

2025

Choral conductor perceptions of ensemble success and failure: an application of dimensional attribution theory

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BOSTON UNIVERSITY
COLLEGE OF FINE ARTS

Dissertation

**CHORAL CONDUCTOR PERCEPTIONS
OF ENSEMBLE SUCCESS AND FAILURE:
AN APPLICATION OF DIMENSIONAL ATTRIBUTION THEORY**

by

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Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Musical Arts

2025

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ACKNOWLEDGEMENTS

The dissertation committee has dedicated time and expertise toward helping me rationalize and more clearly articulate facets of the present study. Your patience and guidance throughout this journey have been invaluable, and I thank you for continuing to be passionate educators and researchers. My gratitude is also extended to those (confidential) music educators who volunteered during the pilot phase of my questionnaire for providing useful feedback. To Dr. Bernard Weiner: Thank you for taking the time to explain your academic work to me in the early stages of my research and for offering insights toward potential directions in attribution research. To the personnel at the College Music Society (CMS), American Choral Directors Association (ACDA), and National Association for Music Education (NAfME): I am grateful for your assistance in facilitating the collection phase of this research. An abundant thanks is extended toward the statisticians affiliated with the Master of Science in Statistical Practice (MSSP) program at Boston University: Mingrui Du, Yueqi Jin, and Yan Wang; thank you for your expertise in statistical analyses. Endless gratitude is extended to my spouse, Kimiko, for providing boundless encouragement through multiple life changes. Thank you endearingly to Patricia Wittkopp for your wisdom as a scholar and empathetic supporter.

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ABSTRACT

Attribution theory literature provides various ways to discuss the relationships between success or failure and the reasons perceived to be responsible for an outcome. This study is based on Weiner's (1986) attribution theory of achievement motivation and explores the attributions of choral ensemble performances made by choral directors who work in academic settings. The aims of this research were to determine whether participants' own successful performances are attributed differently from those they consider unsuccessful and to determine the relationships between attribution responses and personal or work-related differences. An online survey was distributed to collect choral directors' responses. Participants were asked about their degree backgrounds, the number of years at their current institutions, how many choral ensemble classes they conducted, the size of their institutions' choral programs, the grade levels of students with whom they worked, whether their institutions were public or private, and demographic self-identifications. The second part of the questionnaire prompted participants to recall their most and least successful choral performances in recent history, then to rate their beliefs regarding 12 statements along a 9-point scale based on

McAuley et al.'s (1992) Revised Causal Dimension Scale (CDSII). The statements corresponded to four subscales: locus, internal controllability, external controllability, and stability of the cause they believed most responsible for each prompt. A sample of $N = 167$ choral directors completed the questionnaire. The sample included choral directors in elementary, secondary, post-secondary, and multiple settings. Reliability testing was particularly poor on one stability test item, which was removed from subsequent analyses.

Testing consisted of both parametric and non-parametric tests when applicable. Results from paired Wilcoxon and t-tests both revealed that participants significantly rated attributions of successful and unsuccessful performances differently on three subscales: locus, internal control, and stability. Among the personal and vocational questions, Pearson's correlation revealed that years at institution negatively correlated with internal control with both success ($R = -.220$) and failure ($R = -.227$). The size of choral program was also related to internal control with success according to Spearman's rho ($\rho = -.155$). External control with success was also related to level of teaching via Welch's one-way ANOVA ($F = 3.678$) and related to public versus private school via independent samples t-test ($t = -2.513$). Finally, stability with failure significantly varied according to both gender ($t = 1.982$) and race ($t = 02.474$). Linear regression was initially used to test which variables could predict each subscale score, but no model produced sufficient R^2 values. After converting subscale totals to Z-statistics and reorganizing them into ordinal quartiles, ordinal logistic regression (OLR) produced three modest but statistically significant models for locus with success, external control with success, and

external control with failure. Alternatively, generalized linear mixed-effect model (GLMM) regression indicate at least one variable as predictive of each dimension for both success and failure. Private versus public institution, level of student taught, size of choral program, and number of ensembles appeared to predict more than one subscale. Limitations and concerns with the instrument and data are subsequently addressed. Discussion includes implications for how choral ensemble leaders might more intentionally reconsider the possible reasons for their own performance disappointments and how they convey those reasons to others. Results may additionally help those who serve in mentorship or adjudication capacities. Directions for future research are also offered.

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CHAPTER I

ATTRIBUTION OF MUSICAL OUTCOMES

Moments of perceived success and failure are ubiquitous among musicians. A conductor might view an ensemble's particular performance as subpar and frustrating but find that another has delightedly surpassed expectation. Following an important performance, it is perhaps only natural to associate the perceived result to a specific cause (e.g., "few of the singers are strong music readers" or "my health interfered with my ability to rehearse as much as was needed"). Attribution theorists have sought to articulate the causes a person ascribes to meaningful outcomes. Such explanations are not necessarily meant to determine whether such attributed causes are objectively or democratically determined to be true; rather, "attribution theorists are concerned with perceptions of causality, or the perceived reasons for a particular event's occurrence" (Weiner, 1980, p. 280). Theoretical perspectives on attribution vary, as scholars have presented differing conceptualizations of related phenomena. Bernard Weiner's contributions have been widely influential, especially his two- (1974) and three-dimensional (1986) models of achievement attribution. The latter, which serves as the cornerstone framework for this study, outlines the differences among possible perceived causes using three dimensions—locus, stability, and controllability—and how differences in each dimension may contribute to differing affective and behavioral effects. Weiner's three-dimensional model is more thoroughly explored in the following section.

Attribution Theory has a long history of scholarship across multiple disciplines. Music education researchers have provided notable contributions toward attributions of

musical achievement—predominantly among students rather than educators. The present study not only emphasizes the attributions of choral educators, but it also utilizes participant classification of attributions rather than predetermined or researcher-coded categories, which is more thoroughly discussed in Chapter 2. In many of these studies (Asmus, 1985; Legette, 1998, 2012; Schmidt, 1995), ability and effort tended to be significantly related to perceived student achievement, though others have reported other causes including classroom environment (Legette, 2012) and practice strategies (Dick, 2006).

Previous music studies have collectively shed light on individuals' attributions of musical success; at the time of the present study, however, guidance as to the conductor's attributions of an ensemble's individual performance remains to be explored.

Additionally, many previous music attribution studies have emphasized generalized music success rather than event-specific success or failure. Specificity is an important requisite of Weiner's (1986) work on achievement and motivation, as the attributions of specific and important outcomes are theoretically linked to particular consequences, which can include emotions (e.g., guilt, hopelessness) as well as changes in expectancy of future success. This process appears to be distinct from (though logically related to) a person's generalized beliefs about achievement.

Concepts in Attribution Theory

Attribution literature includes specific vocabulary relevant to the present study, which I present below. Scholars typically describe attributed causes either by their categorical designation or by their dimensional properties. Four *a priori* categories of

causes were asserted by Heider (1958): (a) *luck*, (b) *ability*, (c) [task] *difficulty*, and (d) exertion [or *effort*]. There is methodological value in categorical organization in that it allows for generalizability among disparate contexts. For example, a runner's physical conditioning and a singer's sight-reading prowess can both be referred to as "ability" attributions. These four categories are ubiquitous in attribution literature, although the list of categories appears to be malleable to many researchers. Some including Cooper and Burger (1980) have expanded their list to include causes such as mood or attitude, whereas others (Burger et al., 1982) have argued for subcategorization, such as stable versus temporary effort. In music studies (Austin & Vispoel, 1992, 1998; Schatt, 2011), possible causes have also included categories such as strategy and teacher or peer influence.

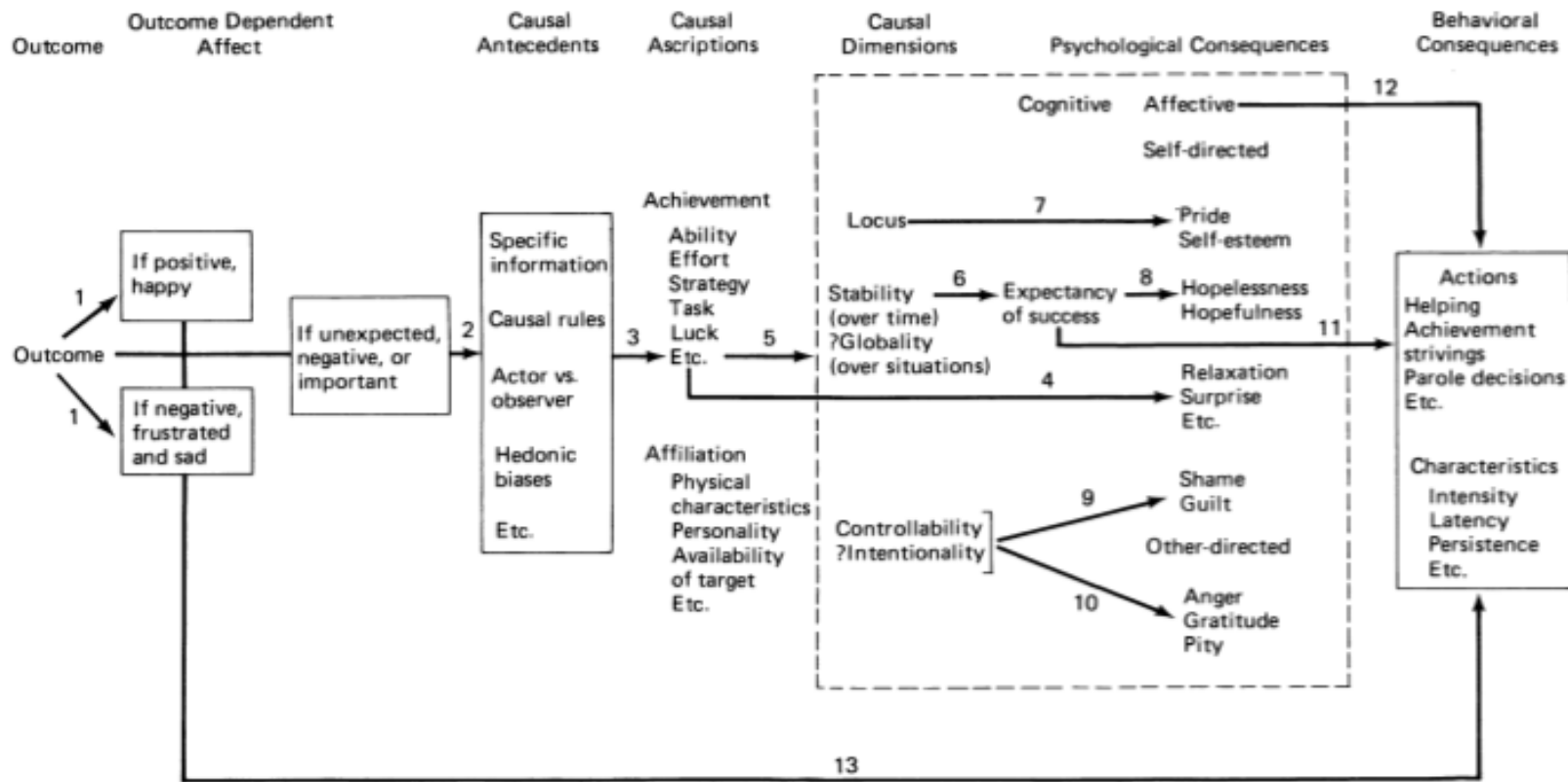
Regardless of the exact list, both specific and broader categorical causes can also be differentiated according to their dimensional characteristics. Dimensions are useful to describe attributed causes, particularly in achievement contexts in which the outcome is aversive, novel, or important (Weiner, 1986). *Locus of control* (LOC) is said to be internal when an outcome is perceived to be dependent upon some action or characteristic of the individual; an external LOC implies that the believed cause is related to features such as environment, luck, or the influence of others. The *stability* dimension describes whether a cause is constant. *Controllability*, which appears in Weiner's (1986) three-dimensional model, describes whether the individual believes anything can be done about the cause. Other scholars such as Kelley and Michela (1980) have suggested that dimensions such as *globality* (whether a cause is present in other situations) and

intentionality (whether a cause deliberately exists) are potentially useful additional dimensions (Kelley & Michela, 1980). I have utilized the three from Weiner's model for the present study—locus, stability, and controllability—because of their direct relationships with cognitive and emotional consequences following achievement outcomes (Figure 1) and because of the theoretical and empirical support for these relationships offered by Weiner.

The terms *actor* (the individual who personally experiences an event) and *observer* (the individual whose experience is from a third-person perspective) are found in many attribution sources. Jones and Nisbett (1972) asserted a general actor–observer effect, in which “actors tend to attribute the causes of their behavior to stimuli inherent in the situation, while observers tend to attribute behavior to stable dispositions of the actor” (p. 93). According to Kelley (1972a), observers' attributions can differ depending on whether they perceive that another cause is plausible. Without knowledge about the actor and the context, the observer only has their own experiences and previous comparable experiences from which to draw, whereas the actor has access to a wealth of incident-specific information that is likely unavailable to the observer. For the purposes of the present study, *actor* refers to the choral director who has led the ensemble whose performance outcome is attributed, whereas the observer can refer to any other individual but most often references the researcher.

Figure 1

Three-dimensional Attributional Theory of Motivation and Emotion



Note: An attributional theory of motivation and emotion. From *An Attributional Theory of Motivation and Emotion* (p. 16), by B. Weiner, 1986, Springer-Verlag. Copyright 1986 by Bernard Weiner. Reprinted with permission.

Individuals may give different reasons for their own successes and failures in part due to cognitive biases. Perhaps the most prominent bias related to attribution is the *self-serving* or *hedonic bias*, in which an individual associates one's own failures with external causes and successes to internal ones (Miller & Ross, 1975). According to Weiner (1986), the hedonic tendency is partially related to "ego-enhancing and ego-defensive motivational factors" (p. 228). Emotions such as guilt and revulsion can also affect the profundity of the consequence (Coleman, 2011). There is theoretical and empirical support for this pattern (Bradley, 1978), but there may be instances in which attributions are not self-serving. Low self-esteem, for example, might impact the degree to which a person attributes negative outcomes internally (Fitch, 1970), or self-efficacy may have an influencing role (Stajkovic & Sommer, 2007). Additionally, an individual may sometimes cite attributions that serve as counterdefense in a specific situation (Bradley, 1978, p. 69); for example, a public figure may admit personal responsibility rather than blame circumstances to preserve public image. Attributions may also be influenced by many other factors, including culture (Choi et al., 1999; Martinko & Douglas, 1999; Pilati et al., 2015), race (Ben-Porath & Shaker, 2010; Khan & Liu, 2008; van Laar & Weiner, 1998; Weiner & Peter, 1973), gender (Sczesny & Stahlberg, 2002; Weiner, 1986), and age (Ferris et al., 1985). Though this list is far from exhaustive (Martinko et al., 2007), such demographic factors could play a role in influencing the attributions of music leaders.

Purpose of Study

The concepts described in the above section are relevant within any number of achievement contexts, including those involving choral performances and the ensemble leaders. Still, there appears to be a gap in attribution literature involving this specific population. As mentioned above and explored extensively in the following chapter, researchers have investigated attribution-related questions among musicians. However, such studies generally focus on students or performers rather than conductors, and the aims of many of these studies often do not involve responses to real, specific music performances. Additionally, factors about the ensemble leaders themselves—such as demographics and unique aspects about the work environment of a school choir director—may have some impact on how individuals attribute choral success and failure.

Attribution Theory helps to explain the processes by which individuals ascribe specific causes responsible for an event or behavior. In applying Weiner's (1986) model, the causes a choral director associates with a negative or otherwise impactful performance outcome are related to potentially unpleasant emotions and can furthermore have an impact on the director's motivation and expectancy for future success. After all, if a director does not believe the reasons for a poor performance can be changed, the believed likelihood for future success or even gradual improvement might understandably be bleak and disheartening. Subsequently, such an outlook might eclipse the potential joy of learning and exploring music for both the director and the student musicians and could understandably negatively impact instruction, interaction with students, work satisfaction, and more.

The purpose of this study is to explore choral directors' perceived attributions of successful and unsuccessful performances to determine whether dimensional scores derived from participant responses are related to performance outcome, vocational context, or demographic factors. Participants who conduct in an assortment of school music programs will be asked to reflect upon the most and least successful ensemble performances they have conducted. Utilizing Weiner's (1986) three-dimensional model as related to achievement motivation, I will address the following research questions:

1. Are there significant differences in how choral directors in educational settings attribute their successful and unsuccessful performances, as measured by dimensional scores?
2. Are any differences in attributional scores correlated with vocational details and/or personal differences of directors?
3. Can differences in performance outcome, vocational details, and/or personal differences be used to predict dimensional scores?

Context

The context of the proposed study differs from previous music attribution studies, which have predominantly emphasized students' attributions of non-specific (Legette, 1993, 1998, 2003), hypothetical (Austin & Vispoel, 1993, 1993), or personal (Vispoel & Austin, 1995) success in music. One irremovable element of ensembles is that the performance quality is dependent upon the collective efforts of many participants. In reality, the conductor makes no acoustical contribution during the performance but utilizes conducting gestures and efforts during prior rehearsals and performances. The

conductor presumably has the strongest influence on elements such as interpretation and gestural choices to evoke particular responses, yet it is perhaps unfair to argue that individual chorister contribution is negligible. This leader–member dynamic, though not explicitly represented in music attribution studies, bears relevant similarities to organizations, such as those involving attributions of managers and subordinate employees (e.g., Mitchell & Green, 1979; Salancik & Meindl, 1984; Ashkanasy & Gallois, 1994). Although many of the music studies (described in the following chapter) emphasize perceptions of students, one study by Legette (2012) provided support that ensemble directors—who arguably operate as supervisors—typically attribute ability and effort toward musical success. Studies by Staw et al. (1983) and Clapham and Schwenk (1991) indicate that in a business context, supervisors may tend to attribute organizational success internally and failures externally; similarly, one may argue that, if music students do not meet a benchmark of success, music instructors are primed to gravitate toward student-specific reasons, rather than to claim that such lack of achievement has anything to do with the instructor (e.g., instructional pedagogy, quality of instruction, etc.). Based on works such as that of Bettman and Weitz (1983), the application of dimensions appears to be useful to describe leaders’ attributions of corporate performance, even so far as to demonstrate hedonic bias. Likewise, conductors attribute causes for their ensembles’ performance outcomes that can plausibly indicate distinct variation in locus, stability, and controllability.

I continue to marvel at how unique the choral performance is, both from the perspective of a singer and as one who leads others from the podium. Singers collectively

execute a complex array of elements (technique, pitch, tone, diction, stage presence, etc.) with varying degrees of uniform precision. Performance quality can be difficult to quantify and is subjective to some degree, as is often evidenced by two adjudications of the same ensemble performance. The choral director presumably determines whether a performance met a standard of success, whether based on internal judgement, external feedback (e.g., applause or a rating), or some combination of determinants.

Choral directors in schools are unique in that their appraisal for how well an ensemble has done may reflect educational factors that are perhaps less salient among professional or community ensembles. Those who direct choirs in school settings presumably fulfill some combination of two functions: facilitating student learning and preparing ensembles for public performance. The rehearsal process prepares ensembles to perform specific repertoire for an upcoming performance, yet it can also involve an intentional learning component that reflects an assortment of learning objectives or standards, including those related to sight-singing, vocal technique and pedagogy, or the exploration of historical or cultural context related to repertoire. A choir director's concept of success could reasonably be impacted by the degree to which that ensemble director believes the ensemble has come to demonstrate learning. The occupational identity of music educators as both teachers *and* as musicians is supported by those such as Isbell (2008). By no means does this apply to every school choral director, as there is no reason to presume that all conductors in educational institutions have received comparable education training. Still, a conductor's professional preparation (e.g., conducting versus music education coursework) may at least partially relate to the

perceived outcome of an ensemble's performance. The present study examines the relationship between degree type and attributions to answer whether those with a music education background respond differently than those who do not.

School choir programs can differ widely for any number of reasons, some of which are logically related to performance outcomes. For example, an ensemble of less than 20 singers might be less able to execute certain repertoire than an auditioned ensemble of a large program with multiple choirs. The type of school (e.g., private versus public, two-year versus four-year college) may also impact the performance climate and the beliefs about musical success among students (Asmus, 1985; Legette, 1998, 2003). Other programs may feature other idiosyncratic, relevant factors such as those related to facilities, leadership, finances, and local culture. For the present study, I included program size, number of ensembles, grade or age level of the institution, and private versus public schools.

Significance of Study

The sections above detail the aims of the study and the uniqueness of the context to be examined through the lens of Weiner's (1986) attribution model. This specific inquiry will help to expand upon the theoretical and practical aspects of attribution theory not currently represented, but it additionally has potentially impactful and beneficial ramifications for choral practitioners. By further exploring the topic of attribution, and by bringing the conversation into the choral discipline, ensemble leaders may greatly benefit from considering alternative explanations for a performance outcome. Attribution Theory provides a framework to better articulate the believed reasons for the lack of success and

to more clearly identify whether the reasons are internal or external, stable or unstable, and controllable or uncontrollable. If reasons for a lack of achievement are changeable, a director may benefit from identifying those changeable elements. Likewise, mentor conductors can help guide mentees to identify those possible changes and to strategize accordingly.

Further investigation into the topic can better inform conversations of those who find themselves assuming responsibility for performative disappointment or those who find themselves in a new or challenging position as a choral director. Such benefits may be gained through personal reflection or even through directors' interactions with mentors or administrators. In particular, the results and implications of this study may be of profound utility to early-career directors or to those who find themselves in a seemingly futile working environment. Thus, the study serves both to contribute to the body of attribution literature by exploring an essentially unexplored aspect, and it the topic offers notable benefit to those currently directing ensembles or working with those who do.

Can a director move past the attributions presumed responsible for a disappointing performance and instead acknowledge other legitimate contributors? If the believed causes reasons are not readily changeable, the director has little reason to expect things to improve. I suggest that, although one person may attribute a single cause as chiefly responsible for an unsuccessful performance, it may be beneficial to consider other contributing factors. Other contributors might include factors related to the institution, such as the age of the students or size of the choral program. Factors related to

directors themselves, such as degree background or tenure at an institution, might also influence the way in which they perceive performance outcome.

Two or more choral directors may gravitate toward very different reasons for their ensembles' performance outcomes. One may attribute a successful performance to personal efforts rehearsing and conducting singers, while another may acknowledge the abilities of the singers and the legacy of the program as major contributing factors. In response to a disappointing performance, one may acknowledge some personal responsibility, whereas another might blame poor effort from the singers or the difficulty of the music. A *hedonic bias* (Miller & Ross, 1975) would imply that, in these situations, conductors are likely to take credit for successes and to blame negative performances on factors beyond themselves. It is likely that many conductors are not completely aware of their motivationally driven biases, making it potentially difficult to consider other causes that could lead to positive changes or could alleviate undesired consequences following unsuccessful performances.

The emotions and expectancies that are linked to attributions for success or failure influence subsequent action (Weiner, 1986). Success attributed to internal effort, for example, would likely produce a feeling of accomplishment and expectation that expending the effort was worthwhile, which may then lead a person to dedicate effort toward similar endeavors in the future. This study expands the discussion of attribution into the previously underexplored domain of ensemble performance. The methods used in the present study have not been implemented in musical contexts but have been applied to nonmusical disciplines. Additionally, the leader–member dynamic represented in

organizational studies is at least conceptually similar to the relationship between conductor and chorister, yet it is difficult to presume the extent to which music ensemble success is comparable to that of a corporation or sports team. Empirical measurement of dimensional properties has been demonstrated among other populations (e.g., McAuley et al., 1992), though the choral setting may present unique considerations for further investigation. Factors that are specific to the choral director (e.g., educational background) or the ensemble (e.g., program history) may significantly influence individual attributions; discovering such elements may help scholars to better understand some of the reasons why choral practitioners attribute choral performance outcomes as stable or unstable, for example. Such exploration can help guide choral directors to be more aware of potential factors that might prime them to attribute a performance outcome a certain way in an effort to gain a more balanced appraisal.

The study may also help conductors to differentiate between factors that they can change from those they cannot as a way of enabling positive change. It is plausible that some attributions for outcomes are less than helpful because of their associated emotions. In a study (Maymon et al., 2018) of traditional university students, participants experiencing difficulties with technology indicated that stable and external attributions were linked to maladaptive responses, such as helplessness or guilt; results differed among online students. Attributing outcomes to controllable elements rather than uncontrollable ones could help to improve the conductor's expectation of future success; this is a component of an approach known as attribution retraining (Fösterling, 1985, 1988). For conductors, attributing poor performances exclusively to causes that cannot

readily change may not be the most effective way to improve. By considering a broader spectrum of personal and situational factors, and by determining which of those factors they can change, choral directors can better focus future efforts in ways that positively impact their teaching practices and work settings. On the other hand, focusing on causes that are unchangeable or unproductive could eventually lessen a person's expectancy of future success.

An exploration of attribution among ensemble leaders can also help to create better understanding between actor (i.e., the conductor) and observer (i.e., colleagues, mentors, administrators, etc.). First- and third-person attributions can differ substantially; Jones and Nisbett (1972) asserted that, generally speaking, actors more often cited causes related to the situation, whereas observers more often associated factors specific to the individual. Through considering a broader spectrum of possible causes, choral practitioners can more fruitfully process less-than-desirable performances. It is likely impossible to be entirely immune from psychological biases and motivational factors that impact one's perspective. Still, the conductor who extends the question of "Why did this performance turn out this way?" into "Why do I see it this way?" may be more apt to look into the mirror to face a situation "warts and all." In the present study, it is worth noting that the contributing factors believed by the one on the podium may be unknown to or unacknowledged by a peer or someone in the ensemble. The one in the driver's seat, so to speak, likely possesses a more informed perspective than others in the room, it would be difficult to assert that the conductor's perception is entirely objective or comprehensive. Even if both the actor and observer are equally informed, however, one

must not presume that they would gravitate toward the same believed causes. In achievement contexts, attributions are often related to motivation and can be informed by a variety of cues and previous experiences (Weiner, 1986). Attribution Theory likely addresses only a portion of perceived performance outcomes, and as some authors have suggested (Martiko & Thomson, 1998; Eberly et al., 2011; Pekrun & Marsh, 2018), there is potential value in integrating the theory with other frameworks or bodies of literature. At the same time, the present study offers potential insight within a context previously underexplored. By considering the potentially myriad factors that account for attributional differences, dialogue can involve exploring the “other side” of dimensions (e.g., exploring both stable and unstable factors) that might otherwise be overlooked by either party. A more informed discussion between a director and administrator regarding a struggling choral program, for example, could be more fruitful toward problem-solving to benefit all parties involved.

Summary

In this section, I introduced the fundamental concept of Weiner’s (1986) three-dimensional attribution model and its application to choral performance. Rather than utilizing *a priori* categorization (e.g., effort versus task difficulty) to distinguish the causes one believes to be responsible for an outcome, this study emphasizes the dimensional properties (e.g., internal versus external control) that differentiate perceived reasons for outcomes. Perspectives of the same event can differ substantially depending on their role during the event (i.e., actor vs. observer), because of cognitive biases, and other factors specific to the individual. This study emphasizes specific rather than general

performance outcomes as consistent with the theoretical framework.

Choral directors represent a fascinating and far from monolithic population. In this study, I emphasize the perspective of the conductor of the ensemble, referencing important contributions from leader–member organizational studies on attribution. Within schools, the simultaneous roles of the conductor as both musician and educator is also worth consideration; these dual roles debatably distinguish choral educators from teachers of other disciplines and from conductors in non-scholastic contexts. School programs also vary in a multitude of ways potentially relevant to the conductor, such as geography, program history, student population, and size of the program.

I utilized this study to investigate the differences of choral conductors with respect to their attributed reasons for their ensembles' performance outcomes. Hypothetically, differences may relate to outcome (success versus failure) as well as details specific to the individual or the choral program. The results of this study may pave the way for new research in the context of group musical performance. Additionally, dimensional measurement appeared to be a useful tool to examine the results of ensemble performance and to strategically identify changeable elements to bolster motivation and expectation of future success. By learning more about how choral directors perceive success and failure, and by being more aware of the emotional and behavioral consequences of attributions for unsuccessful performances, scholars and practitioners may be better equipped to identify thoughts and responses that might more positively impact emotions and the belief that future performances can improve.

CHAPTER II

REVIEW OF LITERATURE

This literature review is presented in three parts. First, I introduce foundational attribution literature to provide the reader with an explanation of key concepts. Second, I examine the scope of music attribution studies, highlighting key differences in study design and research questions addressed by previous studies. Third, I include a body of studies from non-musical domains. Both music and non-music attribution studies support aspects of the present study's design and demonstrate the widespread applicability of attribution theory.

Foundations of Attribution Theory

Attribution is not comprehensively explained by a singular theory; rather, an attribution theory can refer to several theoretical explanations of causation (Martinko & Thomson, 1998; Weiner, 1980). "Attribution" as an umbrella term can apply to a wide range of phenomena, such as ascription of reasons for someone's behavior or the believed causes for whether someone achieves a desired outcome (the latter of which applies to my study). In the following section, I outline historical developments in attribution scholarship to provide a more comprehensive understanding of the present study's theoretical framework and concepts.

Early Contributions

Regarded as "the founder of attribution theory" (Försterling, 1988, p. 9), Heider (1958) sought to explain the processes by which people associate cause in everyday situations—a domain he referred to as "common-sense psychology" (p. 5). Causal

perception, Heider argued, may be influenced by often complex mediation. Particularly in social contexts, mediating factors can include facial expressions, attitudes, or personality traits. Perception can be phenomenological (relating to an individual's direct experience within the immediate environment), or causal (relating to analysis of relationship between object/person and percept). Although Heider discussed empirical research, the text is predominantly theoretical in nature.

Heider's (1958) depiction of cognitive processes, as described by Weiner (1974), was written during a time when psychological approaches to human behavior either gravitated toward the behaviorist's stimulus-response (S-R) or the cognitivist's stimulus-cognition-response (S-C-R)—the latter of which emphasizes cognitive processes as mediation between stimulus and response. The role of "intervening thought processes" (1974, p. 2) between stimulus and response, is what distinguishes cognitive theories from mechanistic ones such as drive theory. Heider's description of mediating factors serves as a basis for more formally systematized representations of causal attribution (i.e., Kelley, 1972a, Weiner, 1986). Whether or not someone's perception is shares consensus with others, "behavior can be accounted for by relatively stable traits of the personality or by factors within the environment" (Heider, 1958, p. 56). The cause presumed by an individual can also vary by depth; that is, those that are more observable and those that are interpreted. Heider also raised other issues that were essential to later authors, including the differentiation between personal and environmental attribution (i.e., internal versus external) and the theoretical categories of causes (luck, ability, difficulty, effort).

Heider's (1958) contributions are noted by many attribution scholars, including

Weiner (1974) and others. Rotter's (1954, 1966) work is also relevant, both to the present study and to attribution literature. The earlier work broadly addresses social learning and heavily pertains to clinical practice, although the following three ideas are related to later attribution work: (a) *behavior potential*, or the possibility that behaviors will occur and can be measured in relation to reinforcement; (b) *expectancy*, which is the perceived likelihood of a particular outcome; and (c) *reinforcement value*, or the degree to which one prefers a specific reinforcement. Rotter also developed formulae to articulate to each of these concepts and discussed empirical support related to each.

Taken together, the above tenets suggest several points to expectancy and value—two important concepts in Weiner's (1986) attribution model. First, prior results (reinforcements) can impact individuals' perception of future likelihood. Second, previous or anticipated outcomes can impact choice. Third, individuals tend to prefer certain outcomes more than others. These three premises relate to later developments, including Kelley's (1967) concept of informational cues (consistency, consensus, and distinctiveness of a behavior) and the manner in which expectancy impacts in affective consequences, expectancy shifts, and extinction/perseverance of behavior (Weiner, 1974). One of Rotter's (1966) most contributions most relevant to the present study is the concept of locus of control (LOC), developed in part from the principle of expectancy. Rotter argued that perceived locus was not binary; rather, it rested on "a continuum of internal to external control that the task and procedure will be perceived by the subjects" (1966, p. 25). This concept of LOC is reflected in the scalar measurement used in the instrument of the present study.

Another prominent figure in the development of attribution research is Harold Kelley (1967, 1972a, 1972b, 1973). Kelley is perhaps most known for providing an explanation of how information from multiple similar observations allows an individual to attribute “one of its possible causes which, over time, it covaries” (1973, p. 108). Kelley’s covariation model details how an attribution varies in its distinctiveness, consensus, and consistency. If the model were applied to a musical context, an observer may justify a supposedly terrible performance as follows: (a) Belief that this conductor’s performances in these settings are usually better would mean the event is low in consistency; (b) The idea that others in similar settings do not have performances this bad would imply high consensus; and (c) The claim that this conductor is much more successful in other situations would indicate high distinctiveness. Early empirical support for informational cues includes that of Eisen (1979) and McArthur (1972), whose results indicated that all three informational cues significantly affected participants’ attributions and subsequent expectancy.

Attributions, according to Kelley (1972b), can be somewhat formed in advance via *causal schema*, defined as “an assumed pattern of data in a complete analysis of variance framework” (p. 152). The schema essentially describes whether the absence or presence of one exclusive cause is believed to be sufficient to generate a particular effect or if a combination of causes are required (Kelley, 1973). Causal schemata allow someone an *a priori* basis from which causation might be inferred, especially when limited information is available. Their formulation results from a combination of observation, prior experimentation, and beliefs regarding causality. Interestingly, the

dispositional attributions made by observers can change depending on the actor's situational constraints or behavioral expectations, diminishing when pressure is present and augmenting when it is not (Kelley, 1972a). Schema as potential antecedents for attribution are acknowledged in Weiner's model (1974), described below.

Three-Dimensional Model

The influence of Heider (1958), Rotter (1966), and Kelley (1972a, 1972b, 1973) is evident in Weiner's (e.g., 1972a, 1972b, 1974, 1980, 1986) work, particularly concepts such as informational cues, causal schemata, and the role of reinforcement. Early in his career, Weiner noted that the application of Attribution Theory was "generally (although not exclusively) confined within social psychology" (1972b, p. 310). Over the next several decades, much of Weiner's attribution work focused on intrapersonal perception as related to motivation. His earliest model (1974) included LOC and stability dimensions and included controllability in his later version (1986, p. 16). Globality and intentionality are potentially useful dimensions (Kelley & Michela, 1980) and are included in Weiner's model accompanied by question marks, seemingly to imply that they were related to stability and controllability, respectively. Weiner (1986) argued that globality was perhaps less applicable across all situations.

..... Motivation to achieve is at the heart of Weiner's (1986) theory. As a whole, the model conveys the following: (a) aspects that contribute to attributions, (b) primary ways attributed causes can differ (i.e., dimensions), and (c) the potential consequences of attributions. The left side of the Weiner model (Figure 1) indicates whether an outcome is perceived to be positive or negative and whether the outcome has value. In essence, the

theory primarily addresses those outcomes that are (a) extraordinary rather than common, and (b) of significant importance. The issue of personal importance raises the question of how deeply a person desires one outcome over another. Kukla (1972), for example, found that those who were highly motivated to succeed more often associated expended effort with success or failure. According to Weiner (1974), the degree to which someone desires success impacts the emotional and cognitive consequences; those with high achievement needs, for instance, are more likely to “initiate achievement activities, work with heightened intensity at those tasks, and persist in the face of failure” (p. 37). Additionally, those with high achievement needs when successful generally experience heightened positive emotional states and increased expectation.

Both Weiner’s earlier (1974, p. 38) and more developed models versions appear as a flow chart to indicate directionality between previous outcomes, antecedent factors, causal attributions, and behavioral consequences. Weiner’s (1986) more recent model reflects over a decade of additional research and includes components such as reinforcement value (whether an outcome is important) as well as affective consequences of attributions (e.g., controllable attributions of negative outcomes can produce shame or guilt). Still, the model is not exhaustive, as its directional flow likely requires an acknowledgement of nuance. Emotion can also impact a person’s perception of outcome or goal attainment as well as ascribed cause (Weiner, 1986). Although the arrows are directional, Weiner asserted “that the relations between thinking, feeling, and acting are not fixed within the orderly sequence that has been advocated—the linkages are bidirectional and include recurrent feedback loops” (p. 225).

On the left side of the model, *antecedents* (those factors that are in place prior to causal association) include biases, causal schema, and informational cues. Frieze and Weiner (1971) found that attributions differed according to information that included present and past success/failure, comparison with others, details about the task, and actor–observer designation. Kukla (1972) also noted that attributions differed among those with disparate achievement needs. Weiner and Peter (1973) claimed that perceptions of achievement are also related to details such as developmental maturity and situational context (e.g., university students in school settings). Weiner’s (1986) discussion of “causal rules” and “specific information” (p. 162–163) somewhat differs from Kelley and Michela’s (1980) distinction between *supposition* of cause and *expectation* of outcome. However, both appear to have asserted that at least part of the groundwork for attribution may be in place before an event is observed and based on prior experience and presumption.

Weiner further acknowledged “a multitude of unlisted determinants of the selected attribution” (1986, p. 163). One example could be cultural differences that prime groups of people to gravitate toward dimensionally differing attributions (Ashkanasy, 2002). Another potential antecedent is the concept of attributional styles, defined as “stable, trait-like tendencies to make certain types of attributions that affect behaviors across situations” (Martinko et al., 2011, p. 145). Pertaining to the present study, I was curious whether choral directors were predisposed to gravitate toward particular kinds of causes as a result of previous experience, training, and personal differences.

The right-hand side of the model includes affective, cognitive, and behavioral consequences (Weiner, 1986). Researchers such as Riemer (1975), for example, found that in successful situations, positive affective reactions were more strongly linked to internal rather than external attributions. The Weiner model shows linkages between certain emotions and attribution dimensions (e.g., hopelessness associated with stability, guilt with controllability, etc.). The consequences for those with high motivational needs included comparably heightened emotion following success, persistence despite failure, expended effort on achievement tasks, and risk preference for tasks that are neither overly easy nor too difficult (Weiner, 1974).

A potential feedback loop from consequent to antecedent may easily be deduced, as the effects associated with causal attributions plausibly serve to strengthen or alter future attributions. Diener and Dweck (1978) suggested that attribution was potentially more likely to occur following failure rather than success. Over time, repeated failure may increase the likelihood of expected future failure. Learned helplessness is a concept initially developed through animal research by Overmier and Seligman (1967), demonstrated among human participants in a study by Hiroto and Seligman (1975), and eventually examined through an attribution lens by Abramson and colleagues (1978). The term can be thought of as an affective state resulting from repeated association between failure and lack of ability (as opposed to effort); the key distinction between these two attributions is that, while both are internal, ability is notably more stable and less controllable than effort, indicating that the individual is less likely to expect future results to change (Weiner, 1986). Dweck and Reppucci's (1973) study suggested that those who

succeed on a task after repeated failure more often attributed their successes and failures to high and low effort, respectively. In all, it would appear that people's future responses and expectations will be more persistent if they believe future results can change.

Synthesis

Martinko and Thomson (1998) found common ground between the Kelley (1972b) and Weiner (1972) models, which led them to develop a “synthesis into a single model that enables researchers to conceptualize both Kelley’s informational cues and Weiner’s attributional dimensions within the same framework” (p. 271). They noted that one key difference between the two models is that the former had been utilized largely to explain attributions regarding others’ behaviors, whereas the latter chiefly addressed self-directed attributions within achievement contexts. By integrating these two models, Martinko and Thomson provided an explanatory foundation that could apply to causal perceptions of both actor and observer. They also argued that the model is valid in that it can be used to alternatively explain previous empirical studies (e.g., Ashkanasy, 1989, 1995) and that it can apply to a wide variety of contexts.

The synthesized model (Martinko & Thomson, 1998) utilizes locus, stability, and globility (rather than controllability) dimensions (Figure 2). Consensus, they asserted, is related to the locus dimension, as more common outcomes would most likely be attributed externally, whereas unusual occurrences would be attributed to the actor. Consistency was related to the stability dimension and distinctiveness to globility. The graphic representation of this synthesis (Figure 2) is a table that references high and low levels of each informational cue; each cell in the table contains three dimensional

descriptors. If someone's choir performs worse than their usual standard and worse than choirs under other directors' direction, but the director generally performs well in other contexts—that is, low in consistency and consensus but high in distinctiveness—the attribution would likely be external, unstable, and specific (e.g., less rehearsal time than planned). Martinko and Thomson's (1998) model was based on Weiner's (1972) earlier two-dimensional work as well as dimensions used by Abramson et al. (1978). The omission of controllability stems from Martinko and Thomson's (1998) contention that "controllability does not appear to be independent of the locus of causality dimension" (p. 274). It is perhaps recalling Anderson's (1983) data that indicated intercorrelation between dimensions, to which Weiner (1986) responded that "the empirical correlation based on actual subject samples does not invalidate the conceptual distinction" (p. 69).

Figure 2

Synthesization of Kelley's and Weiner's Concepts

<i>Information Type</i>		<i>Attributional Dimensions</i>
High consensus	—	External
Low consensus	—	Internal
High consistency	—	Stable
Low consistency	—	Unstable
High distinctiveness	—	Specific
Low distinctiveness	—	Global

Note: Kelley's Informational Characteristics Paired with Weiner's Attributional Dimensions. From "A Synthesis and extension of the Weiner and Kelley Attribution Models," by M. Martinko and N. Thomson, 1998, *Basic and Applied Social Psychology*, 20(4), p. 277. Copyright 1998 by Lawrence Erlbaum Associates, Inc. Reprinted with permission.

Summary

Attribution conceptualizations generally share a common ancestry, though the nuances related to people and contexts have been studied in various ways. Approaches including those of Kelley (1972b), Weiner (1986), and Martinko and Thomson (1998) share both theoretical and empirical justification, and there are important distinctions. In applying any model, it is important to consider the phenomenon at hand (e.g., formulating a general belief versus rationalizing a failure). Identifying the specific attribution question is especially relevant in the following section.

Music Studies

Music attribution studies collectively present several common themes related to student achievement, yet they vary considerably from one another in important ways: (a) the musical context (e.g., elementary classrooms versus graduate music programs), (b) the methods used to collect, measure, and analyze data, and (c) whether the central research aims address generalized beliefs, hypothetical scenarios, or real-life music performances. These differences are explored further below. Additionally, although many of these studies featured attribution as a central concept, others only included attribution in relation to other areas of research, such as role development training (Teachout & McKoy, 2010), self-concept (Austin, 1988), goal structures (Austin, 1991; Vispoel & Austin, 1993), self-efficacy (Martin, 2012), self-regulation (Miksza, 2006), and types of feedback (Droe, 2012; Schmidt, 1995). Many of these researchers cited Weiner's (1974, 1986) work, yet it is worth clarifying that not all attribution studies address the exact same attribution phenomenon. The rich tapestry of information made possible by this

literature can help to identify which questions are still unaddressed by research.

Varied Contexts

The samples in music attribution studies represent differing musical contexts. Two studies by Austin (1988, 1991), involved middle school classrooms, whereas other research involved elementary (Droe, 2012), high school (Schmidt, 1995), and collegiate environments (Asmus, 1986a; Reimer, 1975). Researchers including Asmus (1986b) compared students across grade levels, and one by Legette (2012) focused on teachers' beliefs about student achievement in music. Students in these studies included those in instrumental ensembles (Martin, 2012), general music classes (Vispoel & Austin, 1993), or postsecondary music programs (Madsen & Goins, 2002). Comparably fewer studies represented students in other environments, such as choral (Schmidt, 1995), guitar (Legette, 1993), and education courses (Kvet & Watkins, 2003). Sampling procedures also differ, as many studies took place within a single school or district (e.g., Sandene, 1997; Schatt, 2011), whereas others compared students from separate locations (e.g., Asmus, 1985; Legette, 1998). Although a variety of educational contexts are represented in music education research, attributions of choral ensemble performance from the perspective of the conductor, remains unexplored.

The differences identified above are especially relevant when comparing findings of multiple studies, though each study takes place in a unique context. Conflicting results might be the product of any number of variables. Studies with smaller sample sizes can be useful in addressing context-specific concerns (e.g., Teachout & McKoy, 2010) or to collect qualitative data (Hurley, 1993), but such findings are not necessarily generalizable

in other music environments.

Methodological Differences

Music attribution studies are predominantly of the correlational variety, though several researchers have implemented an experimental design. One example is Riemer's (1975) early study, in which the prescribed attributions for their piano performance served as the experimental variable. Other studies include that of Austin and Vispoel (1992), Vispoel and Austin (1993), and Droe (2012); in these as well, the attribution was chosen for the participant to measure the relationships attribution category with consequent changes in performance or expectancy.

Studies can also differ by the various methods to measure or categorize attributions. One common approach is to use questionnaires that ask participants to select a choice along a scale that best corresponds to the desired answer (e.g., Likert-type, semantic differential). This kind of measurement was endorsed by Elig and Frieze (1979) by asserting its superior validity and reliability in comparison to open-ended responses.

Probably the most well-known example of attribution measurement in music research is the Music Attribution Orientation Scale (MAOS) developed by Asmus (1986b); this instrument has been utilized and/or modified by others, such as Austin and Vispoel (1992) and Legette (1993, 1998, 2003, 2012). Other approaches measuring participant attributions in music attribution literature include open-ended responses (Marlatt, 2004; Kvet & Watkins, 1993), ranking specified choices (Arnold, 1997), forced-choice responses (Asmus 1986a), and interview data (Hurley, 1993).

Even similar types of instruments can differ substantially. Madsen and Goins

(1992), for example, collected attribution-related data by using an exact or modified version of a questionnaire from previously published literature. Others might adopt a portion of a questionnaire in conjunction with other items (Schneider Grings & Hentschke, 2017). Still others have used instruments that were developed and pilot tested with a separate group to reflect the nuances within a particular setting; for example, Vispoel and Austin's (1995) study included items that distinguished effort and persistence as separate attributions. Instrument modification, combination, and pilot testing help to explain why some questionnaires include only five categories (Austin, 1991; Legette, 1993), whereas others might include eight (Vispoel & Austin, 1995) or even 11 (Schneider Grings & Hentschke, 2017). On one hand, modified measures make sense, for as Weiner (1986) stated, "The potential causes of an achievement-related outcome are infinite" (p. 37). Lord and Smith (1983) cautioned, researchers "must be careful in generalizing models of attributional processes developed in a particular context to other types of attributional questions of other situations" (p. 55). On the other hand, directly comparing two research studies can be cumbersome when attributions were not measured the same way.

Another challenge that arises in comparing music attribution sources is the difficulty encountered when classifying attributions. In Asmus' (1986b) study, for example, external judges did not agree sufficiently on how to categorize open-ended responses, which led the researcher to classify responses using locus and stability dimensions. Weiner (1983) also noted that certain causes may be interpreted differently by the participant and the researcher. For example, one party may see effort as a stable

trait, whereas the other might see it as momentary.

Asmus (1986) and others have demonstrated dimensional (rather than categorical) classification of attributions. Madsen and Goins (2022) and Miksza (2006) studied the locus dimension, and Marlatt (2004) utilized Weiner's (1986) three dimensions as well as two more: globality and intentionality (Kelley & Michela, 1980). Locus and stability dimensions seem to have the strongest empirical support, as dimensions such as controllability are sometimes contested because of their potential intercorrelation with other dimensions (Martinko & Thomson, 1998).

Measuring and classifying attributions can introduce problems in research. For example, an instrument containing Likert-type scales that correspond to five *a priori* categories (Legette, 1998) will result in data restricted to those same categories; other possible causes relevant to the situation will not be represented. Two possible solutions include adapting or modifying previously existing instruments from comparable research and pilot testing. Using open-ended responses can generate more relevant responses that arguably better reflect an individual's raw thoughts. However, accurate interpretation of someone else's response is not a guarantee. One remedy is to leave the classification up to the owner of the attribution by including self-rating scales (McAuley et al., 1992). This approach seems appropriate, because the Weiner (1986) attribution model functions on the basis of the *actor's* perception—not an observer's interpretation.

Common Questions in Music Education Research

Music attribution research has helped to explore three basic questions: (a) What do students generally believe about what causes success or failure in music or other domains? (b) What are students' attributions in hypothetical achievement situations? and (c) What causes do students ascribe to musical achievement in real-life situations? Vispoel and Austin (1995) designated these approaches using the terms dispositional, situational, and critical incident, respectively. Although the present study explores critical incident situations, the majority of music studies address general causal beliefs—which is perhaps more succinctly referred to as music attribution orientation (see Asmus, 1986b). Each kind of inquiry can be useful to music and learning, even though the essential question behind each differs considerably. Terminology such as attribution orientation, attributional style, (Martinko et al., 2011, p. 145), and causal schema (Kelley, 1972) are perhaps helpful in distinguishing between research questions in attribution studies. Still, it is perhaps more efficient to simply point out that the question, “What causes a person to be musically unsuccessful?” is fundamentally different from “Why was my last performance a failure?” The former question presumably impacts the latter, but attributions for specific real-life outcomes are further influenced by factors related to context, motivation, and biases (Russell, 1982; Weiner, 1986). The following sections present literature that explores each of these types of questions.

General Beliefs About Music. Many studies have explored the attributions generally associated with success or failure in music. There are notable differences among these studies, yet certain patterns can be seen across contexts. The most readily

observable pattern is that effort and ability frequently appear among the results; these attributions are typically considered to be internal in nature. For example, Hurley's (1993) interview data suggested that beginning strings players associated success in their program with effort. Austin's (1991) correlational study also supported the importance of effort. Other researchers reported ability and effort as the leading two attributions, including Asmus (1985), Austin (1988), Legette (1998, 2003), and Martin (2012). For achievement within a specific domain, effort and ability were reported as important for success in vocal music (Schmidt, 1995), band (Sandene, 1997), and in practice settings (Schatt, 2011). Dick's (2006) study supported these findings and included practice strategies as a significant attribution. Results from Legette (1993) and Teachout and McKoy (2010) indicated that affect for music was important in addition to effort and ability; the focus of the latter study was specific to success in teaching music. Austin and Harrison's (2012) findings, however, were different; affect for music (not effort or ability) was the most reported attribution.

Many attribution studies (e.g., Legette, 1998) utilized the same four or five categories, but three notable studies included other kinds of attributions. Austin and Vispoel's (1998) attributions included designations such as metacognition, persistence, and strategy. Results indicated that seventh-grade music students attributed personal success and failure in music quite differently. Reasons for success included teacher, peer, and family influence; but reasons for failure included family influence, ability, and luck. Another study (Marlatt, 2004) involved the coding of open-ended responses from middle school students, which indicated that musical talent, private lessons, personal

commitment, and ease of task were reasons for success. Finally, Kvet and Watkins (1993) studied elementary education majors and reported the following attributions as important for successful music teaching: (a) accommodating for individual students, (b) musical affect and ability, (c) proactive traits, and (d) external teaching-related factors.

Studies about general attribution beliefs also indicated differences in reported attributions between groups of music students. Attributions differed by both age and gender (Arnold, 1997; Asmus, 1986b; Legette, 1998, 2003). Legette (2003) noted the contrasting racial and socioeconomic makeup of the two schools in his study as potential reasons for differences in student attribution beliefs, though the suggestion was beyond the specific scope of the study. Additionally, the type of school (i.e., urban, suburban, rural, parochial) contributed to attribution variation (Asmus, 1985; Legette, 1998, 2003). Other differentiating factors included academic major among college students (Madsen & Goins, 2002), level of self-esteem (Austin, 1991), and self-perception of success (Chandler et al., 1987). Furthermore, Austin (1991) found that individual attributions before a performance differed from those reported afterward.

To date, most music attribution studies do not appear to compare success and failure when measuring general attribution. Weiner (1974, 1986) stated that positive and negative outcomes typically correlate with differentiated attributions, generally with the individual claiming more ownership of success and citing more external causes for failure (hedonic bias). Some scholars have acknowledged the distinction between attributions for success and those for failure in their research. Asmus (1985) found no difference between success and failure outcomes, though subsequent studies (Arnold, 1997; Asmus, 1986b;

Austin & Vispoel, 1998; Marlatt, 2004) supported the idea that attribution differed according to outcome.

One study (Legette, 2012) stands apart because it involved the attributions of teachers toward student achievement. In this case, the participants assumed the role of the observer, whose ascriptions would theoretically differ from those of the actor/student as described by Jones and Nisbett (1972). Teachers represented vocal, instrumental, and general music at various grade levels and in urban, rural, and suburban locations. Results indicated that, across all grade levels, subjects, and type of school, teachers cited effort for student success, followed by ability, affect for music, classroom environment, and background.

Hypothetical Scenarios. The following studies addressed attribution in relation to fictitious but specific events. The first is an experiment (Austin & Vispoel, 1992) in which the researchers depicted a scenario featuring an imaginary student who performed unsuccessfully. Middle school band students were told that he failed because of either poor strategy, low effort, or low ability. Participants believed that the character's future performance would improve and would feature increase future effort, choose better strategies, and receive assistance from instructor or peers. A subsequent study (Vispoel & Austin, 1993) also supported improved expectancy following failure.

Other studies involving scenarios include that of Asmus (1986a), who asked music therapy and music education students to respond to depictions of music education and/or therapy scenarios. Results indicated that there were differences according to major, and participant responses implied an actor–observer difference, associating the

success and failure of others more with effort but their own achievement more with task difficulty. Finally, part of Marlatt's (2004) study required middle school students to imagine themselves in various scenarios. In general, reasons for success or failure were internal and controllable, although students who considered themselves unsuccessful indicated more unstable, domain-specific, externally uncontrollable, and unintentional attributions.

Real-Life Situations. The final group of studies explored in this review are those that measured personal attributions related to real events. In Riemer's (1975) experiment, undergraduate students with no prior piano experience were told that their success at playing a piano piece was related to a particular attribution category. Internal reasons resulted in more positive emotions and higher future expectations, but the experiment did not support stability's alleged relationship with expectancy. Weiner (1983) addressed this latter result, suggesting that "luck" was not the most logical attribution for piano proficiency. In another experiment, Droe's (2012) fourth-grade students read rhythms, after which some were told that their success was related to either effort or ability. After choosing a second rhythm and filling out a questionnaire, students performed more difficult rhythms and were told that they did not perform as well. Results indicated praise influenced achievement behaviors, as students receiving effort-related praise chose more challenging rhythms and responded more positively regarding persistence.

The final three studies involved the recollection of critical incidents. Vispoel and Austin (1995) asked junior high general music students to recall and assign causes to success or failure outcomes in math, English, music, and physical education. Participants

rated effort, interest, and teacher influence as most associated with outcome, but failure attributions also included interest, task difficulty, and strategy. Further analysis revealed significant differences according to subject area, outcome, and attribution category. Similarly, Schneider Grings and Hentschke (2017) asked Brazilian undergraduate musicians to recall their own successful and unsuccessful performances and indicate attributions for each. For success, the most frequent attributions included effort, followed by persistence, interest, and teacher influence; failure was most often attributed to emotional aspects, followed by task difficulty, lack of effort, and lack of ability. Lastly, McPherson and McCormick's (2000) study on self-efficacy included the measurement of attributions linked to a specific performance examination among a sample of Australian student instrumentalists. Most students indicated internal attributions for their performance, including preparatory practice, then effort, nervousness, general musical ability, exam difficulty, and luck.

Summary

The above section presented empirical research organized according to how success or failure was defined in each study. Those studies that essentially addressed the causes generally associated with success or failure revealed the following: (a) effort and ability were commonly cited, although many studies reported other attributions; (b) attributions differed according to demographic characteristics, type of school setting, and achievement outcome; and (c) with few exceptions (e.g., Legette, 2012), most of the above studies either specified the participants' roles as actors or did not specify whether they were actors or observers. The studies involving either hypothetical or real-life

situations demonstrated various ways to investigate attributions related to specific events.

Attribution in Leadership

A conductor's preparation for ensemble performance involves a multitude of tasks that are individualized (e.g., score preparation) and collaborative (e.g., communication with ensemble members). Likewise, the ensemble members are responsible for their own preparation as well as their interactions with conductors and other musicians in the room. Regardless of the interpersonal dynamics in a given context, the conductor is perhaps often presumed to be the most responsible for the ensemble's excellence. Such an assumption might not adequately describe more egalitarian ensembles, but choral directors often appear to function as leaders of sorts. Organization studies on attribution are potentially useful to help describe the nature of a conductor's perception of cause (as opposed to those of a solo performer or an ensemble member) following a performance.

Leader Attributions

Several studies of organizations have demonstrated the attributional tendencies of organization leaders. Huber et al. (1985) investigated how both supervisors and subordinates attributed subordinate success and failure. Results indicated that "motivation" and "ability" (internal) responses were most important for both supervisors and subordinates, and "task difficulty" was more importantly related to failure. Within the study's context, both leaders and subordinates at least generically seemed to look at their performances in similar ways. Mitchell and Kalb (1982) found that supervisors who were more informed about the task tended to cite more external attributions (e.g., environmental factors) to explain subpar performance.

Leadership attribution research is applicable to a wide range of contexts. Elig's (1985) study, for example, involved U.S. Army recruiters and their commanding supervisors. Participants provided ratings and comments to indicate the recruiter's relative success, after which they provided ratings to prescribed statements to indicate the locus, stability, and controllability of each possible cause. The locus portion consisted of three-point ipsative responses, while the others were nine-point semantic differential scales. Results supported the presence of self-serving bias, with positive factors typically seen as more internal–stable and negative as typically external–unstable. The design bears interesting similarity with the present study, though one of the most notable differences is the use of prescribed statements rather than open responses.

Attributional biases are also supported within corporate contexts. Bettman and Weitz (1983) examined annual reports to corporate shareholders, categorizing specific statements within Weiner's (1986) dimensions. Their results also indicated the presence of self-serving bias, and more attributions appeared when describing negative outcomes. The authors were uncertain as to whether attributions were information-based or motivationally driven. Internal attributions seemed to be interpreted with respect to the organization as the entity (e.g., the company's advertising efforts), as opposed to external attributions (e.g., market prices). Comparable methods and results can be found in studies by Staw et al. (1983), Clapham and Schwenk (1991), and Pagliarussi et al. (2008), who found that managers tended to attribute positive outcomes internally and negative ones externally. This tendency was also shown by Salancik and Meindl (1984), who additionally suggested that management attributions could also reflect attempts to portray

control.

Leader Responses

Scholars have explored the role attributions play in supervisor/leader responses to subordinate/member performance. Green and Mitchell (1979) provided some of the earliest work in this area, proposing a model based on Kelley's (1967, 1973) concepts to illustrate how leader behaviors toward members were the result of: (a) causal attributions informed by informational cues and schemata; (b) personal, organizational, or contextual conditions that serve as boundaries for warranted behavior; and (c) several other moderating factors reflecting leaders and/or members. Additionally, it seems that locus and stability dimensions of attributions were particularly useful in explaining the expectancy of future member performance and the focus of leader response. The Green and Mitchell model initially received empirical support (Knowlton & Mitchell, 1980; Wood & Mitchell, 1981); however, Mitchell (1982) cautioned that attributions were only partially responsible for leader actions toward subordinates, asserting that other contributors were at least as influential. Martinko et al. (2007) summarized that this body of studies, though overall supportive of the model, presented some methodological inconsistencies and primarily emphasized leader responses to member failure rather than specific attributions.

Ashkanasy and Gallois (1994) reexamined Green and Mitchell's (1979) model using hypothetical scenarios, experimental design, and critical incident studies. Results from these initial studies (Ashkanasy, 1989, 1991) generally supported the impact of attributions on assessment and evaluation. What is more relevant to the present study is

that both works also demonstrated support for the role of dimensions (i.e., intentionality and controllability) from Weiner's (1985) work to explain leader behavior, especially to predict responses to failure. Acknowledging criticism by Wong and Weiner (1981) on the limitations of hypothetical scenarios, Ashkanasy and Gallois (1994) also conducted a laboratory study. The results supported the role of attributions in leader behaviors toward subordinates and the importance of perceived supervisory and task control. Using questionnaires to gather information on real-life scenarios, Ashkanasy conducted two studies (1995, 1997), again finding that attributions affected supervisors' evaluations. The Australian participants in the earlier of these two studies tended to respond with internal attributions more than the English-language Canadian participants in the latter, which Ashkanasy (2002) posited as a cultural difference (2002). Collectively, these studies support the premise that attributional differences are linked to behaviors of leaders.

Locus Revisited

Several notable organizational studies have addressed the locus dimension uniquely by advocating for a supplemented *relational* attribution. First proposed by Eberly et al. (2011), this term describes those causes that are neither internal nor external, referring instead to interactive dyadic aspects between two individuals (e.g., "My boss and I don't see eye to eye on this"). Considering the current study, there is a certain appeal to this concept within choral settings, as one might easily imagine a chorister linking success or failure with conductor-chorister rapport or mutual cooperability. Eberly et al. (2017) found empirical support for relational attributions, stating that within

collaborative environments, participants' relational attributions correlated with behaviors to improve relations, especially when participants believed they could dedicate the time and when both members of the dyad were of the same sex; the authors framed the latter implication through the lens of relational demography and related studies, stating that "...demographically similar individuals view each other as in-group members...(p. 715). Gardner et al. (2018) integrated attribution theory and relational attribution concepts with leader-member exchange theory, proposing a model in which leaders and followers who convergently perceive relational attributions are more likely to work on improving the relationship; those dyads in which at least one party perceives an internal, external-person, or external attribution were potentially less likely to improve the relationship. Carson (2019) further argued that external relational attributions, or those involving the interactions of two or more parties other than the attributor, can sometimes be used to explain an outcome or situation. Burton et al. (2014) have further adopted the relational concept to examine member perceptions of supervisors' abusive behaviors.

Regardless of the comparably recent focus on relational attribution, the concept is not unilaterally accepted among leadership attribution researchers and authors. This topic received considerable attention in a special issue of the *Journal of Organizational Behavior*, in which Weiner (2019) questioned whether the relational component sufficiently described what might otherwise be explained by standardized dimensions. Other scholars have voiced similar concerns, as noted by Martinko and Mackey (2019): "There was considerable debate as to whether or not. . . relational attributions. . . should be considered a new dimension or a causal explanation that can be related to the

traditional dimensions described in [conventional] models” (p. 525). I considered whether results of the present could be used to justify further exploration leader–member interactions; however, my primary focus remained on the three more ubiquitously recognized dimensions as related to achievement outcome.

Summary

The organizational literature presented above supports three important ideas. First, differences in attributions by leaders of member performance appear to be statistically significant in a variety of settings (e.g., corporate, military, etc.). Second, leaders’ reasoning for member performance may be subject to the amount of available information or how involved the leaders are, while other attributions for member outcomes may be more motivationally biased. Third, leader attributions or subordinates seem to at least partially impact consequences, such as performance evaluations or interventions responses. Such relationships carry major implications for ensemble conductors, as the reasons a conductor believes their students succeed or fail could have notable consequences, ranging from repertoire and pedagogy decisions to basic interactions and attitudes toward students.

One caveat regarding the organizational literature presented above is that the participants notably differ from those of the present study. Specifically, many of the studies described above involved documents from corporations rather than the reported perceptions of choral educators. Additionally, while most of the leadership studies from the past several decades presented in this section did not provide demographic information of participants, it is plausible that the gender and race representations in the

aforementioned studies may notably differ from those of the present study. Such dissimilitude may limit the generalizability of such results toward other populations.

Conclusion

In this literature review, I intended to provide sufficient background to support the methodological decisions for the present study, which are described in further detail in the next chapter. The concepts purported by Heider (1958) and others have evolved to address various settings and phenomena. Music education scholars have investigated student beliefs on success and failure in a variety of ways; still, the methods and samples represented by such studies leave ample room to explore attribution among adult musicians who conduct in elementary, secondary, and post-secondary schools. One arguably logical approach is to think of conductors as leaders not unlike leaders of other organizations. As leaders, attributional beliefs about performance hold potential consequences for themselves and their students.

CHAPTER III

METHODS

The purpose of this study was to examine differences in choral directors' attributions of performance success and failure and the roles of vocational and personal factors. Three important features that collectively make this study unique from the music literature described in the previous chapter are that the participants: (a) were asked to respond to specific musical events rather than generalized beliefs about success or failure, (b) worked as choral educators rather than students or solo performers, and (c) provided responses for both successful and unsuccessful performances. In line with many attribution studies described above, this study is predominantly quantitative in nature, yet the instrument (described below) includes potentially informative qualitative data. In this chapter, I provide an overview of the study, discuss the methods and instrument used, and summarize data collection analysis processes.

Participants

The participants in this study led at least one choral ensemble course in a scholastic institution, either at the elementary, secondary, or post-secondary level. All were contacted via one of three professional affiliate organizations: the American Choral Directors Association (ACDA), the National Association for Music Education (NAfME), and the College Music Society (CMS). Participants completed an online questionnaire (Appendix B) between January and March of 2023. The link to the questionnaire was theoretically available to choral practitioners who did not teach ensemble courses through academic institutions, although the description of the study likely limited such responses.

Additionally, one of the questions in the questionnaire prompted respondents to specify the number of ensemble courses, which provided means to filter those participants outside of the population of interest.

Questionnaire Development

Dimensional measurement through participant scalar responses, as initiated by Russel (1982) and McAuley et al. (1992) provides a template with which to articulate dimensional differences. Individuals perceive outcomes in differentiated ways, depending on differences in the available informational cues, individual beliefs about success, and any number of other contributing factors (Weiner, 1986). The reasons for successful or unsuccessful choral performance are presumably subjective rather than objective, as two individuals may attribute the performance outcome to vastly different (yet still perhaps justifiable) reasons. Weiner's model provides some guidance to navigate this complexity; in particular, the myriad specific attributions can be categorized according to their dimensional properties, which are linked to emotional and behavioral consequences. In addition to dimensional differences of attributions, I was also interested in antecedent variables (e.g., size of program, grade level of students) that potentially impact how choral leaders perceive causes of performance outcomes. These variables are discussed in further detail below.

An online version of the instrument (Appendix B) allowed effective distribution to a broad range of prospective participants. The two main questionnaire components related to the following: (a) participant background, demographics, and details about work context, and (b) perceived attribution of successful and unsuccessful choral

performances, which included an open response prompt followed by a series of scalar questions related to each prompt. The data obtained in the first part were a mix of categorical, ordinal, and numeric. The second part included predominantly scalar responses; the qualitative comments (briefly summarized in Chapter 5) were intended to prime the participants for the quantitative responses but were not formally analyzed because it extended beyond the scope of the study. The survey began with a description of the study with option to consent to participate and concluded with an option to enter a drawing for a gift card. These processes are described in further detail below.

Instrument

The instrument used in the present study (see Appendix B) is comprised of two parts:

1. The first portion allowed for collection of data to identify potentially significant variables among participants, such as educational and vocational context, details about the institution and choral program, and demographic information; and
2. The second part included a modified version of the Revised Causal Dimension Scale (CDSII) developed by McAuley et al. (1992), which was used to measure the dimensional differences in the causes participants believed to be most responsible for specific choral performances.

Participant and Institution Differences

The first several items on the questionnaire included details about participants' educational training. As noted earlier, the educational emphasis in one's degree program could feasibly influence attributions that are more learning- or curriculum-oriented than one whose background is primarily performance-based. Additional items specified

participants' conducting involvement and the relative size of their current choral program. It seemed logical that a conductor who is new to a program or who only has access to a small pool of musicians could associate causes for performance outcomes that differ substantially from the one who has been conducting at the same large institution for over a decade. Questions related to the type of school (e.g., elementary, private) are related to differences by school type reported by Asmus (1985) and Legette (1998, 2003); these studies involved student responses rather than those of their instructors/directors, though it is possible that student attitudes toward musical success are related to those of their music teachers.

Finally, three questions prompted responses regarding ethnicity, race, and gender. The wording for the first two of the demographic items was based on the policy recommendations for collecting race and ethnicity data provided by the U.S. Department of Education (2008). Although demographic differences do not appear to be a widely explored focal point in early attribution studies, researchers have suggested that attributional differences can relate to race (Ben-Porath & Shaker, 2010; Weiner & Peter, 1973), gender differences (see Weiner, 1986), and cultural background (Choi et al., 1999). . Additional research is warranted to explore the relationships between attributions and race, gender, and culture within musical and other achievement contexts.

Attributional Differences

In the initial version of the Causal Dimension Scale (CDS; Russell, 1982), participants answered a 9-point semantic differential scale items to describe the degree to which they felt a cause was within themselves, stable, and controllable. Validity testing in

Russell's study indicated that, although locus and stability dimension items were reliable and valid, the controllability items seemed to be confounded by the locus dimension. McAuley and colleagues (1992) divided controllability into two subscales to distinguish personal from external control. Results from their four studies indicated validity and reliability across samples from multiple domains. I decided to use the CDSII with some modification to give the participants more flexibility in communicating how they understood their attributions; specifically, I asked participants to fill out two versions of the open response and scale data: one for a choral performance success and the other for an unsuccessful performance. The rationale for collecting both types stems back to Weiner's conceptualization that failure following meaningful events is a unique process compared to success or trivial events (Weiner, 1974, 1986). Utilizing the individual dimensional scales instead of categories, I believed it would be possible to collect more nuanced data with dimensional measurement than if I were to code their open responses into strict categories.

Subsequent studies, including that of Crocker et al. (2002), have provided mixed support for the CDSII, raising concerns regarding the high correlation between items. Martinko and Thomson (1998) suggested that locus and controllability are not fully independent constructs, and Anderson's (1983) data indicated intercorrelation between dimensions. Weiner (1986) justified Anderson's results, responding that "the empirical correlation based on actual subject samples does not invalidate the conceptual distinction" (p. 69). The theoretical distinction between locus and controllability makes sense in that an individual may believe that external causes are less controllable than

internal ones. However, when applied to choral conducting, external causes (e.g., sound equipment problems) may understandably be perceived as more externally controllable, whereas internal attributions (e.g., a conductor's own performance anxiety) could more likely be perceived as beyond one's control.

Perrin and Testé (2010) provided support for conceptual distinction of controllability using a French language version of the CDSII; participants responded to causal statements and indicated their perception of likely future success and estimated self-efficacy associated with each statement. Internal and controllable responses were rated significantly higher than internal and uncontrollable, and uncontrollable and stable explanations were rated higher than controllable and stable statements. Ultimately, even without unanimous support, controllability responses may provide important insights into perception of performance outcome.

The second part of the questionnaire was intended to promote clear understanding between participant and researcher and to avoid observer bias. The causes perceived by the actor/participant presumably differ from those of the observer/researcher. Part of this divergence could be because of the information available to both parties (Kelley, 1972b). As the principal investigator in the present study, I only had access to the information provided by questionnaire responses, while the participants presumably had a much richer understanding of their own circumstances. I chose the approach utilized by McAuley and colleagues (1992) to allow participants to self-report their perceptions, as I was aware of my potential for bias as observer and did not want to risk referencing my own experiences or interpretations to participant responses. Jones and Nisbett (1972)

described the actor–observer bias, noting a tendency for actors to gravitate toward circumstantial causes specific to the event, while observers more commonly attributed more stable dispositional reasons for actions. Additionally, the observer’s own experience or behavior may contribute to an erroneous generalization of the actor’s behavior (Ross et al., 1977). Even if both parties acknowledge the same attributed cause, the researcher may interpret the cause differently from the participant (Russell, 1982); for example, one party may see “ability” as stable, while the other may believe that it will change over time. Weiner (1983) also cautioned that the participant and the researcher could interpret the same cause differently. A choral director, for example, might see “insufficient rehearsal time” as an unstable cause, whereas an outside observer might see such a cited cause as related to the conductor’s stable lack of planning.

Even researchers coding the same responses can disagree, as exemplified by two studies. First, Stoeber and Becker’s (2008) study of athletes revealed that their participants’ responses were sometimes difficult to categorize; for example, if soccer players associated failure with collective “we” statements, it is not clear whether these believed causes internally reference the player, externally blame teammates, or are a combination of both. In such instances, the researchers disregarded such data in analysis. Researchers examining the same open-response data could also interpret attributions differently from one another, as demonstrated in Asmus’s (1986b) study, in which the open responses were reevaluated according to dimensional designation.

The present methodology is distinct from previous music education studies, most notably in how participants’ attributional characteristics were articulated and

emphasizing specific instances of musical achievement rather than generalized musical success. Additionally, most comparable studies addressed music students rather than music teachers. Two issues raised in the previous section were pivotal in designing the present study: (a) the limitations of categorical rather than dimensional descriptions of attributions, and (b) the potential incongruence of attribution interpretation between researcher/observer and actor/participant. Regarding the former, the four *a priori* categories (ability, difficulty, effort, and luck) have proliferated attribution literature for decades, yet scholars have also acknowledged that the list is not exhaustive. Weiner (1986) acknowledged that the four types of causes that emerged from early theory could easily include others specific to the setting, such as mood or fatigue, stating that “the potential causes of an achievement-related outcome are infinite (p. 37). Austin and Vispoel (1992) demonstrated the utility of expanded, idiom-specific lists, and Burger et al. (1982) discussed the value of other distinctions, such as stable versus temporary effort. From the Weiner (1986) model, however, the dimensional properties seem to be more directly related to consequence than the kind of attribution, especially in the realm of achievement and motivation.

Instrument Development and Modification

I modified the questionnaire in three ways before distributing it to participants. First, I included background and personal items to accompany the main portion of the CDSII (McAuley, et al., 1992, p. 569). Second, the original version did not differentiate between success and failure as an outcome, so the prompt and scales were duplicated to allow for paired tests—one to measure perceptions of success and the other for failure

attributions. Third, I slightly modified the prompt question to reflect the research context and participants, including the choral performance context and differentiating between most and least successful choral performance. I changed the phrasing on several individual items slightly, mostly to keep all items grammatically consistent with the prompt question. Some additional changes seemed prudent to keep the language user-friendly and to avoid potential misunderstanding. For example, “under your control” seemed to be more concise than the original “manageable by you,” as the word “manageable” in the latter could perhaps be interpreted as “can handle the stress.” Likewise, “over which you have power” in the original seemed more ambiguous than “you can influence.” The sequence and item scoring remained unchanged.

I made several additional changes because I distributed the questionnaire in an online-only environment. At the start of the survey, I included an informed consent page, which prompted an indication of agreement and understanding. In case participants wished to read more about the study or contact me with questions, I allowed for the informed consent document to be downloaded by the participants. Other changes included altering pagination to enhance focus and brevity. The semantic differential scales were initially difficult to display in a way that was clear and uncluttered via computer and mobile device layouts. Finally, I included an option to enter a raffle to win one of three gift cards on the last page as a strategy to increase participant responses. To enter the raffle, participants were given the option to either end the survey or to be redirected to a secondary survey and enter a valid email address. Those who chose to opt in were directed to a separate link, thereby keeping any volunteered information entirely

separate from their responses from the primary survey.

Once approval for IRB exemption was obtained, I prepared to distribute the questionnaire electronically via Qualtrics link. I piloted the questionnaire among seven volunteers, who represented music education at the elementary, secondary, and post-secondary level, which included choral and other music education areas. The pilot volunteers identified a notable typographical error, produced a more accurate estimate for completion time, and provided feedback regarding the respondents' experience while completing the questionnaire.

Data Collection

I converted the questionnaire (see Appendix B) into an online version via Qualtrics and made available through a weblink. I contacted three professional organizations with the intent to recruit a sample that represented choral directors from elementary, secondary, and collegiate levels. Those organizations included the American Choral Directors Association (ACDA), the National Association for Music Educators (NAfME), and the College Music Society (CMS) to request the inclusion of the link and description in their electronic newsletters. The initial response via CMS was notably low; I was able to improve this by requesting that the link be emailed specifically to its membership designated as choral directors. Personnel within these organizations approved and distributed the survey electronically. Out of 298 respondents, I removed many results, either because of non-completion, non-consent, or because their answers disqualified them from the defined population. Several respondents did not direct in academic settings or did not work with any choirs as scholastic classes. I intended to

surpass a threshold of $n = 100$, which would allow for sufficient subsamples of 20–50 for group comparisons (Delice, 2010). The final sample was $n = 167$. After downloading and filtering the data, I used a random number generator to produce numbers to correspond to the winners of the gift cards, after which I sent redemption codes via the email provided.

The total response time ranged from just under three minutes to more than a day (perhaps because the browser tab was left open overnight). The mean response time was 55.78 minutes, but the median was 8.45. An initial look at the differences among participants revealed the following: Participants worked at their current institution between 0.5 and 34 years and worked with between one and six ensembles. Most respondents conducted between one and three ensembles. Several vocational and individual differences were much more represented than others, with single-digit sample sizes; these results, along with participants marking multiple responses for several questions, necessitated binning or omission of several items. I describe these results and subsequent analysis in Chapter 4, and further discuss the demographic makeup (both within the sample and the population of interest) in Chapter 5.

Data Analysis Plan

I imported the data into SPSS, removing incomplete and disqualified responses, as described above, left a sample of $n = 167$. Due to varied sizes of represented groups, I transformed the data into new columns to bin smaller-count variables together as noted above; these new columns are described in detail in Chapter 4. Additionally, I created columns corresponding to total subscale scores, as demonstrated by McAuley et al. (1992), with scores ranging from 3 to 27.

One interesting conundrum was whether to implement parametric or non-parametric tests for reasons regarding both the issue of normality and data type. Regarding the former, the sample size well exceeds $n \geq 30$ to satisfy the Central Limit Theorem, and presumably represents a nationwide population of choral directors. Even so, one point is worth mentioning: Even if the sample adequately represents the population, there is no explicit reason to presume that their responses will have a normal distribution, as it is not presumed whether dimensional scores should have a normal, unimodal distribution. With respect to data type, disagreement among researchers is evident as to whether ordinal scale data (e.g., Likert scale) should be treated as continuous, as noted by Mircioiu and Atkinson (2017). In a sense, survey responses to Likert or semantic differential items have no numeric value, other than to designate a participant's comparative agreement with one descriptor or another. On the other hand, it is not difficult to find parametric treatment of such data, including many of the studies described in Chapter 2 of the present study, such as those of Legette (2003) and Dick (2006). Mircioiu and Atkinson's (2017) findings indicated that both parametric and non-parametric tests produced comparable results. Ness (2020) addresses the arguments of both positions but also states the ubiquity of using parametric tests for Likert-type data.

After notable consideration, I opted to include both non-parametric and parametric testing (where applicable) to acknowledge divergent stances on the matter while also generating robust statistics when possible. To investigate the first research question of whether participants attributed successful and unsuccessful performances differently, both the Wilcoxon signed-rank and the paired samples t-test were used. For

the second research question, or whether differences in dimensional scores correlated with variables from the first part of the questionnaire, the tests depended on the type of variable. The Kruskal–Wallis test was run alongside Welch’s one-way ANOVA for comparing the size of program, conductor degree, and level of school taught. Mann–Whitney U and independent t-tests provided data for race, gender, and public versus private schools. For the numeric variables, years at institution and number of ensembles, Pearson’s and Spearman’s correlation tests were compared. Finally, as discussed below, I included several regression approaches to produce more meaningful results to address the third question on whether variables could predict scores. Analyses are presented in the next chapter.

CHAPTER IV

RESULTS

In this chapter, I present findings from collected data related to participants' attributions of choral success and failure. After I collected questionnaire data and filtered disqualifying responses, I used the dimensional scores for each performance scalar response to produce four subscale scores: (a) locus, (b) internal controllability, (c) external controllability, and (d) stability as consistent with McAuley et al. (1992). Reliability and factor analysis are also discussed. In the following sections, I discuss reliability and factor analyses, present descriptive statistics, describe analyses related to each research question, and briefly discuss the limitations of the data and their impact on analysis.

Descriptive Statistics

Collected data from 167 respondents included both categorical and numeric variables. Those related to the institution or work context included: public versus private institution, level of students taught, program size, number of ensembles conducted, and participant degree background. Additional questions included those of race, ethnicity, and gender—all with options to provide a comment or to decline an answer. The responses on several categorical questions did not represent sufficient sample sizes for adequate comparison. For degree type, music education was most represented while solely music, and non-music degrees, and non-degree samples were much smaller. Many respondents listed multiple types of degrees (e.g., music education and music performance). To allow stronger subsample comparisons, I redesignated the variable to measure music education

only ($n = 79$), non-music education only ($n = 37$), and both degree types ($n = 51$). Similarly, for program size, the largest two tiers were combined to produce: less than 50 singers ($n = 57$), 51-100 ($n = 65$), and more than 100 singers ($n = 45$). For level of instruction, those exclusive to community/two-year college, conservatory, and elementary schools were less than 10, so the categories were redesignated as K-8 ($n = 39$), secondary ($n = 53$), post-secondary ($n = 37$), and multiple levels ($n = 38$). Only four participants responded as Hispanic/Latino; these results were too low to provide generalizable results and were not considered in analysis. For race, the majority of participants responded as White; other responses were notably few or did not provide a response; the combined categories for analysis were at least one non-White answer ($n = 9$) and White as only response ($n = 152$). For gender, 92 respondents marked “Female” and 72 marked “Male” as a choice; two responded with comments, and one opted not to respond. Further discussion on the sample demographics and within the choral profession are discussed further in Chapter 5. Table 1 summarizes the findings for categorical variables. For the attribution questions, 9-point semantic differential scale responses were reversed-scored to produce four subscales congruent with those of McAuley et al. (1992).

Table 1

Samples Sizes and Percentages for Categorical Independent Variables

	<i>n</i>	% of Total	<i>n</i>	% of Total	<i>n</i>	% of Total	<i>n</i>	% of Total
Degree Type	Music Ed Only		Non-Music Ed		Both		—	—
	79	47.31%	37	22.16%	51	30.54%	—	—
Program Size	< 50		51–100		101–150		> 150	
	57	34.13%	65	38.92%	22	13.17%	23	13.77%
Institution Level	K–8		Secondary		Post-Secondary		Multiple Reported	
	39	23.35%	53	31.74%	37	22.16%	38	22.75%
Institution Type	Public		Private		—	—	—	—
	132	79.04%	35	20.96%	—	—	—	—
Gender	Female		Male		Comment		No Response	
	92	55%	72	43.11%	2	1.20%	1	0.06%
Race	Marked ≥ non-White		Marked only "White"		No Response		—	—
	9	5.39%	151	90.42%	7	4.19%	—	—

Reliability

I examined responses to both the success and failure portions of the questionnaire separately according to each of four subscales using Cronbach's alpha. All alpha values are depicted in Table 2. In general, subscales tested moderately well, with failure subscales often scoring higher than success, up to $\alpha = 0.886$; however, stability tested quite low on both parts of the questionnaire, with success at $\alpha = 0.501$ and failure at $\alpha = 0.367$. Removing one item raised values to $\alpha = 0.609$ and 0.554 , respectively.

Table 2

Cronbach's Alpha Statistics

Success Subscale	α	Failure Subscale	α
Success Locus	0.681	Failure Locus	0.864
Success Internal Control	0.673	Failure Internal Control	0.886
Success External Control	0.692	Failure External Control	0.741
Success Stability	0.501	Failure Stability	0.367
without Item 11	0.609	without Item 11	0.501
Success Overall	0.647	Failure Overall	0.744
without Item 11	0.682	without Item 11	0.790
All Items			0.715
		without Item 11	0.754

The removed item that raised the Cronbach's alpha statistic was Item 11: "cannot be changed by anyone—can be changed by someone." Interestingly, in a study of athletes by Crocker et al. (2002), the same test item was an issue for confirmatory factor analysis. It is likely that, respondents interpreted that prompt in differentiated ways. Crocker et al. (2002) suggested that in their study, the prompt, (simply presented as changeable—unchangeable) "was complex by relating to both the locus of causality and personal

control factors” (p. 214). The authors removed the item to produce mixed results for improving confirmatory factor analyses. Perrin and Testé (2010) also raised reliability concern in their study. In the initial adaptation of the instrument, the simplistic “changeable—unchangeable” was expanded (as noted above) to be clearer to the participant; however, it may have been more fruitful to replace the vocabulary entirely.

Overall, the reliability coefficient values reported are not as high as desired, yet it is worth mentioning that McAuley et al. (1992) reported several values lower than $\alpha = 0.7$ across for studies, even as low as 0.600 as admissible. Taber (2018) noted that, although a reliability coefficient of $\alpha = 0.7$ is often cited as a standard threshold, published literature within science education reports quite a diversity in alpha values and qualifiers, including “adequate (0.64–0.85), moderate (0.61–0.65), satisfactory (0.58–0.97), acceptable (0.45–0.98)” (p. 1278). With the removed item, the coefficients in present study are closer to an acceptable threshold and relatively comparable to those reported by McAuley et al. (1992). The coefficients may have been related to the test items themselves, or perhaps to other factors such as sample size. According to Yurdugül (2008), a sample size of $n = 200$ or higher (i.e., somewhat higher than the present sample size) is commonly recommended when pertaining to reliability. For the sake of analysis in the present study, I removed Item 11 from the scores, but because the values were still comparably unsatisfactory, implications should be applied tenuously.

Confirmatory Factor Analysis

... Confirmatory factor analysis (CFA) via Jamovi software provided means to investigate construct validity. Apart from Item 11 (addressed above), factor loadings for attribution

of success were all between 0.550 and 0.793, with $p < .001$. Likewise, all loadings for attribution of failure were between 0.435 and 0.899, $p < .001$, except for the same question. CFA was conducted again, this time without Item 11. The test for exact fit remained statistically significant, and values for indices of fit generally improved with the removed item. As a guide for recommended statistics for CFA indices (R Core Team, 2023), Chi-squared statistic should have a p -value of $< .05$; Comparative Fit Index (CFI) is recommended to be $> .96$; Tucker Lewis Index (TLI) as $> .90$; Standardized Root Mean Square Root (SRMR) as $< .08$; and Root Mean Square Error of Approximation (RMSEA) should be $< .08$ (Ben-Shachar et al., 2020). Test results are provided in Figures 3 and 4. Due to its impact on reliability and on CFA testing, Item 11 was removed from subsequent analysis for both success and failure. In short, removing the item improved reliability and better supported validity of the asserted factors of data.

Figure 3

Path Diagrams for Success and Failure (11-Item)

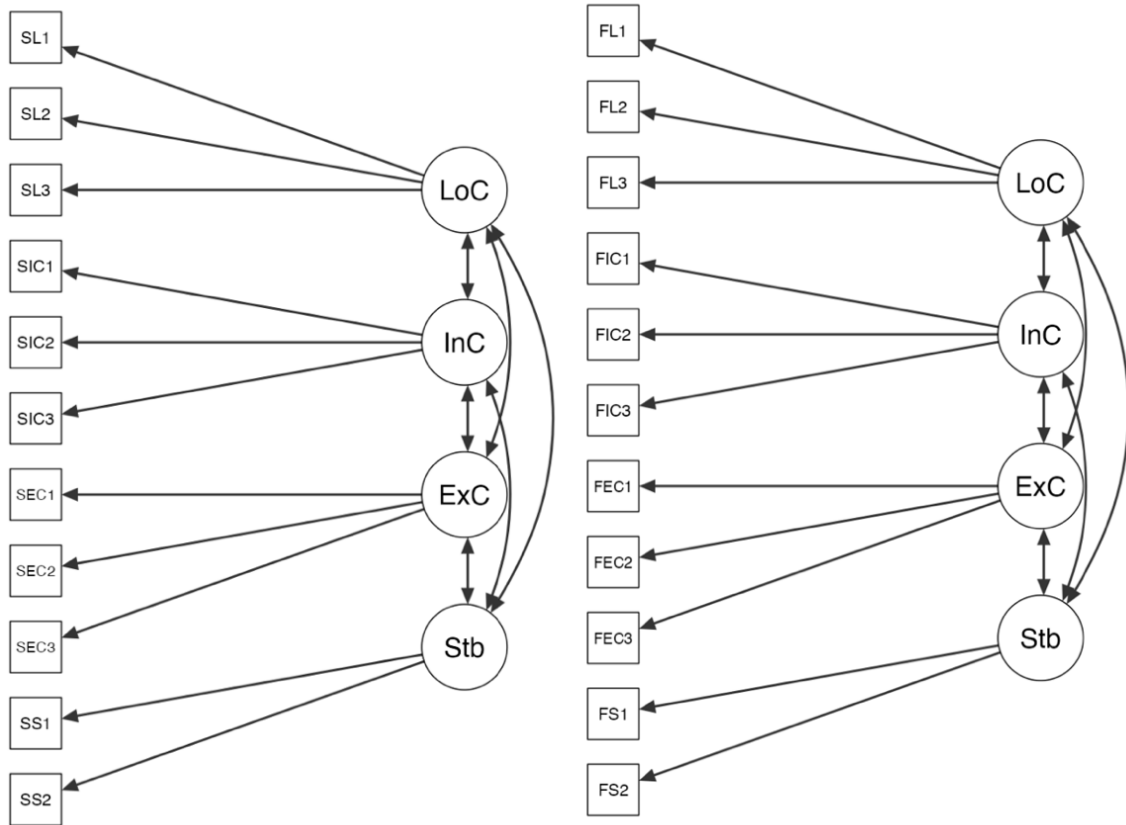


Figure 4

Confirmatory Factor Analyses

Success 12 Items

Test for Exact Fit			Fit Measures							
χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI		AIC	BIC
							Lower	Upper		
97.3	48	<.001	0.889	0.848	0.0727	0.0784	0.0558	0.101	7979	8110

Success 11 Items

Test for Exact Fit			Fit Measures							
χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI		AIC	BIC
							Lower	Upper		
55.2	38	0.035	0.958	0.939	0.0456	0.0521	0.0143	0.0805	7311	7433

Failure 12 Items

Test for Exact Fit			Fit Measures							
χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI		AIC	BIC
							Lower	Upper		
129	48	<.001	0.917	0.886	0.0899	0.101	0.0799	0.122	8042	8173

Failure 11 Items

Test for Exact Fit			Fit Measures							
χ^2	df	p	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI		AIC	BIC
							Lower	Upper		
87.6	38	<.001	0.948	0.924	0.0635	0.0884	0.0641	0.113	7325	7447

Open-Response Attributions

On the questionnaire, participants were asked to type the primary cause behind their most successful performance in recent history, then the foremost cause for their least successful performance. These data were not main foci of the study; instead, they served to prime the participants to answer the numeric portion of the questionnaire for each prompt. That said, a summary here provides a unique view into the variety of responses from choral directors. I did not develop any protocol for coding or summarizing qualitative responses, as I never intended to formally incorporate such data in my analyses. At the same time, the responses demonstrate the potential for a future mixed methods study, even though attribution research has a tradition of quantitative inquiry, as exemplified in Chapter 2. Even so, a closer look at the data may shed light on unforeseen issues and provide more meaningful context to participants' ipsative responses.

Open responses varied widely. Lengths ranged from a few words to several sentences. Many recounted specific events, pieces, and places before stating a cause, while others were short and direct. Among the recurring themes for success were the enthusiasm or motivation of their students, appropriate repertoire selection, and the uniqueness of the performance event. For unsuccessful performances, COVID-19-related limitations were frequently cited, as were inadequate preparation, complexity or demands of the music, and not being able to recover from mishaps or nerves.

It was difficult to interpret the exact cause implied in some responses. Two respondents cited specific performances but provided no reason. Still other responses were less specific, describing reasons why choirs generally do or do not have successful

performances; these answers seemed to more closely resemble generalized beliefs or causal schema (Kelley, 1972b; Kun & Weiner 1973) than event-specific attributions, which are related but distinct phenomena. Even so, I kept these responses because they answered the subsequent scale questions, and I could not say definitively whether their subsequent responses were or were not in reference to a specific performance or to generalized beliefs. It is possible that some open responses could have been also influenced by the degree of recency; it is possible that a participant's perspective could vary if the questionnaire were completed immediately after a concert, as opposed to months after the event took place. Though not formally analyzed, the responses for both success and failure varied widely and included recurrent themes.

Research Questions

The following section contains a summary of the analytical testing utilized to address the primary foci of the study. As stated in Chapter 3, I implemented both parametric and nonparametric tests, where applicable; overall, both versions produced comparable results. The research questions are presented again as follows:

1. Are there significant differences in how choral conductors in educational settings attribute their successful and unsuccessful performances, as measured by dimensional scores?
2. Are any differences in attributional scores related to vocational details and/or personal differences?
3. Can differences in performance outcome, vocational details, individual differences be used to predict dimensional scores?

Differences Between Success and Failure

Initial comparison of scores comparing success and failure were promising. Figure 5 displays all participant scores ($N = 167$), with success next to failure for each subscale. Paired testing provided means to statistically measure differences in dimensional subscale scores for success versus failure. Wilcoxon paired tests yielded three significant subscale differences, all with significance of $p < .001$: locus ($Z = -4.589$), internal control ($Z = -6.442$), and stability ($Z = -8.671$). External control was not significant. Similarly, parametric tests produced significant results ($p < .001$) with $df = 166$ for the same three subscales for both one- and two-sided t-tests as follows: locus with a mean of 2.91 with a standard deviation of 7.406, internal control with a mean of 3.96 and standard deviation of 6.99, and stability with a mean of 3.86 and a standard deviation of 4.65. Again, external control results were not significant. In all three significant scales, success scores appeared higher than failure; overall, participants were more likely to rate more locus within themselves, internally controllable, and stable for success when compared to failure scores. These findings support the claim that, for the sample studied, participants perceived attributional dimensions differently for success than for failure events. Implications are discussed in Chapter 5.

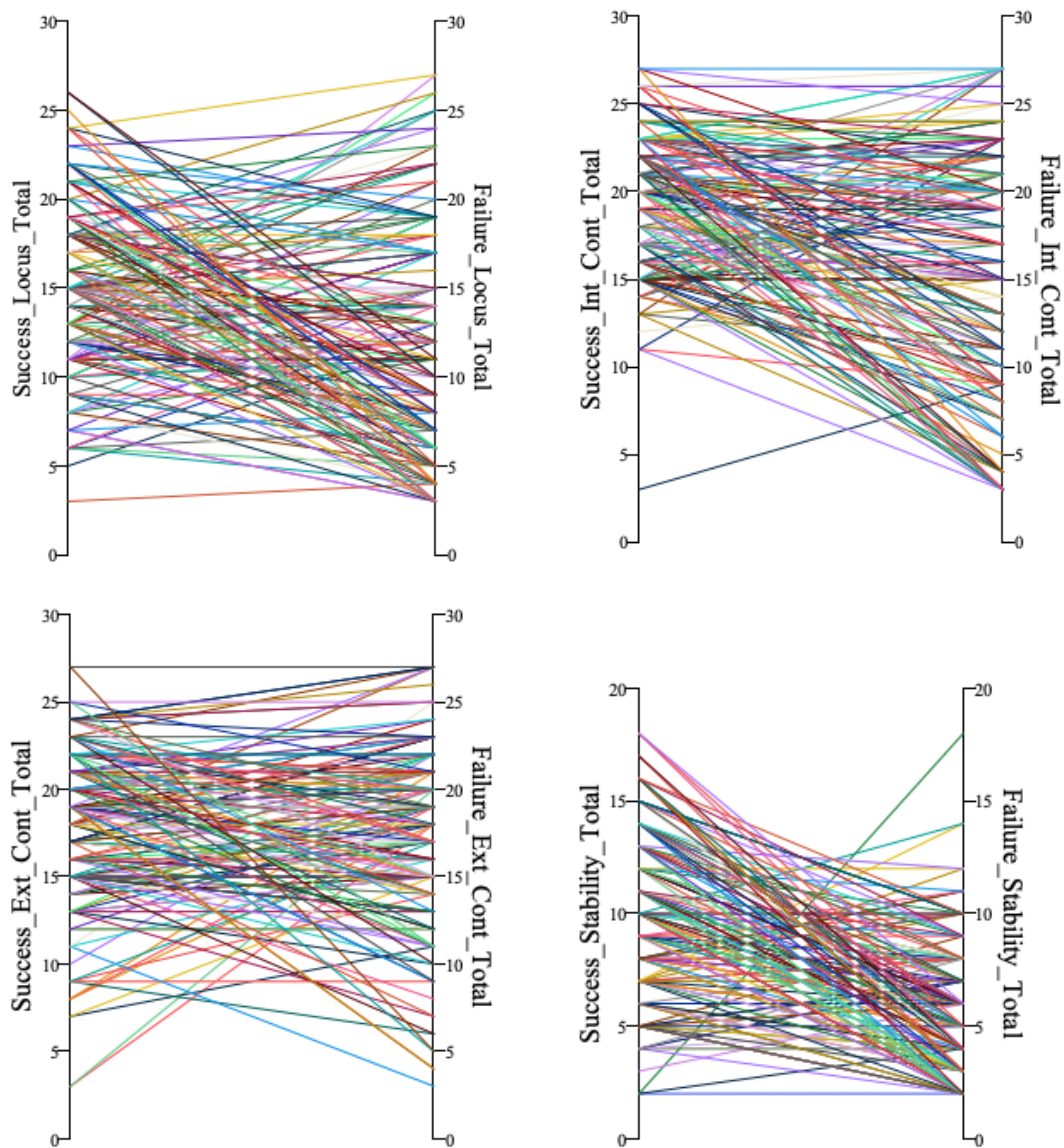
Personal and Institutional Differences

To determine whether attribution subscale scores were related to personal or vocational differences, the test varied depending on whether the variable was numeric, ordinal, or nominal. Two-tailed Spearman's rho and Pearson correlation tests provided means to determine whether the number of years taught and number of ensembles were

correlated with differences in locus, internal and external control, and stability for either success or failure. No significant results were found for number of ensembles. However, years taught significantly correlated with internal control for both success and failure events. Both parametric and nonparametric tests produced similar results. Internal control

Figure 5

Comparison of Individual Success Versus Failure Scores



for success had a Spearman's rho (ρ) value of $-0.23, p = .004$ and a Pearson correlation (r) value of $-0.21, p = .006$. Results for internal control with failure were $\rho = -.23, p = .003$ and $r = -.24, p = .002$.

Other collected data included both ordinal and nominal categorization. Because the size of choral program was reported by ordinal data rather than numeric (e.g., "Less than 50 students"), the Pearson correlation test was not suitable. Spearman's rho results for internal control with success were $\rho = -0.16, p = .037$ providing modest support that program size was related to internal control with success. I treated grade level of the participant's school as nominal rather than ordinal, primarily because many respondents taught at more than one level, which necessitated its own category. Statistics for Kruskal–Wallis testing were significant (asymptotic) only for external control with success: $H(3) = 9.63, P = .022$. Welch's one-way ANOVA results corroborated external control with success, with $F = 3.68, df = 3, p = .015$; Tukey post hoc specifically identified that K–8 means for external control with success were significantly lower than post-secondary ($MD = -3.12, p = .015$) and multiple levels taught ($MD = -2.83, p = .013$).

Remaining nominal variables included degree type, public versus private designation, and demographics. No dimensional scores significantly related to degree type. However, both Mann–Whitney U and independent samples t-tests showed significant differences with the following: (a) private schools scoring a higher mean than public schools on external control with success; (b) gender, where participants reporting as male had higher mean score than female respondents for stability with failure and (c) race, with those marking at least one non-White choice scoring a higher mean than those

marking only White for stability with failure. A summary of the above findings can be found in Tables 3 and 4.

Table 3

Non-parametric Findings of Nominal Variables

Mann-Whitney U Tests				
Subscale	Variable & Mean Rank		U	<i>p</i>
Success: Ext Control	Public = 79.22	Private = 102.01	2940.5	.013*
Failure: Stability	Male = 91.68	Female = 75.32	2651	.027*
Failure: Stability	White = 78.61	≥ 1 non-White = 121.33	1047	.007**
* Indicates $p < .05$; ** indicates $p < .01$				

Table 4

Parametric Findings of Nominal Variables

Independent Samples T-tests				
Subscale	Variable & Mean		<i>t</i>	<i>p</i>*
Success: Ext Control	Public = 17.14	Private = 19.26	-2.51	.015
Failure: Stability	Male = 6.31	Female = 5.391	1.98	.049
Failure: Stability	White = 5.68	≥ 1 non-White = 8.78	-2.47	.037
* Indicates $p < .05$				

Two considerations are prudent when interpreting the above findings. First, it should be noted again that non-White participants were comparably few in number, which potentially compromises the degree to which such findings are meaningful. Second, the reliability testing for the stability items on the questionnaire were lower than ideal; thus, it is possible that the data did not accurately represent participants' perceptions of stability. Regardless of the limitations, the aforementioned differences

were significant—at least with the data available—on at least one subscale for all variables except for degree type and number of ensembles.

Relationships Between Personal and Vocational Differences

One discovery not specifically related to the study involves the relationships between independent variables. Results from a correlation matrix (Spearman's rho) test indicated that program size was positively correlated with number of ensembles ($\rho = 0.380$, $df = 165$, $p < .001$). This is perhaps not surprising, as a larger program may often mean more ensemble courses. Additional tests revealed differences among independent variables. Statistically significant results of Chi-square tests included comparisons of public versus private and degree ($\chi^2 = 14.6$, $df = 2$, $p < .001$); public versus private and level taught ($\chi^2 = 42.2$, $df = 3$, $p < .001$); degree and level taught ($\chi^2 = 23.5$, $df = 3$, $p < .001$); and level taught and gender ($\chi^2 = 15.4$, $df = 3$, $p = .001$). For binomial and numeric comparisons, only public versus private and number of ensembles tested as significant, with both independent sample t-test ($\chi^2 = 2.836$, $df = 165$, $p = .005$) and Mann-Whitney U ($U = 1648$, $p = .008$) showing comparable findings. Finally, results from both ANOVA and Kruskal–Wallis tests produced significant results for years taught with size of program, number of ensembles with size of program, and number of ensembles with level taught. Table 5 shows a summary of these findings. These findings do not necessarily invalidate the impact on any variable on dimensional scores, but it is possible that the relationships between one another may impact regression modeling discussed in the following section.

Predicting Subscale Scores

The third aim of this study was to determine whether personal and vocational factors could predict subscale scores. Data from the 9-point scale portions of the questionnaire can potentially be treated as numeric values or as ordinal responses. The argument against the former is that the numbers do not have meaning attached to them except to determine levels of differences among responses. As Mircioiu and Atkinson (2017) have indicated, treatment of such data as numeric is not without precedent. One argument against ordinal treatment is that there were between 17 and 25 ordinal designations for each subscale, and not all values were represented, leaving gaps in the ordinal scale. I further describe methods used to address this topic in the following sections.

Table 5

Comparison of Means Among Independent Variables

Variables	Kruskal–Wallis			ANOVA					
	χ^2	df	<i>p</i>	F	df	<i>p</i>			
Years Taught—Size of Program	11.10	2	.004**	4.145	2	.018*			
Ensembles—Size of Program	25.20	2	<.001***	10.453	2	<.001***			
Ensembles—Level Taught	23.19	3	<.001***	5.401	3	.001**			
				Tukey Ad Hoc					
Years Taught—Size of Program				t	df	<i>p</i>			
				< 50 to > 100			-2.86	148	.013*
Ensembles—Size of Program				< 50 to 50–100			-2.73	148	.019*
				< 50 to > 100			-4.54	148	<.001***
Ensembles—Level Taught				K–8 to Post-secondary			3.68	148	.002**
				High School to Post-secondary			3.189	148	.009**
				Multiple Levels to Post-secondary			3.534	148	.003**
* Indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$									

Linear Regression. After conducting linear regressions through Jamovi on each subscale, I was not able to successfully build a statistically significant model with an R-square value higher than 0.061. Most subscores had a range between 3 and 27, though both stability scores had Item 11 removed, resulting in a range of 2 to 18. To better match the range of the scales, I created new variables to convert the total scores to Z-statistics. Converting subscale scores into Z-statistics matched the range of all scales and allowed convenient means of removing outliers. However, results showed little to no improvement.

Greator (2017) noted that linear regression can be compromised by issues including: (a) data quality and outliers, (b) absence on multivariate normality, (c) presence of multicollinearity, (d) lack of homoscedasticity, and (e) presence of non-linear relationship between predictor and dependent variable. After examining these potential issues, I found the following results to be most noteworthy. First, removal of outliers via boxplots did not notably improve linear regression results. Second, normal distribution of subscale scores was not a presumption for the present study; for example, there was no reason to believe that participants would report an arithmetic mean amount of locus with success. Indeed, Shapiro-Wilk test results (Table 6) revealed that p-values were above .05 on only two out of eight subscale scores. Multicollinearity was adequate on all scales, with VIF statistics between 1.0 and 1.2 and tolerance between 0.80 and 0.99. For homoscedasticity, the Levine test revealed $p < .05$ for public versus private with both internal and external control.

Table 6

Shapiro–Wilk Results

	Statistic	<i>p</i>
Success_Locus_Total	0.993	.625
Success_Int_Cont_Total	0.981	.028*
Success_Ext_Cont_Total	0.978	.014*
Success_Stability_Total	0.979	.014*
Failure_Locus_Total	0.969	.001**
Failure_Int_Cont_Total	0.980	.024*
Failure_Ext_Cont_Total	0.984	.064
Failure_Stability_Total	0.955	<.001***
* Indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$		

At the same time, there were modest but significant correlations between pairs of independent variables. A correlation matrix via Spearman's rho revealed that public versus private had a positive correlation with level taught ($\rho = .327, p < .001$) and negatively with number of ensembles ($\rho = -.208, p < .008$). Also, size of program was positively correlated with number of ensembles ($\rho = .380, p < .001$) and with years taught ($\rho = .252, p = .001$). Although these correlations are not particularly strong, they may have impacted regression modelling.

Ordinal Regression. The next step was to explore ordinal logistic regression. I reorganized the subscale data by first using the Z-scores to identify quartiles, then assigning each quartile as low, medium-low, medium-high, and high. Conducting ordinal logistic regression (OLR) on each subscale generated three out of eight significant results, displayed in Tables 7 and 8. For external control with success, all eight predictors yielded the highest pseudo R-squared values (which is used for ordinal regression rather

than an R-squared statistic) while also having a statistically significant goodness-of-fit. External control with failure involved years taught, number of ensembles, grade level taught, and public versus private. Locus with success statistics resulted from program size, years, ensembles, gender, race, and public versus private.

Pseudo R-square statistics these three subscales were notably more satisfactory than linear regression results but were modest at best McFadden (1977) describes an excellent fit using his pseudo r-square (or rho-square/ ρ^2) being between 0.2 and 0.4, though a description of other qualifiers (e.g., “moderate or “poor”) are not provided. Results of the present study include McFadden ρ^2 values between 0.130 and 0.188. As a reminder, pseudo R-square values should be interpreted with caution, as they do not bear the same meaning as R-square values in linear models. The three subscales described above produced reportable results, but they did not make McFadden’s benchmark to be considered excellent. The results from OLR modeling, however, were statistically significant for three subscales, both in terms of goodness-of-fit and model fitting (see Tables 7 and 8).

Table 7

OLR Model Fit

Subscale	Factors	Model Fitting (Logit Link Function)				
		Model	-2 Log Likelihood	χ^2	df	<i>p</i>
Ext Control Success	Prog Size, Years, Degree, Level, Ensembles, Gender, Race, Pub/Pvt	Intercept Only	446.083			
		Final	361.923	84.2	47	<.001***
Ext Control Failure	Years, Ensembles, Level, Pub/Pvt	Intercept Only	440.906			
		Final	380.82	60.1	40	.021*
Locus Success	Prog Size, Years, Ensembles, Gender, Race, Pub/Pvt	Intercept Only	411.809			
		Final	353.574	58.2	41	.039*

* Indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$

Table 8

OLR Goodness-of-fit and Pseudo R-squares

Subscale	Goodness-of-Fit				Pseudo R-Square	
		χ^2	df	<i>p</i>		
Ext Control Success	Pearson	519.113	439	.005**	Cox and Snell	0.400
	Deviance	359.15	439	.998	Nagelkerke	0.428
					McFadden	0.188
Ext Control Failure	Pearson	444.462	389	.027*	Cox and Snell	0.302
	Deviance	361.177	389	.841	Nagelkerke	0.323
					McFadden	0.130
Locus Success	Pearson	456.739	406	.041*	Cox and Snell	0.307
	Deviance	345.256	406	.987	Nagelkerke	0.330
					McFadden	0.139

* Indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$

Exploring Other Options. The above results, while significant, were perhaps underwhelming. I contacted the Master of Science in Statistical Practice (MSSP) through my institution to pursue additional analysis techniques. I presented the scope of the present study and shared fully anonymized data (e.g., open responses removed). The team explored several options and presented a case for a Bayesian approach rather than frequentist methods as described above. A generalized linear mixed-effects model (GLMM) approach allowed for the consideration for both fixed and random effects using R software. Markov chain Monte Carlo methods allowed for the estimation of posterior model distributions.

The results described below include 95% confidence intervals (CIs) of coefficients of all independent variables for all eight subscales. Coefficients, with a notably positive or negative estimate and a confidence interval that did not cross the value of 0, include the following: For success, locus scores were positively related to public schools. Internal control was positively related to programs under 50 and more than 150. For external control, programs over 150 were positive, whereas public schools and music education degrees were negative; gender had acceptable CIs, but both male and female overlapped one another. For stability, programs between 50–100 and over 150 were negative, and number of ensembles was slightly negative.

Coefficients for failure scores include the following: four-year institutions were negative whereas number of ensembles was slightly positive for locus; CIs for race and gender were non-zero, but again, overlap could not be overlooked. For internal control,

only number of ensembles was slightly positive. Both 4-year and high school settings were slightly positive for external control while public schools were negative; race and gender CIs again greatly overlapped. Finally, high school was negative for stability with public school and the “at least one non-White” subsamples as positive; gender CIs again overlapped. Appendix D contains coefficient CIs and observed versus posterior predictive simulations for each subscale.

From the GLMM regressions, it appears that public versus private schools accounted for differences in four out of eight subscales. The size of the program seemed to partially matter in three of four subscales for success. The number of ensembles seemed to slightly account for differences on three subscales. The level of student taught appeared to impact three out of four failure subscores, whereas the kind of degree appeared impactful only one success subscale.

Summary. To answer the third research aim, three primary methods were used. Linear regression did not yield reportable results. The ordinal linear regression (OLR), on the other hand, produced modest but statistically significant results for three subscales: external control for success, external control for failure, and locus for success. The generalized linear mixed-effect model (GLMM) approach identified at least one predictor variable for each subscale. In addition to the specific differences in how the tests are run, the differences between OLR and GLMM approaches may have been impacted by limitations of the data, such as subsample size for race and gender, the correlations between independent variables as noted above, or by treatment of the dependent variable data—i.e., the OLR utilized quartile binning of subscale scores. Additionally, the

frequentist versus Bayesian approaches each imply differing thresholds for acceptable results, such as p-values versus confidence intervals. In any case, both results support two takeaways: (a) not all subscores are related to the same independent variables; and (b) public versus private, number of ensembles, and level of instruction appear to relate to multiple subscale scores. Further discussion of the above results is continued in Chapter 5.

CHAPTER V

DISCUSSION & IMPLICATIONS

The purpose of this study was to examine the relationships between how choral directors perceive the reasons behind the outcomes of their ensembles' performances and the personal and vocational details specific to the participant. Questionnaire data included the following: the number of years taught at their institutions, number of distinct ensemble classes directed, size of choral program at their institutions, whether the institution was public or private, participant degree background, grade level taught, gender, race, and ethnicity (responses on the latter data did not include enough varied results sufficient for testing). Then, each participant responded to an open-ended prompt, first to describe the perceived main reason for their ensembles' most successful performance, then for their ensembles' least successful performance. After each prompt, participants responded to a series of items on a 9-point semantic differential scale, which were derived from McAuley and associates' (1992) Revised Causal Dimension Scale (CDSII). The questions on the CDSII corresponded four attribution dimensions—*locus*, *internal controllability*, *external controllability*, and *stability*. Scores from each question were summed to produce a subscale score for each dimension.

To address the central research questions, both parametric and non-parametric tests were conducted, partly to produce results that could compare with previous attribution studies, and partly because of the divergent stances on whether one approach or the other is appropriate for Likert-type responses (Ness, 2020), even though studies such that of Mircioiu and Atkinson (2017) demonstrated comparability between both

parametric and non-parametric results. Results from these tests are presented in Chapter 4. The following discussion pertains to the implications and limitations of those findings.

Success Versus Failure

The first aim of the study was to determine whether participants perceived the causes differently when considering their most and least successful choral performance in recent history, as measured by attribution dimension. Results from both paired Wilcoxon and t-tests were significant, supporting the assertion that participants attribute causes for success differently than for failure, particularly within locus, internal controllability, and stability dimensions. In all three of these dimensions, success scores were higher than those for failure, meaning that, overall, choral directors attributed most successful performances as having higher locus, internal controllability, and stability than least successful ones; mean differences were 2.91, 3.96, and 3.68, respectively.

These findings are interesting for two reasons: First, Weiner's (1986) model for motivation and achievement (Figure 1) indicates that the cognitive and behavioral processes differ if an outcome is simply positive than if it "is unexpected, negative, or important" (p. 16). Results support the assertion that outcome (i.e., success versus failure) affects how cause is perceived by the individual, and outcome is likely an important distinction to make when examining attributions—both within research contexts and in personal music performances. Second, results of the present study provide some support for an overall hedonic bias, as on average successful outcomes were associated with the higher locus scores, indicating that participants generally associated positive outcomes as having more to do with internal causes compared to failure outcomes. Referencing the

Weiner's (1986) model once more, the author illustrated that specific dimensions are linked to differing affective responses (locus with pride or self-esteem, controllability with shame, etc.). It was well beyond the scope of the present study to identify or quantify the emotions associated with the perceived causes of performance outcomes, although a future study could be designed to examine the relationship between dimensions and specific emotions such as anger or guilt in a music performance context.

Impact of Personal and Vocational Details

The second aim of the study was to determine whether dimensional scores for either success or failure were related to aspects of participants' background, institution, or demographics. Responses produced large enough subsamples to examine all questions except for ethnicity, as only four participants marked "Hispanic or Latino." Further discussion on demographic representation is presented below. As described in Chapter 3, subsample sizes were notably small for other questions, such as degree type and level of student taught, many participants marked more than one degree type or level taught. When possible, data were binned in ways to keep the data meaningful. For purposes of discussion, any results regarding race should be taken as nongeneralizable, as the low non-White representation in the sample does not warrant findings to be applied beyond the sample.

Results indicated that all personal and vocational aspects were related to at least one subscale, except for degree type and number of ensembles. Specifically, the study revealed the following: Following both success and failure, those who had taught for more years at an institution more likely reported lower internal control than newer

directors. Those directing larger programs also reported lower internal control. Additionally, directors reported lower external control for success if they taught in public schools or if they taught older students. Lastly, respondents were more likely to rate stability as higher for failure if they were male or if they had marked at least one non-White option; again, the low representation in the sample makes this latter result non-generalizable. In total, four out of eight subscales were significantly related to at least one personal or vocational aspect. For the years teaching and size of program, relationships were significant but not strong. Differences among categorical variables (level taught, public versus private, race, and gender) were also significant.

In all, the results provide meaningful nuance for conversation, suggesting that teaching environment or personal factors have some relevance in how choral directors perceive cause. Consider the choral educator whose early career begins in a small, private, K–8 school; twenty years later, this teacher has been involved in a large collegiate choral program at a public university. The findings in this study provide some support that time and changes of the vocational environment have impacted this educator’s perception of controllability surrounding performance outcomes. There would undoubtedly be other factors that change the director’s perception, yet the statistical basis of this inquiry opens a larger dialogue that sets a template toward evidence-based reflection on choral performance attribution, rather than merely on notions that are more impressionistic or anecdotal in nature.

Two variables that did not have significant relationships with attribution dimension scores are degree type and number of ensembles. For the former, I had

wondered whether participants with music education backgrounds would look at performance differently than those with performance backgrounds. One could assert that music education degree programs presumably more heavily emphasize standards and benchmarks (NAfME, 2014) than BA or performance programs, which could conceivably influence teachers to adopt a view of performance as an assessment of developed skills rather than a product. To better explore this potential dynamic, future research could help to identify whether philosophies about performance impact how a performance outcome is attributed. The number of ensembles did not significantly impact scores either. I wanted to see whether, say, one or two ensembles, limited a director's controllability over who sang in which ensembles. What was not adequately defined in the study, however, was whether multiple ensembles meant that there were both auditioned and non-auditioned, 9th grade versus 11th and 12th grade, similar-level, or stylistically differing ensembles. A subsequent study could specifically compare the performance attributions of introductory level, auditioned, or singular ensemble in a school.

The results of the study also revealed unexpected findings: namely, the interrelation between independent variables among the collected sample. Some relationships seemed logical, such as the number of ensembles and program size, as more students could easily (though not necessarily) mean more ensemble classes. The number of years taught was also related to program size, with larger programs led by more veteran teachers also being unsurprising. The variance among public versus private by degree type is also understandable, especially if state licensure policies differ between the

two school types (i.e., whether an education degree is required to teach at an institution). Public and private school directors also reported differences in number of ensembles, which could relate to the comparable differences in institutional enrollment size. Findings related to level taught are also interesting: postsecondary respondents were more likely to be male, at a private institution, direct fewer ensembles, and have a non-music education degree than those at other or multiple age levels, gender, and number of ensembles; and years taught with program size. One concern of the relationships between independent variables is that some relationship could have impacted the regression modeling process; indeed, significant results in Spearman rank, chi-square, and ANOVA tests described in Chapter 4 may suggest multicollinearity (Bhalla, 2015).

Score Prediction

The third aim of the study was to determine which factors could predict specific subscale scores. One of the obstacles mentioned above was whether to treat the semantic differential scale data (which are similar to Likert-type) as discrete numeric or as ordinal. The initial linear regression results were not promising, even after matching the ranges of subscales by converting to Z-statistics. It is possible that assumptions were violated, including those of homoscedasticity and collinearity.

Converting the dimensional scores into quartiles allowed a way to produce statistically significant ordinal logistic regressions on three subscales, all with significant goodness-of-fit: external control with success, external control with failure, and locus with success. Years, number of ensembles, and public versus private were common factors in all three. These results should be taken with caution. The McFadden's pseudo

R-square values were not between .2 and .4 to warrant an excellent fit (McFadden, 1977). Additionally, the data concerns described above make these model predictions tenuous. It is safe to say, however, that among the sample studied, at least some of the variance in those three subscale scores were influenced by several independent variables.

The GLMM regression approach implemented by the MSSP team identified at least one variable for each dimension with acceptable coefficients. The results indicate that public versus private, level of school taught, size of program, and number of ensembles appeared to predict multiple subscale scores. These results suggest that vocational context seems to matter regarding how choral leaders attribute performance outcomes. That said, it is worth mentioning is that attribution researchers (as introduced in Chapter 2) have overwhelmingly utilized a frequentist rather than Bayesian framework in their statistical analyses. The above results are out of sync with prior research, though that alone is not necessarily reason to avoid differing approaches. To ground these findings, further research is necessary to verify whether such results can be replicated. It is also possible that instrument revision or the identification of potentially latent variables would produce more satisfactory regression statistics.

Limitations

The findings described above were potentially impacted by several factors related to the sampling, survey process, and measurement. Improvement in one or more of these aspects may have improved test statistics, or perhaps even produce additional significant results. These proposed limitations are explored below for the sake of more comprehensively interpreting the present study's findings and to guide future research.

Sample

The sample size ($N = 167$) was deemed sufficient to warrant analysis of the data, but it is possible that a larger sample size would have produced improved results, particularly regarding reliability (Yurdugül, 2008). A larger sample would have also allowed for larger subsample sizes, including school level, race, and ethnicity; the latter of these was removed from analysis of the present study because of low representation. Additionally, the low number of non-White participants did not allow for sufficient group comparisons between racial identifications. The ability to explore the nuances of these variables could have provided a much more robust exploration of attributional differences within the sample.

According to Zippia (n.d.), in 2021, 74.1% of choral directors in the United States reported as White, with 9.5% identifying as Hispanic or Latino, 5.6% as Black or African American, 5.3% as Asian, and the rest as other or unknown. These statistics, however, do not appear to differentiate between school institutions, churches, community choirs, etc. Cronenberg and Williams' (2021) study of music teachers results differed, showing more than 80% of respondents as White and 6.11% as Hispanic; however, these findings do not differentiate between choral, general, instrumental etc. Demographic information from the affiliate organizations used in the present study was not available.

Even with more respondents per subsample, the present study sample may not accurately reflect the population of interest. Out of 298 respondents, only 56.04% completed the questionnaire and provided qualifying responses for ensemble direction in an academic institution. Additionally, respondents were recruited through three

professional organizations: College Music Society (CMS), American Choral Directors Association (ACDA), and National Association for Music Education (NAfME).

Although it is not possible to say for certain, the release of each organization's email or newsletter resulted in spikes in survey responses. From the date ranges, it is reasonable to assume that most responses came through NAfME, then ACDA, then CMS. It is difficult to surmise whether contacting alternative or additional professional organizations would have substantially improved the number or percentage of respondents.

Survey

The study results may have also differed with a more simplistic survey design. Many of the respondents who did not complete the questionnaire did not make it past the demographics page. It is possible that the questionnaire felt too long, or perhaps others took issue with being asked a wide range of questions. One respondent completed the questionnaire but commented on a demographic question that "these questions have NOTHING to do with the position." Such a response was unanticipated, but in hindsight, a more comprehensive piloting process could have revealed a lack of clarity on why the survey included demographic questions, which could have led me to include a concise but helpful explanation in the questionnaire.

The open response prompts that asked for the reason most responsible for participants' most and least successful performance resulted in a range of answers. Some included the continuance or ending of COVID-19 limitations most responsible for the performance outcome, others about the students and their interest or hard work, others about a performance venue and audience reception, and so forth. Future research may

benefit from more simplistic open response prompts, though I would caution including any examples in the prompt, lest a hypothetical reason should influence the response of a participant. Coding open responses, like the methods used in Asmus's (1986b) study, then comparing researcher interpretations to participant responses could shed light on potential disparity or congruence between actor and observer.

Measurement

The 12 items corresponding to four subscales were based on previous research (Russel, 1982; McAuley et al., 1992) and have been utilized among other populations including athletes (Crocker et al., 2002; Prosoli et al., 2021) and students (Perrin and Testé, 2010). In the present study, Item 11 was concerning because of its impact on reliability testing. Similarly, the same item negatively impacted confirmatory factor analysis Crocker and associates' (2002) study because of its relationship to locus and internal control. Even after the wording was slightly changed, participants in the present study may well have conflated the intended stability dimension with locus and/or controllability, depending how they conceptualized the phrase "cannot be changed" to mean stable or beyond internal or external control. As noted above, Weiner (1986) acknowledged the possible conceptualization of intentionality and globality as other dimensions Martinko and Thomson (1998) replaced the controllability dimension with globality, whereas Marlatt's (2004) included all five. Concerning the present study, there may be some value of revising the semantics of individual items to improve reliability, but it is also possible that developing instruments to measure other dimensions of attributions may provide deeper insights into how choral directors (and other populations)

process achievement outcomes.

Implications

The study was intended to investigate three main questions. Results provide support for the first question: participants attributed choral success differently than failure on three of the four subscales: locus, internal control, and stability. Side-by-side comparison of specific musical events is one aspect that distinguishes the present study from previous music studies, including those involving generalized or hypothetical perceptions as well as those involving real-life performance attribution (see Chapter II). The results of the present study provide evidence to address whether choral directors perceive causes of specific performances differently based on whether the performance was deemed successful. By considering the differentiated nature of attribution following success versus failure, ensemble directors who are disappointed by a performance may be able to more intentionally contextualize negative emotions and to be more purposeful about instilling positive changes. For example, a director at an ensemble adjudication may feel proud about one piece but angry about a second. Personal reflection could reveal that the successful piece was internally attributed to effective conducting while pointing to singers' lack of hard work for the disappointing piece. Attribution retraining appears to have utility in a variety of achievement contexts. Two such studies include that of Parker et al. (2018) in a study of student athletes and that of Lavasani and colleagues' (2012) study on high school female students, the latter of which showed an improvement of academic performance by implementing an attribution retraining that involved identifying which beliefs were inefficient or false. Further investigation is needed to

better assess which strategies and environments are more efficacious in retraining the attribution thoughts of choral practitioners.

Because success scores were higher than failure, there appears to be support for hedonic bias among the sample studied as well as the population at large (Miller & Ross, 1975; Weiner, 1986). If a choral director possesses a tendency to gravitate toward specific kinds of believed causes for failure—whether to avoid negative emotions or to shift responsibility—then the director will be less likely to consider a less pleasant explanation for the performance outcome. Most people probably wish to avoid unpleasant emotions by nature, but within specific contexts, acknowledging a more negative explanation can be advantageous. If someone desires to improve their performance preparation or pedagogic effectiveness, then examining the internal but changeable explanations for subpar performance may provide means to improve and to expect different results. On the other hand, the believed reasons for success are worth consideration so that a director can attempt to recreate the conditions surrounding success, particularly if they are internally controllable. Additionally, there is an implied responsibility to carefully consider what reasons are given for a performance outcome in front of students, especially if it was unsuccessful; citing reasons related to the singers themselves could evoke or exacerbate emotions such as hopelessness, shame, anger, or guilt. Although honest feedback is presumed to be important to music educators, feedback is more arguably impactful if it is methodical and intentional. Duke and Henninger (2002) differentiate between the type of feedback from expert and non-expert teachers, noting that the former features more frequent corrective and negative feedback;

results from their study indicated that both corrective and negative feedback were generally rated positively by observers. Through the lens of Weiner's (1986) model, future achievement striving and expectancy for success are related to the type of attribution; corrective feedback can have a strategic place in the classroom by emphasizing aspects that are changeable to help foster student hope and motivation for better performances in the future.

The second aim of the study—whether details about the individual or institution impacted dimensional scores—has some supporting evidence. Internal control was related to years taught and the size of program, and external control with success to grade level of students and whether the school was public or private. Stability with failure was related to gender and race, although the small number of non-White participants does not warrant generalizability of the results from the study. Presuming that the other findings can be applied to the greater population, it is fascinating to imagine how such details surrounding a choral performance can impact whether the leader views a performance as stellar or abysmal. This may also be particularly effective when comparing one's own choral performances with that of another director or institution. The choral educator may do well to consider the impact of such details, especially when self-deprecating one's own effectiveness or when conveying their perceptions to students. Realizing that some factors, such as program size or a public institution status, may influence a director's appraisal could lead to more robust appraisal of a choral performance—an approach that acknowledges poor performance but also articulates aspects that perhaps lie beyond a director's initial reaction.

Personal and contextual differences and their potential influence on attribution perhaps warrant a reexamination of Martinko and Thomson's (1998) model. The association of attribution dimensions with high or low distinctiveness, consensus, and consistency (see Chapter 2) serves as a lens through which to consider a director's own previous performances or the comparable performances of colleagues. The authors assert that the synthesized model can better inform decisions to promote behavior change of those under leadership and that it endorses a more thorough examination of attribution biases—particularly self-serving and actor–observer biases. Related questions for an ensemble leader might include: “Do other programs similar to mine have comparable performance results or limitations?” or “If the director or choir had been different but the performance been the same, would the reasons have been the same?” Additionally, it may be fruitful to find ways to pursue an external perspective, such as from a trusted colleague or mentor. If hypothetical questions or external feedback help to articulate a low consistency of underperforming, for example, then it is worth considering that stable factors are likely not the most responsible for a single poor performance.

The third aim of the study was addressed via regression modeling, which provided some support for the relationship between personal or vocational factors and attribution scores. The frequentist approach via OLR modeling identified significant but less than optimal results for locus with success and external control with both success and failure. Alternatively, the Bayesian approach via GLMM identified at least one variable for each scale, with size of program for three success subscales, level taught appearing on three failure results, and private versus public (four scales) and number of ensembles

(three) reported on a mix of success and failure results. The two regression approaches differed in other ways as described in the previous chapter. There are likely other factors not measured in the present study that play a predictive role on attributions of outcomes. It is useful to be aware that such relationships may exist among individuals. For example, as results from the present study suggest that the size of program and private versus public classification are related to internal and external control respectively, it is not difficult to imagine that a director who works with a large program in a public school might attribute failure differently than the one who leads a small program in a private school, even if both performances are arbitrarily similar in quality.

The study provides support that the perceived outcome (success or failure), and an assortment of other variables, impact the ways choral directors credit or blame themselves, others, or circumstances. Choral directors who gravitate toward unhelpful self-reflection may benefit from considering the aspects that might influence their judgements and choose to more thoroughly examine their explanations. Those who lead classrooms and seek to implement changes to their programs can more purposefully reflect upon the changeable elements related to performance. Those in mentorship or leadership roles, or those who teach or adjudicate other ensemble directors, would benefit from realizing that the one on the podium (i.e., the actor) will likely interpret performance success and failure differently, both because of actor–observer bias (Jones & Nisbett, 1972; Chen & Yates, 1990) and because the one on the podium carries unique vocational or personal factors, beliefs, previous experiences, and level of investment from the one observing. By realizing that both parties likely perceive the same event

differently, the mentor/leader can start by learning the mentee's perceived causes, then suggest other potential contributing causes that can be amended. If attributions are unhelpful or unchangeable, the mentor could guide the mentee to acknowledge causes that are changeable and have positive results, thereby retraining the attributions (Fösterling, 1985) the director acknowledges.

Future Directions

The present study was intended to investigate the perceptions of choral directors' successful and unsuccessful performance through the lens of attribution. The CDSII used by McAuley et al. (1992) provided meaningful insight into the degree to which participants believed success or failure was within or beyond themselves, was internally or externally controllable, and would likely remain stable or unstable. The instrument used in the present study raises reliability and validity concerns as addressed above, presumably due at least in part to the interrelation between subscales. New or modified instruments can be used to investigate choral performance or other music contexts, perhaps exploring other dimension such as globality or intentionality.

Other components of the Weiner (1986) model may also be worth exploring further, such as quantifying or classifying importance or expectedness of success or failure. Martinko and Mackey (2019) note, "We were also a bit concerned about the lack of progress in relating attributional processes to emotional processes." An example to this end could be an investigation of choral directors to explore the relationship between attributions and their emotional responses following choral performance events. Such an exploration may help to contextualize the specific emotions and the accompanying

cognitions following a disappointing music performance more clearly.

The significant statistical results are promising—especially those related to the first two research questions. From the results presented above, it appears that attributions for success versus failure generally differ, and aspects about choral directors themselves impact those attributions, particularly within controllability and stability dimensions. The personal and vocational aspects examined in the present study may also be worth further, more focused, examination. Public versus private school settings and number of ensembles appeared to relate to attribution responses in both regression approaches. As noted above, the potential interrelation between independent variables may have impacted the results of the present study. A more targeted study could involve a smaller number of institution-related aspects and their relationships with perceived control over choral success or failure.

The open-ended responses were intended primarily to focus the participants' answers to event-specific attributions. The amalgam of responses suggests that there are other nuances to be explored as related to performance outcome. Although qualitative research does not appear to be standard within attribution literature, more intentionally prompted open-ended responses, or even interview data, could reveal other aspects of choral performance related to how directors perceive choral success. It may be worth being able to more clearly differentiate between attributions, such as those locus factors related to instructor availability versus ability, or externally controllable examples related to circumstances versus specific personnel.

It is worth mentioning that attempting to code or otherwise measure open-ended

responses independent of the participants did not seem to be a fruitful venture. As supported by Asmus (1986b) and Stoeber and Becker's (2008) studies, the researcher may have difficulty concisely or consistently interpreting the responses of the participant. Consider, for example, that a director cites "difficult music" as responsible for a poor performance; however, there is nothing in such a response to suggest the degree to which a director presumes responsibility or that such things were controllable. One observer's interpretation might be that the director sees this cause internally and controllable, as more appropriate repertoire could have (or should have) been selected, while one could also imagine that "difficult music" is implying that the students' lack of ability is seen as external and uncontrollable. To this, I offer two considerations for future exploration: (a) The difference in interpretation listed above suggests at least some support for dimensional measurement, as *a priori* lists might not as effectively capture the true nature of attributed causes, and (b) The capacity for two parties to interpret something so differently carries weight in contexts of mentorship and evaluation. If a choral director interprets a cited cause differently from a mentor or supervisor, it may be wise for the other party to consider reasons for this difference in perspective, whether it relates to a tendency toward self-serving bias, an inability to remove the sense of internalization, or some other aspect that relates not only to the cause but to the emotional implications that might come with believing such a cause to be responsible.

Choral success appears to be difficult to define objectively, which is why the present study relied upon the director's most salient, self-designated examples. COVID-19-related performances, for example, were not associated with success, though there is

undoubtedly a tapestry of knowledge to uncover related aspects of such experiences, such as pedagogy, student engagement, audience response, and performance venue. Even within more typical performance contexts, quality may indeed elicit varied perceptions based on aspects external metrics such as audience applause, verbal feedback, student excitement, adjudicator ratings or initial conductor reaction. The type of evidence supporting choral success or failure is another aspect that could be more comprehensively explored through qualitative or mixed-method approaches.

One important aspect of the present research that sets it apart from previous music attribution studies is that the ensemble member or solo performer presumably is solely responsible for individual success or failure of a specific event, whereas the ensemble leader relies upon the musical performance of every ensemble member. Leadership attribution studies, such as those of Bettman and Weitz (1983) and Pagliarussi and colleagues (2008) provide some insight into the potential attributions of those in leadership roles, but musical performances involve contextual aspects unlike those found in traditional corporate environments or even in classrooms of non-performance disciplines. Looking into attributions of ensemble directors through the lens of leadership and member interaction could help to clarify how solo and ensemble performances psychologically differ, both from the perspective of a leader or of an ensemble member.

In a related vein, it is an interesting potential line of research inquiry to explore how choirs are like other organizations; for example, choral directors might consider themselves to be a part of their choral ensembles and interpret choir-specific attributions as internal, rather than to consider themselves to be external from the choir entity.

Although the context and the exact nature of what one might collect from choral conductors differs from the responses described in the leadership studies in Chapter 2, it does raise the question whether a conductor's attributions of their ensemble might be distanced (leader as distinct from singers) or invested (leader as responsible for the choral entity).

Choir rehearsals and performances involve a wide range of interpersonal interactions, both between the director and chorister and among the singers themselves. It is perhaps not a stretch to ask whether these interactions have any impact on performance results. Relational attributions (Eberly, et al., 2011) and related concepts may be important considerations to investigate facets such as peer cooperability, student compliance, belongingness, director approachability, mutual trust, and other social components of rehearsal and performance interactions. These are aspects that do not necessarily apply to musicians' individual successes or failures, but they are likely relevant to many choral directors. As Martinko and Mackey (2019) have noted, scholars do not agree as to how relational attribution conceptually interacts with dimensions more established within attribution literature. Even so, there are potentially important gains to come from further exploring how social dynamics impact perceived choral success or failure. Such inquiry could further strengthen choral educators' awareness of student perceptions and could better equip them to more discerningly prepare for concerts, adjudications, and other performance events.

One of the most pertinent implications of the study applies to choral practitioners: the causes believed responsible for a choral success or failure are worth examining.

Moreover, the emotions experienced in the light of failure are presumably related to those believed causes. Additionally, details about the choral environment or the individual may impact the way a choral director thinks about those attributions to at least some degree and likely include variables not tested in this study. Ultimately, these implications matter because unpleasant emotions and destroyed hope for success can be damaging. Without a plan to improve a situation, such turmoil might contribute to responses such as anger toward or verbally blaming students, desire to leave the profession, a resignation to accept that things will not improve, or other negative consequences. Perhaps the ability to recognize recurring thought and emotional patterns, and to determine whether dwelling on a believed cause is helpful, allows for positive change. The ability to identify elements or circumstances within a person's ability to change can boost motivation to strive for something better. Such a response may be beneficial on an individual level, or perhaps intentional guidance from a mentor is fruitful. A common invocation, often attributed to Reinhold Niebuhr and recapitulated by Littleton and Bell (2008) is as follows: "God grant me the serenity to accept the things I cannot change, courage to change the things I can, and Wisdom to know the difference" (p. 14). A better understanding of the processes behind assigning causality hopefully gives us the ability to better identify which beliefs are likely to encourage hope and expectancy of improved future outcomes.

APPENDICES

Appendix A: Informed Consent



Protocol Title: CHORAL CONDUCTOR PERCEPTIONS OF ENSEMBLE SUCCESS AND FAILURE: AN APPLICATION OF DIMENSIONAL ATTRIBUTION THEORY
Principal Investigator: Jacob Wittkopp
Description of Study Population: Adult choral directors who work in elementary, secondary, or post-secondary settings.
Version Date: October 12, 2022

Study Summary

The purpose of this research study is to examine conductors' perceptions of choral performance success as they recall past experiences.

Participants who take part in this research study will be in this research study for approximately 10 minutes. During this time, subjects will make complete an online questionnaire.

Participants taking part in this study will complete several items related to themselves and their music program. In the following items, participants will fill out open response and 9-point scale items related to attributable causes of choral performance outcomes. After completing the survey, participants will have the option to enter a raffle on a separate page to have a chance to win a gift card.

The risks of taking part in this research study include potential emotional discomfort when recalling less successful choral performances as well as a risk of loss of confidentiality. The principal investigator is taking precautions to protect participant information, which may include information about demographics, educational background, or characteristics of the choral program or institution. Participants have the option to provide an email address to if they wish to enter the gift card raffle; however, participants are not asked to provide names, locations, nor other contact information. The questionnaire is distributed using an anonymous link, and IP and geographic tracking are disabled.

Introduction

Please read this form carefully. The purpose of this form is to provide you with important information about taking part in a research study. If you have any questions about the research or any portion of this form, please ask us. Taking part in this research study is up to you. If you decide to take part in this research study we will ask you to indicate your agreement that you have read and understood this form.

The person in charge of this study is a Boston University student, Jacob Wittkopp, who can be reached at wittkopp@bu.edu. We will refer to this person as the "researcher" throughout this form. The faculty advisor is Dr. Karin Hendricks who may be contacted at khen@bu.edu.

What should I know about a research study?



Participation in research is voluntary, which means that it is something for which you volunteer. It is your choice to participate in the study, or not to participate. If you choose to participate now, you may change your mind and stop participating later. If you decide not to participate, that decision will not result in any penalty or loss of benefits to which you are otherwise entitled.

Why is this study being done?

The purpose of this study is to examine choral directors' perceptions of causes attributable to choral success and failure. We are asking you to take part in this study because you are a choral director in a school setting. Up to 200 participants are expected to take part of this research study at Boston University. It should take less than 10 minutes to complete the online questionnaire.

Who is Funding the Study?

The study is funded only by the principal investigator and has no external sponsor.

How long will I take part in this research study?

We expect that you will be in this research study for 10 minutes. During this time, we will ask you complete an online Qualtrics questionnaire.

What will happen if I take part in this research study?

If you agree to take part in this study, we will ask you to select that you have read and understood this consent form before we conduct any study procedures. Participation only requires one online session to complete the questionnaire. Should you choose to discontinue the study at any time and for any reason (such as duration or comfort with questions), you may simply close the browser window.

In the questionnaire, you will be asked to answer basic questions about your school/institution, choral program, your academic background, and demographic information. In the following sections, you will be asked to recall one of your most and least successful performances as a conductor and to determine the primary reason for each performance outcome. For each reason you provide, you will be asked to select the number that corresponds to how you perceive the nature of the attributed cause.

After the questionnaire is completed, you will have the option to either end the survey or be directed to a new window to enter a chance to win one of three \$25 Amazon gift cards. This portion is not required, and you may close your browser window at any time if you do not wish to complete it. If you choose to enter, simply enter a valid email address. This information cannot be linked with the questionnaire responses you previously entered. After the survey participation window ends, one entrant will be selected at random and notified on how to redeem the gift card via the email provided. The email will not be used for any other purpose.

What are the risks of taking part in this research study?

You may be uncomfortable with some of the questions and topics we will ask about. For example, recalling prior performance experiences may elicit undesired emotional responses. You do not



have to answer any questions that make you feel uncomfortable. You may stop the questionnaire simply by closing the browser window. The main risk of allowing us to use and store your information for research is a risk of loss of confidentiality.

Confidentiality:

We will protect participant confidentiality by restricting who has access to raw participant data. PI and faculty advisor will be able to see individual responses from participants, which will be password-protected via BU Qualtrics account on a password-protected computer. IP and geographic tracking are disabled in the Qualtrics survey. Published or presented data will be carefully presented to ensure identifiable information is not shared. Open-response questionnaire items that may be published or presented will be screened by the PI, and any identifiable names, places, etc. will either be removed or replaced with pseudonyms.

Study records may also be reviewed for quality control or safety by if needed by Institutional Review Board at Boston University, federal and state agencies that oversee or review research, or Central University Offices).

Are there any benefits from being in this research study?

There are no direct benefits to you from taking part in this research. However, participating in this study will provide opportunities for you to reflect upon your conducting practice in ways that may be helpful to your professional development.

What alternatives are available?

You may choose not to take part in this research study.

Will I get paid for taking part in this research study?

At the conclusion of the study, you will have the option to be directed to a second Qualtrics survey to enter a raffle to win one of three \$25 gift cards. If you are a winner, directions on redeeming the gift card will be sent to the email address you choose to provide. This email address will not be linked to any survey responses.

What will it cost me to take part in this research study?

There are no costs to you for taking part in this research study.

Who do I ask if I have questions or concerns about this research study?

Please call us with any concerns or questions about the research, or any research-related problems:

- ∇ **Principal Investigator: Jacob Wittkopp, wittkopp@bu.edu, Mon–Sat, 9AM–3PM**
- ∇ **Faculty Advisor: Dr. Karin Hendricks, khen@bu.edu.**

If you have questions about your rights as a research participant, or if you have any complaints or concerns and want to speak with someone independent of the research team, you may contact the Boston University Charles River Campus IRB at 617-358-6115. The [IRB Office webpage](#) has information where you can learn more about being a participant in research, and you can also complete a Participant Feedback Survey.

**Statement of Consent**

By selecting the corresponding box, I indicate that I have read the information in this consent form, including risks and possible benefits. I have been given the chance to ask questions. I understand that I can download or print a PDF of the above information by clicking here [*downloadable PDF version of this document*]. My questions have been answered to my satisfaction, and I agree to participate in the study.

I agree to proceed.

No, thank you. I choose to stop participating at this time.

Appendix B: Questionnaire Script¹

Background Information

- Which of the following describes your primary educational background that prepared you to conduct choral ensembles (check all that apply)?
 - Degree in music education
 - Degree in music performance, conducting, or other music concentration
 - Notable experience in professional, church, or other non-academic settings
- For how many years have you been conducting at least one choir at your current institution? _____
- Of the choral ensembles you conduct, how many are classes at your institution? (list exact number of distinct ensemble courses) _____
- Which of the following best describes the student enrollment of your school/institution's choral program (either conducted by you or others)?
 - Less than 50 students
 - 50–100
 - 100–150
 - 151+
- Which of the following best describes the school/institution where you are employed to conduct at least one choral ensemble class (check all that apply)?
 - Elementary school
 - Middle/junior high school
 - High school
 - Two-year or community college
 - Four-year college or university
 - Post-secondary conservatory/fine arts institution
 - Other: _____
- This school is best described as:
 - Public
 - Private
- Your ethnic background:
 - Hispanic or Latino
 - Not Hispanic or Latino
 - Prefer not to answer
- How would you describe your racial background? Mark all that apply.
 - American Indian or Alaska Native

¹ Exact format and text may be altered slightly for optimal online participation.

- Asian
- Black or African American
- Native Hawaiian or Pacific Islander
- White
- Prefer not to answer
- Gender
 - Female
 - Male
 - Prefer not to answer
 - Comment: _____

CDSII² (Modified)³

- Question 1A: Recall one of your ensemble’s **most successful** choral performances in recent history (within the past three years, if possible). It can either be an entire work or a shorter piece. Think about the main reason or cause that was most responsible for your ensemble’s success. Please briefly summarize that reason or cause below:

- Question 1B: For each of the paired statements below, please select the degree to which you believe the cause you provided in the previous question aligns with one statement or the other.

Do you see the cause of this **successful** performance as something that:

1. Reflects an aspect of yourself 9 8 7 6 5	5	Reflects an aspect of the situation or others 4 3 2 1
2. Is under your control 9 8 7 6 5	5	Is not under your control 4 3 2 1

² McAuley, E., et al. (1992). Measuring causal attributions: The revised Causal Dimension Scale (CDSII). *Personality and Social Psychology Bulletin*, 18(5), 566-573.
<https://www.doi.org/10.1177/0146167292185006>

³ Scoring: Dimension-specific scores are based on the following sums: (a) locus of control corresponds with items 1, 6, and 9; (b) external control with 3, 7, and 11; (c) stability with 3, 7, and 11; and internal control with 2, 4, and 10.

- | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|--|
| 3. Is permanent | | | | | | | | Is temporary |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 4. You can regulate | | | | | | | | You cannot regulate |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 5. Other people can control | | | | | | | | Other people cannot control |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 6. Is inside of you | | | | | | | | Is outside of you |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 7. Is consistent over time | | | | | | | | Changes over time |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 8. Others can influence | | | | | | | | Others cannot influence |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 9. Has more to do with you | | | | | | | | Has more to do with others/circumstances/environment |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 10. You can influence | | | | | | | | You cannot influence |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 11. Cannot be changed by anyone | | | | | | | | Can be changed by someone |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |
| 12. Other people can regulate | | | | | | | | Other people cannot regulate |
| | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 1 |

- Question 2A: Recall one of your ensemble’s **least successful** choral performances in recent history (within the past three years, if possible). It can either be an entire work or a shorter piece. Think about the main reason or cause that was most responsible for your ensemble’s less than successful experience. Please briefly summarize that reason or cause below:
-

- Question 2B: For each of the paired statements below, please select the degree to which you believe the cause you provided in the previous question aligns with one statement or the other.

Do you see the cause of this *less successful* performance as something that:

13. Reflects an aspect of yourself									Reflects an aspect of the situation or others
	9	8	7	6	5	4	3	2	1
14. Is under your control									Is not under your control
	9	8	7	6	5	4	3	2	1
15. Is permanent									Is temporary
	9	8	7	6	5	4	3	2	1
16. You can regulate									You cannot regulate
	9	8	7	6	5	4	3	2	1
17. Other people can control									Other people cannot control
	9	8	7	6	5	4	3	2	1
18. Is inside of you									Is outside of you
	9	8	7	6	5	4	3	2	1
19. Is consistent over time									Changes over time
	9	8	7	6	5	4	3	2	1
20. Others can influence									Others cannot influence
	9	8	7	6	5	4	3	2	1
21. Has more to do with you									Has more to do with others/circumstances/environment
	9	8	7	6	5	4	3	2	1
22. You can influence									You cannot influence
	9	8	7	6	5	4	3	2	1
23. Cannot be changed by anyone									Can be changed by someone
	9	8	7	6	5	4	3	2	1

24. Other people can regulate

Other people cannot regulate

9 8 7 6 5 4 3 2 1

- Thank you for completing this questionnaire. Your responses are an essential part of this study. Please choose one of the following options:
 - I'm done. Goodbye!
 - Thank you for your participation. You can exit this window.
 - I'm interested in a chance to win a \$25 gift card.
 - We thank you for your time spent taking this survey. Your response has been recorded. [*redirect to separate URL*]

Appendix C: Recruitment Materials

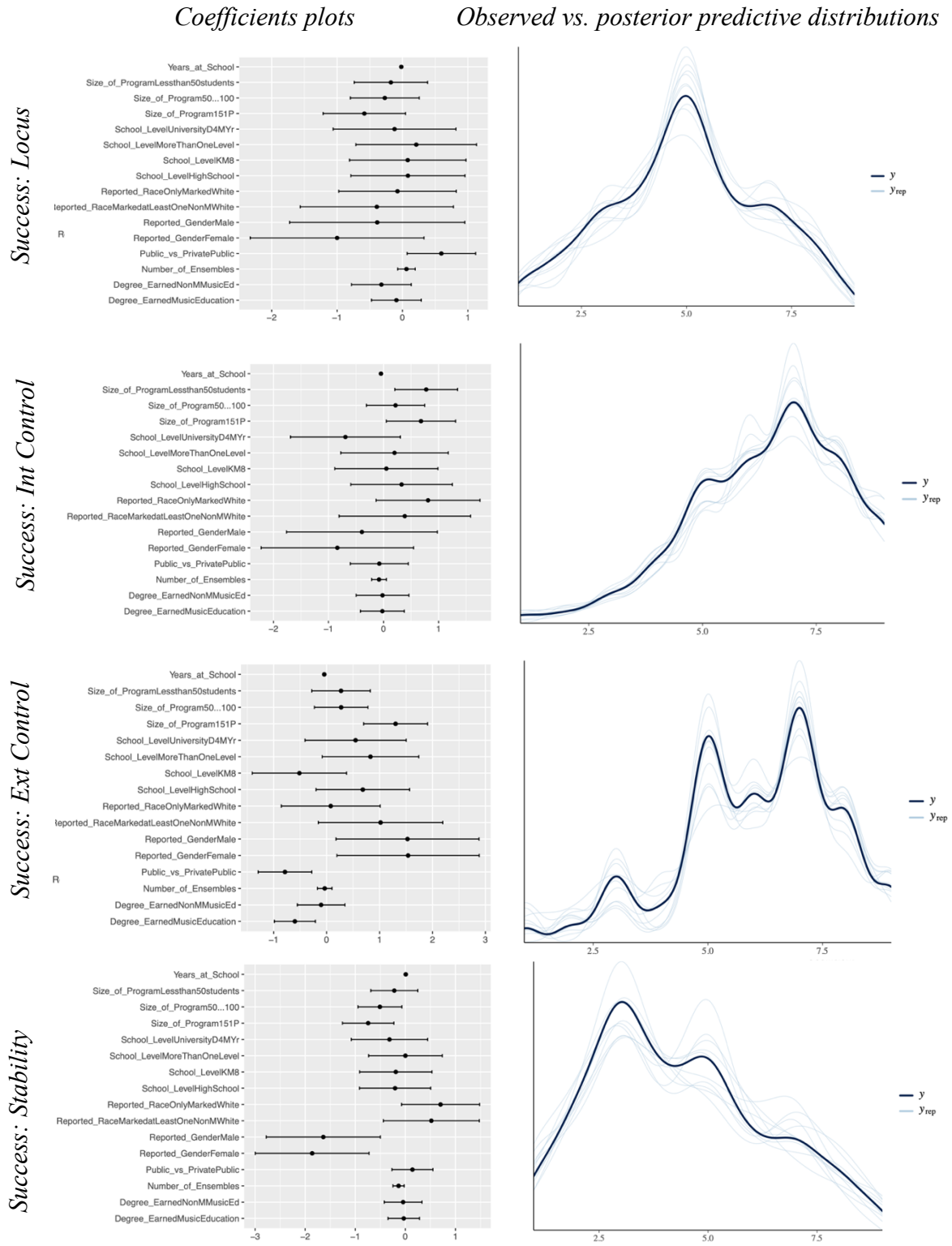
A request to participate in the dissertation study will be sent to professional music educator organizations (as described in the CRC Exemption Application) and will include the following text:

Choral Director Request: Participation in Research Study.

Dear choral colleagues, my name is Jacob Wittkopp, and I am a doctoral candidate at Boston University. I am asking you to participate in my dissertation research study. The study involves the perceptions of collegiate, secondary, or middle school choral conductors when they reflect upon performance outcomes of their own ensembles. I am asking you to add your valuable input by completing a short research questionnaire. After completing the questionnaire, you have the option to enter a raffle to win one of three \$25 Amazon gift cards. The questionnaire should take less than 10 minutes to complete. Participation is voluntary, and you may discontinue participation at any time if you wish. The link to the informed consent and questionnaire can be found [here](#) or by following the link below. Please do not hesitate to reach out with any questions or clarification. Thank you for taking a moment to consider this opportunity. Best regards, Jacob H. Wittkopp, DMA Candidate-Music Education, Boston University, wittkopp@bu.edu.”

Survey Link: https://bostonu.qualtrics.com/jfe/form/SV_4Z3PkzEf4k3unzg

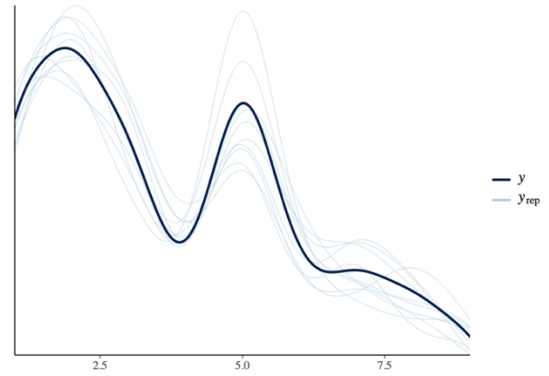
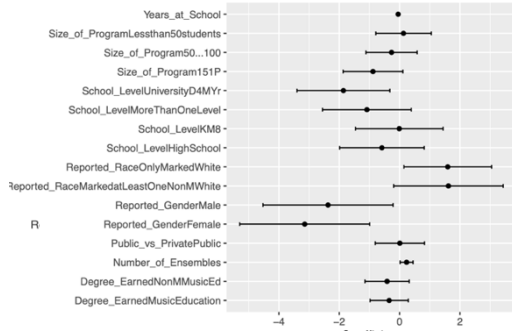
Appendix D: GLMM Plots



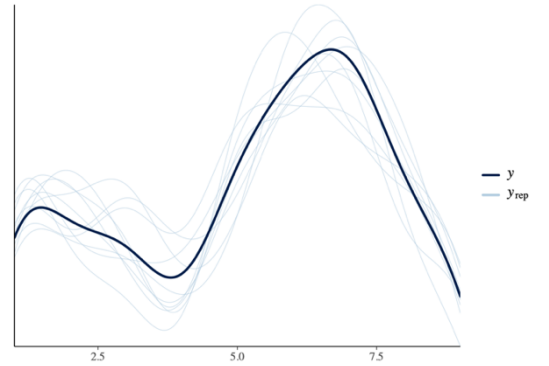
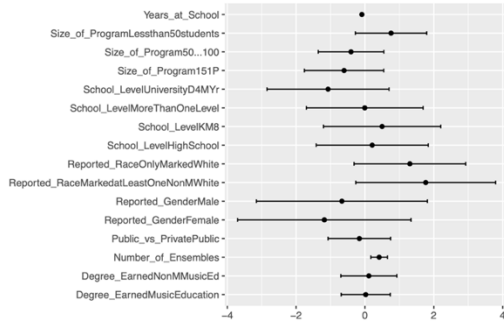
Coefficients plots

Observed vs. posterior predictive distributions

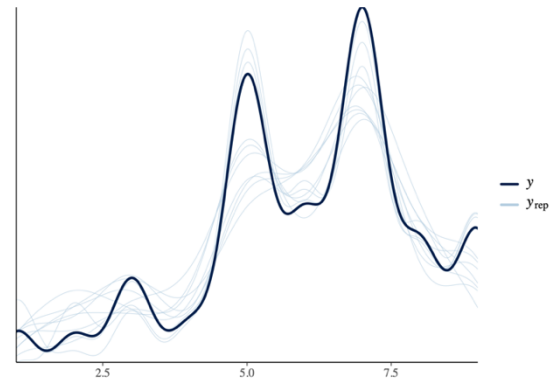
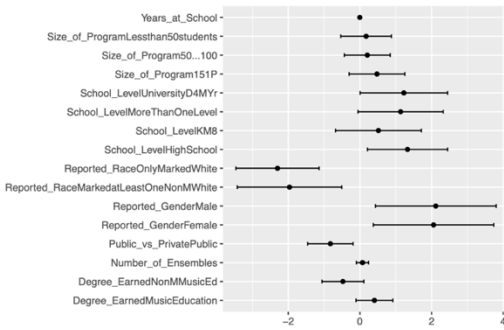
Failure: Locus



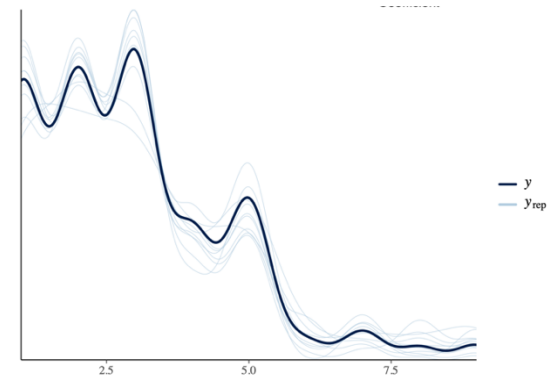
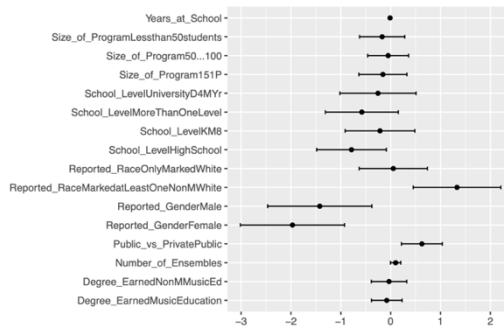
Failure: Int Control



Failure: Ext Control



Failure: Stability



Note: Plots courtesy of MSSP team (2024, unpublished). Used with permission.

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