the DVDs are to be returned to the primary investigator and will be shredded immediately. Each coder will be made aware of privacy and will be expected to secure the DVDs while in their possession. Videos on the computer will be deleted at the conclusion of the study.

8. Does this project involve archival or secondary data analysis? No

9. Does this project involve biological samples? No

10. Does this project ask participants to perform physical tasks? No

## 5. Purpose, Methods, & Procedures

Describe the research purpose of the project

1. What is the significance/purpose of the study? (Please provide a brief 1-2 paragraph explanation in lay terms, to include a brief literature justification.)

The purpose of this study is to see if the high school band director's personality temperament significantly influences the high school band director's instructional strategy type selection in the context of high school band rehearsal.

### Description of the Methods and Procedures

2. Describe the data collection procedures and what participants will have to do.

One hundred high school band directors will be randomly chosen from approximately 600 as listed in the Iowa Bandmasters Association 2010-2011 Directory and the Nebraska Education Directory. These 100 high school band directors will be invited via electronic mail to take the personality survey online. A reminder letter will be sent ten days later to selected directors who have not yet completed the survey. Request to participate in the second stage of the study will be included on the survey. Once the survey results are tallied, the eight band directors with the highest scores of each temperament type will be selected from those indicating a willingness to participate in the second stage of the study. These 32 will be invited via electronic mail to schedule a video recording session with the researcher. In cases where there is no response within three working days, the

invitation will be sent to them again. In cases where there is still no response after another three working days, the next highest scoring band director in the personality temperament who agreed to participate will be invited and the process repeated until video recording sessions have been scheduled for eight high school band directors of each personality temperament.

Appointments will be made with the selected high school band directors to film a concert band rehearsal for a total of 32 videos. Video recordings will be all made with the same digital video camera. Video of classes are to be taken on normal educational routine and focused on the band director.

Classroom videos will be reviewed by three independent coders who will code strategies for analysis using the LIST. Coders will be randomly assigned 14 videos so that all 32 videos are coded and 10 of the videos are coded by two separate coders. Videos will be randomly assigned numbers for each coder and recorded to DVD. The DVD and copies of the LIST will be given to each coder. Each coder will review the videos and fill out the LISTs privately in a time and setting of their choice. DVDs and LISTs will then be returned to the researcher for analysis.

3. How long will these procedures take the participants to complete? Please describe the duration of the session, the number of sessions, over what period of time, etc.

The initial personality temperament questionnaire should take approximately 15 minutes for each individual to complete. Thirty-two participants will be identified by the questionnaire for the video recoding portion of the study. Each of the 32 participants will be filmed for two of their class periods for a total approximation of 1.5 to 2 hours each.

Duration between class filmings will be determined by what is most convenient for the participant. Videos are of normal classroom routines so participants will not have any additional responsibility above their normal teaching duties.

4. Will there be any follow-up or will reminders be sent? Yes

4.a. Please explain:

100 high school band directors will be invited via electronic mail to take the personality survey. A reminder letter will be sent ten days later to selected directors who have not yet completed the survey. Request to participate in the second stage of the study will be included on the survey. Once the survey results are tallied, the eight band directors with the highest scores of each temperament type will be selected from those indicating a willingness to participate in the second stage of the study. These 32 will be invited via electronic mail to schedule video recording sessions with the researcher. In cases where there is no response within three working days, the invitation will be sent to them again. In cases where there is still no response after another three working days, the next highest scoring band director in the personality temperament who agreed to participate will be invited and the process repeated until video recording sessions have been scheduled for eight high school band directors of each personality temperament.

5. Differentiate any procedure being done solely for research purposes from procedures being done anyway.

The 15 minute personality temperament questionnaire is an additional requirement beyond normal teaching duties. The video recording portion is of normal classroom procedures.

6. Describe the time you have available to conduct and complete the research (ex. the time from initiation of the research to completion of data analysis).

The initial personality survey is expected to be done in two weeks. The video recording portion is expected to take eight weeks. The coders are expected to complete coding in three weeks. Data analysis should take another three weeks. The total time to complete the research is estimated at four months.

## Page 6. Description of Recruiting Procedures

### 1. How will the names and contact information for participants be obtained?

One hundred high school band directors will be randomly chosen from approximately 600 as listed in the Iowa Bandmasters Association 2010-2011 Directory and the Nebraska Education Directory. The eight band directors with the highest scores of each temperament type (n=32) will be selected from those indicating a willingness to participate in the second part of the study.

### 2. How will participants be approached about participating in the study?

Participants will be invited via electronic mail.

## Description of Benefits and Risks

### 3. Explain the benefits to participants or to others.

Participants will learn their personality temperament classification.

### 4. Explain the risks to participants. What will be done to minimize the risks? If there are no known risks, this should be stated.

There are no known risks.

### 5. Describe the availability of medical or psychological resources that participants might require as a consequence of the research.

No medical or psychological resources should be required as a consequence of this research.

6. Will compensation (including money, gift certificates, extra credit, etc.) be provided to participants? No



## 7. Informed Consent Process

### 1. How will informed consent/assent be obtained?

Informed consent will be included on the questionnaire for the initial personality questionnaire. A signed consent will be obtained prior to video recording for the second phase of the study.

### 2. Who will conduct the consent interview?

Informed consent will be included on the questionnaire for the initial personality questionnaire and therefore provided by the web site. A signed consent will be obtained prior to video recording for the second phase of the study by the primary investigator.

### 3. Who will provide consent or permission?

All high school band directors who choose to participate in the study.

### 4. What is the waiting period, if any, between informing the prospective participant and obtaining consent?

The waiting period is up to the discretion of the participant ranging from no waiting period up to 10 days.

### 5. What steps will be taken to minimize the possibility of coercion or undue influence?

Participants will be provided the statement of consent and left to decide of their own free will. Contact information for reporting coercion will be included in the statement of consent for the participant.

6. What is the spoken language used by those obtaining consent? English

7. What is the language understood by the prospective participant or the legally authorized representative?

English

8. Will any subjects be decisionally impaired so that they may not have the capacity to give consent? No

9. In certain cases for children over the age of 14, such as UNL students who are 17 or 18, waivers of informed consent can be granted. Would you like to request a waiver of consent? No

## 8. Confidentiality & Data

### Description of How Confidentiality will be Maintained

1. The research plan should make adequate provisions to maintain the confidentiality of the data. How will confidentiality of records be maintained?

Only the principal investigator will have access to results of the personality questionnaire which will be password protected. Participants may elect at any time to withdraw from the study in which case their results will be immediately deleted. For the video coding portion, clips will be assigned random number identifiers. The coders will not have any access to personality temperament or the participant nor identifying information other than possible facial recognition. The coders names will be provided to the participants before sending videos. Participants will then be asked if the named coders are allowed to view their video. Each participant will also have the option to review their video at anytime during the study.

2. Will individuals be identified during data collection or in the results? Yes

2.a. Will the participants be identifiable during data collection?

Since the purpose of the initial personality questionnaire is to identify qualifiers for the second phase, the participants must be identifiable. Names will be requested on the survey. Only the principal investigator will have access the identifying information.

Identifiers will be deleted with the data at the end of the study. Facial recognition is the only identifier that will exist during the video recording portion of the study.

2.b. If the data is coded, will there be a list linking names and codes?

Video recordings will receive a number with no link to names.

3. How long will records be kept?

All data will be destroyed following completion of the study.

4. Where will records be stored?

Personality questionnaire data will be stored automatically on a secure database. Video recordings will be stored on a secure computer and temporarily on DVDs for coding purposes. Time videos exist on DVDs will be minimized. Coding results will be initially done on paper and sent to the primary investigator. The primary investigator will copy these to a secure computer then immediately destroy the paper copy.

5. Who has access to the records/data?

The primary investigator will have access to all data and video recordings. The three coders will have access only to their assigned videos and coding results while in the coding process. Participants will be provided any of their own data and/or video recordings upon request. One of the coders is on faculty at UNL. The other two recorders are retired and no longer affiliated with any institution.

6. How will data be reported?

The data will be reported in a dissertation. Data summaries may be used in scientific journal articles, conference presentation, or poster sessions.

Monitoring of data to ensure safety

7. Does this research involve more than minimal risk to participants? No

## Appendix B

### Invitation Letter to Cooperating Teachers

December 5, 2010

Dear High School Band Director,

I request your assistance in a study looking for connections between the high school band director's personality temperament and the instructional strategy types he/she selects. Please take about 15 minutes to complete a survey designed to identify your personality temperament.

Your participation in this study is completely voluntary and I assure that your responses will remain confidential. No individual information will be reported; only group data will be discussed. To participate in the study, simply type the following URL link into your web browser address bar:

<http://www.winerfoundation.org/gwtest/herrick.html>

Informed consent information will appear on one page describing the study and your rights in participating in it. As detailed in the informed consent page by continuing to the survey you are voluntarily consenting for your answers to be used as described.

To complete the study, read all instructions and carefully select the answer by clicking on the radio button. At the bottom of the survey be sure to click the "DONE" button to send your answers to me. By clicking the submit button, you are agreeing to allow your responses to be used in this study. ***Please complete the survey as soon as possible and no later than December 19th, 2010.***

This survey is part of a two-stage study requiring follow-up observations and interview of a few instrumental music teachers in the second stage of the study. You are NOT consenting for the second stage by completing the survey. If you give permission on the questionnaire, the researcher may contact you at a later date to acquire consent and arrange convenient times.

Thank you in advance for your time in completing this questionnaire. If you have any technical difficulties or questions, please contact me at [matthew.herrick@huskers.unl.edu](mailto:matthew.herrick@huskers.unl.edu) or (402) 570-8253. If you would like a copy of your responses and/or the final study please email me and I will send them to you by email upon completion of the study.

Sincerely,  
Matthew Herrick  
Ph.D. Student in Music Education  
University of Nebraska-Lincoln

## Appendix C

### Reminder Letter

Dear Fellow Music Educator,

**I need your help!** A few weeks ago I sent you an invitation to complete a brief survey on your personality temperament for an important research project being conducted for the University of Nebraska-Lincoln. Your experience as an instrumental music educator makes your contributions extremely valuable in this study. This study will help contribute to the knowledge on the teaching of instrumental music students.

I am sending this notice because I have not received your submission. If you are experiencing technical difficulties, please contact me at (402) 570-8253 or by email [matthew.herrick@huskers.unl.edu](mailto:matthew.herrick@huskers.unl.edu).

To participate in the study, type the following URL link into your web browser address bar:

<http://www.winerfoundation.org/gwtest/herrick.html>

Thank-you for your participation in this study.

Sincerely,  
Matthew Herrick  
Ph.D. Student in Music Education  
University of Nebraska-Lincoln

## **Appendix D**

### **Personality Survey**

The Gray-Wheelwright-Winer 4-letter Type Indicator Test

1. In a social setting, do you prefer to
  - a. Talk
  - b. Listen
2. In viewing a problem, do you
  - a. First try to measure, count, or define it
  - b. First look at its background features
3. Are you more interested in
  - a. What someone does
  - b. Why or what motivates a person to do it
4. Is your nature more to
  - a. Categorize life by thoughts
  - b. Categorize life by feelings
5. In your opinions, decisions, or judgments, are they based upon:
  - a. Some logical principle or category
  - b. Your own or society's values
6. Are you usually
  - a. On time
  - b. Late



**Appendix D (cont.)**

7. In practice, is your style to
  - a. set up appointments long in advance
  - b. do it whenever
8. Granting that you are tactful in social settings, what is your real impulse to
  - a. Speak out
  - b. Keep quiet
9. Assuming your living was assured and you wanted to take a job for enjoyment or to have something to do. Would you take one that is more:
  - a. Useful to yourself or others
  - b. On the imaginative side
10. Do you prefer pictures that portray things that are:
  - a. On the earth / ground
  - b. In the sky / air
11. In trying to understand a society or an individual, do you learn about their:
  - a. Principles and laws
  - b. Myths and values
12. In forming an opinion of someone, do you more pay attention to:
  - a. The actual words they say
  - b. What you believe is in their heart
13. When you visit tourist sites in a place unfamiliar to you, do you:
  - a. Get exact directions to the place
  - b. Get general directions and find out specifics later

**Appendix D (cont.)**

14. Is your impulse to be
  - a. Punctual
  - b. Leisurely
15. Are you eager to join in with the group
  - a. Usually
  - b. Seldom
16. In gaining information about a culture, do you tend to look at:
  - a. The problems of the an individual person
  - b. The problems of society as a whole
17. In giving praise, do you look at the
  - a. Specific actions
  - b. The overall result
18. Mostly, do you prefer people with
  - a. Good thinking
  - b. Good feeling
19. Is tact to you a matter of
  - a. Respecting independent views
  - b. Warm sympathy
20. When about to travel, do you pack up
  - a. A few days before
  - b. At the last moment

**Appendix D (cont.)**

21. When you read the book you have bought and find it disappointing, do you:
- a. Finish it anyway
  - b. Stop reading it and / or find a new one
22. Do you like to chat with clerks, hairdressers, porters, etc.
- a. Yes
  - b. No
23. Do you take in more about a situation from the:
- a. Actual circumstances
  - b. The background to the actual circumstances
24. When you focus your attention on a task or goal, do you tend to overlook the details:
- a. Seldom
  - b. Often
25. When confronted with the misfortune of others is your impulse to:
- a. Search for the cause
  - b. Console
26. In reasoning, do you proceed from the:
- a. Particular case to the general rule
  - b. General rule to the particular case
27. When listening to others, do you tend
- a. help them get to the point
  - b. let them speak as long as they want

**Appendix D (cont.)**

28. When situations are mildly uncertain, do you tend to
- a. Do something
  - b. Let it work itself out
29. Is the telephone's ring a pleasure
- a. Yes
  - b. No
30. In a work of art, do you prefer it to be:
- a. Photographic in quality
  - b. Abstract or imaginative
31. In reading for information, do you prefer the presentation
- a. To the point
  - b. Many-sided
32. In making a judgment about a person's reaction or behavior, do you give a greater weight to:
- a. The general principles of human behavior that applies
  - b. The individuals' peculiarities or their situation
33. When you overhear two people having a difference of opinion, do you decide who is right on the basis:
- a. The strength of the points made
  - b. How you feel about each of them or about their behavior

**Appendix D (cont.)**

34. Is orderliness?
- a. Very important
  - b. Not very important
35. Do you tend to spend now or save for a rainy day?
- a. Spend now
  - b. Save for later
36. In regard to friends which is more important to you
- a. Quantity
  - b. Quality
37. Are you more interested in people's
- a. Profession
  - b. Background
38. When I let my mind dream new possibilities, I feel
- a. Uncomfortable
  - b. Intrigued
39. Empathy is a major way I make decisions
- a. No
  - b. Yes
40. Do you take observations as facts:
- a. To be studied?
  - b. To be valued for usefulness?

**Appendix D (cont.)**

41. On which side is your temperament
- a. Deliberate
  - b. Spontaneous
42. Do you generally "size up" a person on the basis of a short interview:
- a. Yes
  - b. No
43. Do you enjoy meeting a lot of new people
- a. Yes
  - b. No
44. In reading, do you prefer
- a. Biography
  - b. Novels
45. When you meet people do you prefer to listen to what they
- a. Do
  - b. Dream of
46. Gut feelings should be listened to
- a. No
  - b. Yes
47. Devotion is the most important thing in a relationship
- a. No
  - b. Yes

**Appendix D (cont.)**

48. If living alone would you:
- a. Keep things in precise order
  - b. Not bother much with such things
49. Do conclusions come to you by
- a. Deliberate reasoning
  - b. Immediate inspiration
50. At a party are you happier with
- a. Twelve people
  - b. Three people
51. Does a problem seem like a closed room which intuition has to open
- a. Quite frequently
  - b. Not much
52. Do you tend to see
- a. One thing at a time
  - b. A variety of things at once
53. Which principle is more important in making your decisions
- a. What you or others think
  - b. What you or others feel
54. When a person has a wrong idea, in the moment, do you
- a. Try show them why your idea is correct
  - b. Try to reach some agreement

**Appendix D (cont.)**

55. Having formed an opinion, do you
- a. Tend to stick to it
  - b. Alter it
56. Is orderliness in you or your surroundings
- a. Important
  - b. Unimportant
57. Do long encounters with people leave you drained
- a. No
  - b. Yes
58. Are you inclined to pursuits that involve new possibilities
- a. Quite a bit
  - b. Not much
59. Which is more of an achievement, a person who is
- a. Practical
  - b. Creative
60. Towards achieving your goals do you choose on the basis of
- a. Principles and facts
  - b. Feelings and possibilities
61. Is it necessary to be passionate about your decisions
- a. No
  - b. Yes



**Appendix D (cont.)**

62. With regard to future possibilities, do you
- a. Plan for various contingencies
  - b. Cross bridges as they come
63. Do you prefer to make decisions
- a. Immediately
  - b. At leisure
64. Are you more energized if others join with you in your plans
- a. Always
  - b. Sometimes
65. Do you tend to see:
- a. The individual tree rather than the forest as a whole
  - b. The forest rather than the individual tree
66. In paintings, which attracts you more
- a. Portraits
  - b. Landscapes
67. Do you make decisions with your
- a. Head
  - b. Heart
68. Do people error more by ignoring:
- a. The principles of the matter
  - b. What has value to them or others

**Appendix D (cont.)**

69. Were you born with a time clock in your head that you closely follow:
- a. Yes
  - b. No
70. When picking a present for somebody, do you seek something
- a. You think they want
  - b. You think will be a surprise
71. What is your first & last name: \_\_\_\_\_
72. Are you currently required by your district to use any specific instructional strategies in your class?
- a. Yes
  - b. No
73. How many minutes per week do you have rehearsal? \_\_\_\_\_
74. The second part of this study involves videotaping two rehearsals for selected participants. Instructional strategy types observed in the videos will be tallied and compared with your personality temperament. Videos will be reviewed by two coders in addition to the researcher. Are you interested in participating in the second phase of the study? Answering yes at this time does not require you to participate later.
- a. Yes
  - b. No

**Appendix D (cont.)**

Click “Submit” if you wish your answers to be part of the first stage of the study. You are not agreeing to the video stage of the study; only the personality temperament of high school band directors stage of the study.

## Appendix E

### Letter of Invitation for Second Stage

January 11, 2011

Dear <DIRECTOR'S NAME>:

During the past few weeks you completed a survey on your personality temperament. Your results showed you were one of the most clearly <PERSONALITY TEMPERMENT> of all director's completing the survey. As a result, I would like to extend an invitation for participating in the second stage of the study. The second stage requires observing and videotaping two of your band rehearsals over the next few weeks to see which types of instructional strategies you choose to use in your classroom. The rehearsal will need to be the first rehearsal of a never before rehearsed piece. The choice of the piece is completely up to you.

Your participation is entirely voluntary and no names or other identifying statements will be made about you, students, or your school during the reporting of this study. Videotaped rehearsals will not be shared beyond three educational professionals employed to code the results, my dissertation advisory committee, and University of Nebraska-Lincoln administration overseeing this study to ensure the safety of participants.

Those instrumental music teachers who participate in this study could make a valuable contribution to music education. If you are willing to allow me to observe your program, please complete and return the informed consent form that is enclosed. I will be contacting you to arrange times to observe your bands.

At any time, if you have any concerns or questions, you may contact Matthew Herrick at [matthew.herrick@huskers.unl.edu](mailto:matthew.herrick@huskers.unl.edu) or (402) 570-8253. If I cannot be reached, or if you would like to talk to someone other than me or my advisor about (1) concerns regarding this study, (2) research participant rights, (3) research-related injuries, or (4) other human subjects issues, please contact University of Nebraska –Lincoln's Institutional Review Board at **Research Compliance Services**, 312 N. 14th St., Ste 209, Alex West, Lincoln, NE 68588-0408 or (402) 472-6965 or [irb@unl.edu](mailto:irb@unl.edu).

Thank you for assisting my research.

Sincerely,

Matthew Herrick

Ph.D. Student in Music Education

University of Nebraska-Lincoln

## Appendix F

### Video Coding Observation Form

#### Video Coding Observation Form

#: \_\_\_\_\_

<b>Instructional Directed Verbal Dictated</b>	<b>Behavioral Direct Response Reinforce</b>
<b>Instruct Directed Verbal Questioning</b>	<b>Behavioral Direct Response Punish</b>
<b>Instructional Directed Non-Verbal</b>	<b>Behavioral Direct Cues</b>
<b>Instructional Experienced Modeling</b>	<b>Behavioral Indirect Proactive</b>
<b>Instructional Experienced Repetition</b>	<b>Behavioral Indirect Reactive</b>