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Development and Validation of a Scale to Measure Songwriting Self-Efficacy (SSES) with Secondary Music Students

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by

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I wish to start by acknowledging two pandemics inflicting the present society in which I live. A new virus continues to spread across the country. At the same time, our society is attempting to confront an eternal virus of indifference and oppression towards people we perceive to be different than ourselves. A research project to partially satisfy the dissertation requirements for a Ph.D. in music education is not going to save us from the new virus affecting the health of our loved ones. It **can** make a difference in fighting the pandemic of hatred towards others. I wish to acknowledge that songwriting can give a voice to someone we might not listen to otherwise. Songwriting can be used to help us understand the worldview of others, to empathize with their experiences, and to artistically share our own reactions to what we see, hear, and feel. Now more than ever, I acknowledge that music education is needed to make the world a better place.

Dedication

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Abstract

Social cognitive theory was developed to explain how individuals learn, in part, by witnessing the behavior of others. Self-efficacy is a construct within social cognitive theory which indicates the beliefs that an individual can be successful at a task under specific situational demands. The sources of self-efficacy include self-evaluating past experiences to predict future success, comparing our abilities to those around us, the verbal and social feedback we get from others, and the physiological feelings we experience when engaged in or thinking about the task. Measures of self-efficacy have been shown to be accurate predictors of successful learning outcomes, achievement, and continued participation in an activity in the face of adversity. Within the context of music education, measures of music performance self-efficacy have been developed which have been accurate predictors of success and continued participation in competitive environments. As music education moves online and becomes more learner-centered, and additional ways of thinking and knowing are privileged in the classroom, it would be beneficial to have measures of self-efficacy that extend beyond the traditional ensemble structure of instrumental or vocal performance self-efficacy. The purpose of this study was to develop and validate a measure of songwriting self-efficacy with U.S. secondary general music students ($N = 108$). A confirmatory factor analysis (CFA) with oblique-promax rotation was conducted using structural equation modeling (SEM) to measure goodness-of-fit and structure coefficients. The model was specified and fit Bandura's model of self-efficacy. Correlations between the Songwriting Self-Efficacy Scale (SSES) and related constructs demonstrated high

levels of convergent validity. Additional steps were needed to increase the criterion-related validity of SSES. Overall, this study resulted in a developed and validated measure of songwriting self-efficacy.

Chapter One: Introduction

At the time of data collection and analysis, the CoVID-19 pandemic had not yet started. The negative financial ramifications to education, specifically music education, are likely to be consequential for years. This study was completed in a time before social distancing and mandated online learning. This is important to note because the framework of this study relied on the idea that we learn through socialization. It also captured data from a time when ensemble learning was the dominant musical activity in United States secondary schools. It is possible, if not likely, that learner-centered activities such as songwriting will become more common in the upcoming school years. The final submission of this document also took place during a period of extreme social unrest in the United States. There is yet another potential for a seismic shift in the predominant learning activities in U.S. secondary music classrooms. Now more than ever, it could be argued, is the time to embrace the personal and therapeutic nature of songwriting. It is time to empower our students to artistically respond to issues (Cooper, 2019), to learn to process their pain, and to make their voices heard.

Description of the Study

This manuscript details the development and validation of a measure of songwriting self-efficacy with U.S. students enrolled in secondary general music programs. For the purpose of this study, any secondary non-ensemble music course is referred to as a "Secondary General Music" course. The framework for this study utilized research in the domains of self-efficacy, Self-Determination Theory (SDT), and the philosophical foundation of songwriting. The sources of self-efficacy and the utility for measuring various self-efficacies were deduced by

synthesizing empirical investigations and recommendations by Bandura (1977 to present) and music education researchers who study self-efficacy. The self-perceptions of internal motivation, an autonomous learning climate, and competence for learning were included from SDT to explore the effects of environmental and internal perceptions on the self-efficacy of students. As self-efficacy requires an individual to consider their ability to execute a task under situational demands, it would be useful to investigate the perceptions of the environment and the self-influenced self-efficacy. In this study, the "situational demand" refers to writing songs as part of a class. Therefore, data would be collected to include perceptions of the learning environment and perceptions of one's ability to be successful and the ability to self-regulate in the context of a songwriting class. This creates the potential to see how perceptions of the learning environment and learning ability influence self-efficacy, the cognitive mechanism which influences if we stick with a task in the face of increasing challenges. The role of songwriting in schools is included in the framework from a largely philosophical perspective because of the qualifications of songwriting to meet the recommendations of eminent music education scholars as a comprehensive, inclusive, and personal form of music education (e.g., Sarath, 2017).

These frameworks were concatenated to form the purpose of this study. Five research questions were created to address validity in the development and validation of a measure of songwriting self-efficacy with U.S. students enrolled in a secondary music course. Purposeful sampling was employed to collect data across multiple states from secondary students who write songs in school as part of their secondary music curriculum. Purposeful sampling was required due to the relative scarcity of these programs at the secondary level in the United States compared to the availability of band, orchestra, and choir programs.

Before data collection, the developed measure (Songwriting Self-Efficacy Scale; SSES) was reviewed by experts in the field for content and face validity. Several suggestions were made and the developing measure was revised before any data were collected. Data were analyzed to ensure reliability and trustworthiness. The data were found to be reliable and analysis proceeded. Confirmatory factor analysis (CFA) revealed a well-constructed measure, however, goodness-of-fit indices (i.e., Chi-Square, GFI, RMSEA, CFI) were significantly improved by removing two questions (original #13 and original #16). The final analysis revealed a statistically reliable survey with 18-questions. The developing measure (SSES) was then assessed for convergent and criterion-related validity. It was found to show an appropriate level of convergence with related constructs and demonstrated a strong empirical relationship with constructs from SDT. The results together suggested the developed measure (SSES) was successfully created.

More research was needed to enhance the criterion-related validity of the measure for immediate use in the classroom by teachers as a tool for assessment. Individual questions were described to highlight areas where students were scoring highest and the classroom implications for these scores were discussed. Additionally, the process of analyzing individual questions illuminated areas where students were likely to need more immediate support. Future research should examine interventions in the classroom which increased specific sources of self-efficacy for students based on individual need. In conclusion, the Songwriting Self-Efficacy Scale (SSES) is ready for application. With future studies directly focused on growth interventions in the classroom, the SSES may gain utility as an assessment tool for secondary music teachers.

Theoretical Framework

Self-Efficacy

A review of self-efficacy is likely to start with a reference to Albert Bandura (b. 1925), considered by many as the "father" of self-efficacy research through his development of social cognitive theory. One application of social cognitive theory has been to explain how humans acquire knowledge though social interaction and function within complex social systems (Bandura, 1986). This particular application of social cognitive theory has been useful in the field of clinical and educational psychology through the development of what has been termed self-efficacy. When constructing a scale for self-efficacy, it is important to note that perceived ability is not what is being measured, but "rather the strength of assurance [an individual] *can execute* given activities under designated situational demands" (Bandura, 2007, p. 646, *italics in original*). Within this framework, self-efficacy is measuring how various external and internal forces affect how ability is demonstrated during a task-based performance (Bandura, 1983), such as performing on a musical instrument or writing a song. Any fluctuation in demonstrated performance could be a result of shifting ability due to cognitive, motivational, self-regulatory, or affect regulation skills (Bandura, 1990).

Self-efficacy as a construct is best understood as a "cognitive mechanism" (Bandura & Jourden, 1991; Bandura, 1997; 2018). Like other mechanisms, self-efficacy consists of multiple moving parts. Several sources of influence exist, which work in tandem to affect an individual's level of self-efficacy. While each source may be uniquely captured through well-developed scales (Bandura, 2006), it is imperative to consider that each source likely influences cognitive, motivational, affective, and self-regulatory processes jointly rather than as isolated or independent forces (Bandura, 1993). The sources of self-efficacy have been theorized and

empirically validated to include reflections on past mastery experiences or failures (Bandura & Cervone, 1983), vicarious comparisons of those relevant to the individual (Bandura & Jourden, 1991), feedback received through verbal and social cues (Bandura & Cervone, 1983; Bandura *et al*., 2003), and the physiological and affective response an individual might experience during a task (Bandura, 1993).

Studies on self-efficacy have been conducted to show how these four sources cause an individual to behave or think of themselves in ways that are self-hindering or self-enhancing (Bandura, 2001). Within this framework, self-efficacy has a direct effect on self-regulated behavior in the classroom such as goal setting and motivation (Bandura & Schunk, 1981; Bandura, 1997; 2013). When self-efficacy beliefs are high, an individual is more likely to persevere in the face of challenges and obstacles. For example, an individual with high enactive mastery self-efficacy beliefs might be motivated by failing to succeed, whereas an individual with low self-efficacy may ultimately give up and be unmotivated to improve a performance because prior experiences has caused this individual to believe trying harder will not improve their performance (Bandura & Cervone, 1983; Bandura, 2015).

Past enactive mastery experiences are likely the most significant source of self-efficacy (e.g., Zelenak, 2015). However, other sources, such as vicarious comparisons, affect the magnitude of the goal set for subsequent tasks. For example, an individual that has completed a substandard performance might be satisfied with setting lower goals when vicarious comparisons to those around them make them feel that their substandard performance was still better than everyone else (Bandura & Jourden, 1991). If the verbal feedback by the teacher corroborates that their performance was better than their peers, the individual would become satisfied with "lowering the bar" to achieve at a level deemed socially acceptable (Bandura & Cervone, 1983).

This allows the individual to save energy by reducing both the level of effort exerted and the fear that their performance will be judged as unacceptable. Long term health is ultimately affected by the amount of energy needed to cope with stressful situations, such as overcoming a poor performance (Bandura, 2001). In an academic environment where students are navigating social, educational, and biological transformations, once the effort needed to perform adequately in the eyes of the individual, their peers, or their teacher outweighs the self-enhancement found in positive experiences, that the student is likely to quit and disregard attempts to practice self-regulatory behaviors, such as expending additional effort to succeed on what should have been an attainable task (Bandura, *et al*., 2003). When developing future interventions which improve a source of self-efficacy, it is important to remember how these sources interact. From an educational standpoint, self-efficacy is important for music teachers to consider as it is likely to predict successful learning outcomes as well as continued participation in the activity in the face of adversity or failures.

Self-Determination Theory

Self-Determination Theory (SDT) is most concerned with behavior regulation as it relates to perceived autonomy, competence, intrinsic motivation, effort, and proactive coping with failures (Williams & Deci, 1996). SDT assumes that "healthy motivation needs to be intrinsic in nature" while educational psychologists have noted that secondary classrooms tend to be performance-oriented, with extrinsic motivators outweighing the opportunity to develop intrinsic motivation (Van Nuland, Taris, Boekaerts, & Martens, 2012). Research has shown that intrinsic motivation is best enhanced through multiple supportive autonomous relationships, with the perceived autonomous support of the teacher outweighing the influence of perceived peer and familial autonomous support (Guay, Ratelle, Larose, Vallerand, & Vitaro, 2013). Perceived

competence is thought to directly affect intrinsic effort (Troum, 2010), which together is used to accurately to predict success in making a positive behavior change (Williams, Freedman, & Deci, 1998) or in following through on a commitment.

SDT is included in the framework of this study as a way to show how perceptions about the learning environment affect motivation and efficacy beliefs, which according to theory, would have implications for continued musical participation, academic outcomes, and even the future career choices of students (Cooper & Burns, 2019). As teachers have control over the learning experiences and processes in their classrooms, it is important to understand how shaping their students' environment as autonomously-supportive and intrinsically-oriented influences the efficacy beliefs of their students.

Songwriting as Creative Music Education

Within the framework of this study, I purport that songwriting as a featured activity in secondary music programs aligns with empirical research on best practices for learning with regards to autonomy and theories of motivation and efficacy. Researchers have found that familiarity and repetition decrease motivation and goal setting during positive mastery experiences, likely because the challenge of performing well is decreased to the point of no satisfaction when an individual successfully executes control over a performance (Van Nuland, Taris, Boekaerts, & Martens, 2012). The efficacy to write original music gives an individual the constant "newness" needed in an activity to alleviate the boredom of repetition. An individual who performs well can only learn so much music for one instrument and can only raise the bar so high to maintain full motivation as a secondary ensemble musician. This is likely to be truer within the immediate classroom, where ensemble music must meet the needs of the least-skilled for performance. Exceptional instrumentalists in a secondary music ensemble likely possess

skills far above what is needed to perform in the classroom on a day-to-day basis. Despite a student's positive mastery experiences in class, it is possible that vicarious comparisons to peers they are outperforming (Bandura & Jourden, 1991), combined with positive feedback from their teacher (Bandura & Cervone, 1983), are actually resulting in decreased intrinsic motivation and the likelihood of continuing the activity in the future. One underlying problem to this process could be a rigid curriculum based on group performance (Kaschub, 2014). Songwriting is one such musical activity which allows the individual to progress and excel at their own pace.

In addition to the motivational and efficacious reasons for songwriting, I believe there is a personal and spiritual need to create (Randles, in press) and share (Frankl, 2006) as part of the human experience. From a philosophical perspective, music is a representation of our lived sonic experiences. The role of music education as a core subject in the humanities is to help understand our place in the world and how our actions affect others (Cooper, 2019), and to help us process the uncomfortable reality of living in a world full of unknowns. Songwriting helps us make sense of our surroundings by creatively communicating with others in a way that words alone cannot express. From this perspective, it is the duty of music educators to support students in learning how to effectively communicate through sound. Myself and others (e.g., Holderried, 1969; Hickey, 2001; Kratus, 2007; 2014; Randles, 2009; Tobias, 2012; 2013; CMS Task Force, 2014; Kaschub & Smith, 2014; Vasil, 2015; Wall, 2018; Hess, 2019) champion the idea that songwriting is a creative and powerful way to engage students in becoming empowered, artist-citizens.

Rationale

Self-efficacy is likely to predict successful learning outcomes as well as continued participation in an activity (e.g., McCormick and McPherson, 2003; Stajkovic, Bandura, Locke,

Lee, & Sergent, 2018). Music studies in both self-efficacy and self-determination have largely centered on performance at the secondary (e.g., Hendricks, 2014; Hewitt, 2015; Thorpe, 2017, 2018) or tertiary level (e.g., Asmus, & Harrison, 1990; Draves, 2008; McCormick & McPherson, 2003; Miksza, 2011). Ultimately, greater attention to the role creating original music in the development of student musicians and lifelong music makers has the potential to contribute significantly to the field of music education. The rationale for including the influence of perceptions of self-determination on efficacy beliefs comes from Bandura's own assertion (1990) that fluctuation in performance is a result of cognitive, motivational, self-regulatory, and affect regulation skills. The framework of this study recognized that self-efficacy alone does not predict performance, but is a rather important component in trying to capture the variance present in studies on achievement and participation.

As far as can be determined, there is not a measure of songwriting self-efficacy. Such a measure could be useful in secondary general music programs an assessment tool to predict student achievement and continued participation in songwriting. The measure could also be used with music teacher education (MTE) programs as one component of evaluating comprehensive musicianship efficacy.

Future music teacher educators with high levels of songwriting self-efficacy would likely make the decision to teach songwriting to their students. This would be an important efficacy belief to cultivate in future music teachers if the field of music education continues to diversify the curriculum of secondary music programs.

Purpose

The primary purpose of this study was to develop and validate a measure of songwriting self-efficacy with secondary school music students in the United States. The ancillary purpose of

this study was to broaden the scope of self-efficacy that is considered to be valid and measurable in music education from beyond a performance-only domain to include more creative aspects of music making. It aims at leaving researchers with ideas for future projects which might be used to validate comprehensive music practices in secondary and tertiary classrooms. It was not possible to establish a causal link or steadfast recommendations for best music education practices as a result of this study alone. Successfully validating this measure would allow future research in several areas such as music teacher education (MTE), secondary general music assessment, and creative identity assessment. The following questions were used to satisfy the purpose of this research project.

Research Questions

- Research Question #1: To what extent do student responses on the developed measure (SSES) offer evidence of reliability and support for other statistical assumptions?
- Research Question #2: Do student responses on the Songwriting Self-Efficacy Scale (SSES) fit Bandura's model of self-efficacy?
- Research Question #3: To what extent does the developed measure (SSES) have convergent validity with creative self-concept and music performance self-efficacy?
- Research Question #4: Does the Songwriting Self-Efficacy Scale (SSES) demonstrate an empirical relationship with perceived learning climate, perceived competence, and intrinsic motivation?
- Research Question #5: To what extent does the developed measure (SSES) demonstrate potential as an assessment tool for use by teachers in secondary music classrooms?

Definitions

The following is a list of operational definitions for the purpose of clarity throughout the study.

- Grade Level – In this study, primary grades were considered kindergarten through sixth grade. All participants in this study were enrolled in a United States secondary school, which in this study specifically meant grades seventh through 12th. This categorical variable was used to verify that student met eligibility criteria.
- Sex – Sex is a biological trait not to be confused with gender, which is an identity. The terms for biological sex differences are dichotomized as male and female. Researchers in the United States are not supposed to ask participants under the age of 18 to report if they identify as boys, girls, men, women, etc. Sex in this study was not recorded under the guise that males and females are cognitively different in any way. Efficacy beliefs have been used to predict career choice in scientific and technical roles when controlling for prior achievement, aptitude, and interest (Lent, Brown, & Larkin, 1984, 1986, 1987; Lent, Lopez, & Bieschke, 1993). Differences in efficacy beliefs in this study by sex could have implications about the learning climate of classrooms for those wishing to be musicians (Cooper & Burns, 2019) and music educators.
- Ethnicity – The labels for the categorical variable of ethnicity were taken from the United States census data collection methods. Unlike sex, ethnicity contains elements of identity and culture. Differences in efficacy beliefs in this study by ethnicity could have implications about the learning climate of classrooms and for those wishing to be musicians and music educators.

- Songwriting Self-Efficacy – This continuous variable will be used to measure the strength of assurance an individual can successfully write songs to the best of their ability under various situational demands. The scale is modeled after a dissertation by Zelenak (2011) and is meant to capture all four sources of self-efficacy. The total score is an aggregate of four subscales across 18-items (Appendix C)
- Music Performance Self-Efficacy – This continuous variable was used to measure the strength of assurance an individual can successfully perform music on a familiar instrument to the best of their ability (Zelenak, 2011).
- Perceived Competence for Learning – This continuous variable was used to measure the strength of assurance an individual feels they can succeed in their music class (Williams & Deci, 1996). It is highly validated in educational fields with high internally consistency and has been shown to be an accurate predictor of maintained behavior change, effective performance, and internalization of values when measured together with perceived autonomy.
- Perceived Autonomy Support – This continuous variable was used to measure perceptions of the learning climate with respects to autonomous support held by an individual (Williams, Freedman, & Deci, 1998). The total score is an aggregate of six questions, written specifically to the domain being studied.
- Intrinsic Motivation, Effort Subscale – This continuous variable was used to measure self-perceptions related to how much effort a participant puts towards their music class (Williams & Deci, 1996).
- Creative Self-Concept – This continuous variable was used to measure the creative self-efficacy and creative personal identity of participants (Karwowski, 2012).

Chapter Two: Literature Review

This chapter contains three main sections: (a) self-efficacy studies, (b) self-efficacy studies in music education, and (c) studies in self-determination theory (SDT). First, the section on self-efficacy studies illuminates original research by Bandura and colleagues who developed the theory of self-efficacy, followed by research linking efficacy beliefs and self-regulation, and ending with research demonstrating an empirical relationship between efficacy beliefs and task performance, academic achievement, and resilience in the face of adversity. Second, the section on self-efficacy studies in music education will include a review of measures of music performance self-efficacy and other studies looking at the effects of competitive ensemble environments on efficacy beliefs. The third section on self-determination theory includes an overview of the development of the construct, followed by studies with SDT in educational settings, and finished with a look at music education studies using SDT constructs as framework, with a larger focus on achievement and self-regulation. Finally, these three bodies of literature are synthesized to show how this study fills a gap in the literature by expanding the breadth of musical efficacy beliefs captured by proposing and developing a measure.

Self-Efficacy Studies

Interaction of Sources

Bandura's social cognitive theory is the foundation for the self-efficacy mechanism that explains how various forces affect an individual's ability to perform to their highest abilities under situational demands (Bandura, 2018). These forces have been labeled enactive mastery experience, vicarious comparison, social and verbal persuasion, and physiological and affective

response. While each source is able to be isolated through measurement, sources ultimately affect one another in complex ways. Raising efficacy beliefs through any one source can have an impact on the other three (Bandura & Jourden, 1991), with positive and negative interactions possible depending on overall levels of self-efficacy (Bandura, 2015).

Enactive Mastery Experience

Enactive mastery experiences occur when a participant personally experiences success or fails to complete a task or behavior change. These prior conceptions of success and failure are part of what keeps us motivated to succeed in the presence of obstacles (Bandura & Cervone, 1983). It was found when a participant's efficacy was high because of prior mastery experiences, a substandard performance was more likely to be met with increased effort than when efficacy was low, because future success became expected and the individual was willing to spend the energy needed to succeed. When efficacy beliefs are high enough, a substandard performance will be met with a higher goal still, because the individual feels they will triumph in an activity in which they usually do well (Bandura, 2015). In educational settings, the teacher is responsible for providing a student with mastery experiences and giving verbal feedback in a way that supports the efficacy and learning of the student. When students experience more positive learning experiences, the reported rise in self-efficacy may be attributed to a reduction in a negative affective state or from a more positive physiological response, such as feelings of accomplishment (Bandura, 1993). In Bandura's study, when students were exposed to more positive mastery experiences, they approached tough situations the same way but with less stress reactions, resulting in an increase in performance. Verbal support from the teacher, combined with a reduction in negative physiological responses, can result in a better performance without

the student expending additional effort. This results in enhanced overall self-efficacy because what used to be challenging can now be completed more easily.

Vicarious Comparison

In addition to personal experiences with a task acting as a source of self-efficacy, we also witness others around us participating in activities and make vicarious comparisons by deciding how our skills compare to theirs. The vicarious comparison of skills and experiences between students acts as a form of social awareness. It has been found that such comparisons can have both positive and negative effects on learning and self-regulatory qualities (Bandura & Jourden, 1991). Negative effects are not necessarily just for those who perceive their skills to be lower than their peers. Bandura and Jourden (1991) found that when students felt they succeeded easily, they became self-satisfied and set lower goals for themselves.

Negative comparisons can also lead to attrition when a student feels they lack the ability to perform at a level similar to those around them. Prolonged engagement in a domain in which one feels inferior to those around them can lead to the development of antisocial and defensive behaviors, rejection by peers, and low academic performance (Bandura, 1993). Bandura and Jourden (1991) recommended that to promote a positive learning environment, a greater emphasis should be placed on indicants of personal improvement and self-comparison rather than vicarious comparison (Frey & Ruble, 1990; Nicholls, 1990). More research could be devoted to positive techniques for vicarious comparison in the classroom.

Verbal and Social Feedback

Verbal and social feedback plays an important role in how we process our understanding of our personal experiences and the comparisons we make with others. The way in which verbal and social feedback is delivered to individuals can alter their self-efficacy in the classroom

through affirming or shaking their perceptions of competence and vicarious comparison (Bandura, Capara, Barbaranelli, Gerbino, & Pastorelli, 2003). When efficacy beliefs are low, negative feedback can further diminish how an individual feels they will perform on a task. As noted before, negative self-efficacy beliefs can lead to poor self-regulation and antisocial behavior, which are both predictors of negative academic performance (Bandura, Barbaranelli, Capara, & Pastorelli, 1996). How verbal and social feedback is received and internalized may differ by the student's sex. In one study, Bandura and others (2003) found female students had higher levels of academic self-efficacy, despite having less self-efficacy for control over affect, the ability to control or regulate fear, nervousness, or anxiety in the presence of academic challenges. However, they concluded that female students were better at rebuffing verbal and social pressures to engage in deviant or antisocial behaviors than were male students (Bandura, *et al*., 2003). It is unclear how these processes would unfold in a democratized or learner-centered music classroom and if certain sex-based differences would continue to exist. What is most clear is that teachers could benefit from being highly entuned to how their verbal feedback and social feedback from the classroom environment can have a potential to influence how students view their personal experiences as
positive or negative.

Physiological and Affective Response

The affective state of an individual or the physiological responses caused by activities can positively or negatively interact with the other sources of self-efficacy. When an individual is fearful that they cannot cope with doubt or adversity, they are aversive to that activity or experience (Bandura, 1983). Overall, low efficacy beliefs are associated with feelings of fear and doubt. However, when an individual feels they have exerted control over fear or doubt, their

efficacy increases and they believe they can accomplish the task again in the future. Already noted was that mastery experiences feel easier when stress responses are minimized, leading to higher efficacy because less effort was needed to satisfactorily accomplish the same task (Bandura, 1993). This type of control can be raised vicariously or enactively, but in an educational setting, it is important that students feel they are responsible for their successes (Bandura, 1983). It is important for teachers to understand that students experience a wide range of emotions and physiological responses inside the classroom, and that these responses can be increased or decreased based on the learning environment they've created and the learning processes they privilege. Songwriting could be a useful tool to help student's feel in control over their own success because they are the ones creating. This may run counter to the ensemble experience, where a student might attribute a larger amount of success to other musicians in the ensemble or the conductor.

Self-Efficacy and Self-Regulation, Self-Regulated Behavior, and Goal Setting

The links between self-efficacy and self-regulation are important in human functioning and particularly relevant in understanding factors which affect behavior. Bandura has stated, "the capacity to exercise control over the nature and quality of one's life is the essence of humanness" (2001). Efficacy beliefs are a key cog in social cognitive theory because efficacy beliefs affect "adaptation and change" in the social world in which we live (Bandura, 2001, p. 1). How long we persevere in the face of adversity and whether we see failures as motivating or demoralizing are all predicated on efficacy beliefs. Ultimately, our health is affected by self-regulation and coping efficacies. Research on self-regulation and self-efficacy has uncovered important findings related to goal setting, behavior changes, and motivation, all aspects related to achievement and academic performance.

Bandura argued that was a causal link showing higher efficacy would lead to higher goal setting, such that self-efficacy is responsible for changing the goal (Bandura, 2015; citing Bandura, 1997, 2013; Locke & Latham 1990; 2013). Additionally, it has been shown that progressively more challenging mastery experiences would lead to progressively higher goal setting (Bandura & Jourden, 1991). In the face of a purposefully impossible challenge, Bandura and Schunk (1981) found that children with low self-efficacy gave up much quicker than those with higher self-efficacy.

In a study by Capara, Fida, Vecchio, Barbaranelli, and Bandura (2008), they noted the importance of self-regulated learning in high school dropout rates, such that students with higher self-regulated efficacy were less likely to drop out. In what should be a potentially alarming finding, self-regulated efficacy dropped in every year from middle school through high school for participants, suggesting the difficulty of the work was outpacing the support provided by the school. These effects were more significant for male students, in line with research on female students being less affected by attacks on self-regulatory behavior with verbal and social feedback from peers (Bandura, *et al*., 2003). Research on self-instruction for online schools has shown that self-regulated learners perform best (Debowski, Wood, & Bandura 2001; Joo, Bong, & Choi, 2000), a trend surely to increase with music education. In addition to reduced attrition, significant links have been found between high efficacy beliefs and prosocial behaviors, peer acceptance, and low emotional and behavioral problems (Bandura, Barbaranelli, Capara, & Pastorelli, 1996). These studies support the assertion of the framework for this study that teachers should aim to increase the self-efficacy of their students and that higher levels of self-efficacy are likely to predict loftier goal setting and prosocial classroom behaviors.

Efficacy beliefs have been evaluated in tandem with measures of motivation for quite some time. Evidence over nine meta-analyses showed that those with higher perceived self-efficacy and high personal goals had enhanced motivation and better performance attainments (Bandura & Locke, 2003). In multiple studies, those with high self-efficacy were more intrinsically motivated to perform better in the face of a substandard performance (Bandura, 1993; Bandura & Jourden, 1991). In a study on arithmetic self-efficacy, intrinsic motivation was found to increase when students practiced self-directed learning (Bandura & Shunk, 1982). These studies suggest that self-regulated behavior in the form of self-directed learning required a significant amount of intrinsic motivation for students to be successful. As schools dramatically increase their online presence, teachers will need to understand that intrinsic motivation will need to be developed for students to feel they can be successful.

Self-Efficacy and Academic Success

The usefulness of self-efficacy measures is predicated on the ability of a measure to predict certain outcomes, such as academic success. Research on self-efficacy beliefs have shown that efficacy beliefs are potent predictors of various forms of achievement and performance. A study by Stajkovic, Bandura, Locke, Lee, & Sergent (2018) tested this empirical relationship while including the influence of the "Big Five" personality traits and found positive results for self-efficacy beliefs. Across all models, self-efficacy was the most positive predictor of performance, with conscientiousness and emotional stability, traits of people with high levels of self-regulation capabilities, as two other statistically significant predictors of academic performance. The direction of effects between self-regulation and self-efficacy is one question which has not been answered consistently. A meta-analysis on the topic by Talsma, Shuz, Schwarzer, and Norris (2018) looked at the direction of influence and found that the reciprocal

effects of performance on self-efficacy (β = .21) were stronger than the other way around (β = .07). They concluded that each has unique positive influences on each other over time.

Additional variants in performance and academic achievement have been captured in research on self-efficacy. Successful performance has been shown to be predicted by self-efficacy, analytical thinking, personal goal setting, and affective control (Bandura & Jourden, 1991). Capara, Barbaranelli, Pastorelli, Bandura, and Zimbrado (2000) found early academic achievement did not contribute to later academic achievement when controlling for levels of prosocial behaviors, a trait found in highly efficacious individuals. In another study, a model of motivation, personal goals, and self-efficacy beliefs captured 56% (R^2) of the variants in students' final grades (Zimmerman, Bandura, & Martinez-Pons, 1992). The significant direct effects from self-regulated learning (P = .19) and self-efficacy (P = .36) to final grades were mediated by personal goals, which had a direct effect of .43 on final grades. This study was a good example of blending efficacy beliefs with self-regulated learning in a research setting to demonstrate the impact of self-efficacy beliefs on academic performance.

Summary

These studies together show the criterion-related validity of self-efficacy. Unfortunately, a good amount of research conflates self-concept and self-esteem with self-efficacy (Bandura, 2012). Additionally, some measurements fail to capture multiple sources, which fails to acknowledge self-efficacy as a complex and fluid mechanism and instead categorizes it more as a trait, state, or perception. When constructed correctly, there appears to be immense utility for the use of self-efficacy scales to predict achievement and to support the learning experiences of students. Music education researchers have understood this value for some time, with music performance self-efficacy being an important part of the discussion. Lacking from this growing

field of musical self-efficacy research is an attention towards non-performance self-efficacy. The next section of this chapter presents a review of self-efficacy studies in music education.

Self-Efficacy Studies in Music Education

The Study of Music Performance Self-Efficacy

With research in other academic fields purporting causal links between self-efficacy scores and academic performance, it is no surprise that music education researchers have investigated self-efficacy in the dominant activity found in secondary music classrooms, literally called performing. McCormick and McPherson (2003) laid the groundwork for performance self-efficacy analysis in a study in which it was found that the best predictor of an actual performance was not practice time spent, but self-efficacy. A scale built from McPherson and McCormick's work has been used in competitive environments to look for changes in self-efficacy over time (Hendricks, 2014; Hendricks, Smith, & Legutki, 2016). This measure was designed to capture a good deal of efficacy beliefs from enactive mastery experience and has been used to suggest changes to the learning climate in music education. Hendricks (2014) found that a competitive environment had more detrimental effects on female self-beliefs than male students. However, it is noted that self-efficacy beliefs rose for all participants in the competitive orchestra.

A dissertation by Zelenak (2011) resulted in the Music Performance Self-Efficacy Scale (MPSES), what I consider as the best measurement of any type of music self-efficacy for its ability to capture all four sources of self-efficacy with a rigorous and transparent validation process. Additionally, the dissertation provided a thorough review of the validity and reliability of other self-efficacy scales which can be used as a guide in the construction of self-efficacy scales in other musical domains. In a study on the effects of mallet training on cognitive functioning in older adults (Bugos & Cooper, 2018), participants of the sixteen-week program

realized significant boosts in music performance self-efficacy, indicating the musical portion of the intervention was successful. There is a hope that future research applications can include a self-efficacy measure for songwriting in a similar way. The influence of the MPSES on the development of the Songwriting Self-Efficacy Scale (SSES) in this study is evident.

Self-Efficacy Studies in Secondary Ensembles

Studies on music education ensembles have included two main facets of self-efficacy; predicting performance (Ritchie & Williamon, 2012; Hewitt, 2015) and the role of efficacy beliefs on performance anxiety (Patston & Osborne, 2016; Gonzalez, Blanco-Pineiro, & Diaz-Pereira, 2018). Ritchie & Williamon (2012) used stepwise linear regression to find that among self-efficacy for performing, practice time, and self-regulated learning, only self-efficacy was a significant predictor of both self- and assessor-ratings of performance quality. This speaks to the characteristic of self-efficacy as a valid assessor of musical performance. Hewitt (2015) used that study as a foundation to conduct a new study, finding that as the ability of music students increased, students became underconfident in their evaluations. Hewitt (2015) concluded that "there is a strong and positive relationship between self-efficacy and both music performance and self-evaluation" (p. 298). Gonzalez, Blanco-Pineiro, and Diaz-Pereira (2018) found that self-efficacy negatively predicted anxiety and "boost," a term synonymous with "arousal." Both of these concepts could be considered affective state or physiological responses in self-efficacy constructs. This study is perhaps most useful in showing the latent factor of affective state or physiological response as related to the general latent variable of music performance efficacy.

Summary

These studies contribute to the foundation of self-efficacy research on performance within music education ensembles, the dominate form of secondary music education in the U.S.

The results show positive implications for the criterion-related validity of self-efficacy. An additional area to explore self-efficacy research could be in the area of music teacher education (MTE). Waggoner (2015) constructed a music teacher identity scale and used music teacher self-efficacy as a component of identity construction. Other MTE studies have incorporated creative self-efficacy into models of teacher identity with significant results (Randles & Muhonen, 2015; Randles & Ballantyne, 2018). It is likely that in addition to MPSES, other musical abilities such as songwriting could be positive predictors of music teacher occupational identity (Isbell, 2008). Increasing the breadth of musical activities captured through measures of self-efficacy scales could contribute to the types of skills considered important to musician and music teacher development.

Self-Determination Theory (SDT) Studies

Development of Constructs in Academic Research

The original researchers of SDT run a well-managed and frequently updated website containing information on SDT with numerous citations from different areas of research (http://selfdeterminationtheory.org/). This website contains packets of measurements available for download with both explanations of their use as well as citations to the literature where these scales were empirically validated. These scales are adaptable and demonstrate high construct and face validity when examined together. It is encouraged that multiple aspects of SDT are tested together, acknowledging that several constructs are likely positively and negatively related, including self-efficacy. Aspects of SDT often found in music education research include predicting achievement through self-regulation, specifically with regards to intrinsic motivation, autonomous support, and persistence versus attrition.

SDT and Performance Outcomes

Combining SDT constructs into a single model has been considered valid in predicting performance outcomes. Van Nuland, Taris, Boekaets, and Martens (2012) found that perceived competence mediated the effects of persistence on performance. Additionally, they found that when a task became repetitive or boring, both performance attainment and internal motivation dropped as a result of decreased autonomy. This could have huge implications for performing ensembles that rehearse the same music over and over, noting that efficacious students would quit when not feeling individually challenged. Yeung, Craven, and Kaur (2014) investigated the interaction of self-efficacy and self-determination using linear modeling. Perceived competence again was found to be the strongest predictor of performance, whereas mastery goal orientations were the strongest predictor of self-efficacy. In their model, SDT constructs were used as predictors of what they labeled as outcomes (achievement, status, and self-efficacy). This study was useful in demonstrating an empirical relationship between SDT constructs and self-efficacy. I would be curious to see what the data would say if achievement was placed as the dependent variable, with self-efficacy placed as a mediator between SDT and achievement and status. High achieving students are more likely to be prosocial and practice positive self-regulatory behavior, which leads to positive relationships with their peers (Bandura, Barbaranelli, Capara, & Pastorelli, 1996). Status is likely mediated through self-efficacy, since vicarious comparison should mean students naturally compare their skills to others in their class when making social judgements such as where they fit within a social hierarchy.

SDT and Autonomy

Autonomy in SDT means that in addition to having freedom of choice, the individual feels supported by others in a social system to be independently successful. A study by Guay,

Ratelle, Larose, Vallerand, and Vitaro (2013) investigated how autonomous relationships affect perceived competence, motivation, and achievement. They found that while having more autonomous supportive relationships is always better, the relationship between student and teacher was the most important. A student reporting that their teacher supported their learning needs was a better predictor of achievement than if a father, mother, or both were perceived to be supportive. In the end, all three sources had significant effects on feelings of competence, which was shown to directly influence motivation and persistence. These effects appear to be corroborated in music education studies (e.g., Troum, 2010), which for some time have investigated the effects of self-regulation on achievement.

Music Education and Self-Determination Theory

Music educators have explored facets of motivation, personality traits, practice behaviors, and several other components of SDT and how they relate to achievement or desired performance. One of the more robust studies in this aim was by Miksza (2011), who looked at several factors which affected performance in collegiate musicians. He concluded that "those who practiced in a more strategic and goal-directed manner also had higher performance scores" (p. 62). It was found that impulsivity factored into determining if a student was more likely to be strategic and goal-directed. Troum (2010) investigated the effects of perceived autonomous support and perceived competence for learning on task persistence and found that both were positive predictors of task persistence. Additionally, she found that perceived competence for learning acted as a mediating variable for the effects of perceived autonomous support on task persistence. Valenzuela and Codina (2014) found that motivation fostered perseverance, perhaps because self-regulatory behavior meant a student would not simply give up in the face of a challenge, but would be willing to spend the effort needed to identify and correct mistakes.

Hallam, Rinta, Varvarigou, and Creech (2012) suggested students would be more likely to persist if made cognitively aware of the effects of self-regulated behavior on performance attainment. In Mikzsa's (2011) study, he argued that metacognitive practice strategies impacted the attainment of mastery experiences. Part of developing positive mastery experiences in the classroom could be improved through teaching students about deliberate strategy use. These effects were investigated in a dissertation by Mieder (2018), showing that metacognitive practice strategies were positive influencers on students' self-regulatory efficacies.

Students may also be unmotivated or have negative affect for music. Studying these students are important for educators to understand who they are not reaching and why. Hallam (1998) suggested that the child's own attitude towards practicing and their intention to continue were ultimately the most important factor in predicting continued participation, not the influence of their parents, teachers, or friends. What was predicted in this study by the child's attitude was instrumental continuance (95% correct) but not when a student dropped out (28% accurate). It has been suggested that music motivation wa directly related to affect for music (Asmus & Harrison, 1990). They found that in addition to self-perceptions of the individual, perceptions about the learning environment also affected motivation. Environmental factors related to negative mastery experiences, such as unsuccessful competition, could be another reason for negative affect and motivation in students (Austin, 1991; Hendricks, 2014). When students are judged against one another, there is a much higher likelihood for negative events. Competition fosters extrinsic goal structures, which are detrimental and can influence attrition. These results suggest that it may be wise for music educators to consider non-competitive forms of music education as worthwhile educational experiences.

Summary

The number of researchers interested in songwriting as an important activity in the music classrooms appears to be growing. For example, the *Journal of Popular Music Education* published an entire edition dedicated to the topic of songwriting in early 2020. It is hoped that this study extends the literature by contributing a measure of songwriting self-efficacy which may be used in future research to empirically validate the relationship between songwriting efficacy beliefs and feelings of musician identity, music teacher occupational identity, continued participation, and performance achievements in the music classroom. Additional research could look at music efficacy beliefs as a mediator between SDT constructs and achievement, recognizing the strong theoretical and empirical link between the two.

Conclusion

This literature review was intended to provide a background on the most important research in self-efficacy and SDT research pertaining to this study. I purport that this literature review gives ample evidence as to why songwriting as a dominant classroom activity would align with best practices supported by empirical research. As tasks get repetitive, they come boring and students quit. Songwriting offers a personal form of education that is continuously changing to the desire and needs of the students. Teachers can easily be autonomously supportive by providing learner-centered opportunities (Williams & Kladder, 2019) for students to learn to write songs. Vicarious comparison does not need to take place in the form of ranked chairs and public competence rankings, which negatively affects more students than it boosts (Hendricks, 2014). Songwriting can be taught without needing to glorify genres or canonize composers. There is room at the table for everyone to feel valued and supported. What is needed next is a reliable and valid measure of songwriting self-efficacy, recognizing that high levels of

songwriting self-efficacy should be an accurate predictor of positive self-regulatory behavior such as higher goal setting, desired outcomes related to performance, and continued participation. Chapter three turns to the method used to satisfy the purpose of this study, to develop and validate a measure of songwriting self-efficacy.

Chapter Three: Method

Research Design

The principal purpose of this study was to develop and validate the Songwriting Self-Efficacy Scale (SSES) through confirmatory factor analysis (CFA). The CFA was conducted with structural equation modeling (SEM) using an oblique promax rotation, allowing factors to correlate due to the likelihood of significant correlations between latent variables (DeVellis, 2017, p. 180). Additionally, correlation between factors is a requirement of CFA for standard models when using SEM (Kline, 2017, p. 201). Validation occurred through demonstrating content, construct, and criterion-related validity. Content validity was used to demonstrate qualitative evidence that the scale is measuring what it purports to measure. Content validity was achieved in this study by sampling a well-defined and appropriate population, building a measure rooted in strong theory, and having the items on the scale reviewed by a panel of experts prior to implementation (DeVellis, 2017, p. 91). Convergent validity is a form of construct validity (p. 95). Convergent validity is a quantitative way of showing evidence the developing measure (SSES) was related to, but unique from, related constructs and variables. Convergent validity was examined by analyzing correlations between the Short Scale of Creative Self-Concept (Karwowski, 2012), the Musical Performance Self-Efficacy Scale (Zelenak, 2011), and three constructs from the Theory of Self-Determination (SDT; Deci & Ryan, 1985). Criterion-related validity was used to demonstrate an empirical relationship with a predicted outcome (DeVellis, 2017, p. 96). Criterion-related validity was assessed by creating a path model to measure the influence of SDT constructs on a student's songwriting self-efficacy. In this path model, student

perceptions of environment and the self act as predictors of self-efficacy. The model can be improved in future research by evaluating the criterion-related validity of the developed measure (SSES) to act as a moderator between SDT and continued participation or as a mediator between SDT and achievement.

Development of Measure Songwriting Self-Efficacy Scale (SSES)

Content Validity

A panel of expert reviewers included an experienced songwriting teacher at the high school level, an experienced songwriter and songwriting teacher at the collegiate level, and an award-winning songwriter and published scholar in the field of music self-efficacy. Each member was e-mailed an original list of 19-items and asked to review the following conditions of the survey:

1. Should an English-speaking student in grades 7-12 be able to understand and complete this survey?
2. Does each question ask the participant to assess a specific situation or condition about songwriting? (i.e., each question is specific enough that a student would not be able to give two scores based on two hypothetical situations)
3. Do you feel there are any sources of self-efficacy missing from a category? The important consideration is the *source* of the self-efficacy, not the isolated musical skill that predicts confidence in songwriting (i.e., the ability to write a good bass line).
4. Do you feel any questions are misleading or redundant?
5. Do you feel answering these questions would cause a student any psychological distress beyond what is experienced during typical school instruction?

6. Please provide any additional comments or feedback with regards to your unique expertise as a reviewer of this scale:

The feedback solicited from the panel of reviewers resulted in significant development to the validity of this scale. The seminal contribution from this review was to more carefully assess if each source was being captured correctly. For example, it was noted that the process of using verbal feedback to improve would actually be a source of enactive mastery experience because a past evaluation was used to work towards future success. The self-reflective nature of the question moves the item from the verbal or social feedback category because it is not simply a report of competence from someone else, but a reflected and acted upon past experience which dictates a future performance or goal. A similar comment was made in regards to vicarious experiences. Social comparisons were originally written in a way that asked students to compare their products to the products of those in their social system. It was recommended that rather than focusing on the comparison of products, questions should be written in a way that asks students to make social comparisons in "regards to self-appraisal of their capabilities" (Bandura, 1997, p. 87). Another important contribution to the review process was to extend the questions to address different "levels" of self-efficacy. The original battery of questions did not contain references to levels of perceived difficulty, which negated the ability of the scale to capture how self-efficacy is affected in the presence of perceived easy, typical, or extraordinarily challenging situations related to songwriting.

The scale was changed with major revisions in the social and verbal feedback and vicarious comparison subscales. The original nature of the social and verbal feedback items assessed ability whereas vicarious comparison was being used to assess feedback about a product. These subscales were rewritten such that vicarious comparison assessed feedback about

ability. The items for social and verbal feedback were rewritten to include more feedback about the quality of their songs.

A recommendation to increase generality was heeded, though not followed through to the extent that other issues were addressed. For example, it was suggested that items be used to ask students to rate their ability to write music in one genre and in multiple genres. This likely captures an important facet of songwriting self-efficacy, however, it is debatable if the ability to write music for multiple genres is a desired trait of songwriters, especially young songwriters. A rap artist might have no interest in writing in the genre of rock-and-roll, so a low score on this item would unfairly reduce their overall songwriting self-efficacy score. This reduces the criterion-related validity of the scale, such that if self-efficacy is the strongest predictor of achievement, an item that might receive a low score because of a lack of relevance to the student is no longer predictive in the specific situation for which the student should be self-evaluating. Music performance self-efficacy scales do not ask students if they can perform on more than one instrument, likely because it is assumed a student is most concerned with being a good performer on one single instrument rather than multiple instruments with which they might be casually familiar.

Construct Validity

Two sets of correlations were used to demonstrate convergent validity as a form of construct validity. The first set of correlations were with the Short Scale of Creative Self-Concept (SSCSC), a test with two sub-sections labeled creative self-efficacy (CSE) and creative personal identity (CPI). The composite score gives the total rating of an individual's creative self-concept. The correlation between items on the SSCSC and for the developing measure (SSES) should be positively correlated at a rate which shows convergence. This number is

largely open to the researcher for interpretation, though a larger number is desired when response methods are similar (DeVellis, 2017, p. 98). Songwriting is a creative act which likely requires the belief in one's self as creative. Conversely, a negative self-concept will likely correlate with negative self-efficacy in a creative domain, therefore two-tailed correlations were appropriate. The second set of correlations were with the Music Performance Self-Efficacy Scale (MPSES). The standard set for correlations to be deemed convergent were between medium (.30) and the upper range of large ($r < .80$).

Criterion-Related Validity

Criterion-related validity has been used to suggest the usefulness of a scale towards a scientific endeavor (DeVellis, 2017). However, this label does not mean a scale must literally *predict* an outcome, such as objective performance on an assessment. The most important facet of criterion-related validity is the strength of empirical association between the variables (p. 92). In this study, criterion-related validity was demonstrated through the construction of a path model using structural equation modeling (SEM) to demonstrate the empirical relationship between self-efficacy and SDT constructs commonly found in education and music performance research. As both self-efficacy and SDT have been empirically shown to affect academic performance, goal setting, and perseverance in the face of adversity, demonstrating an empirical relationship would be a useful finding for future research, perhaps with efficacy beliefs as a mediator of SDT and performance and as a moderator between SDT and continued participation in the activity. A conceptual model was developed (Figure 1) to show the hypothesized outcomes in gray. The cognitive processes are outlined on the left. The individual assesses their learning environment, which influences their perceived competence and intrinsic effort. Perceived competence acts as a mediator between autonomous support and intrinsic effort, a measure of

task persistence. These paths were demonstrated to be valid in a study by Troum (2010). The external and internal perceptions of learning environment, competence, and effort and moderated by the self-efficacy cognitive mechanism to decide, "*Will I continue? How will I proceed?*"

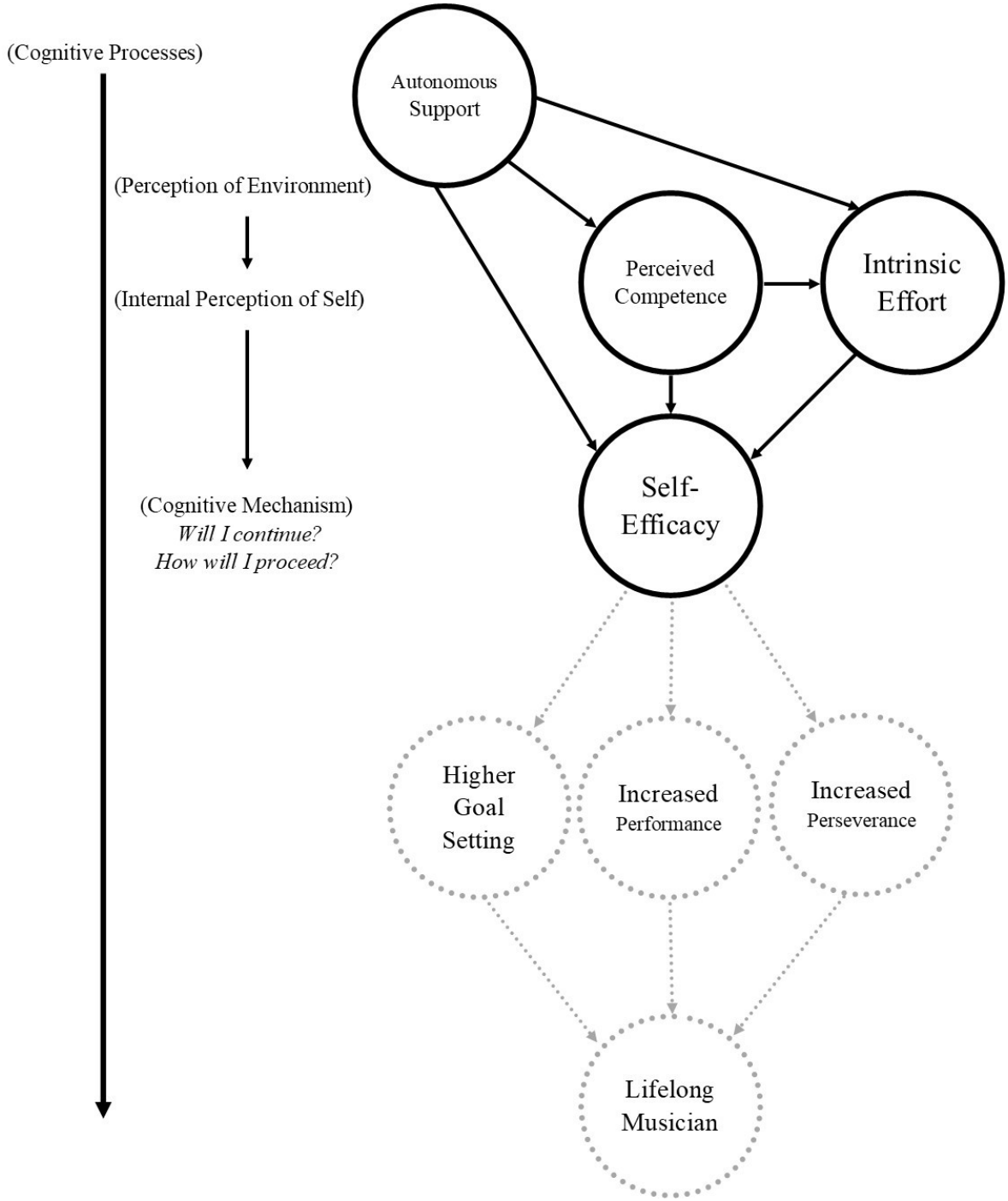

Figure 1. Conceptual model of total framework, with self-efficacy beliefs acting as a mediator between the positive effects of self-determination beliefs on academic and cognitive outcomes.

Population and Sample

The sample in this study were drawn from students in 7th through 12th grade secondary general music programs across the United States. Participants were found via convenience and purposeful sampling. The author purposefully selected programs from around the country known to include songwriting-specific classes at their schools. The author applied to conduct research at 16 schools in seven states. From this population, five schools in five different states (Arizona, California, Florida, Georgia, New York) agreed to participate in the research project. The author was unable to secure permission from schools in Minnesota and Illinois. Schools in Arizona, Florida, and California were located in cities with over 1 million in population and were considered urban (California) or suburban (Arizona and Florida) settings. The school in Georgia was located in the downtown area of a major metropolitan city. The school in New York was in a rural setting outside of a city with a population less than 250 thousand. Four schools were traditional public schools while one school was a magnet school geared towards academic achievement. None of the schools were arts-specific or music-specific schools. These programs could all be considered "typical" as they were open to any student who attended the school. The inclusion criteria for a student to participate is as follows:

1. The student has obtained permission from their parent or guardian.
2. The student is currently in 7th through 12th grade at a public, private, or charter school in the United States.
3. The student is enrolled in a secondary music class that would not be considered a "band, orchestra, or choir" in the traditional ensemble sense. A student that is part of a "rock band" or sings as part of their music class is eligible.

4. The student answers “yes” to both of the following questions: Have you written a song in school this year? Have you performed any music in school this year?

The exclusion criteria for a student to participate is as follows:

1. The student has not obtained permission from their parent or guardian.

2. The student is home schooled, even if they come to school for small parts of the day.

3. The student is not currently or has never been enrolled in a music class at any time over the past 6 months.

4. The student is younger than 13 or older than 19.

5. The student answers “no” to one of the following questions: Have you written a song in school in the past 12 months? Have you performed any music in school in the past 12 months?

Participants (N = 108) were 38.9% female and 61.1% male with four participants abstaining from self-identification. Grade level was reported as 42.3% grade 7 to 9 and 57.7% grade 10 to 12. The two most common grade levels were 9th grade (34%) and 12th grade (24%). The researcher did not collect from which school participants came from for privacy reasons. Several schools rejected the attempt to collect information related to SES, such as the percentage of participants on free and reduced lunch. From the author’s knowledge of the sites, the least-included demographics in this study were likely the upper class or the wealthy. All 108 participants volunteered ethnicity data. The largest demographics were white (34.3%), 2+ races/ethnicities (32.4%), and Hispanic/Latino/Spanish origin (19.4%). Asian (5.6%), Black or African American (6.5%) and some other race/ethnicity (1.9%) were underrepresented in this sample.

Instruments

Songwriting Self-Efficacy Scale (SSES) (Appendix A, B, C)

Appendix A represents the initial version of the developing measure (SSES). The measure was revised based on expert recommendations as part of the development process (Appendix B). This included revising significant portions of social and verbal subscale and the vicarious comparison subscale. The measure was revised a final time to be more parsimonious following the results of the confirmatory factor analysis (CFA) (Appendix C). This included removing a question on nervousness (#16) and feedback from social media (#13). These questions were removed for having low factor weights. The final version of the songwriting self-efficacy scale is available in Appendix C. The scale in its present form was designed to capture the four sources of efficacy beliefs according to Bandura: enactive mastery experience, vicarious comparison, verbal and social feedback, and physiological response and affective state. The changes from the pilot measure (Appendix A) to the validated measure (Appendix C) included a thorough review to ensure vicarious comparisons were about comparing songwriting skills, not the product of the songs. Further refinement was suggested to clarify questions in the verbal and social feedback category, to remove reverse coded items, and to increase generality and the "levels" of questions. Questions #1, 4, 5, 6, 8, 9, 13, and 18 from Appendix A were modified to specify a level of challenge associated with completing certain tasks within the activity of songwriting. A limitation of this scale could be that generality has not been completely satisfied. While the scale is useful in looking at various in-school and out-of-school sources of efficacy beliefs, it does not necessarily capture beliefs about being successful in multiple genres of music or being able to proficiently share a written song with others.

Music Performance Self-Efficacy Scale (Appendix D)

Zelenak (2011) created what I consider the most robust assessment of music performance self-efficacy. In deciding which measure of music performance self-efficacy to include, I completed a pilot study comparing the MPSES with two other measures of music performance self-efficacy. In my pilot of 28 undergraduate music education majors, Zelenak's MPSES scale had the highest internal consistency ($\alpha = .88$). Exploratory factor analysis extracted seven factors, which was able to be reduced to four through a careful content analysis. The factor loadings for the combined analysis ended up being 36.06% mastery, 22.33% vicarious comparison, 23.89% social/verbal persuasion, and 17.55% affective and physiological state. Before and after the amalgamation of extracted factors, Zelenak's scale was the only measure to contain items loading significantly on each factor. It was determined that the other two self-efficacy scales likely captured sources predominately from enactive mastery experience and vicarious comparison. While these scales can be useful in certain applications, Zelenak's scale was ultimately chosen for its high level of internal consistency and well documented ability to capture all four sources of self-efficacy.

Learning in Your Music Class (SDT Measures) (Appendix E)

Three measures from Self-Determination Theory (SDT) were grouped together in one section of the survey titled "Learning in Your Music Class." The title and directions were given to orient students towards thinking about the specific music class in which they write songs. The original developers of SDT have specified in their scale packets that each scale can be rewritten towards a specific domain or activity. In this study, references to "this class" were not changed, relying on the title of the survey and the stated directions to ensure students were thinking about

a class in which they write songs when answering about "this class." The title of "instructor" was changed to "music teacher" to further aid in the participants in thinking about their music class.

The concepts of perceived competence, perceived autonomous support, and intrinsic motivation-effort were validated as being influential factors on performance and achievement. For example, Guay, Ratelle, Larose, Vallerand, and Vitaro, 2013 found that proximity mattered in how autonomous support affected achievement, such that in an academic setting, the perceived autonomous support of the teacher was more influential to success than having autonomous support from parents. In the context of the developing measure (SSES), the 6-item perceived autonomous support (PAS) scale was used from the Learning Climate Questionnaire (LCQ) because of its past use in academic research and emphasis on autonomous support from a participant's teacher. The perceived competence for learning (PCL) scale was designed to be used to assess a participant's feelings of competence about being successful in a class. It was chosen because it has been shown to be an accurate predictor of effective performance when measured together with PAS (Williams & Deci, 1996; Williams, Freedman, & Deci, 1998). Intrinsic motivation-effort (IMI-E) is another likely aspect of SDT mediated by efficacy beliefs, since affective states among other influences would affect performance, no matter how motivated an individual might be to perform well. PCL has been hypothesized by the original developers of SDT to have a direct effect on the effort subscale of intrinsic motivation (IMI-E). This is consistent with Troum's (2010) findings that perceived competence mediated the effects of perceived autonomous support on task persistence. The effort subscale of the intrinsic motivation inventory (IMI-E) was included because of this effect and because social cognitive theory supports the idea that individuals assess how much energy and effort they need to expend in the face of a challenge when engaging with certain activities or performances.

Short Scale of Creative Self-Concept (Appendix E)

Karwowski (2012) stated that self-concept variables are dynamic and malleable, while personality traits are more static (Asendorpf & van Aken, 2003). Using a model of fixed versus growth mindset, creative self-efficacy (CSE), and creative personal identity (CPI), Karwowski (2012) validated a survey designed to capture creative self-concept with high internal consistency (CSE, $\alpha = .87$; CPI, $\alpha = .85$). Limitations of this measure pertinent to the present study is that the survey was originally created in Polish and surveyed with a general population of Poles. To my knowledge, this survey has not been validated with a U.S. population. Therefore, a pilot study of creative mindset with 74 undergraduates in the United States was conducted in Spring 2018. Results showed CSE ($\alpha = .70$) and CPI ($\alpha = .71$) to be reliable at an acceptable level. The reliability for fixed vs growth mindset was found to be unacceptable, in addition to these factors not being significantly related to the general factor of creative self-concept (Figure 2). For these reasons, only the Short Scale of Creative Self-Concept is used in this study, which contains the subscales creative self-efficacy (CSE) and creative personal identity (CPI).

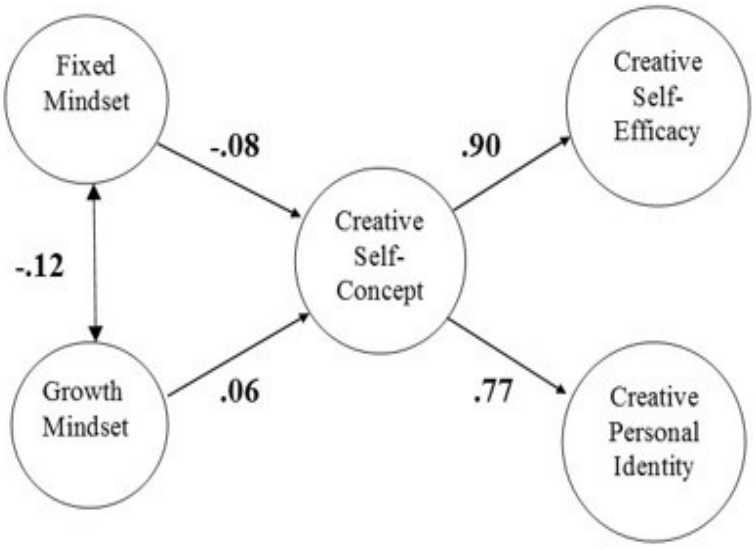

Figure 2. Path model of mindset and creative self-concept from unpublished pilot study with United States university undergraduates (Cooper, 2018).

Demographics (Appendix F)

The nature of purposeful sampling meant that the demographics of participants were likely to be skewed. Sampling from major metropolitan areas meant ethnicity might not be representative of the entire United States. Demographic categories are taken from the United States Census Bureau (USCB). In 2014, the USCB announced new guidelines to diversify the response for "white" to include a separate response for Arab/Middle Eastern. The latter classification was adopted in this study to recognize individuals of diverse ethnicities who may identify as "white." It was unknown if there would be more male or female respondents, although female students were overrepresented in traditional (ensemble) secondary music programs, as were white students (Elpus & Carter, 2016).

Logic in Survey Construction

The order of items in any survey should be carefully considered. For example, it has been suggested that demographics always be put at the end of the survey to avoid priming effects. When a participant is asked to report their ethnicity, sex, or SES first, it may cause them to be weary that the study is actually about that information (Danaher & Crandall, 2008). In the developing measure (SSES), self-efficacy concepts were put first, with self-determination concepts placed next, and demographics last. If self-determination concepts have direct effects on self-efficacy, responses would be less biased and the data could be considered more reliable if self-reports were on self-efficacy first, for reasons similar to putting demographics last. If a participant was dissatisfied with their learning environment and they were asked to rate that first, they would have been primed with negative feelings which might result in a skewed score. These effects were known as boost or lift when self-evaluations were made first which might negatively

skew variables, or threat when they might negatively positively skew variables (Danaher & Crandall, 2008).

Reliability was tested in the form of internal consistency and split-halves correlations. Temporal reliability in the form of test-retest procedures may not be appropriate in all situations (DeVellis, 2017, p. 68-69). It is anticipated that self-efficacy scores would naturally fluctuate throughout a school year, hopefully improving over time, which is a matter of change due to *phenomenon* rather than *measure*. Variance in this situation would be reported as error in measurement or scale reliability, when in actuality it is variance due to the nature of the phenomenon being reported.

Validation of Songwriting Self-Efficacy Scale (SSES)

Data Collection

No data were collected until full IRB approval and letters of support were obtained for each site. The method of data collection was through a Google Forms survey. The link to the survey was sent through site-based e-mail (i.e., the e-mail address of a school's music teacher, the district's fine arts coordinator, etc.) to the parents of a student enrolled at the site. The parents were made aware of the opportunity for their child to participate in the research study through the site-based contact, not the principal investigator. If a parent gave consent for their child to participate, they then provided the survey link to their child. The child then had the option to participate or decline to take the survey. Any surveys that appear to have been completed without attention to detail (i.e., all maximum scores, not answering every question, incongruence with reversed scored questions) were discarded.

Data Analysis

The validation of the developed measure (SSES) depended on the strength of the analyzed data. The following is a restatement of each research question accompanied with the plan for data analysis to satisfactorily answer the question.

1. Research Question #1: To what extent do student responses to the developed measure (SSES) offer evidence of reliability and support for other statistical assumptions?
    - Reliability in the form of internal consistency (coefficient alpha) was measured for each section of the scale and the scale total (DeVellis, 2017, p. 43). Additional reliability analysis was conducted by examining balanced split-half correlations (odds and evens) (p. 64).
    - Violation of independence was not a concern, as students were required to obtain parent permission to take the survey. There is not the opportunity for students to take the survey together.
    - Normality was tested through analyzing skewness and kurtosis values. Values within the range of absolute |2.5| are considered acceptable.
    - Hotelling's T-Squared test will be used to analyze homogeneity of variance. Significance for this test is desired.
2. Research Question #2: Do student responses on the Songwriting Self-Efficacy Scale (SSES) fit Bandura's model of self-efficacy?
    - Confirmatory factor analysis through structural equation modeling (SEM) was used to assess the ability of the scale to fit Bandura's model of self-efficacy.
    - Factor loadings were conducted using AMOS, an extension for IBM SPSS. The specified model is show in Figure 3.

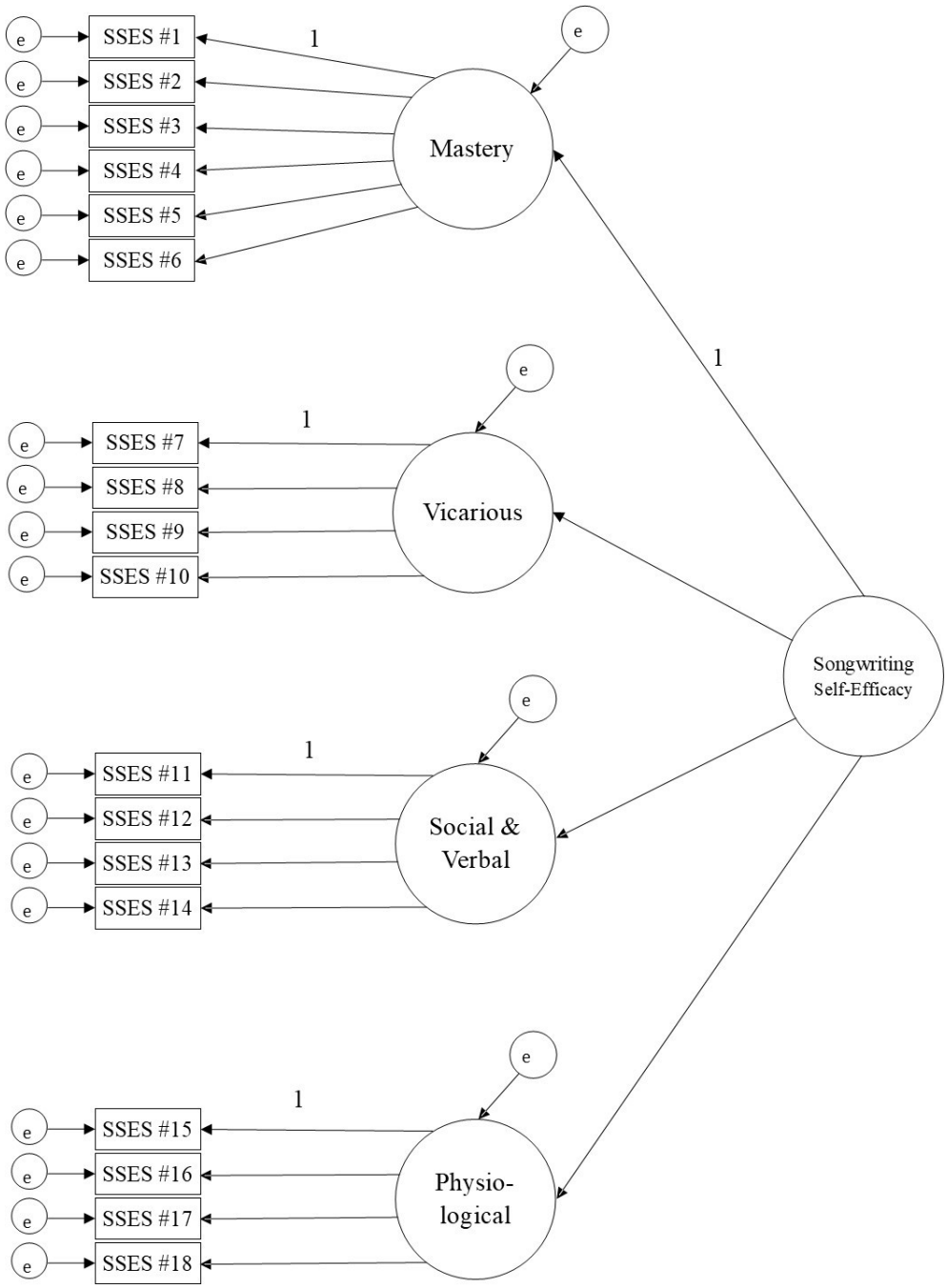

Figure 3. Specified model of four latent variables on a second-order general factor.

3. Research Question #3: To what extent does the developing measure (SSES) have convergent validity with creative self-concept and music performance self-efficacy?

- Spearman-rank correlations (two-tailed) were calculated in SPSS between the SSES and SSCSC at the .05 level.
- Pearson correlations (two-tailed) were calculated in SPSS between the SSES and MPSES at the .05 level.

4. Research Question #4: Does the Songwriting Self-Efficacy Scale (SSES) demonstrate an empirical relationship with perceived learning climate, perceived competence, and intrinsic motivation?
    - A path analysis was completed using AMOS (Figure 4).
    - Indirect, Direct, and Total standardized effects were analyzed to evaluate the empirical relationship between SSES and constructs from SDT.

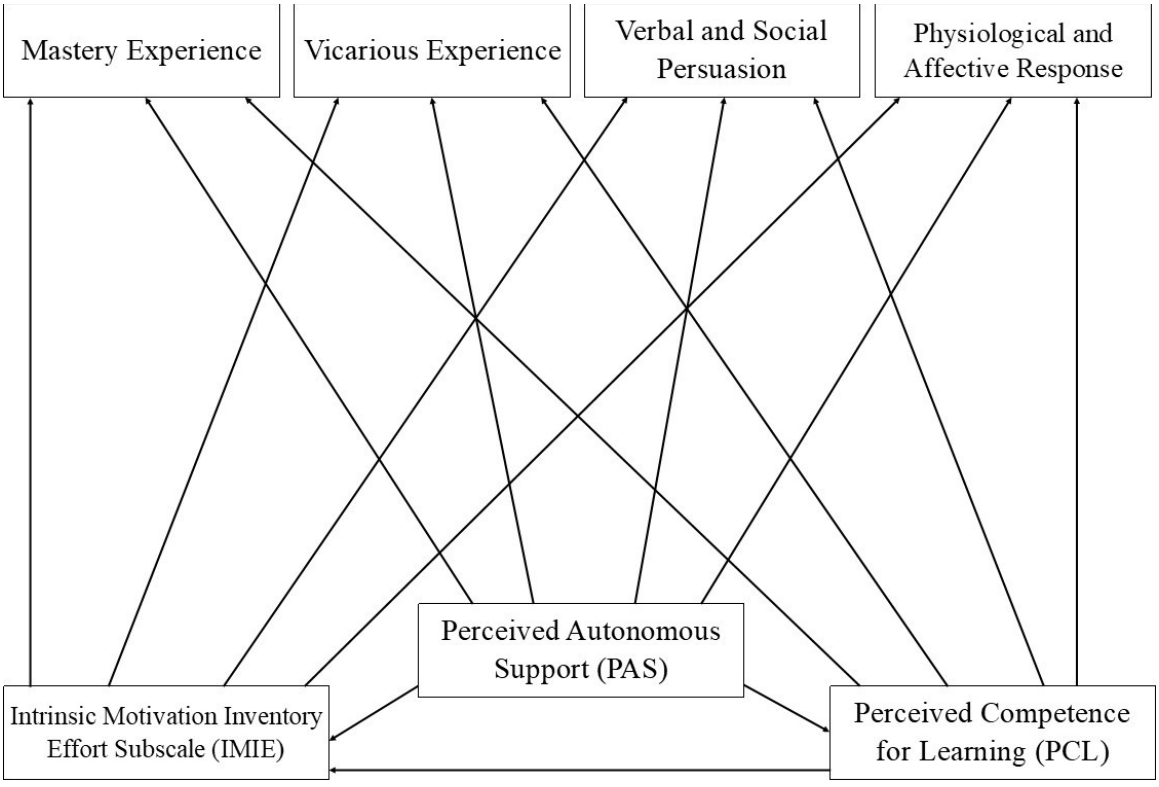

Figure 4. Path model for effects of SDT constructs on SSES subscales.

- Research Question #5: To what extent does the developing measure (SSES) demonstrate potential as an assessment tool for use by teachers in secondary music classrooms?
    - The previous analyses were used to answer this question by assessing the strength and magnitude of results obtained for reliability and validity. The theoretical framework of this study was predicated on the idea that self-efficacy and SDT constructs have been proven as accurate predictors of performance, higher goal setting, and increased perseverance (Van Nuland, Taris, Boekaets, and Martens, 2012; Yeung, Craven, and Kaur, 2014). Self-determination theory has proven intrinsic motivation, positive learning climates, and perceived competence factor into perseverance, success, and performance (Guay, Ratelle, Larose, Vallerand, and Vitaro, 2013). Strong results throughout could suggest SSES as a better predictor of success or continued participation than SDT concepts alone.

Chapter Four: Results

This chapter is dedicated to providing the results for the validation of the Songwriting Self-Efficacy Scale (SSES). Results are presented in the same order as the previously stated research questions.

Data Validation

Data were collected from 114 middle school and high school students in the states of California, Florida, New York, Georgia, and Arizona. During the data validation process, some inconsistencies resulted in scores being eliminated. Three participants reported a score of zero for every question and were immediately removed from the analysis. An additional three participants were removed for being statistical outliers. Two participants reported the highest possible songwriting self-efficacy mastery-subscale scores while reporting a zero for every other question across all instruments. A third participant had a total score of 20 (out of 1800) and was removed from the final analysis. Occasionally, a participant may have forgotten to write in a single answer. This was addressed by replacing the missing value with the mean value for the item, which was only done for 10 out of a possible 7866 cells (0.12% of responses) across all instruments.

After building a model for the Songwriting Self-Efficacy Scale, the analysis suggested the removal of questions #13 and #16 from the original instrument (Appendix B) for parsimony reasons. These items had insignificant factor weights and removing them had no effect on the goodness-of-fit indices for the model. After removing questions #13 and #16 from the scale, there were no further issues of bad data influencing the analysis. From this point on, the analysis

moved forward with 108 participants ($N = 108$). The scale was then analyzed with 18 questions total (Appendix C). All eventual analyses reported in this section were conducted after the data had been validated and bad data were removed. Additional description of the validation process is included under Research Question #1.

Participants

A between-subjects ANOVA revealed no differences in SSES scale total by sex (F[(1, 103) = 3.21, $p = .08$), ethnicity (F[5, 103) = .072, $p = .99$), or grade level (F[5, 103) = .618, $p = .69$). There were no significant interactions between categorical variables and no interactions coming close to approaching significance (all *ps* .28 - .96). For this reason, the sample was considered homogenous and additional group-level analysis was not appropriate.

Research Questions

Research Question #1: To what extent do student responses on the developed measure (SSES) offer evidence of reliability and support for other statistical assumptions?

Data must be reliable for any analysis to be meaningful. The purpose of research question #1 was to ensure the data could be considered trustworthy. Results indicated the overall scale was highly reliable ($\alpha = .97$) (Table 1). Additionally, each subscale scored as highly reliable ($\alpha = .88$ - .92). The original plan to look at balanced split-half correlations by site was not possible due to restrictions placed on the researcher by schools. Instead, a split-halves (evens and odds) correlation was used. Results indicated the halves were highly-correlated ($r = .957$, $p < .001$). These results together suggested that there was no violation of reliability for the collected data. A violation of independence was unlikely because students did not take the survey together. Results for normality were analyzed by interpreting skewness and kurtosis values. No values were

greater than |2.5| suggesting the data were normally distributed (see Table 1 for details). Hotelling's T-Squared test was used to analyze homogeneity of variance. The desired significance level was achieved for the overall measure and all subscales (*ps* < .001), suggesting there was no violation of homogeneity of variance in the collected data. These data together suggest that student responses on the Songwriting Self-Efficacy Scale (SSES) did not violate the conditions of reliability, independence, normality, or homogeneity of variance. The data were assessed to be valid and appropriate for multivariate, regression, and modeling analysis.

Table 1

Descriptive, Distribution, and Consistency Statistics for SSES Items and Scale Total

Scale & Item	Mean	Std. Dev	Skew	Kurtosis	Item-Total Correlation	Cronbach's α
Full Scale	1002.79	499.24	-.33	-1.03		.97
Mastery	321.28	167.33	-.29	-.97		.89
Item 1	62.55	30.56	-.73	-.36	.79	
Item 2	48.69	34.60	-.23	-1.39	.66	
Item 3	63.29	32.19	-.69	-.61	.79	
Item 4	48.58	37.15	-.10	-1.51	.75	
Item 5	51.22	39.28	-.20	-1.62	.73	
Item 6	46.95	34.49	-.07	-1.37	.72	
Vicarious	200.19	119.36	-.08	-1.12		.92
Item 7	49.74	32.99	-.02	-1.25	.80	
Item 8	56.88	33.76	-.39	-1.16	.86	
Item 9	34.66	35.63	.47	-1.15	.77	
Item 10	58.91	33.76	-.51	-.98	.85	
Social/Verbal	212.09	125.95	-.25	-1.31		.88
Item 11	36.27	35.63	.41	-1.33	.73	
Item 12	70.42	33.06	-1.07	-.14	.70	
Item 13	54.52	40.13	-.31	-1.56	.81	
Item 14	50.89	37.09	-.24	-1.49	.84	
Physio	269.23	102.29	-.86	-.32		.89
Item 15	55.72	36.24	-.25	-1.36	.72	
Item 16	72.53	33.13	-1.15	.09	.78	
Item 17	71.53	35.15	-1.07	-.33	.77	
Item 18	69.45	32.92	-.91	-.40	.81	
Grand Mean	55.71	27.74	-.33	-1.03		

Hotelling's T-Squared Test: Overall and for all subscales, $p < .001$

Split-halves reliability is $r = .957$, $p < .001$ (odds and evens)

Research Question #2: Do student responses on the Songwriting Self-Efficacy Scale (SSES) fit Bandura's model of self-efficacy?

Bandura's model of self-efficacy suggested that there were four sources of self-efficacy. The ability of the responses to fit Bandura's model of self-efficacy were examined by utilizing structural equation modeling (SEM) to conduct a confirmatory factor analysis (CFA) and evaluating goodness-of-fit indices and structure coefficients. In this form of confirmatory factor analysis, the data were tested against the null hypothesis that the models were different. A non-significant *p*-value indicates the data in the model are not statistically different than the hypothesized model. In this analysis, it is desired that the model created by the author is not statistically different than the hypothesized model.

The results of the confirmatory factor analysis suggested the model created by the author was not statistically different than the hypothesized model, χ^2 (69, 102) = 111.466, p = .245; GFI = .907; CFI = .995; RMSEA = .029, which is the desired result (Figure 5). This indicates that student responses fit within Bandura's model of self-efficacy.

To evaluate the ability of each question and factor to provide useful information, it was important to look at the standardized weights (structure coefficients in SEM) of each question (Table 2). All standardized weights showed a high-level of association between the questions and the assigned first-order factor, in this instance, a source of self-efficacy. Additionally, each first-order factor (subscale) loaded very highly on the second-order factor, in this instance, the scale total. The model gains additional credibility by fitting within the rules for a standard CFA model. Specifically, this model fits the requirements that each single factor has at least three indicators and that there are at least two factors (Kline, 2017, p. 201). These results together suggest the Songwriting Self-Efficacy Scale (SSES) fits Bandura's model of self-efficacy.

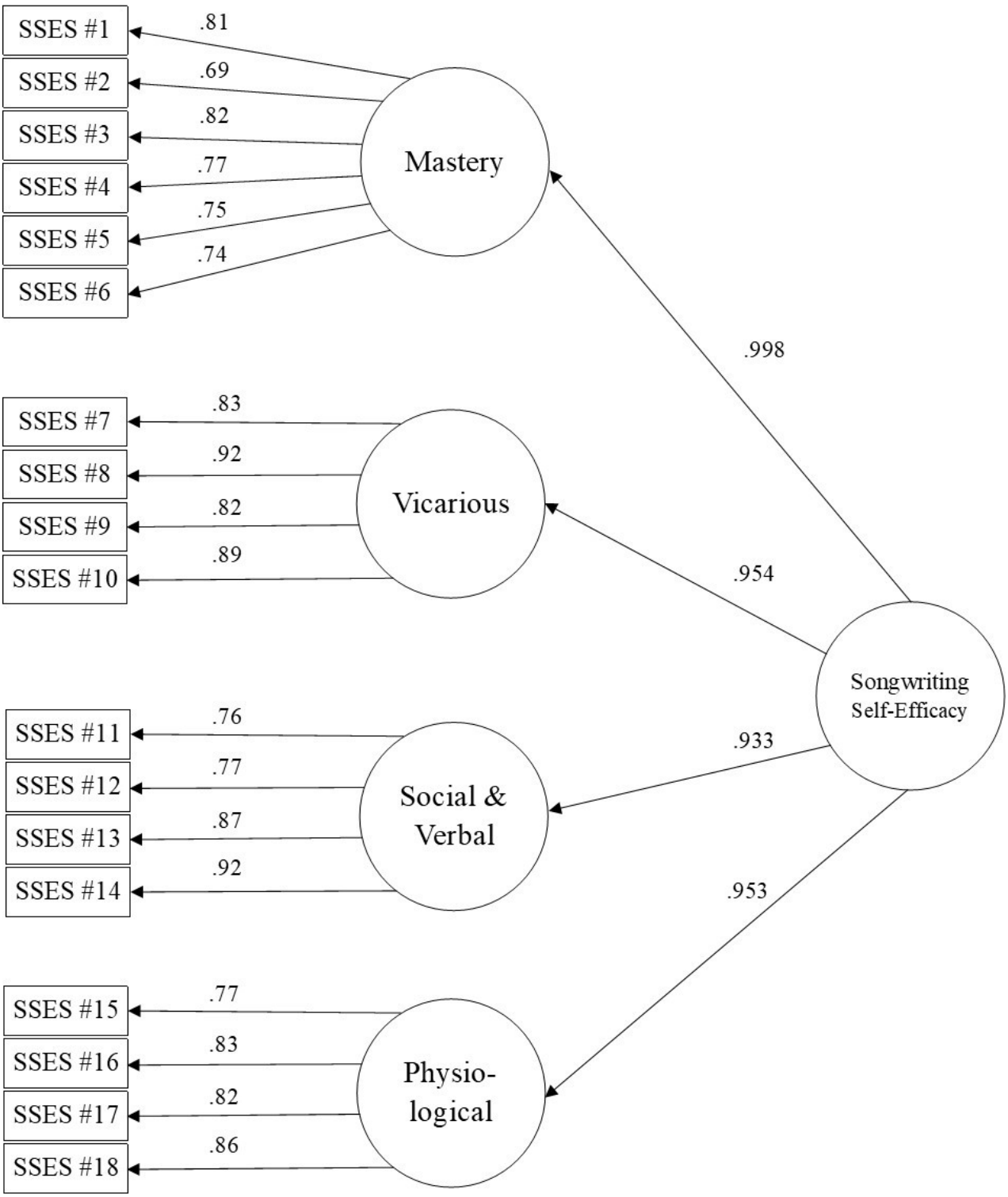

Figure 5. Factor weights of each item on SSES subscales and each subscale on SSES total

Table 2

Factor Weights of Item on SSES Subscales and Subscales on SSES Scale Total

Item & Scale	Mastery	Vicarious	Social/Verbal	Physiological
Item #1	.807			
Item #2	.687			
Item #3	.821			
Item #4	.773			
Item #5	.749			
Item #6	.744			
Subscale	*.998*			
Item #7		.831		
Item #8		.918		
Item #9		.820		
Item #10		.892		
Subscale		*.954*		
Item #11			.760	
Item #12			.774	
Item #13			.870	
Item #14			.916	
Subscale			*.933*	
Item #15				.768
Item #16				.832
Item #17				.815
Item #18				.855
Subscale				*.953*

χ^2 (69, 102) = 111.466, p = .245; GFI = .907; CFI = .995; RMSEA = .029

Research Question #3: To what extent does the developed measure (SSES) have concurrent validity with creative self-concept and music performance self-efficacy?

The tolerance level for correlations as small, medium, and large are typically arbitrary (DeVellis, 2017, p. 98). I have chosen the tolerance levels of > .10, > .30, and > .50 to represent small, medium, and large correlations respectively. Additionally, correlations above .80 will be considered too large to supply unique information. The desired correlation levels are between medium (.30) and too large (.80). This form of construct validity as convergent validity would indicate a shared relationship with the SSES and a related variable while maintaining enough unique information to be considered a different measurement.

Results indicated the songwriting self-efficacy scale (SSES) was positively correlated with the Creative Self-Efficacy scale (r_s = .45) and Creative Personal Identity (r_s = .48) (Table 3). Both correlations were medium strength. The correlation between the SSES scale total and combined CSE and CPI was large and positive, r_s = .52, p < .001. Spearman-rank correlations were used because the CSE and CPI collect ordinal data. These data suggested that the SSES demonstrated convergent validity by being related to, but unique enough, from creative self-concept (creative self-efficacy + creative personal identity).

Table 3

Correlations between SSES, CSE, and CPI

	SSES	CSE	CPI
Songwriting Self-Efficacy Scale (SSES)	1		
Creative Self-Efficacy Scale (CSE)	.446**	1	
Creative Personal Identity (CPI)	.476**	.703**	1

Spearman-rank correlations, N = 108, **. Correlation significant at the 0.01 level (2-tailed).

Results indicated the SSES scale total (SSES_T) and the Music Performance Self-Efficacy Scale total (MP_T) were positively correlated and that the correlation was large (r = .72) (Table 4). Additionally, large, positive correlations were found between all subscales: mastery (r = .63), vicarious (r = .64), social/verbal (r = .69), and physiological/affective (r = .50). No correlation between unrelated subscales (i.e., songwriting mastery and performance physiological/affective) was lower than .50 or greater than .72. Pearson correlations were used because both scales collected interval data. These data suggested that the SSES demonstrated convergent validity by being related to, but unique enough, from Music Performance Self-Efficacy scale (MPSES).

Table 4

Correlations between SSES and MPSES Scale Totals and Subscales

	SSES_T	SSES_M	SSES_V	SSES_S	SSES_P	MP_T	MP_M	MP_V	MP_S	MP_P
SSES_T	1									
SSES_M	.959**	1								
SSES_V	.941**	.884**	1							
SSES_S	.929**	.838**	.852**	1						
SSES_P	.914**	.840**	.797**	.802**	1					
MP_T	.715**	.709**	.675**	.662**	.621**	1				
MP_M	.626**	.633**	.601**	.577**	.518**	.950**	1			
MP_V	.665**	.672**	.636**	.593**	.577**	.836**	.702**	1		
MP_S	.724**	.687**	.689**	.687**	.649**	.946**	.891**	.719**	1	
MP_P	.559**	.556**	.494**	.525**	.497**	.872**	.804**	.615**	.778**	1

*N = 108 for all variables. Pearson correlations (2-tailed). **Correlation is significant at the .01 level.*

Research Question #4: Does the Songwriting Self-Efficacy Scale (SSES) demonstrate an empirical relationship with perceived learning climate, perceived competence, and intrinsic motivation?

Demonstrating an empirical relationship with related variables is a form of criterion-related validity. In this study, it is acknowledged that self-determination constructs in education are highly reliable to predict achievement or desired outcomes. Correlations as well as a path model can be used to identify the strength of relationships between these variables and to predict how these variables would interact in a classroom environment. The results to this question are particularly useful in understanding how to develop interventions which will support or increase various aspects of self-efficacy. Understanding how perceptions about the learning environment and the 'self' contribute to the cognitive mechanism to act or pursue an activity, in this case songwriting, is useful in understanding how to best support students.

Results indicated the SSES was positively correlated with Perceived Autonomous Support (PAS; r_s = .41), Perceived Competence for Learning (PCL; r_s = .50), and the Intrinsic Motivation Inventory-Effort Subscale (IMI-E; r_s = 44) and that the correlations were medium-large (see Table 5). Spearman-rank correlations were used because the scales used for self-determination collect ordinal data.

Table 5

Correlations between SSES and Self-Determination Theory (SDT) Constructs

	SSES	PAS	PCL	IMI-E
Songwriting Self-Efficacy Scale (SSES)	1			
Perceived Autonomous Support (PAS)	.406**	1		
Perceived Competence for Learning (PCL)	.502**	.687**	1	
Intrinsic Motivation Inventory-Effort (IMI-E)	.441**	.451**	.457**	1

Spearman-rank correlations, N = 108, **. Correlation significant at the 0.01 level (2-tailed).

While correlations were useful to understand covariance among variables, a path model could should how each variable interacts and could influence the various sources of self-efficacy. This model was based on theory from the literature review; however, it should be considered an exploratory model due to the lack of research which utilizes this specific model. In this model, perceived autonomous support is the key endogenous variable. It is hypothesized that feedback from the teacher would influence a student's perceived competence for learning and intrinsic motivation to spend effort on a task in class. In this model, a student's perceived competence for learning would influence their intrinsic motivation to spend effort on a task in class. The subscales of the songwriting self-efficacy scale acted as exogenous variables in this model. With this orientation, it was possible to analyze the direct and indirect effects of how perceptions of environment (PAS), competence (PCL), and intrinsic motivation (IMI-E) influence a cognitive

mechanism (self-efficacy) which is likely to predict success or the choice to continue to pursue a skill, in this case, songwriting.

In this type of analysis, the data were tested against the null hypothesis that the model was a good fit. A non-significant *p*-value indicates the data in the model were not statistically different than a validated model. In this analysis, it was desired that the model created by the author was not statistically different than a validated model. This means the hypothesized model presented would demonstrate good statistical fit. The results of the path model analysis suggested the model created was valid, χ^2 (2, 26) = 4.559, p = .102; GFI = .989; CFI = .996; RMSEA = .109, which is the desired result. A color-coded model was created to make it easier to see the standardized direct effects of each variable on another variable (Figure 6).

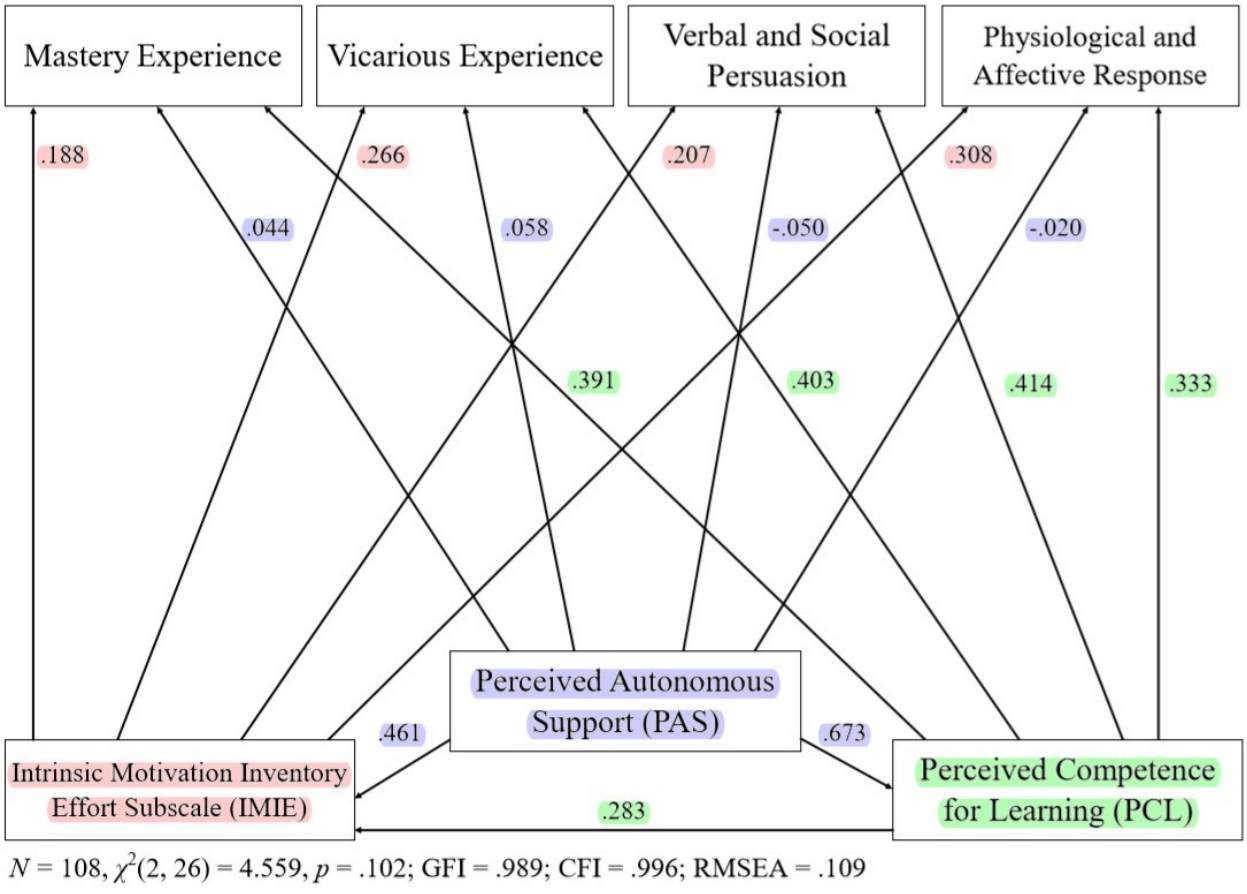

Figure 6. Path model showing standardized effects of SDT constructs on SSES subscales

A full compilation of standardized indirect, direct, and total effects can be found in Table 6. The same tolerance of interpretation from correlations were applied to this section, such that effects of >.10, >.30, and >.50 were interpreted as small, medium, and large respectively. The standardized total effects were most useful for direct reporting without discussing further implications because they are the most robust metric for how much one variable affects another.

Table 6

Standardized Indirect, Direct, and Total Effects of SDT on SSES Subscales

	Standardized Total Effects	Standardized Direct Effects	Standardized Indirect Effects
PAS on Mastery	.394	.044	.349
PCL on Mastery	.444	.391	.053
IMIE on Mastery	.188	.188	.000
PAS on Vicarious	.434	.058	.375
PCL on Vicarious	.467	.403	.064
IMIE on Vicarious	.226	.226	.000
PAS on Social/Verbal	.354	-.050	.374
PCL on Social/Verbal	.472	.414	.059
IMIE on Social Verbal	.207	.207	.000
PAS on Physiological	.316	-.020	.366
PCL on Physiological	.420	.333	.087
IMIE on Physiological	.308	.308	.000
PAS on PCL	.673	.673	.000
PAS on IMIE	.461	.271	.190
PCL on IMIE	.283	.283	.000

χ^2 (2, 26) = 4.559, p = .102; GFI = .989; CFI = .996; RMSEA = .109

The first level of variables to analyze was the interaction between the self-determination variables. Perceived Autonomous Support (PAS) is the beginning point for the model to show how external perceptions of the learning environment and the teacher influences a student's Perceived Competence for Learning (PCL) and a student's level intrinsic effort to do well in the class (IMI-E). These perceptions together would influence self-efficacy, a cognitive mechanism which would be predictive of achievement or continued participation in an activity. Perceived Autonomous Support (PAS) had significant standardized total effects on both Perceived Competence for Learning (.67) and intrinsic motivation (IME-E) (.46). These can be interpreted

as large and medium respectively. Additionally, Perceived Competence for Learning (PCL) had a small, significant standardized total effect on intrinsic motivation (.28). In the self-determination section of this model, Perceived Competence for Learning acted as a mediating variable between Perceived Autonomous Support (PAS) and intrinsic motivation (IMI-E) (Troum, 2010). This can be interpreted to mean that in this model, the external influence of Perceived Autonomous Support (PAS) is highly influential on both internal perceptions of learning (PCL) and intrinsic motivation (IMI-E).

The next level of variables to analyze were the effects of the self-determination constructs (PAS, PCL, IMI-E) on the songwriting self-efficacy subscales. Perceived Autonomous Support (PAS) had significant standardized total effects on the mastery experience (.39), vicarious experience (.43), verbal and social persuasion (.35), and physiological and affective response (.32) subscales. These total effects are considered medium strength. This finding is important because of the statistically non-significant standardized direct effects PAS had on the songwriting self-efficacy subscales (-.05 to .06). This result is discussed at length in chapter five.

Perceived Competence for Learning (PCL) had significant standardized total effects on the mastery experience (.44), vicarious experience (.47), verbal and social persuasion (.47), and physiological and affective response (.42) subscales. These total effects are considered medium strength and marginally stronger than the effects of PAS on the self-efficacy subscales. The responses for the intrinsic motivation inventory-effort subscale had the weakest standardized total effects on each subscale: mastery experience (.19), vicarious experience (.23), verbal and social persuasion (.21), and physiological and affective response (.31). It is important to note that the largest standardized effect for the intrinsic motivation-effort subscale was on the

physiological and affective response subscale. This could potentially speak to the interaction of increased or decreased effort resulting in a more enjoyable or more stressful response to songwriting in schools.

These analyses suggest that the developing measure (SSES) demonstrated a solid empirical relationship with Perceived Autonomous Support (PAS), Perceived Competence for Learning (PCL), and the Intrinsic Motivation Inventory-Effort subscale (IMI-E). The initial correlations between each variable demonstrate a loose empirical relationship and satisfied construct validity. By evaluating an exploratory path model, the scale gained additional criterion-related validity by untangling how common measurements of external (PAS) and internal (PCL, IMI-E) perceptions can influence a cognitive mechanism to pursue activities within the context of a music classroom dedicated to songwriting.

> *Research Question #5: To what extent does the developing measure (SSES) demonstrate potential as an assessment tool for use by teachers in secondary music classrooms?*

The most direct answer to this question is that these analyses supported the use of the SSES in its present state, demonstrating potential value as an assessment tool for students in secondary general music programs. There are many strengths to support the use of this measure. The data were highly reliable and were collected from programs around the country. The results demonstrated strong statistical evidence that the scale is well constructed. There were appropriate empirical relationships with related validated measures of success and continued participation. In summation, there was enough evidence to claim that the SSES is a valid measure of songwriting self-efficacy for students in secondary general music programs.

To upgrade the potential value of this survey to secondary teachers, more research is needed to show the ability of the survey to directly predict specific outcomes (e.g.,

accomplishments or reduced attrition). Additionally, I would argue that the best application of this measure would be for a teacher to be able to administer the survey in class, then use the results to highlight deficiencies in a student's self-efficacy and be able to apply empirically-validated interventions to compensate an identified deficiency.

Summary

To validate the Songwriting Self-Efficacy scale (SSES) for use in secondary general music classrooms, five research questions were posed at the outset of the project. The first question was designed to validate and ensure the data were reliable for the rest of the analyses. The scale was found to be highly reliable with no concern of violations that would render the data unusable. The second question led to using structural equation modeling (SEM) as a confirmatory factor analysis (CFA) technique. The scale was found to fit Bandura's model of self-efficacy. This was done with a relatively small sample size compared to the depth of the analysis (Kline, 2017, p. 14). For this analysis to give encouraging results with a relatively small sample size increases the argument that the questions associate with the correct subscales, and that each subscale is useful to measure a source of self-efficacy. The next two research questions were used to demonstrate convergent and criterion-related validity. These analyses demonstrated that the scale is statistically sound and is empirically related to, but unique from, similarly related constructs. Criterion-related validity could be improved with more research. The final question was used to evaluate the state of the scale and its usefulness to music teachers based on the present data collected. The scale shows great promise for application in secondary music classrooms. However, more research is ultimately needed to upgrade the immediate value of the scale to music teachers as a diagnostic tool for success or continued participation, which is the ultimate goal of developing this scale. The scale has been successfully developed and validated.

In chapter five, I offer recommendations for the best ways to apply the scale in future research and how these studies may assist teachers in providing the best learning experiences for their students.

Chapter Five: Summary, Discussion, and Recommendations

Summary

The primary purpose of this study was to develop and validate a measure of songwriting self-efficacy with U.S. secondary general music students. In the context of this study, a secondary general music class was any non-ensemble class in which learning to write songs was a featured part of the curriculum. The secondary grades were defined as grades seven through 12. Self-efficacy is an important construct for music educators to know and understand because it is a potent predictor of success (e.g., Stajkovic, Bandura, Locke, Lee, & Sergent, 2018). It was recommended that measures of self-determination be included because perceptions about the environment (Troum, 2010) influence task persistence (Miksza, 2011).

The task of songwriting was chosen because an excellent measure of music performance self-efficacy already existed (e.g., Zelenak 2011; 2015), but there was not yet a reliable measure of songwriting self-efficacy. Songwriting was also chosen for creative and philosophical reasons. Many students report feeling isolated or "othered" when participating in ensembles (Clauhs & Cremata, 2020). The disconnect between a student's lived experience and the music chosen for them by the teacher can be vast and impersonal. Wall's (2018) findings of isolation were consistent across all ethnic categories, including white students, who reported no connection to the music of "white European classical composers." Diversity in music education is a topic of equity: *who-se* music? Songwriting confronts the question with this answer: *their* music.

The rationale for developing this measure was built upon the belief that a well-constructed self-efficacy scale would predict positive outcomes and persistence on a task in the

face of adversity. The ability to realize personal goals and the ability to persist after a failure are likely hallmarks of life-long music makers. It is hoped that by creating this measure, secondary teachers may have access to a valuable assessment tool that they can use to better serve their students and encourage continued participation. Additionally, it is hoped researchers and music teacher educator (MTE) programs find value in this measure by including non-instrumental or vocal performance assessments when evaluating concepts such as musician self-concept, music teacher identity, or university juried competency exams.

The SSES was created by reviewing relevant literature, synthesizing research on self-determination theory (SDT) with research on self-efficacy, and developing a series of research questions. A data collection method was developed and reviewed by a team of experts. Several suggestions were made and the SSES was sent out for data collection. Initial results with 76 participants resulted in acceptable data. After a follow up, an additional 38 responses were collected. From the 114 responses, six were discarded for being unreliable or statistical outliers. The validation processes then proceeded with 108 responses ($N = 108$). Confirmatory factor analysis (CFA) was conducted by using structural equation modeling (SEM), analyzing the goodness-of-fit indices, and evaluating the strength of each question and each factor to fit correctly. Modification indices provided by AMOS suggested the removal of questions #13 and #16 would result in a more parsimonious and stronger statistical model. These two questions were removed and the full analysis of final version SSES (Appendix C) for reliability and validity commenced.

The SSES was analyzed for construct and exploratory criterion-related validity. Correlations and a path model suggested the SSES demonstrated the appropriate levels of convergence between related constructs. Appropriate in this context meant that correlations were

strong enough to go beyond associating because of a similar response method, but not so strong as to suggest the constructs were not unique (DeVellis, 2017, p. 98). The final evaluation of the developed measure (SSES) concluded that the scale demonstrated reliability and validity as a measure of songwriting self-efficacy. Additional research is needed to demonstrate applications of the scale as an assessment tool to predict the likelihood for a student to succeed or continue participating in an elective songwriting course. The potential to use the SSES in this capacity looks promising.

Discussion

The validation process of the SSES resulted in interesting data from students enrolled in secondary general music classes, not often studied in the context of performance and task persistence. The purposeful sampling techniques employed captured data from a fairly diverse group of students, but their teachers were similar in many ways. All five were white, four were male. All five teachers were highly-qualified and had at a minimum a Master's degree. The learning processes occurring in these classrooms were likely to be unique and high-quality compared to a random national sample. I met each of the five teachers at national-level professional development conferences, evidence suggested that they were passionate and dedicated to their careers. In this sense, data captured in this study came from exemplar sources. These data might reflect a cross-section of what we might hope our classrooms could look like when fostering intrinsic motivation and a climate of support.

Individual Questions and Subscales

Mastery experience had the strongest influence on self-efficacy. However, having the strongest influence on the general factor, in this case the developed measure (SSES), does not necessarily correspond with being the highest rated among the subscales. In this study, the

physiological and affective response subscale had the highest mean rating per-question (∑ = 67.31) (see Table 1). Questions on this subscale asked participants to consider if songwriting made them feel good, was enjoyable, made them feel better, and gave them a sense of accomplishment. This is an important finding to consider as studies have found that relieving stress is an important factor for continued music participation after high school (Mantie & Dorfman, 2014; Redman & Bugos, 2019). Songwriting is used in music therapy for this purpose and can be made learner-centered by focusing on preferred genres (e.g., Hadley & Yancy, 2012, *Therapeutic Uses of Rap and Hip-Hop)*. The high levels on the physiological and affective response subscale also speak to the ability of the teachers in this sample to create environments where students were responding positively.

Among the remaining subscales, vicarious comparison was the most evenly distributed and had the lowest mean rating per-question (∑ = 50.05). Questions on this subscale asked students to compare their abilities to their classmates, similarly aged peers, and professional songwriters. The lowest scoring question on the entire developed measure came from this subscale and asked students to rate the statement: *I have compared my songs to the songs of professional songwriters and believe that I have the ability to write songs with similar or better quality.* Considering these are students with relatively little experience, it is not unexpected that this result is considerably lower than a similar question phrased towards "*students my age*." Overall, this was the only subscale with no question scoring above a mean of 60 (out of 100). This finding is important to consider based on Bandura and Jourden's recommendation (1991) that personal improvement and self-comparison should be privileged over vicarious comparison in the classroom (citing Frey & Ruble, 1990; Nicholls, 1990). Additionally, Bandura (1993) suggested that individuals would cease sustained engagement in a domain where they were

constantly feeling inferior to others no matter how much they desire to take part in an activity. It would appear that even though songwriting is making students feel good, they were less positive in their appraisal of their skills compared to their peers. This may also be the result of an effect described by Hewitt (2015) whereby as the ability of students increased, they became underconfident in their self-evaluations. It may be that as the ability of a student increased, they noticed improvements in their peers as well, which would reduce their own personal sense of accomplishment, or at the least, result in a more grounded evaluation of their own skills. In a classroom where all students are improving, it may not be as important to evaluate growth in vicarious comparison when overall self-efficacy is high.

The subscale designed to capture the source of verbal and social feedback contained the largest range of any subscale ($\sum = 53.02$, *Min.* = 36.27, *Max.* = 70.42, *Range* = 34.15). The responses on this subscale suggested students were receiving a lot of positive feedback on songs in class coupled with moderate positive feedback on songs from family and friends outside of class. Despite positive sources of verbal feedback, students did not report high levels of social feedback, such as students wanting to work with them because they are a good songwriter. This may speak to an interaction with vicarious comparisons, such that a student who had positive feedback from their teacher, friends, and family, still had trouble labeling themselves a good songwriter in the context of social interactions with classmates. Alternatively, this could be an indication that students simply did not work together as often as they worked apart. It is difficult to make any type of conclusion other than it appears that verbal feedback is being acknowledged from students, but perhaps less internalized because of the resulting social interactions they have in class.

The responses on the mastery experiences subscale asked students to rate their prior experiences when writing by themselves and with others, when writing simple and difficult songs, and when writing inside and outside of school. Reponses indicated students were most comfortable writing simple songs, alone, in school (Appendix C, Questions #1, #3, #6). Students reported lower scores when they were asked about their experiences working with other students or working on more challenging songs (Appendix C, Questions #2 and #4). This is not unexpected as more difficult tasks should be rated higher than simple tasks. It appears working together is being rated as more difficult than working alone. It is likely that the verbal feedback and vicarious comparisons in school have the potential to bring down reported mastery experiences when working with others, recalling that the four sources of self-efficacy act together as cognitive mechanism and not independently of each other (Bandura, 1993). Additionally, this could be a construct of the learning environment. If students do not work together as much as they work alone, it is logical to think they would have more positive experiences when working alone. In an ideal classroom, these levels would be reported at least at the same levels, if not more skewed towards the social aspect of songwriting.

Overall, students reported a grand mean just above the midpoint of the scale (55.71 out of 100). It appears students in the sample feel good when writing songs. Two of the highest-rated questions on the entire measure were "*I feel a sense of accomplishment when I finish writing a difficult song"* (Appendix C, Question #16) and *"I feel good after writing songs that are important to me"* (Appendix C, Question #17). This could be potentially attributed to positive feedback from their teacher, their friends, and their families. It should not be lost on the reader that ratings were high when there was the qualifier that songs had *importance* to the student. This is an indicator that when songwriting is learner-centered and supportive of the student's goals,

there is potential to realize physiological relief from stress and develop an increased self-efficacy.

Interaction of Self-Determination and Self-Efficacy Variables

To demonstrate criterion-related validity, there needed to be an empirical relationship established between the SSES and other validated constructs. This was done by creating a path model to look at the effects of Perceived Autonomous Support (PAS), Perceived Competence for Learning (PCL), and Intrinsic Motivation-Effort (IMI-E) on each subscale of the SSES. This framework relied on the idea that self-efficacy is a cognitive mechanism for deciding if an individual persists at a task. In this model, the effects of the learning environment (PAS) on a student's songwriting self-efficacy (SSES) are mediated by internal perceptions of competence (PCL) and perceptions of intrinsic effort (IMI-E). This is consistent with a model developed by Troum (2010). It is hypothesized in this path model that self-efficacy will ultimately act as a dichotomous moderator between self-reports of competence and persistence and actual continued participation. Self-efficacy acts as the final "will I" in the process of "will they let me, can I, do I want to, and will I?" Self-efficacy will predict the outcome, "yes, I will," or "no, I won't." The constructs from self-determination (PAS, PCL, IMI-E) are useful in devising classroom strategies which increase self-efficacy. While it is difficult to deduce the direction of relationships between self-determination, self-efficacy, and outcomes, this model relied on a meta-analysis done by Talsma, Shuz, Schwarzer, and Norris (2018) showing that the reciprocal effects of performance on self-efficacy and vice versa were both significant, concluding they each affect each other cyclically over time.

The results of the path model pointed to perceived autonomous support (PAS) and perceived competence for learning (PCL) as being incredibly important to the development of

self-efficacy. Interestingly, these effects were mediated by intrinsic motivation-effort, such that personal effort was required to connect the positive effects of perceived autonomous support on self-efficacy. This fits well within the theory of self-efficacy that an individual does not pursue seemingly attainable tasks if there is not a desire to expend the effort (Bandura, *et al*., 2003). Even when an individual perceives themselves to have the competence to succeed, the benefit of self-enhancement must still outweigh the effort needed to complete the task. The strongest direct effect from effort to self-efficacy was on the physiological subscale, which captures self-enhancement by asking students if they feel a sense of accomplishment when completing a difficult song. The second strongest direct effect from effort to self-efficacy was on vicarious comparison. It could be that students are comparing their skills to see if the self-enhancement they might feel would also improve their status among their peers (Yeung, Craven, & Kaur, 2014). These findings may point to how self-efficacy acts a cognitive mechanism to help us decide if the effort we need to expend to complete a task is going to be worth it. As students navigate the challenges of being in school, it is important to highlight that these results together may suggest autonomously supportive teachers with confident students still need to convey value in the activities they are offering students. Songwriting may offer students a structure which promotes intrinsic motivation by encouraging students to find personal meaning in their music education. The results of this study point to this link, especially when examining responses on the physiological and affective response subscale in conjunction with constructs from self-determination theory (SDT).

Recommendations

A dissertation may represent the end of a terminal degree, but in many ways, it also represents the beginning of a new journey. And so, the development and validation of the

Songwriting Self-Efficacy Scale (SSES) is the beginning of a line of research which I plan to pursue as part of a research agenda dedicated to bringing empirical valuation to the field of creative music education. These recommendations are likely projects which I will soon pursue in collaboration with researchers across the world. My recommendations fall under one of three categories: (a) future research to improve the criterion-related validity of the SSES, (b) future research to evaluate how classroom processes and activities affect self-efficacy, and (c) research implications of a recently developed software for statistical modeling (AMOS).

Towards Future Research with the SSES

Throughout this study, it has been suggested that a measure of self-efficacy is an accurate predictor of desired outcomes and of continued participation. There are fairly straightforward ways to begin assessing these claims relative to the measure developed in this study (SSES). The first suggestion is to design a study that compares students' songwriting self-efficacy scores to ratings of their songs by expert judges using the Consensual Assessment Technique (Amabile, 1982; Hickey, 2001; Stefanic & Randles, 2014; Cooper, 2016). The criterion-related validity of the SSES would improve if a linear regression demonstrated that higher scores on the SSES predicted higher scores by a panel of expert judges. A similar study could be constructed using less a competitive metric, such as end-of-term grades in a course with learner-centered assessments, limiting the use of standardized tests to measure the knowledge of discrete terms and concepts. If applied at a longitudinal level, it would be useful to see if self-efficacy scores of students improved throughout a school year alongside documented improvement of their ability to write songs.

The aim to directly predict continued participation could be studied by looking at rates of actual participation from year-to-year as well as self-reports of the desire to continue at the end

of a course. It would be useful to look at the relationship between self-efficacy scores and enrollment from year to year in a school with a tiered system of songwriting classes. At least two of the five schools in this study had multiple levels of songwriting classes based on ability and experience (i.e., Songwriting I, Songwriting II, Advanced Recording Techniques III, etc.) and would make suitable sites for such a study. For students who have not taken an elective music class, the SSES could be combined with a question asking students if they *would* take such a class. This would demonstrate that a certain level of self-efficacy must exist for an individual to make the decision to exert effort and pursue a new, unknown activity. Another recommendation would be to have students take the SSES as pre- and post-tests at the beginning and end of a semester. It would be useful to see if students who experienced a certain level of growth were more likely to register again or report they would register for a future class. This link would be interesting because even when students have very high self-efficacy, periods of stagnation in personal development and challenge can lead to attrition (Van Nuland, Taris, Boekaerts, & Martens, 2012). If students reported high scores without much personal growth throughout the school year and ultimately decided not to continue, that would corroborate an important link between self-efficacy, goal setting, effort and the "will I" aspect of self-efficacy as a cognitive mechanism used to decide if someone will pursue an activity.

Towards Classroom Use, To Inform Classroom Practices

An ideal use of the SSES is for a music teacher to administer it and gain valuable feedback about how they can better support a student. First, music teachers need a basic understanding of self-efficacy and how the four sources have the potential to interact. One of the most important features of self-efficacy is to consider how the vicarious comparison component has the ability to affirm or hinder the verbal feedback received by the teacher (Bandura, 2001).

Even when a student is given lots of praise, they will still compare their skills to others in near proximation. Music teachers can avoid vicarious comparisons as a function of their assignments and instead focus on self-comparison and reflection as forms of evaluation. This may require additional research in the context of songwriting classes to provide the best recommendations to encourage sharing without too much peer judgement.

It is also important that music teachers understand how the role of physiological and affective response can affect performance. If a student reports that they have low scores on the mastery experiences subscale, the teacher may need to look beyond ways for the student to personally experience success. This might include finding ways to make the music a student is writing more personally meaningful. The self-enhancement and positive feelings from completing a task which is more personal to the student may raise their mastery experiences because the goal they achieved meant more. In the future, it will feel like less effort will be needed to be successful. Looking at the individual question level, the teacher might see that a student is struggling having successful experiences when working with groups and look to the other subscales to find potential interactions. They could evaluate the verbal feedback subscale to see if they could be more supportive and the vicarious comparison questions to see if there is a problem with the student not feeling skilled enough compared to their peers. In this case, it might be useful to help the student see how the skills and ideas they possess are unique and good enough to be successful.

The exact recommendations for ways to improve the learning experience for students could be done through empirical investigations. This could be achieved qualitatively through observation, interviews, and focus groups of programs in their natural states to identify elements of effective songwriting teaching. Much of this research could potentially be done as action

research by teachers in their own classrooms. It could also be possible to collect data from many sites using the SSES and code the processes observed in the classroom to deduce if certain elements of teaching, such as more group work or more feedback supporting autonomy or divergent thinking, leads to higher levels of self-efficacy between groups. A larger-scale evaluation such as this might require a large research team but would also gain useful information for the field of music education.

Research Implications for using AMOS Software

The original proposal for this dissertation included using the software M-Plus for modeling. After the proposal, a new plug-in for SPSS was developed by IBM called AMOS. The ease of constructing models and interpreting results in AMOS compared to M-Plus is likely to mean more researchers will attempt modeling analyses, including factor analysis and path model analysis, as was the case in this study. With this new power comes great responsibility and a word of caution. M-Plus is similar to code-heavy software such as SAS or *R*. It is very difficult to get any results without a firm understanding of the math or LISREL notation behind your analyses, as the user must program each step for the computer to process. A model produced using M-Plus has credibility because it is very difficult to analyze data without a firm understanding of theory.

Conversely, it is very easy to get AMOS to produce *something*, such as pages of results without knowing the details of the math behind the results. In M-Plus, the software does not give the researcher data unless the concerned model converges and fits the specified model. In AMOS, the software can produce results that may look more promising at first-glance than they really are because goodness-of-fit indices, eigenvalues, and modification indices can be ignored by a careless researcher in lieu of skipping straight to factor weights, effects, and percentage of

variance captured. To be succinct, M-Plus does not show every detail you need for an analysis unless the data interact properly, while AMOS always displays every needed detail, and so the researcher must pour through each set of indices to ensure everything is valid before claiming the model converged properly. While AMOS is a great time saver, it also inflates the chance for a researcher to make a Type I error.

Limitations

These data were collected from January 2019 to January 2020 and the CoVID-19 pandemic had not shut down in-person public schooling, which occurred in most of the country during the month of March 2020. The original question #13 was removed for being highly unreliable and significantly reducing the internal consistency of the scale. Question #13 asked students about receiving positive feedback to songs they had posted on social media. Despite being unreliable in this study, it is likely an important question to consider going forward as more and more music instruction takes place online. Question #16 was reverse scored and the only negatively phrased question on the developed measure. This was a poor choice. If positively stated, the question may have been useful. In retrospect, it is unclear if these two questions needed to be removed because they were poor questions or if new circumstances (#13) and re-wording (#16) warrant their inclusion. As a conservative researcher, it is recommended that these two questions not be used until more validation occurs.

The nature of this study does not allow for the criterion-related validity that could have been achieved with students' songwriting products being evaluated as well. In the context of this study, maintaining anonymity for students was the most important consideration. I was not allowed to collect from where the data came for group-level site-based analysis. This would have been useful to evaluate if data from one classroom was different than another classroom. If data

were different by site, there could be useful information extrapolated by further studying the environment in which these students were learning. More direct access to products made by students, GPA's, or other potentially identifying information could be useful to help show more casual-type links between the data. It is likely this type of research could be conducted with a young adult population more easily, such as undergraduate composition majors. Because this scale was validated with secondary students, further work would need to be done to extend the findings to music teacher education (MTE) and adult populations.

A final critique of this scale could be that it is still not specific enough. Songwriting to some may mean only writing lyrics while others might consider songwriting the act of "composing" instrumental music. This was intentionally left vague in an effort to capture either domain or any blended conception of "songwriting." This could be considered antithetical to the aim of self-efficacy research to capture specific beliefs. In this study, the definition of songwriting may have been too broad for some. The reason for keeping it broad, however, was to allow the measure to be useful in a variety of secondary general music courses where songwriting is one activity in a series of activities as part of a comprehensive music education. Others might decide to look more closely at lyric writing self-efficacy, harmonic structure writing self-efficacy, digital music production self-efficacy, or other more discrete elements that describe success in more concretely defined courses.

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Appendix A (Original Unreviewed Scale)

Songwriting Self-Efficacy Scale

Please respond to each question on a scale of 0-100 based on how well you feel the statement describes yourself, with a score of 0 not at all describing yourself and a score of 100 perfectly describing yourself. Your responses will not be shared with your teacher or other students. Please read each question carefully and answer honestly. There are no correct or wrong answers.

Mastery Experience

_____ When I have had to write songs by myself, I have done well.

_____ When I have had to write songs with others, I have done well.

_____ I have had positive experiences when asked to write a song in school.

_____ I have had positive experiences writing songs outside of school.

_____ I have been able to write songs and have them turn out like I intended.

_____ When I have been asked to write a song in school, I often fail to finish the entire song. (R)

Vicarious Experience

_____ I have used other songwriters as models to help make my songs better.

_____ I have seen how other students approach songwriting, and have used those strategies to improve my own songs.

_____ I have seen how my teacher approaches songwriting, and have used those strategies to improve my own songs.

_____ Compared to other students with a similar amount of experience, I am not as good at writing songs. (R)

Verbal/Social Persuasion

_____ I have received positive feedback on the songs that I have written in class.

_____ If I were to post one of my songs to social media, the feedback would be negative. (R)

_____ Friends that have heard my songs think that I am a good songwriter.

_____ Family members that have heard my songs think I can become a really good songwriter.

_____ Other students have wanted to work with me in class on writing songs.

Physiological Response

_____ Being in a music class where I have to write songs makes me feel nervous. (R)

_____ Writing songs in class makes me feel better while I'm at school.

_____ I get worried when I write songs that they will not turn out good. (R)

_____ I feel good after writing songs that are important to me.

Appendix B (Pilot Version after Initial Review)

Songwriting Self-Efficacy Scale

Please respond to each question on a scale of 0-100 based on how well you feel the statement describes yourself, with a score of 0 not at all describing yourself and a score of 100 perfectly describing yourself. Your responses will not be shared with your teacher or other students. Please read each question carefully and answer honestly. There are no correct or wrong answers.

Enactive Mastery Experience

_____ 1. I have done well writing simple songs by myself.

_____ 2. I have done well writing songs with others.

_____ 3. I have had positive experiences when asked to write a song in school.

_____ 4. I have had positive experiences writing difficult songs outside of school.

_____ 5. I have been able to write simple songs outside of school and have them turn out as I intended.

_____ 6. I have been able to write difficult songs inside of school and have them turn out as I intended.

Vicarious Comparison

_____ 7. Compared to other students in my class, I can easily write songs.

_____ 8. I have heard the songs of other students my age and believe I have the ability to write songs with similar or better quality.

_____ 9. I have compared my songs to the songs of professional songwriters and believe that I have the ability to write songs with similar or better quality.

_____ 10. I am as good at writing songs as other students my age with a similar amount of experience.

Verbal and Social Feedback

_____ 11. Other students have wanted to work with me because they consider me a good songwriter.

_____ 12. I have received positive feedback on the songs that I have written in class.

_____ 13. I have received positive feedback on my songs that I have posted to social media.

_____ 14. Family members that have heard my songs think I can become a really good songwriter.

_____ 15. Friends that have heard my songs think I am a really good songwriter.

Physiological Response and Affective State

_____ 16. I feel nervous when I am in my songwriting class. (reverse coded)

_____ 17. Writing songs in class makes me feel better while I'm at school.

_____ 18. I feel a sense of accomplishment when I finish writing a difficult song.

_____ 19. I feel good after writing songs that are important to me.

_____ 20. I enjoy writing songs.

Appendix C (Final Version)

Songwriting Self-Efficacy Scale

Please respond to each question on a scale of 0-100 based on how well you feel the statement describes yourself, with a score of 0 not at all describing yourself and a score of 100 perfectly describing yourself. Your responses will not be shared with your teacher or other students. Please read each question carefully and answer honestly. There are no correct or wrong answers.

Enactive Mastery Experience

_____ 1. I have done well writing simple songs by myself.

_____ 2. I have done well writing songs with others.

_____ 3. I have had positive experiences when asked to write a song in school.

_____ 4. I have had positive experiences writing difficult songs outside of school.

_____ 5. I have been able to write simple songs outside of school and have them turn out as I intended.

_____ 6. I have been able to write difficult songs inside of school and have them turn out as I intended.

Vicarious Comparison

_____ 7. Compared to other students in my class, I can easily write songs.

_____ 8. I have heard the songs of other students my age and believe I have the ability to write songs with similar or better quality.

_____ 9. I have compared my songs to the songs of professional songwriters and believe that I have the ability to write songs with similar or better quality.

_____ 10. I am as good at writing songs as other students my age with a similar amount of experience.

Verbal and Social Feedback

_____ 11. Other students have wanted to work with me because they consider me a good songwriter.

_____ 12. I have received positive feedback on the songs that I have written in class.

_____ 13. Family members that have heard my songs think I can become a really good songwriter.

_____ 14. Friends that have heard my songs think I am a really good songwriter.

Physiological Response and Affective State

_____ 15. Writing songs in class makes me feel better while I'm at school.

_____ 16. I feel a sense of accomplishment when I finish writing a difficult song.

_____ 17. I feel good after writing songs that are important to me.

_____ 18. I enjoy writing songs.

Appendix D

Music Performance Self-Efficacy Scale

Directions: Respond to the following statements based on your current level of musical ability, experience, and primary instrument/voice. There are no right or wrong answers. Indicate to what degree you either agree or disagree with the statement by inputting any whole number between 0 (Strongly Disagree) and 100 (Strongly Agree) into the box. Carefully consider the number you choose.

0, 1, 2, 3.....10.....20.....30.....40.....50.....60.....70.....80.....90.....97, 98, 99, 100

Strongly Strongly

Disagree Agree

_____1. I have had positive experiences performing music in the past.

_____2. I have improved my music performance skills by watching professional musicians perform well.

_____3. My friends think I am a good performer on my primary instrument/voice.

_____4. I have had positive experiences performing in large ensembles (more than 11 performers).

_____5. I have improved my music performance skills by watching someone I know perform well (parent, brother, sister, church member, etc,).

_____6. I have had positive experiences performing music solo.

_____7. Members of my family believe I perform well.

_____8. I have had positive experiences performing simple music.

_____9. People have told me that my practice efforts have improved my performance skills.

_____10. I have had positive experiences performing complicated music.

_____11. I have used other music students as models to improve my performance skills.

_____12. I have overcome musical challenges through hard work and practice.

_____13. I have received positive feedback on music performance evaluations

_____14. I have used a practice routine to help me prepare for my performances.

_____15. I am learning, or have learned, to control my nervousness during a performance.

_____16. I have had positive experiences performing music in a small ensemble (2-10 performers).

_____17. Performing with instrument/voice makes me feel good.

_____18. I have watched other students with similar music ability as me perform a piece of music, and then decided whether I could, or could not, perform the same piece of music.

_____19. I do not worry about making small mistakes during a performance.

_____20. I have compared my performance skills with those of other students who are similar in musical ability to me.

_____21. My music teacher has complimented me on my musical performance.

_____22. I have met or exceeded other people's expectations of being a good musician for someone my age.

_____23. I enjoy participating in musical performances.

_____24. I have positive memories of most, or all, of my past music performances

Appendix E

Learning in Your Music Class

The following questions ask about various learning situations in your music class. Make sure to answer each question thinking about the music class in which you write songs. You will answer how much you strongly disagree (1) or strongly agree (7) with each statement about your music class.

1. I feel my music teacher provides me choices and options. (PAS)

2. I feel understood by my music teacher. (PAS)

3. My music teacher has shown confidence in my ability to do well in this class. (PAS)

4. My music teacher encourages me to ask questions. (PAS)

5. My music teacher listens to how I would like to do things. (PAS)

6. My music teacher tries to understand how I see things before suggesting a new way to do things. (PAS)

7. I put a lot of effort into this class. (IMI-E)

8. I don't put much energy into this class. (IMI-E) (R)

9. I try very hard in this class. (IMI-E)

10. I don't try very hard in this class. (IMI-E) (R)

11. I feel confident in my ability to learn the material in my music class. (PCL)

12. I am capable of learning the material in my music class. (PCL)

13. I am able to achieve my goals in my music class. (PCL)

14. I feel able to meet the challenge of performing well in my music class. (PCL)

Appendix F

Short Creative Self-Concept Scale

Please read each statement to see if you agree. Respond using the scale 1 (definitely no) to 5 (definitely yes).

1. I know I can efficiently solve even complicated problems (CSE)
2. I trust my creative abilities (CSE)
3. Compared with my friends, I am distinguished by my imagination and ingenuity (CSE)
4. I have proved many times that I can cope with difficult situations (CSE)
5. I am sure I can deal with problems requiring creative thinking (CSE)
6. I am good at proposing original solutions to problems. (CSE)
7. I think I am a creative person. (CPI)
8. My creativity is important for who I am. (CPI)
9. Being a creative person is important to me. (CPI)
10. Creativity is an important part of me. (CPI)
11. Ingenuity is a characteristic which is important to me. (CPI)

Appendix G

Additional Information (Demographics)

These questions are used to help the researcher make sure the surveys you have completed were fair. They are optional. You may submit your survey now or answer the following questions.

1. What is your grade level?

(short answer)

What is your sex?

____ Female ____ Male

What is your ethnicity?

____ American Indiana/Alaskan Native

____ Arab/Middle Eastern

____ Asian

____ Black or African American

____ Hawaiian/Pacific Islander

____ Hispanic/Latino/Spanish origin

____ Some other race/ethnicity

____ White (not Hispanic/Latino/Spanish origin)

____ 2+ races/ethnicities

What is the name of your school?

(short answer)

What is the name of your music class?

(short answer)

Do you qualify for free or reduced lunch?

____ Yes ____ No ____ Not sure

Appendix H

Parental Permission Information Sheet

Hello! You are getting this e-mail because you are the parent or guardian of a secondary music student. A researcher at the University of South Florida (USF) has asked your child's school to help find potential participants for this survey study. None of your information has been shared with the researcher and your child's participation will remain anonymous. Participation in research projects like this one can help make your child's music education a better experience. Please read the information below and decide if you would like to give your child the opportunity to take this survey. If you give your child permission to take the survey, you may share the link with them at the bottom of the e-mail.

Thank you for considering helping this research study!

Sincerely,
Patrick Cooper

Parental Permission for Children to Participate in Research Involving Minimal Risk

Information for parents to consider before allowing your child to take part in this research study

Pro # 37645

The following information is being presented to help you and your child decide whether or not he/she wishes to be a part of a research study. Please read this information carefully. If you have any questions or if you do not understand the information, we encourage you to ask the researcher.

We are asking you to allow your child to take part in a research study called:

Songwriting Self-Efficacy of Secondary Music Students

The person who is in charge of this research study is Patrick Cooper**.** This person is called the Principal Investigator. However, other research staff may be involved and can act on behalf of the person in charge. He is being guided in this research by Dr. C. Victor Fung.

The research will be conducted through an online survey.

Purpose of study:

The purpose of this study is to help create a songwriting self-efficacy scale for use in music classes like the one in which your child is enrolled. Self-efficacy can be used to predict academic achievement, good academic strategy use, continued participation in a subject, and other important indicators of success. This scale will be used to help music teachers best support the learning of their students.

Why is your child being asked to take part?

We are asking your child to take part in this research study because your child is in a music program that uses songwriting in the curriculum. Not very many programs around the country feature this, so your child's input is valuable and unique.

Study Procedures:

If your child takes part in this study, you will share the survey link with them at the bottom of this e-mail. They will read information about the study and "agree" to participate by checking a box and moving to the next page. Your child will answer the questions in the survey and will have the option to provide demographic information at the end. No contact or personal information will be asked. Participation will be over once the survey has been completed.

Alternatives / Voluntary Participation / Withdrawal

If you decide not to let your child take part in this study, that is okay. Instead of being in this research study your child can choose not to participate. You should only let your child take part in this study if both of you want to. You or child should not feel that there is any pressure to take part in the study to please the study investigator or the research staff.

If you decide not to let your child take part:

- Your child will not be in trouble or lose any rights he/she would normally have.
- You child will still get the same education as he/she would normally have.
- Your child's school will not know.

Benefits

Your child will receive no benefit(s) by participating in this study

Risks or Discomfort

There are no known risks to those who take part in this study.

Compensation

Your child will receive no payment or other compensation for taking part in this study.

Costs

It will not cost you anything to let your child take part in the study.

Privacy and Confidentiality

We will do our best to keep your records private and confidential. We will not ask for your name or contact information. We cannot guarantee absolute confidentiality. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. Certain people may need to see your study records. The only people who will be allowed to see these records are:

- Patrick Cooper (Principal Investigator)
- Dr. C. Victor Fung (Dissertation Advisor)
- The University of South Florida Institutional Review Board (IRB)

It is possible, although unlikely, that unauthorized individuals could gain access to your responses. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person's everyday use of the Internet. If you complete and submit an anonymous survey and later request your data be withdrawn, this may or may not be possible as the researcher may be unable to extract anonymous data from the database.

You can get the answers to your questions, concerns, or complaints.

If you have any questions, concerns or complaints about this study, call Patrick Cooper at 614-602-7978.

If you have questions about your child's rights, or have complaints, concerns or issues you want to discuss with someone outside the research, call the USF IRB at (813) 974-5638 or contact by email at RSCH-IRB@usf.edu.

Statement of Person Obtaining Informed Consent

By sharing this link with my child, I freely give him/her permission to take part in this study. I understand that by proceeding with this survey that I am letting my child agree to take part in research. I understand that written permission will not be collected or stored.

https://goo.gl/forms/98hWQ9Z3m3e0zZ0F2

Appendix I

Informed Consent to Participate in Research

Informed Consent to Participate in Research

Information to Consider Before Taking Part in this Research Study

Pro # 37645

Researchers at the University of South Florida (USF) study many topics. To do this, we need the help of people who agree to take part in a research study. This form tells you about this research study. We are asking you to take part in a research study that is called: Songwriting Self-Efficacy of Secondary Music Students. The person who is in charge of this research study is Patrick Cooper. This person is called the Principal Investigator.

Purpose of the Study

The purpose of this study is to help create a songwriting self-efficacy scale for use in music classes like the one you are in. This scale will be used to help music teachers best support the learning of their students.

Why are you being asked to take part?

We are asking you to take part in this research study because you are in a music class where you write music. Not very many students get to write music in school, so your opinion is very valuable to us!

Study Procedures

If you take part in this study, you will be asked to fill out a series of short surveys online. These questions will help the researcher make sure they survey is accurate and useful.

Alternatives / Voluntary Participation / Withdrawal

You have the alternative to choose not to participate in this research study.

You should only take part in this study if you want to volunteer; you are free to participate in this

research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study.

Benefits and Risks

You will receive no benefit from this study.

This research is considered to be minimal risk.

Compensation

We will not pay you for the time you volunteer while being in this study.

Privacy and Confidentiality

It is possible, although unlikely, that unauthorized individuals could gain access to your responses. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person's everyday use of the Internet. If you complete and submit an anonymous survey and later request your data be withdrawn, this may or may not be possible as the researcher may be unable to extract anonymous data from the database.

We may publish what we learn from this study. If we do, we will not include your name. We will not publish anything that would let people know who you are.

Contact Information

If you have any questions about your rights as a research participant, please contact the USF IRB at (813) 974-5638 or contact by email at RSCH-IRB@usf.edu. If you have any questions regarding the research, please contact the Principal Investigator, Patrick Cooper, at 614-602-7978 or by email at pkcooper@mail.usf.edu.

You can print a copy of this consent form for your records by pressing "ctrl+p" on your keyboard.

[Check Box] I freely give my permission to take part in this study. I understand that by checking this box and continuing with this survey that I am agreeing to take part in research.