The purpose of this study was to determine the extent to which selected instrumental music teachers' aptitude for reflection and/or self-reported engagement in reflective practice could predict their instructional effectiveness. Subjects were fifty (50) instrumental music teachers with one-half year to twenty-eight years of classroom teaching experience, and whose instructional experience ranged from beginning instrumental classes to collegiate ensemble conducting. Two instruments were used to measure reflective activity. Subjects completed the LaBoskey Survey of Unassisted Reflectivity (LSUR) used to measure reflective aptitude and the Reflective Teaching Instrument (RTI) used to measure engagement in reflective practice. Additionally, subjects were videotaped while teaching a ten-minute segment of a typical rehearsal. Using the Survey of Teaching Effectiveness (STE), these tapes were evaluated by a team of three adjudicators.

A Pearson's Product-Moment Correlation procedure determined no significant correlation (p≤.05) between scores on the LSUR and RTI. A multiple regression procedure determined that reflective aptitude and years of teaching experience were significant (p≤.05) predictors of music teaching effectiveness. An additional multiple regression procedure determined that one of the sub-scales of the RTI - personal causation- was a significant (p≤.05) predictor of music teaching effectiveness. Analysis of the slopes from the multiple regression data
across experience levels revealed significant, yet differing relationships for each of these predictors in terms of years of experience.

Findings from this study may have implications for both pre-service and in-service teacher education.

The preparation of highly effective instrumental music educators is the primary goal of instrumental music teacher education. Toward this end, researchers have focused much of their attention on practices that best provide pre-service teachers with the knowledge and skills necessary to become effective practitioners. For the past two decades, teachers' abilities to engage in reflective practice have been thought to be a significant predictor of their instructional effectiveness (Beck, 1997; Beyer, 1986; Boud, Keogh, & Walker, 1985; Bourget, 1999; Brookfield, 1987; Caillouet, 1998; Clarke, 1992; Colton & Sparks-Langer, 1993; Copeland, Birmingham, Cruz & Lewin, 1993; Cruickshank & Applegate, 1981; Deutsch, 1996; Digiaimo, 1993; Draper, 1998; Friberg & Waxman, 1990; Garman, 1986; Garrison, 1991; Gilliand, 1991; Grimmett, 1988, 1989, 1990; Harris, 1989; Hatton & Smith, 1995; Hinman-Powell, 1998; Holly, 1983; Huebner, 1997; Imel, 1992; Kirby, 1987, 1989; Kruse, 1997; LaBoskey, 1994; McIntyre, 1993; Nolan, 1989; Norlander-Case, Reagan & Case, 1999; Osterman, 1990; Palmer, Burns & Bulman, 1994; Pearce, 1995; Richardson, 1990; Rogers, 1996; Sang, 1985; Schön, 1983, 1987; Sykes, 1986; Van Manen, 1977; Waks, 1999; Yang, 1997; Yost, Sentener & Florenza-Bailey, 2000 ). Additional research has further established common methods that promote reflection among music teacher education programs within the United States (Raiber, 2000).

Sebren (1994) defines reflective practice as the process of reconstructing what happened, and the reasons for that action to have occurred. While it appears that most researchers would agree, attempts to define reflection in concrete terms have not proven to be entirely convincing. As the practice of reflection is fluid, it appears to require a definition that is equally flexible. Based upon the literature, one is forced to concede that the definition of reflection is dependent upon the context in which reflection takes place (Brookfield, 1987; Copeland, Birmingham, Cruz & Lewin, 1993; Grimmett, 1989; Kelly, 1993; Schön, 1983, 1987; Van Manen, 1977; Zeichner & Liston, 1987; Zimper & Howey, 1987). Additionally, changes in reflective context occur not only within the teaching environment, but also as a result of the developmental stage of
the practitioner (Goodman, 1984; Van Manen, 1977; Zimper & Howey, 1987).

Even with these broad and varied definitions, research still shows that teachers can benefit from reflection. The process appears to manifest itself in a cyclical fashion through the three primary elements within the educational environment -- the teacher, the student, and the practice of teaching. Reflection's primary benefits to teachers include (a) the ability to extract meaning from experience (Imel, 1992; Kelly, 1993; Kolb, 1971; LaBoskey, 1994; Nolan & Huber, 1989; Perry & Moss, 1989; Schön, 1983, 1987), (b) improvement of teacher skills (Beck, 1997; Cruischank & Applegate, 1981; Deutsch, 1996; Garman & Gaynor, 1986; Holly, 1983; Kelly, 1993; Wildman, Niles, Maglario & McLaughlin, 1990; Yang, 1997), and (c) improvement of teacher's attitude toward teaching (Beck, 1997; Deutsch, 1996; Kelly, 1993; Robinson, 1984). Students may benefit from teacher reflection as a model for their own employment of reflective practice (Beck, 1997; LaBoskey, 1994; Nolan & Huber, 1989; Wildman et. al, 1990). Teacher engagement in reflection benefits the teaching profession by improving practice (Beck, 1997; Cruickshank & Applegate, 1981; Deutsch, 1996; Digiaimo, 1993; Holly, 1983; Kelly, 1993; Wildman et. al, 1990; Yang, 1997) and by critically considering the moral issues within the practice (Colton & Sparks-Langer, 1993; Digiaimo, 1993; LaBoskey, 1994; Van Manen, 1977; Yang, 1997). With more informed practice, teachers extract new or deeper meaning from teaching experiences, and the cycle begins again.

There is, however, some controversy within the literature concerning the development of reflective ability among teachers and students (Beck, 1997; Harris, 1989; Richardson, 1990). The current study embraces findings that indicate engagement in reflective practice can be learned (Boud, Keogh & Walker, 1985; Deutsch, 1996; Kelly, 1993; Wildman et. al., 1990; Yost, 2000). This investigation recognizes that, as with any skill, there are those who possess greater aptitude or predisposition for reflection. For these reasons, the current study addresses both reflective aptitude and reflective achievement through the use of multiple measures of reflective practice.

Literature concerning reflective practice also addresses the impact of professional experience on one's ability to engage in the activity. Critical analysis of teaching decisions is cited as the ultimate goal of reflective practice within teacher education. The literature largely supports the idea that professional experience is a necessary prerequisite for critical analysis (Berliner, 1988; Colton & Sparks-Langer, 1993; Draper,
Research in music teaching effectiveness can be grouped under three large headings - presage research, product research, and process research. Presage research addresses all the qualities of the teacher, student, and environment that exist either prior to or outside of the person's involvement in an educational activity. Researchers (Gilliland, 1991; Medley, 1982; Teachout, 1996; Wozniak, 1990) have investigated the relationship of these variables to effective music teaching. Much of this research produced lists of teacher/student traits that are perceived to be either more or less effective in the classroom.

Product research is aimed at measuring teacher effectiveness by assessing student outcomes. Researchers agree that two factors tend to confound findings in this research. First, the method of measurement and its appropriateness for measuring what a student has learned in a particular setting is of concern (Braskamp, Brandenburg & Ory, 1986). Second, student motivation, attitude, and aptitude for learning must also be considered (Polachic, 1986). For these reasons, product determinations have not been a consideration in the current study.

Process research considers instructional effectiveness in terms of teacher behavior. The bulk of extant research in music teaching effectiveness appears to be classified under this heading. Much of this research is aimed at either producing lists of effective teacher behaviors or considering a single teaching behavior's effect on teaching and learning in the classroom. Three behaviors or collections of behaviors appear to have been the focus of a significant amount of research in music teacher effectiveness -- teacher intensity (Cassidy, 1990; Madsen, Standley, & Cassidy, 1989; Yarbrough, 1975) the Instructional Effectiveness Cycle (Sang, 1983), and teaching cycles (Yarbrough & Price, 1989).

Research concerning the relationship of reflective practice to teaching effectiveness is limited. With the widespread claims that reflective practice is a necessary element for effective teaching, this is alarming. Some researchers have investigated the structure of reflection and its effect on teachers' instruction (Dieker, 1994; Freiberg & Waxman, 1990; Kruse, 1997). Others have examined the effect of external factors on teacher reflection and teacher effectiveness (Bourget, 1999; Calliouet, 1998; Norlander-Case et. al., 1999). Few have previously examined the correlation between engagement in reflective practice and teaching effectiveness (Kirby, 1987; Rogers, 1996). There are still fewer who have examined the relationship of reflective practice with effective music
teaching. There appears to be no previous research that considers both reflective aptitude and engagement in reflective practice as separate elements. Thus, while the current study finds its roots in previous research, new ideas have been introduced to the field through this investigation.

Theoretical foundations for the constructs in the current study were established from previous research. LaBoskey (1994) postulated in her theory of spontaneous reflectivity that every teacher has a baseline for unassisted reflectivity. This theory established the framework for defining reflective aptitude in the current study. Her Survey of Unassisted Reflectivity provided a reliable means to measure this construct. Argyris and Schön (1974) theorized that reflective practice operates in three dimensions they termed diagnosis, testing, and personal causation. These established the framework for Kirby and Teddlie's (1989) development of the Reflective Teaching Instrument. This instrument and the research surrounding its development established the means to define and measure teachers' engagement in reflective practice. Finally, Hamman and Baker's (1995) research in music teacher effectiveness lead to the development of the Survey of Teaching Effectiveness. This instrument provided the means to define and measure music teacher effectiveness more reliably. The combination of these three constructs and their measures provides a fresh framework for an investigation into the relationship between reflective practice and music teaching effectiveness.

METHODOLOGY

Subjects were fifty (50) instrumental music teachers with one-half to twenty-eight years of teaching experience. Instructional experiences within the sample ranged from beginning instrumental instruction at the sixth grade level to conducting collegiate ensembles. To measure their reflective aptitude and self-reported engagement in reflective practice, all subjects completed the LaBoskey Survey of Unassisted Reflectivity (LSUR) and the Reflective Teaching Instrument (RTI). Additionally, each subject was videotaped during a ten-minute segment of a typical rehearsal. Using the Survey of Teaching Effectiveness (STE), these tapes were evaluated by a team of three adjudicators and a single music teaching effectiveness score was assigned to each subject.

A Pearson's Product-Moment Correlation procedure was used to determine if scores on the LSUR and RTI were significantly related. A multiple regression procedure was used to determine if reflective apti-
Attitude, engagement in reflective practice, and/or years of teaching experience were significant \( (p \leq .05) \) predictors to music teaching effectiveness as measured by STE scores. Subjects' LSUR scores, total RTI scores, years of teaching experience, and all possible interactions between these data were treated as the independent or predictor variables, while their scores on the STE were treated as the dependent or criterion variable.

An additional multiple regression procedure was used to determine if any of the sub-scales (Diagnosis, Testing, and Personal Causation) of the RTI were significant \( (p \leq .05) \) predictors of music teaching effectiveness. Subjects' three sub-scale scores on the RTI, years of teaching experience and all interactions between these data were treated as the independent or predictor variables, and their scores on the STE were treated as the dependent or criterion variable.

Within each of the multiple regression procedures data were analyzed in total, and stratified across three experience levels; novice, those with .5-4 years \( (n = 16) \), experienced, those with 5-14 years \( (n = 14) \), and career teachers, those with 15 years and beyond, \( (n = 20) \).

**RESULTS**

Results of the analyses revealed that scores on the LSUR and RTI were not significantly \( (r \leq .05) \) correlated with one another, and that multi-collinearity did not exist between these two instruments. As a result of multiple regression analysis, reflective aptitude and years of teaching experience were found to be significant \( (p \leq .05) \) predictors of music teaching effectiveness. The same analysis failed to find teachers' self-reported engagement in reflective practice a significant predictor of music teaching effectiveness (see Table 1). Further multiple regression analysis of the sub-scales of the RTI concerning the three dimensions of reflective practice combined with teaching experience did reveal that a teacher's belief in personal causation and years of experience are significant \( (p \leq .05) \) predictors of music teaching effectiveness (see Table 2).

Analysis of the stratified data revealed that reflective aptitude was a significant \( (p \leq .05) \) predictor of music teaching effectiveness across all three teaching experience levels. Analysis of the Simple Slopes for reflective aptitude at each of the levels revealed that the direction of the relationship changes. At the novice level, reflective aptitude is found to be a significant positive predictor \( (b = .14, p \leq .0001) \) of music teacher effectiveness, while at the career level reflective aptitude is a significant negative predictor \( (b = -.16, p \leq .0001) \) of music teacher effectiveness.
Additionally, teachers' belief in personal causation was found to be a significant \((p < .05)\) positive predictor of music teaching effectiveness at the novice level.

Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>BETA</th>
<th>St. Err. of BETA</th>
<th>B</th>
<th>St. Err. of B</th>
<th>t(42)</th>
<th>p-level</th>
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</thead>
<tbody>
<tr>
<td>LSUR</td>
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<td>.20</td>
<td>.16</td>
<td>.09</td>
<td>1.66</td>
<td>.10</td>
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<tr>
<td>RTI</td>
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<td>-.002</td>
<td>.09</td>
<td>-.02</td>
<td>.97</td>
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<tr>
<td>EXP</td>
<td>-.92</td>
<td>.98</td>
<td>-.73</td>
<td>.78</td>
<td>-.94</td>
<td>.35</td>
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<tr>
<td>LSUR/EXP</td>
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<td>.20</td>
<td>-.01</td>
<td>.005</td>
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<td>.009</td>
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<tr>
<td>RTI/EXP</td>
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<td>1.01</td>
<td>.01</td>
<td>.01</td>
<td>1.43</td>
<td>.15</td>
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</table>

Regression Weights for Multiple Regression

Table 2

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<th>B</th>
<th>St. Err. of B</th>
<th>t(43)</th>
<th>p-level</th>
</tr>
</thead>
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<td>Diagnostic</td>
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<td>-.45</td>
<td>.33</td>
<td>-1.3</td>
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</tr>
<tr>
<td>Testing</td>
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<td>.17</td>
<td>-.23</td>
<td>.25</td>
<td>-.93</td>
<td>.35</td>
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<tr>
<td>Personal Causation</td>
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<td>.18</td>
<td>.84</td>
<td>.27</td>
<td>3.1</td>
<td>.003</td>
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<tr>
<td>Teaching Experience</td>
<td>.35</td>
<td>.13</td>
<td>.27</td>
<td>.10</td>
<td>2.6</td>
<td>.01</td>
</tr>
</tbody>
</table>

Regression Weights for Sub-scales Multiple Regression

The Relationship of Reflective Aptitude to Engagement in Reflective Practice

The concept of reflective aptitude is not widely recognized in the literature. There is support, however, for the notion that routine action and reflective action are in opposition of each other (Goodman, 1984; Kelly, 1993; Kirby & Teddlie, 1989; Schön, 1983, 1987; Van Manen, 1977; Zeichner & Liston, 1987; Zimper & Howey, 1987), and that it is desirable
for professionals to move away from routine action toward reflective action. Defining what such action entails is difficult. Within the wide range of thoughts about reflection, there appears to be the common belief that all professionals have the same aptitude for reflection. It seems that most assume that reflective ability, or at least engagement in reflective activity, will occur in a similar manner for all professionals.

LaBoskey (1994) noted, however, that achievement of any goals within reflective teacher education is first dependent upon what the prospective teacher brings to the experience. She contends that different levels of unassisted reflectivity exist within any population and that these levels can be measured. Her concept of unassisted reflectivity is founded on the idea that there exists a baseline for reflective ability within each person. This baseline differs from person to person and is normally distributed. By assessing teachers' spontaneous responses to certain questions, one can measure their reflective aptitude. Findings from her study indicated that regardless of the levels of engagement in reflective practice, teachers with low aptitude for reflection did not achieve the same classroom results as those with a high aptitude for reflection.

Implications for music teacher education point to the need to assess students' aptitude for reflection. Additionally, there may be a need to offer an assortment of reflective activities within the music teacher education curriculum to meet the differing needs of students. Most importantly, music teacher educators should not assume that engagement in reflective practice is an indicator of reflective ability. As the current study indicates, such a relationship cannot be substantiated.

Predictors of Music Teacher Effectiveness

Results from the current study appear to indicate that pre-service music teacher education programs need to move beyond simply providing instruction within a reflective practice model and help students make meaningful connections between engagements in reflection and their relationship to music teaching effectiveness. Findings support research that claims the key to effective self-reporting of reflective practice lies in providing teachers with an accurate reflective model for measuring their own teaching (Freibug & Waxman, 1990). This should be a primary goal of music teacher education and a driving force within curricular planning.

The significant predictability found in the interaction of reflective aptitude and teaching experience toward music teaching effectiveness supports claims that some predisposition toward reflection may
Affect how teachers view and/or use the information they gather from experience (Bouget, 1999). Of particular interest to the current study was how this interaction changed over years of teaching experience.

There are several possible explanations for this relationship. One must first consider that the majority of teacher education programs in the country claim to view the education of reflective practitioners as a goal (Norlander-Case, Regan & Case, 1999). Hence, a large constituent of current pre-service teacher education is focused in a reflective practice paradigm. Previous research indicates that this trend also exists in music teacher education as many music schools in the United States include a number of instructional designs that are reflective in nature (Raiber, 2000). Hence, young music teachers exit their educational institutions with substantial exposure to reflective practice. Application of reflective practice to direct classroom instruction is strongly reinforced during student/intern teaching as university supervisors advocate such endeavors. Support for this practice is advanced by claims that student teachers trained in a reflective paradigm make more progress in areas of teaching effectiveness than those not trained in such a model (Freiberg & Waxman, 1990). Considering this climate, it may come as little surprise that novice teachers' reflective aptitude has a positive relationship to their music teaching effectiveness.

Of greater concern is the tendency of the sample toward a more negative relationship between reflective aptitude and music teaching effectiveness as years of experience increase. It is particularly important to note that the relationship remains statistically significant across all experience levels, but the direction of the relationship is reversed from novice to career teachers.

One possible explanation for such a relationship may be found in the culture of the schools. For a number of reasons, the common school climate is not conducive to reflective practice. Engagement in reflective practice requires one to be capable of self-assessment and to trust those evaluations. Previous research contends that due to the lack of time afforded to most practicing classroom teachers, such evaluation is difficult (Calliouet, 1998; LaBoskey, 1989). Lack of action may be viewed as a weakness in the teacher's ability to meet the immediate needs of the students. Hence, there is little support from administration or colleagues for reflective action in the practicing classroom. Reflection as a professional behavior is dependent upon administrators' influence, colleagues' influence, and even by parents' influence on the teacher (Calliouet, 1998). In place of reflective practice, teachers tend to feel obligated to support the
existing learning environment and practice in use without question. Questioning of practice may be seen by some educators as a challenge to their professional abilities. Such behavior is undoubtedly responsible for the continuation of less reflective teaching habits as teachers progress through their years of experience.

Norlander-Case, Reagan, and Case (1999) claim that the entire process of formal teacher evaluation is a primary contributor to the lack of reflection at the higher levels of teaching experience. As the majority of teacher evaluations performed in the classroom are summative in nature and based on immediate product rather than developmental process, there appears to be little encouragement for teachers to change practice or become more reflective. Reflection requires teachers to be risk takers and to experiment with different instruction in the classroom. Such behavior is not rewarded by most classroom evaluation systems. Since these evaluations are most often connected to employment, teachers tend to work toward the goals of these evaluations rather than the goals of reflective practice.

Another explanation may be found in the lack of change that occurs in many teaching settings over years of practice. As teachers add to their experience, they develop ways to perform certain tasks that are repeated over time (Berliner, 1986; Brand, 1986; Cassidy, 1990; Erbes, 1983). Berliner (1986) states that the development of these schemata are what sets the expert teacher apart from the others. Schemata allow the teacher to make quick decisions based upon past experience. Additionally, they provide a comfort level for teachers as they engage in instructional activities that are familiar. Thus, the expert teacher is viewed as one who acts with great dispatch; whose actions are not the products of a thought process unique to the situation. It appears that the less one engages in reflective activity, the more likely he or she is to be viewed as an expert. Findings in the current study support this conjecture.

Further discussion of the data analysis requires that attentions move away from the varied definitions of reflective practice and focus on the definitions of music teaching effectiveness. Most models of effective music instruction are based upon an efficiency archetype that assumes that more efficient instruction is more effective instruction. Much of this research has resulted in lists of effective teacher behaviors (Madsen, Standley & Cassidy, 1989; Taebel, 1990). Evaluations of teaching based upon these lists may make valid assessments of delivery skills and management issues, but in light of the current findings, one must question if
these are the only elements worthy of consideration in music teaching effectiveness.

Likewise, analysis of the current data brings into question the scale used to measure music teaching effectiveness in the current study. The Survey of Teaching Effectiveness (STE) (Hamann & Baker, 1995) was selected for use in the current study based upon the assumption that teacher behavior was the most appropriate determinant of music teaching effectiveness. While an analysis of the STE does not reveal any direct instructions that equate efficiency with effectiveness, there are no subheadings that would reward behaviors aimed at experimentation. In fact, of the two subcategories - lesson delivery skills or planning and presentation of lesson - only planning suggests reflective activity. Based upon the findings of the current study, it may be necessary to consider reflective activity as part of music teacher effectiveness. It is important to note that this researcher does not advocate the elimination or replacement of delivery or presentational skills with more reflective counterparts. Rather, reflective alternatives such as recognition of the ability to reframe problems and experiment with possible solutions should be included alongside the current criteria.

The negative slope discovered for the relationship of reflective aptitude to music teaching effectiveness at the career teacher level may be a product of evaluating teaching entirely in terms of the efficient use of presentation/delivery skills. Reflective teaching and learning is rarely efficient. It is time consuming and requires its applicants to discover or create new knowledge based upon past experience. The journey through discovery is often not the most direct route to a given destination. For the career teacher, the experience is richer and carries more meaning. This may explain why reflective career teachers set problems differently and why the process of reflection takes time. Hence, those career teachers that act quickly and deliberate only minimally concerning teaching decisions may be less reflective, but may be scored as more effective teachers due to the efficiency of their instruction. Teachers who create unique educational environments and experiment with new learning may not score as high in an evaluation solely focused on measurements of teaching efficiency. Should this be the case, it is most likely that the less reflective teacher would score higher on a measure of music teaching effectiveness. Given the design of the STE, this may be the case for the current study.
Belief in Personal Causation and
Music Teaching Effectiveness

For practitioners to engage meaningfully in reflective practice, they must have the courage to change and challenge the status quo (Palmer, Burns & Bulman, 1994). While there are environmental factors that contribute to one's ability to engage in change, much of this behavior may be motivated through personal belief. Should teachers believe their unique and personal actions have an affect on student learning, they may be less likely to accept ungrounded action as motivation for professional behavior (Calliouet, 1998; Kirby & Teddlie, 1989; Kruse, 1997; LaBoskey, 1994). Further, they may be more likely to question current practice such that they will suggest and implement changes. Hence, belief in personal causation may have significant impact on instruction and may be directly linked to teachers' abilities to engage in reflective practice.

The implications of this result are clear for music teacher education. Activities that enhance young educators' views of themselves as teachers are essential to the development of reflective practitioners who are more effective music teachers. These activities need to be such that teacher confidence is built and ownership of the classroom is reinforced. Young educators engaged in these activities must have the opportunity to question ungrounded techniques or procedures and discover ways in which their unique personal actions can enhance learning. These activities should aid the development of teacher autonomy and further teachers' ability to affect learning and motivational behavior through personal decision making that is based upon experience. Hence, young educators will make meaningful strides toward effective teaching and professional behavior.

Considering the previous implications, analysis of the stratified data is somewhat alarming. That the personal causation sub-scale was found to be a significant predictor only at the novice level is distressing. This finding is similar, however, to Beck's (1997) concession that less experienced teachers produced some of the more successful reflections in her study of a teacher collaboration work group. She speculates that reflective ability may be more a result of individual characteristics than teaching experience.

Support for this speculation may be found within the current study, considering that the personal causation sub-scale was found to be
a significant predictor in the multiple regression models examining these data. Further examination reveals that significance of this sub-scale is somewhat weaker when considered in combination with teaching experience. Thus, professional maturity may not guarantee enhancement of teachers' beliefs in personal causation. In this context, current data may support the need for activities aimed at enhancing the personal traits necessary to stimulate teachers' belief in personal causation at the pre-service level.

Consideration must also be given to the statistical power analysis of the stratified data. As noted, the findings at the experienced ($p = .09$) and career ($p = .07$) levels were not significant according to the defined research parameters. These data do show, however, a tendency toward some kind of relationship. Analysis revealed a very low power of .24 at the experienced teaching level and .35 at the career teaching level. These results indicate that with an increased sample size, reports may be different. It is the current researcher's conjecture that based upon previous findings and theoretical understanding of the literature, an augmentation in sample size would increase the predictive significance of the personal causation sub-scale across all experience levels.

**Limitations and Implications for Future Research**

A number of limitations were evident in the study. Sample size ($n = 50$) was limited and, as noted, had a detrimental effect on the statistical power when data were stratified. A larger sample that was equally stratified across all experience levels would strengthen the statistical power of the entire study.

The Survey of Teacher Effectiveness (STE) was originally viewed as a valid instrument to measure music teaching effectiveness. After examining the results of the current data analysis, there may be evidence that this judgment was in error. While the STE has been proven to be a valid instrument when measuring delivery/presentation skills tied to music teacher effectiveness, it may not be valid when measuring the reflective elements of effective music teaching. Evidence from the current study suggests that reflective aptitude is predictive of music teacher effectiveness in the present sample. Many reflective behaviors, however, are in direct opposition to behaviors that have been traditionally viewed as indicating effective music teaching. This dialectic behavioral relationship was not accounted for in the current study.

It would be beneficial to design a music teaching effectiveness
instrument that could account for a teacher's delivery skills, subject matter knowledge, and reflective ability. Based on the current findings, reflective ability would need to account for a teacher's reflective aptitude and engagement in reflective activities in the classroom. Additional study also needs to investigate the reflective activity of students in relation to the reflective aptitude and demonstrated reflective ability of the teacher. A collateral measure of student outcomes could be useful in determining instructional effectiveness if used in combination with an instructor-centered instrument aimed at measuring all three groups of teacher traits previously mentioned. Combined with data concerning student's reflective activity, the relationship between reflective activity and student learning may be investigated.

While videotape analysis of teaching has been a common practice, it may limit evaluators' abilities to appraise teaching ability. Differences in recording equipment and differences in the availability of such equipment between subjects may also account for some of the differences in music teaching effectiveness scores. Some subjects may be able to choose their teaching example from a collection of high quality recordings while others may only have one chance to record a session with limited equipment. These differences were explained to the adjudication team when they viewed the videos, but may still have an effect on the scoring. Future studies should include multiple teaching videos for each subject. Tapes made on multiple random visits to the classroom when subjects do not have previous knowledge which sessions will be taped may prove useful as well. Semi-structured interviews during a video review of one session with each teacher in the study could provide information concerning teacher thought and intention. These data may provide connections between reflection-in-action and effective teaching behavior.

The current findings concerning a teacher's belief in personal causation and effective teaching behaviors should be investigated further. It is this researcher's opinion that a relationship between belief in personal causation and occupational role development exists. A study investigating the correlation between role development stages of pre-service teachers and their belief in personal causation could further the findings of the current research and provide useful information for teacher educators.

Broadening definitions of music teaching effectiveness to acknowledge reflective elements may be viewed by some as a bold step. The current research appears, however, to endorse such an endeavor and
may further support some substantial changes in music teacher education. While additional investigation is needed, it is apparent that reflective aptitude, engagement in reflective practice, and teachers' beliefs in their personal affect on student learning should be afforded a central role in the development of effective music educators.

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