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EXPLORING MIDDLE SCHOOL STUDENTS' GOAL ORIENTATION IN TWO CONTEXTS: MATH AND MUSIC

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EXPLORING MIDDLE SCHOOL STUDENTS' GOAL ORIENTATION IN TWO CONTEXTS: MATH AND MUSIC

A THESIS APPROVED FOR THE DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Abstract

While decades of study have supported the trichotomous goal orientation model presented by Elliot and Harackiewicz (1996), minimal work has been conducted on understanding whether the model is effective across different classroom types. For instance, while mathematics, history, and other core classes utilize a traditional approach in which the student's learning is demonstrated and assessed through private instruments (tests, quizzes, worksheets, etc.), several other classes utilize radically different methods for demonstration and assessment of learning. These classes include music, drama, speech, physical education, and several others. Given the large corpus of work around goal orientation, one would assume these types of classes have been studied extensively through the goal orientation lens. Unfortunately, this is not the case. Thus, in an effort to understand whether classroom context impacts goal orientation, a study was conducted with a sample of middle-school aged students enrolled in private music lessons (N=13) from three states. These students were asked to complete a version of the Achievement Goal Questionnaire (Elliot & McGregor, 2001) once for their music lessons and once for their math class. In order to illuminate potential findings, a qualitative instrument was included after each section which asked participants to define performance in the context of each situative type. Given the small sample size, the quantitative results produced no significant difference in goal orientation between the situative types and, in fact, near uniformity in the goal orientations of all participants (the potential impact of the COVID-19 pandemic is discussed). Qualitative results, however, demonstrate important findings for music teachers in understanding how students perceive what it means to do well in their music lessons. Implications for education, goal orientation theory, and future research are discussed.

Keywords: Goal Orientation, Music, Math, Performance, Middle-School, Music Lessons

Introduction

Background

Over the past several decades, significant work has been conducted to understand the nature of goals, goal formation, and human achievement in the learning environment. Out of this research have come a few plausible and widely accepted models. Most importantly, the trichotomous achievement goal model proposed by Elliot and Harackiewicz (1996) suggests two main categories of goal-orientations (mastery versus performance) and two subordinate valences (approach versus avoidance) which can be understood to be at work during human learning. Though well established, some studies based upon this model have produced results at odds with the expectations of the theory (Edwards, 2014). In reviewing the literature, it seems that in the twenty-five years since the trichotomous model was proposed it has been applied across the educational landscape in a multiplicity of classroom and assessment environments (Barabadi & Khajavy, 2020; Davis, 2009; Nielsen, 2008; Tapola et al., 2014; and Warburton & Spray, 2014) without undertaking a comparative approach to gauge the relevance of learning environment and content area. Because understanding what sorts of goals students adopt, why they do so, and how to best teach students of various goal-orientations is critical to teaching efficacy (Grant & Dweck, 2003), it is paramount that such work be conducted. Thus, the present study seeks to investigate whether middle school students have different goal orientations in two different content areas.

Problem Statement

Though the literature on the trichotomous model of achievement goal theory is robust, concerns arise from conflicting results of several findings and a lack of information on the relevance of classroom context (Grant & Dweck, 2003; Edwards, 2014).

Research Questions

In order to investigate whether differing content areas corresponds to differing goal orientations, the following research questions were utilized:

1. What is the primary goal orientation that middle-school aged private music lesson students exhibit?
2. What is the primary goal orientation exhibited by these same middle-school aged students in their math class?
3. Do these middle-school students have different achievement goal orientations regarding these two classes?
4. How do students define "performance" in these two different educational contexts?

Justification

Considering educational/classroom context. Key to the common understanding of the trichotomous model is that there are two goal types and two valences – all four of which are under the control of and provided by a given student. Learning environments, however, are much more than what each individual student brings into the classroom. A student's personal emotions and achievement emotions (Pekrun, et al., 2007), interest and background (Renninger, 2010), support system and expectations (La Guardia, 2009), and the general teaching paradigm of the classroom (Donovan & Bransford, 2005) all have profound impacts on student success, learning, and educational response (Rixstine, 2019). Because of this, I posit that the nature of the learning itself could have a marked impact upon a given student's goal orientation.

Most courses (indeed, the dominant mode of Western education) feature a content model in which a student privately produces a work product through internally-focused processes – quietly learning new material and only interacting with the instructor or peers if there is a need to

seek clarification or additional information. Such learning is assessed by artifacts that are typically individually evaluated by the instructor in a private setting. The research which led to the proposition and acceptance of the trichotomous model is based upon this dominant sort of learning. It is, however, only one element of many present in the educational landscape today. There are many courses from middle-school through tertiary education which, while including some traditional component, do not rely on it as a primary model. Music (especially music lessons), physical education, foreign languages, some English courses, drama, art, home economics, driver's education, and many other courses focus on a performative or public learning paradigm – individuals other than the student and teacher observe the learning, creation and evaluation of the work product and even provide commentary on or evaluation of the demonstration. Such stark differences create a situation in which it is prudent to evaluate whether the trichotomous model is fruitful in diverse contexts.

Of the seventeen studies found which serve to support, confirm, modify, or disprove the trichotomous model ranging from the proposal of the trichotomous model itself in 1996 through the summer of 2020, only five were conducted in classrooms or contexts featuring a public learning paradigm (Barabadi & Khajavy, 2020; Davis, 2009; Nielsen, 2008; Tapola, et al., 2014; and Warburton & Spray, 2014) while nine were conducted in traditional domain types (Chung, et al., 2020; Cury, et al., 2002; Dickhäuser, et al., 2011; Edwards, 2014; Elliot and Church, 1997; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001; Elliot & Murayama, 2008; and Senko, et al., 2013). Most significantly, the works forming the foundation of the trichotomous model utilized private domain-types (Elliot and Church, 1997; Elliot & Harackiewicz, 1996; and Elliot & McGregor, 2001). The three studies not conducive to the simple public/private bifurcation are

due to either mixed environments, or environments which cannot be determined by the text of the study.

In comparing the findings of studies with different learning paradigms striking differences emerge. For instance, Barabadi and Khajavy (2020) found significant correlation between performance goals of both valences and negative emotions in their externally focused learning model while, on the traditional side, both Elliot and Harackiewicz (1996) and Curry, et al. (2002) found relatively no difference in emotion type between goal orientations. Perhaps most significantly, Tapola, et al. (2014) found in a public learning paradigm that students with a mastery orientation did not perform as well as those with a normative success orientation. This is in direct conflict with nearly all findings using traditional content areas and the generally accepted narrative of achievement goal theory (Senko, et al., 2011) but is in alignment with the findings of studies in more public-paradigm-type content areas (Davis, 2009; Nielsen, 2008; Tapola, et al., 2014; and Warburton & Spray, 2014).

Of particular note, is one study (the only of its kind I was able to find) which directly compares two content domain types with regard to goal orientation. Duda and Nicholls (1992) compared the goal orientations of participants in competitive sports with students in a traditional classroom environment. In relation to the other studies referenced, it is additionally unique in that it was published before the trichotomous model was proposed in 1996. In a similar vein to the present study, its goal was to help understand the conflicting results of studies designed under the dichotomous model proposed by Dweck (1986). The authors found that in both domains students have nearly identical goals and intrinsic satisfaction/interest. What was discovered, however, is that self-perceived normative ability is to the competitive athlete what a goal orientation (trichotomous model: “mastery goal orientation”) is to the student in a classroom.

While the sports/class bifurcation was not able to remedy the issues which the trichotomous model eventually solved, it seems to be a research design well-suited to exploring the potential impact of content and environment on goal orientation.

Significance

Because goal orientation theory is such a critical part of the foundation beneath instructional methodology, curriculum design, and best practices, addressing discrepancies in existing studies is highly important. By concentrating on this issue directly and suggesting the model ought to account for some marked differences, the present study fills an important gap in the literature and positions the field for more impactful future work.

Literature Review and Construct Development

Achievement Goal Theory

Beginning in the 1980s, researchers interested in understanding the purpose behind human activity created the foundation of what is now known as goal orientation theory (Dweck 1986). This early work suggested that there must be some set of reasons, beliefs, or purposes for humans to engage in a given activity and that those can be categorized into specific goal orientations (Dweck, 1986). Through this research, the two goal orientations that rose to the surface were mastery goals (sometimes called learning goals) and performance goals (sometimes called achievement goals). Those with a mastery goal orientation engage in an activity or behavior in order to gain skill, learn information, or otherwise achieve mastery over a given subject while a performance goal orientation is associated with individuals seeking to display competence in the given task (Edwards, 2014).

Throughout nearly all studies conducted on this topic, mastery goals are significantly correlated with increased learning (Dweck, 1986; Grant & Dweck, 2003; Dickhäuser, et al.,

2011; Sommet & Elliot, 2017), increased motivation (Dweck, 1986; Chung, et al., 2020; Cury, et al., 2002), and enhanced interest (Dweck, 1986; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). Early studies on performance goal orientation, however, routinely showed that learners were much less successful than those with mastery goals (Dweck, 1986). Most studies (but not all) showed decreased motivation, significantly less achievement, and remarkably more state anxiety (temporary, biophysical response) in students with performance goal orientations than those with mastery goals (Dweck, 1986; Elliot & Harackiewicz, 1996; Grant & Dweck, 2003).

Table 1

The 2 × 2 Grid of Goal Orientation

	Mastery	**Performance**
Approach (Toward Success)	Mastery-Approach (MAp)	Performance-Approach (PAp)
Avoidance (Avoiding Failure)	Mastery-Avoidance (MAv)	Performance-Avoidance (PAv)

Trichotomous 2 × 2 Model

Because of this lack of clarity, the dichotomous (Mastery vs. Performance) model of achievement goals was revitalized by the proposal of a trichotomous model – adding an approach versus avoidance valence to the mix (Elliot & Harackiewicz, 1996). At its most basic level, "approach" is related to gaining a positive result while "avoidance" is related to avoiding a negative result. For instance, an individual aiming to succeed in music by avoiding looking bad, would be exhibiting an avoidance-type goal. A student seeking success by proving they are better than their peers would be exhibiting an approach-type goal. Applying these two valances with the two goals from the dichotomous model produces a 2 × 2 grid with four goal options as seen in Table 1 (Elliot & McGregor, 2001).

Within this framework, mastery-approach (MAp) goals are focused on learning and gaining skill for one's own benefit and typically align with one's interest. Mastery-avoidance (MAv) goals are the least researched and are typically understood as having to do with avoiding mislearning or misunderstanding something which the individual perceives as valuable (Elliot & McGregor, 2001). Performance-avoidance (PAv) goals emphasize achieving competence in order to avoid being perceived by others as incompetent. Finally, Performance-approach (PAp) goals, are adopted in order to demonstrate competence and be perceived by others as competent.

After this 2 × 2 approach was proposed, researchers discovered many of the conflicting findings of previous studies were resolved (Elliot & Harackiewitcz, 1996; Senko, et al., 2011). Students with PAp goals, though less successful than those with MAp and MAv goals (Grant & Dweck, 2003; Goetz et al., 2016), did achieve competence and/or fulfil requirements (Elliot & Harackiewicz, 1996; Curry et al., 2002), but at the expense of significantly increased state anxiety (Elliot & Church, 1997; Cury et al., 2002; Barabadi & Khajavy, 2020), decreased intrinsic motivation (Grant & Dweck, 2003), and decreased interest (Grant & Dweck, 2003; Edwards, 2014). PAv goals, in turn, led to less than satisfactory results in both performance and motivational/affective response and paved the way to learned helplessness (Cury et al., 2002; Edwards, 2014).

Performance-Approach Goals

Because PAp goals were found to be the most dominant goal orientation held by students in the aforementioned studies, research has focused on enhancing the positive results of and mitigating the downsides of PAp goals while preventing PAv goals (Edwards, 2014). In pursuit of this research goal, many discrepancies arose from the multiple and varied interpretations of the sub-construct "competence" and how it can or should be measured (Urdan & Mestas, 2006).

These differences, best summarized by Elliot and McGregor (2001), hinge on the fact that competence can be understood in at least three ways. The first is an absolute competence – directly related to fulfilling the requirements of a given task or activity (Edwards, 2014). Second, competence could be defined and measured as relative to one's previous ability. This is known as interpersonal competence (Elliot & McGregor, 2001). Third, competence could be understood as relative to one's peers - a normative competence (Edwards, 2014; Senko & Dawson, 2016).

By revisiting studies discussed above, I was able to find that many define and operationalize PAp goals as normative without recognizing or controlling for the other interpretations (Cury, et al., 2002; Dickhäuser, et al., 2011; Elliot & Harackiewicz, 1996; Nielsen, 2008; Senko, et al., 2013). For instance, Cury et al. (2002) conducted their study by performing an experimental activity with teenagers. These teenagers were asked to read a paragraph which manipulated their goal orientation for performing a task featuring the dribbling of a basketball prior to dribbling a basketball. Those in the performance goal conditions read that the goal was to "compare [participants] on their technical level of dribbling" (Cury, et. al., 2002 p. 475). Furthermore, the authors included a few extra sentences pertinent to the specific manipulated valence of the participants (approach/avoidance). This text explicitly utilized a normative comparison as the basis for evaluating success and competence for the experimental task – "If your performance is better than a majority of students…" and "If your performance is worse than a majority of students…" (Cury et al., 2002). While effectively working with normative-competence-type performance goals, these are not the only type of performance goal (Elliot & McGregor, 2001).

Other authors fully identify the potential issues with defining competence and attempt to control for it. Of these, the majority bifurcate the PAp goal into absolute versus normative

measures (Chung, et al., 2020; Edwards, 2014; Grant & Dweck, 2003). Specifically, Chung et al. (2020) posits a third type of achievement goal altogether – an "ability" goal which is separate from normative performance goals and relates to the idea of confirming one's own intelligence and/or ability to oneself. Based on those studies which address the many types of PAp goals (such as Chung et al., 2020), it can be seen that students with PAp goals which are defined and evaluated from a normative perspective tend to have greater achievement, motivation, interest, and ability than those with other sorts of PAp goals (Grant & Dweck, 2003; Edwards, 2014; Chung, et al., 2020). Edwards (2014) was able to confirm the findings of Grant and Dweck (2003) that normative PAp goals are positively correlated to self-efficacy, interest, and persistence. Incorporating this research into the existing trichotomous model has led to a further definition of PAp goals as either absolute or normative.

Summary: The Current State of Construct

At this point, then, achievement goal theory is best understood as three different layers of goal-orientation as depicted in Figure 1.

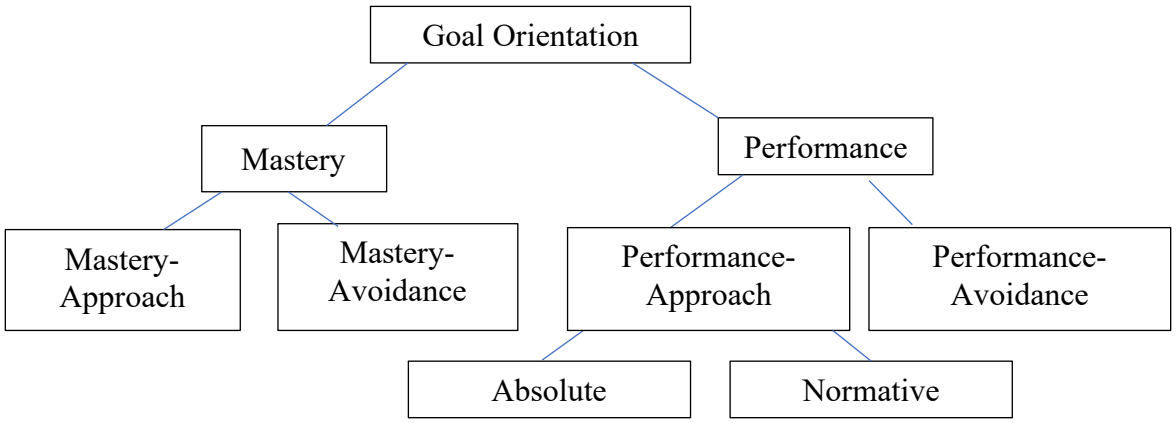


Figure 1

Within this framework, it is generally accepted that mastery-type goals correspond to greater success, enhanced intrinsic motivation, and sustained interest. This has been confirmed

through dozens of studies over the past several decades which manipulate participants' goals and evaluate their performance on a given task based upon their manipulated goals (Cury, et al., 2002; Dweck, 1986; Grant & Dweck, 2003; Sommet & Elliot, 2017; see also Chung, et al., 2020; Dickhäuser, et al., 2011; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). Of the performance-type goals, PAv goals have been shown to be the least advantageous and most harmful goal orientation (Cury et al., 2002; Edwards, 2014). PAp goals, conversely, can lead to success and competency (Elliot & Harackiewicz, 1996; Curry et al., 2002) but are also correlated with increased negative emotions (Elliot & Church, 1997; Cury et al., 2002; Barabadi & Khajavy, 2020), decreased intrinsic motivation (Grant & Dweck, 2003), and less sustained interest (Grant & Dweck, 2003; Edwards, 2014).

Methods

Research Design

In order to compare and contrast the goal orientation of various students in two different learning environments, a study was designed in which a sample of middle-school-aged students completed a goal-orientation questionnaire for each of two environments – a private music lesson situation and their math class. While it could be argued that music lessons are not a public learning environment (rather suggesting it is a one-on-one learning environment) or that private lesson students would likely be much more familiar with their lesson teacher than a math teacher, I would argue that while a masterclass or team sports might be a better example for "public" vs. "private" learning situations, it is definitely the case that the private lesson environment is highly different from a traditional classroom environment and, thus, ought to be studied to see if there are differences in goal orientation – whether they be caused by that environment or something else. Given the unfeasibility of studying students participating in team sports or public music

masterclasses (or even a compulsory general music class at a participant's school) during the COVID-19 pandemic, it was decided that the music lessons/math class juxtaposition was the best option. Math was chosen as the comparison against music lessons for three key reasons. First, math is compulsory as is music lessons for many middle-school-aged students. Second, the amount of time students spent had been exposed to complex mathematical concepts and complex musical concepts is relatively similar during middle school (about 2-5 years). Finally, both are disciplines which focus on skill acquisition as opposed to declarative knowledge acquisition. Thus, it was determined that these would be appropriate comparison groups.

In addition to the quantitative, goal-orientation element for this study, an exploratory portion was added due to the overwhelming lack of empirical data on goal orientation, performance, and achievement emotions in music lessons. In order to explore this unknown, a simple qualitative instrument was included which asked participants to define what "to perform" means in each context. Thus, taken together, a mixed-methods, descriptive survey approach was utilized for this study.

Research Questions

In order to study whether educational context could have a role in influencing goal orientation, it is critical to first understand what the goal orientations are. Thus, as presented before, the following research questions were utilized:

1. What is the primary goal orientation that middle-school aged private music lesson students exhibit?
2. What is the primary goal orientation exhibited by these same middle-school aged students in their math class?

3. Do these middle school students have different achievement goal orientations regarding these two classes?
4. How do students define "performance" in these two different educational contexts?

Population and Sample

Given the population of all middle school students concurrently enrolled in private music lessons and a math course, a sample of 13 middle-school aged students from Oklahoma, Illinois, and California from the studios of six private music teachers was selected.

Instrumentation

There were two quantitative elements included in the study – general demographic information and a 12-item goal orientation assessment given twice – once for each classroom context. There was one qualitative element included in the study – an open-ended question asking participants to define what performance meant in each context. The questionnaire as a whole was designed with alternating background colors for each question for ease of reading. It was designed in Microsoft Word and printed on letter-sized paper. The first page of the questionnaire contained the demographic questions. The next page was the music goal assessment followed by the math goal assessment. The final page consisted of two half-page free-response boxes – one which asked participants to define what it means to perform in a music lesson and the second which asked what it means to perform in a math class. The questionnaire used is included as Appendix A.

Demographic information. Of the demographic questions included, two were free response questions – age and "What instrument do you take lessons for?"– in which the respondent simply wrote their answer. Age was coded by the digits written by the student and instrument was coded as the words written. Gender identification consisted of three options –

male, female, and other and were coded 1-3. Participants indicated their current grade level by circling the option from 3 through 9 (coded 3-9) that corresponded to their grade. The lesson format was asked by requesting participants to circle whether they have no other students present in their lessons, or options ranging from one other student to "5 or more" (coded 1-4). Participants were also asked to select one of four options for school type – public, private, homeschool, or other (coded 1-4). Students were asked to share the amount of time per day they spend practicing the instrument on which they take lessons. Six options were provided and ranged from less than 20 minutes to more than an hour (coded 1-6). Participants were also asked to indicate the length of their individual music lessons by circling either thirty minutes, forty-five minutes, or an hour or more (coded 1-3). Lastly, participants were asked to share how many years they have taken lessons on their instrument(s). Ten options were provided and ranged from less than a year to ten or more years. These variables were used for stratification of findings.

Goal orientation assessment. A 12-item instrument developed by Elliot and McGregor (2001) using a 7-point Likert-type scale has been shown to accurately assess goal orientation within the 2 × 2 framework (Elliot & McGregor, 2001). This instrument, known as the "Achievement Goal Questionnaire," comes from Elliot and McGregor's (2001) work providing the revision of the initial trichotomous model (Elliot & Harackiewicz, 1996) which sought to cement the inclusion of the approach-avoidance valance for the mastery goal-type. This was in direct response to numerous studies suggesting that MAv was not a valid goal orientation. To develop the instrument, several preliminary studies were employed in the service of creating a succinct but potent series of questions that could index orientations within the trichotomous model (Elliot & McGregor, 2001). Initial questions were taken from previously used, reliable instruments (Elliot, 1999; Elliot & Church, 1997) and, over the course of the pilot studies,

narrowed down to a set of three questions for each of the four goal types. The twelve items and the goal-types to which they correspond are presented in Table 2. In the final 12-item instrument, participants are asked to circle the degree to which the statement describes them – ranging from 1 (not at all true of me) to 7 (very true of me). The same system is used for the present study.

Table 2

Achievement Goal Questionnaire Items

Question	**Goal Type:**
It is important for me to do better than other students.	PAp
It is important for me to do well compared to others in this class.	
My goal in this class is to get a better grade than most of the other students.	
I worry that I may not learn all that I possibly could in this class.	MAv
Sometimes I'm afraid that I may not understand the content of this class as thoroughly as I'd like.	
I am often concerned that I may not learn all that there is to learn in this class.	
I want to learn as much as possible from this class.	MAp
It is important for me to understand the content of this course as thoroughly as possible.	
I desire to completely master the material presented in this class.	
I just want to avoid doing poorly in this class.	PAv
My goal in this class is to avoid performing poorly.	
My fear of performing poorly in this class is often what motivates me.	

Given that this particular instrument was employed twice in the present study's design (once for music lessons and once for math), I wanted to ensure the participants knew which context was being asked about for each question to avoid the two becoming co-mingled. Thus, I

replaced “this course” or “this class” in the original Elliot and McGregor (2001) instrument with either “music lessons” or “math class” in bold-type font for the instruments used in this study. The differences are shown in Table 3.

Table 3

Language Changes in Goal Orientation Instrument

Original (Elliot & McGregor, 2001)	**Present Study Part 1 (Music):**	**Present Study Part 2 (Math):**
It is important for me to do better than other students.	It is important for me to do better than other students who take **music lessons**.	It is important for me to do better than other students in my **math class**.
It is important for me to do well compared to others in this class.	It is important for me to do well compared to others in my **music lessons.**	It is important for me to do well compared to others in **math class**.
My goal in this class is to get a better grade than most of the other students.	My goal in my **music lessons** is to get a better grade than most of the other students.	My goal in **math class** is to get a better grade than most of the other students.
I worry that I may not learn all that I possibly could in this class.	I worry that I may not learn all that I possibly could in my **music lessons**.	I worry that I may not learn all that I possibly could in **math class**.
Sometimes I’m afraid that I may not understand the content of this class as thoroughly as I’d like.	Sometimes I’m afraid that I may not understand the content of my **music lessons** as thoroughly as I’d like.	Sometimes I’m afraid that I may not understand the content of **math class** as thoroughly as I’d like.
I am often concerned that I may not learn all that there is to learn in this class.	I am often concerned that I may not learn all that there is to learn in my **music lessons**.	I am often concerned that I may not learn all that there is to learn in **math class**.
I want to learn as much as possible from this class.	I want to learn as much as possible from my **music lessons**.	I want to learn as much as possible from **math class**.
It is important for me to understand the content of this course as thoroughly as possible.	It is important for me to understand the content of my **music lessons** as thoroughly as possible.	It is important for me to understand the content of **math class** as thoroughly as possible.
I desire to completely master the material presented in this class.	I desire to completely master the material presented in my **music lessons.**	I desire to completely master the material presented in **math class**.
I just want to avoid doing poorly in this class.	I just want to avoid doing poorly in my **music lessons**.	I just want to avoid doing poorly in **math class**.
My goal in this class is to avoid performing poorly.	My goal in each **music lesson** is to avoid performing poorly.	My goal in each **math class** is to avoid performing poorly.
My fear of performing poorly in this class is often what motivates me.	My fear of performing poorly in **music lessons** is often what motivates me.	My fear of performing poorly in **math class** is often what motivates me.

Data Collection

Recruitment. Participants were recruited through a multi-step process. Given that the target population consisted of middle-school aged students who are enrolled in both a math class and private music lessons, it was initially difficult to determine a streamlined way to identify potential participants. Since mathematics is a compulsory course for most middle schools in the United States, it seemed easier to find participants who met that condition as opposed to music lesson participation. Thus, I assumed that the vast majority of students who I could confirm were enrolled in private music lessons would also be taking a math course as part of their normal education and, based upon this premise, I designed a recruitment process rooted in identifying middle-school aged students currently enrolled in private music lessons.

To achieve this, I turned to the two primary professional organizations for music teachers – the Music Teachers National Association (MTNA) and the National Association for Music Education (NAfME). Upon further review of the organizations, it was apparent that members of NAfME skewed toward classroom music teachers as opposed to private instructors while MTNA skewed towards private music teachers and musicians in higher education. Given this information, it was determined that pursuing participants through MTNA would be the most prudent.

A largely decentralized organization, MTNA is highly dependent upon its state- and local-level affiliates for communication and structure. Thus, reaching out to national-level officials would not have been fruitful. As a member of MTNA for several years, I have made connections with several other members through local-, state-, and national-level events. Based upon this, it was decided that emails announcing and describing the study while asking for participants would be sent to organizations for which I had a personal contact – two local-level

affiliates in Illinois, the state-level affiliate for Oklahoma, and one local-level affiliate in Oklahoma. After getting permission from each organization's board, a recruitment letter was sent through the organization's official channels to its membership. This email (see Appendix B) described the nature of the research and targeted participants while also requesting that interested teachers respond to me (with the provided contact information) with the number of middle-school aged students in their studios.

Emails as described above were approved and sent to the two local associations in Illinois along with the local association in Oklahoma. The president of the state-level affiliate for Oklahoma, however, explained that the organization's board does not send out research announcements state-wide – information must be sent to each individual local-level affiliate. Oklahoma has fourteen such organizations (one of which had already been contacted as described above) and emails were sent to the thirteen remaining local-level associations. Of these, three approved a recruitment letter to be sent out. This process produced a total of six local-level affiliates across two states whose members were contacted with the recruitment letter. The membership rosters for these organizations were not available thus, the total number of teachers contacted is unknown.

A total of six teachers responded to the recruitment request with the number of middle-school aged students in their studio and agreed to participate in the next step of participant recruitment. In sum, the six teachers provided access to thirty-three potential participants (middle-school aged students in their studios). Four of the teachers were located in Oklahoma (twenty-seven total potential participants), one was in Illinois (two potential participants), and one was in California (four potential participants). The teacher in California heard about the study through a colleague in Illinois and reached out requesting to participate.

Questionnaire dissemination. With the number of potential participants now known, the second phase of participant recruitment began – getting the survey instrument into the hands of potential participants. To achieve this while maintaining both anonymity and high ethical standards of consent and assent (given that all participants would be minors), it was decided to use physical, printed copies of the questionnaire, a parental consent form, and a participant assent form for data collection. These documents would be assembled into a packet and mailed to the teachers for distribution to their student(s).

While it may seem anachronistic to utilize physical documents and the postal service for the study (especially after the digital explosion caused by the COVID-19 pandemic), a digital methodology was avoided due to the inability to indubitably verify parental and participant consent for an online, Qualtrics-type survey. Furthermore, the use of pre-printed packets physically mailed to teachers were utilized in order to avoid teachers deciding to no longer participate due to the burden of printing, assembling, and distributing packets as well as determining how to return them to the PI. This methodology would place an undue burden on a third-party gate-keeper and, thus, was rejected. Instead, individual participant packets were prepared which contained (in the following order) a letter to parents/guardians, a parental consent form, a participant assent form, the questionnaire, and a self-addressed (to the PI), postage-paid, peel-and-stick, standard-sized return envelope paperclipped together. Peel-and-stick envelopes were used in order to avoid any potential issues related to COVID-19 transmission or the apprehension thereof.

Once a participating teacher communicated the number of potential participants in their studio, the corresponding number of participant packets were put into a large, manilla envelope along with a letter to the teacher thanking them for their participation and reminding them of the

procedure to follow. This envelope was then mailed to the teacher. Once received, teachers gave the participant packets to the appropriate student families. When the packet reached the potential participant, the instructions on the parent/guardian letter guided the family through the rest of the process. The parental consent form was to be signed, the participant would read and complete the participant assent form and then fill out the provided questionnaire. Once complete, the forms along with the questionnaire were to be placed into the provided return envelope and mailed back to the PI.

This process, though long and with many steps, provided extreme anonymity for the participants and complete assurance of consent and assent for all participants involved. By design, the only way the identities of participants could be known was through the postmark location on the return envelope and the consent forms returned with the questionnaire.

Questionnaire return. Once returned, in order to maintain strict anonymity, the consent forms were removed from the return envelope and verified for completion before the questionnaire was removed from the envelope. If the consent forms were present and complete, they were placed together (face down) on the left-hand side of a standard one-inch three-ring binder. The questionnaire was then removed from the envelope and placed faced down on the right-hand side of the same three-ring binder. The same process was followed for each return envelope as it was delivered. Once all responses were received (given the timeline for the study as a whole), the questionnaires were removed from the binder, randomized through shuffling, and labeled in the top left-hand corner of the questionnaire with “P1,” “P2,” and so on.

Of the thirty-two participant packets sent out, fourteen were returned. Four from California, two from Illinois, and eight from Oklahoma. Of these fourteen, one did not have the consent and assent forms properly filled out (though they were included in the return envelope)

and, thus, was not considered a valid participant. Taken together, a total of thirteen participants were generated through the recruitment process.

Questionnaire coding. Once the questionnaires had been randomized and labeled as "P1," "P2," etc., all responses in their entirety were coded into Microsoft Excel. The demographic and goal orientation sections of the questionnaire were coded as described in an above section. The qualitative responses to defining performance in various contexts were written verbatim in the Excel coding document.

Data Analysis

The first analysis step taken was to decode the individual responses to the goal orientation assessment based on the guidelines set out by Elliot and McGregor (2001). The coded responses for demographic information and the two goal orientation instruments were copied from one sheet of the Excel document storing the data and pasted into a new sheet of the same document specifically designed for goal orientation calculation. In this process, the mean of the three questions for each of the four possible goal orientation types was calculated for each of the two situative types – music lessons and math. Given that the respondents were asked to use a 7-point Likert-type response, the lower the value of the mean, the less dominant that particular goal orientation is in that specific context. Thus, a mean of 6.2 for a certain goal orientation would suggest that that particular goal orientation is very dominant for that specific student. Once all participants' individual goal orientations were calculated for both educational contexts, the responses were taken in the aggregate and all means calculated to determine the overall, sample-level goal orientation dominance following the same procedure as for the individual goal orientation calculations. All of this work was conducted in Excel.

Once the means and dominant goal orientations were calculated, the data were recoded into ten variables in IBM SPSS Statistics 27. These ten variables consisted of MU_GO (music goal orientation), MA_GO (math goal orientation), Age, Gender, Grade, School_Type, Study_Length (number of years of study on the instrument), Lesson_Length (the duration of each private lesson), Other_Students (the number of other students present in music lessons), and Practice_Length (the amount of time the student practices their instrument per day). In order to code the MU_GO and MA_GO variables, PAp goals were coded as 1, PAv goals as 2, MAp goals as 3, and MAv goals as 4. Thus, the 2 × 2 grid was translated into a linear form with PAp as one end of the spectrum and MAv at the other end.

For the qualitative data generated by the questions asking participants to define what performance meant to them in each context, responses from the questionnaire (as entered into Microsoft Excel) were compiled together by situative type (math or music) into separate Microsoft Word documents. These documents were then imported into a project in MAXQDA 2020. Through an extensive iterative process these answers were coded into twelve typologies across both documents – To Do Well, Task/Task Completion, Understanding, Scoring Well, Explain What You Know, Public Performance of Piece, Application/Transfer of Learning, Experiential, Perfect/Few Mistakes, Not Grades, Beautiful Playing, and Effort. The typologies from the two documents were combined together with only two individual typologies identified as duplicitous. These two (Scoring Well and Perfect/Few Mistakes), based upon the participants' responses conveyed the same meaning of "evaluation based on objective standard" and were differentiated only by the language inherent to the given subject. Thus, these two were combined under the typology "Scoring Well."

Once these typologies were codified, I created a table which juxtaposed the qualitative findings for each situative type by participant. This typology table was then analyzed to discover relationships and patterns which could aid in understanding how the ambiguous term "performance" can communicate many different things to the middle-school aged learner.

Table 4

Demographic Variables: Descriptive Statistics

Variable	N	Min.	Max.	Mean	Std. Deviation
Age	13	10	15	12.54	1.506
Gender	13	1	3	1.92	.494
Grade	13	4	9	6.92	1.498
School_Type	13	1	3	1.54	.877
Study_Length	13	2	8	6.23	2.315
Lesson_Length	13	1	3	1.69	.855
Other_Students	13	1	2	1.15	.376
Practice_Length	13	1	4	2.08	1.038

Table 5

Goal Orientations: Aggregate Means

	PAp	PAv	MAp	MAv
Music Orientation	4.38	5	5.97	3.77
Math Orientation	4.92	5.23	5.85	4.59

Results

Findings

Research questions 1 and 2. The descriptive statistics for demographic information are presented in Table 4. Given that the research questions focused on goal orientation, however, it is important to focus on these findings. Taken in the aggregate, the mean of the dominant goal orientations for all participants were, in both educational contexts, MAp goals as seen in Table 5. Recall that the lower the mean, the less dominant the goal orientation is. Thus, based upon the data shown in Table 5, it can be seen that the Mastery-Approach goal orientation is dominant in the aggregate for both situative types. Further, the secondary goal orientation is also the same between the two contexts – Performance-Avoidance. The individual-level goal orientation dominance calculation is presented in Table 6.

Table 6

Goal Orientations: Individual Means

	Music				Math			
Participant	**PAp**	**PAv**	**MAp**	**MAv**	**PAp**	**PAv**	**MAp**	**MAv**
1	5.33	7*	4.66	2	3	7*	4.66	5
2	2	3	6*	3.66	6	6.33	7*	6.33
3	3.33	5.66*	5.66*	2.33	4.66	5.33	7*	4.66
4	2.66	4.33	7*	2.66	4	2.66	6.33*	2.66
5	5.33	6.66*	6.33	5	7*	6	6.66	6.33
6	3	4	5.66*	3	3.33	4.66	6*	5
7	5.33	5	5.66*	4.33	6.66*	5	5.66	4
8	5.33	5	6.33*	3.33	7*	6.33	7*	3
9	6.33	5.33	6.66*	5	6.33	5.66	6.66*	6.66*
10	5	6	6.66*	5.33	6.66	6.33	7*	6
11	2.33	3.66	5.66*	3.66	4	2.66	5.66*	3.33
12	6	5	7*	6	3	5.66*	4	4.33
13	5*	4.33	4.33	2.66	2.33	4.33*	2.33	2.33

* indicates dominant goal orientation

Research question 3. Based upon the data displayed in Table 5, there are some differences between the goal orientations in differing contexts. Due to the overall lack of data, however, the answer to this question must be labeled as inconclusive.

Research question 4. Of the eleven typologies labeled through the analysis process, four stand out as the most frequent – To Do Well, Task/Task Completion, Understanding, and Scoring Well (See Table 7). Taken together, these four comprise 65% of the total responses given by participants. Including the next two (Explaining and Public Performance) would account for 82% of the coded responses. Though it may seem that these two are highly similar with only the nature of the situative type changing the language used ("Explain" in math and "Public Performance" in music), several participants used the language of explaining in response to the prompt in the music context. Because of this, the underlying principle of explaining something versus publicly performing a piece was not taken to be synonymous. Thus, the two were not binned together as Scoring Well and Few Mistakes were.

Table 7

"Defining Performance" Typology Frequencies

Code	**Number of Coded Segments**	**Percentage of Coded Segments**
To Do Well	12	20.69
Task/Task Completion	10	17.24
Understanding	8	13.79
Scoring Well (Perfect/Few Mistakes)	8	13.79
Explain What You Know	5	8.62
Public Performance of Piece	5	8.62
Application/Transfer of Learning	4	6.90
Experiential (Accomplishment)	3	5.17
Not Grades	1	1.72
Beautiful Playing	1	1.72
Effort	1	1.72

In order to answer the research question, however, the codes needed to be separated by situative type in order to understand if the general trends were followed in both situative types or, as the question asks, whether there were differences in how performance is defined and understood based upon the class type. This comparison is presented in Table 8. For six of the thirteen participants, there are differences in how performance is defined between situative type. Further, in the aggregate, there are differences in what comprises the majority of responses for each course as well. Thus, in answer to question four, the data seem to show that there is a difference in how performance is defined by middle-school aged students in the two different situative types.

Table 8

"Defining Performance" by Situative Type

Participant	Music Typologies	Math Typologies
1	Task	Task
2*	Application, "Well," Not Grade, Public	Understanding, Application, Explain, Scoring
3	"Well," Understanding	Understanding, Scoring
4*	"Well," Task, Experiential	"Well," Understanding
5*	Explain, Application, "Well"	Understanding, Explain, Scoring
6*	"Well," Understanding	Scoring, "Well"
7	Public	Explain
8*	Beautiful, Scoring	"Well," Task
9*	Scoring, Public, Task, "Well"	"Well," Scoring
10	Public, Experiential	Experiential
11	Public	Task, Explain
12	Task	Task
13	Task, Effort	"Well," Task

* Indicates participant with differing definitions between situative type

NB: Typologies listed in descending order of prominence for the given participant.

Discussion

Goal orientation. While in the aggregate the findings seem to be fairly conclusive, when the analysis is focused on the respondent-level data, interesting trends emerge. For example, as seen in Table 6, only five of the thirteen individual participants' goal orientations align with the aggregate findings reported in Table 5. This means that more respondents are not identified by this trend than are. One respondent (Participant 1) was found to have a PAv orientation with a mean of 7 (complete and total agreeance between instrument items) for both contexts. While this does demonstrate no differentiation between dominant goal orientations in diverse contexts, there are several instances where such differences were observed.

For the seven respondents not yet discussed (those who differ from the mean), three had instances of more than one goal orientation type being labeled by the instrument as dominant. For all three of these, MAp did appear for both music and math contexts, but a different orientation-type also had to be considered dominant as well. For Participant 3, there was a double-dominance of PAv with MAp in music while the other two in question had double-dominance in math. Participant 8 with PAp and Participant 9 with MAv.

With all of these participants' findings discussed, the four remaining present unique cases. For both Participants 5 and 13, both goal orientations were a performance-type but differed in valence. The specifics for each of these participants differed, but the pattern was the same. For Participant 7, the valence of approach was constant, but the overall type differed. For Participant 12, there is no overlap – a MAp dominance in music and a PAv dominance in math.

Of note is the fact that no respondent indicated a MAv-dominant orientation in music and, in the one instance it does appear in math (Participant 9) it is as a double-dominant. It is also

of note that while three participants were identified with a PAp-dominance in math, only one was identified in music.

Overall, it is possible that the musical culture of the three states included (California, Illinois, and Oklahoma) impacted the study and caused an anomalous homogenization of findings. The response and completion rate for the participants in both California and Illinois was 100% while Oklahoma was significantly lower. Given that California and Illinois are both highly competitive music environments while Oklahoma is not, it is arguable that the similarity of responses is due to the similar musical environment for the majority of participants.

While it may seem that this finding frustrates the argument that educational context impacts goal orientation, it is paramount that elements of the design which skew the findings be taken into account. For instance, in order for data to be collected, coded, and analyzed, a participant would have to choose to complete it (with no incentive), return it, and complete all the forms within a short amount of time (approximately three weeks). This was not a compulsory or incentivized study. Thus, it stands to reason that those who would choose to complete this work for no reward would be students who love their music lessons (likely a mastery orientation) and want to be a part of the musical discipline and its community. Thus, the findings describe the goal orientation not of average middle-school-aged students, but rather middle-school-aged students who are inclined to complete a hard-copy questionnaire about their music lessons and math and return it to an unknown third-party (the PI) with a certain amount of exigency.

Defining performance. Based upon the data presented in Table 8, there are three main findings from the qualitative data both individually and in the aggregate. First, is the dichotomization of completion versus exploration and/or demonstration versus growth in the individual responses of two participants. Second, participants' statements demonstrate a

perceived ontological difference between the two disciplines. Finally, in the aggregate, there appears to be less ability to define performance in specific terms in the music context while there is no such struggle for math.

For Participant 2, it is intriguing that understanding, application, explaining, and scoring well defined performance for math but that more ambiguity was present when defining in the music context. Regarding math, the participant wrote, "I believe 'performing' in math class includes understanding the concepts being taught thoroughly and being able to apply the methods/equations to alternate problems/situations. . . understanding the concepts is more important to me. . . because our understanding shouldn't be determined by a letter or percent, right?" While the participant's desire to be able to apply their learning carried over to the music context, the nebular idea of "doing well" along with the lack of an objective scoring approach seems to outline less confidence in how to define "performance" outside of a public event for music lessons. To this end, the participant did share some valuable insights, "During my music lessons, I would play music in my understanding, and listen to the feedback of my teacher who may have a deeper understanding/different interpretation, and apply that to my playing." This seems to demonstrate a cognitive apprenticeship-type understanding of a music lesson. While in math the participant emphasized understanding the content for application to diverse problems (a utilitarian approach), in music, they saw the need for pursuing an ever-deeper understanding and expanded interpretation of the ideas present – a more exploratory approach.

This finding is echoed in the response of Participant 5. Similarly, this participant utilized the same basic approach to performance in both situative types but with different nuances between contexts. In math, the participant explained that performance is best defined as, "To understand the concept, show how I know by solving problems, do well on tests." This

communicates a focus on task-based demonstration and scoring-based assessment of understanding. In music, however, a much less objective approach rose to the fore – "Have more to show every week, apply past week's feedback, do well in my CM/Recitals." CM is the Certificate of Merit – an annual audition opportunity for outside performance and feedback in California. While the objective measurement approach is still present (CM/Recitals, apply past week's feedback), the first thing the participant shared is having more to show each week – an additive, growth-oriented understanding of learning. Instead of completing a task, demonstrating knowledge, and achieving positive assessment, this participant (similar to Participant 2) strove for growth.

Participant 4 presents an interesting case illustrating the second finding. While both definitions revolved around doing well, in the math context the participant wrote, "It means to do well in class and understand as much as I can." This statement seems to communicate a limit to what the student is able to understand but that performing is reaching that limit. Similarly, in music, the participant shared, "It means to do as well as I can. Like [bullet] learn music [bullet] do as well as I can to make me happy." While the effort- or limit-based approach is still prominent, the musical definition adds an additional layer of subjective, personal response. It is interesting that the participant did not discuss understanding in the music definition – only in the math. Perhaps this is because music was not perceived as something that can be understood – rather, it can only be experienced.

In a similar vein, Participant 6 seems to demonstrate a subtle differentiation between the ontology of math and music. Math seems to be understood as an objective entity in which performance is measured on an external, objective scale – "My understanding of performance in math is doing well and holding a A≥B grade." In music however, there seems to be a bent toward

ambiguity and subjective experience – "To perform in music is excelling and understanding the information and music being taught." As with Participant 4, it appears there is a differentiation between an objective performance in math and a subjective, internally demonstrated response to music.

This finding, however, could appear to be directly contradicted by the responses of Participant 9. For both of the situative types, Participant 9 described a fully objective, externally-assessed standard of performance. In math, "What it means to perform in math class is to do well and get good grades. It's about doing well on quizzes and tests; it's about getting A's and B's." And, highly similarly, in music – "What it means to perform in music lessons is to present well and do the music how it's intended to. It's about learning all the material and playing well; it's about getting the music perfect and playing it perfectly or near-perfect." *Prima facie*, it would seem that Participant 9 described the same understanding of performance in both contexts. However, as shown in Table 7, this participant is not coded as demonstrating an identical or similar definition. This is due to the phrase "how it's intended to" present in the definition for music. While the participant tried to draw a hard line connecting the two by using the phrases "do well and get good grades" and "to present well and do the music how it's intended to," there is still a subtle ontological difference present between the understanding of these two contexts – math is purely objective while there is still a subjective tint to the musical response (intention). Because of this, then, the finding regarding Participants 4 and 6 stands.

Thirdly, it is clear that one of the typologies presented in Table 7 is severely lacking in definition – "To Do Well." Indeed, through the iterative process described in an earlier section, I tried to remove this ambiguity by analyzing the statements for trends that would push these definitions into one of the other typologies, but no such trends appeared. This is made especially

intriguing given the fact that it was the most common typology and accounted for 20% of the coded responses by itself. While this could be due to the young age of the participants and a lack of metacognitive skills, I propose an alternative understanding.

As can be seen in Tables 7 and 8, the typology "To Do Well" appeared twelve times in the responses. Of these, the majority (seven) were in the musical context while five were in math (it appears twice in the music response of Participant 4). In only three of these instances did it appear in both columns at once – Participants 4, 6, and 9. Notice that these three participants are also the three who led to the finding regarding ontological differences between the two contexts. This, taken in combination with the fact that these are middle-school aged participants, suggests an interpretation that these three participants identified a similarity – performing is doing well, but that doing well is different in these two ontologically different categories (one objective, the other more subjective). This wrestling with highly metacognitive thinking by still-developing, young minds led to the ambiguity of the phrase "to do well." In essence, it is not a separate typology but rather a demonstration of the metacognitive demand on understanding the ontological differences the participants' answers describe.

Of the remaining five instances of the typology, three were in music and two were in math. For those in math (Participants 8 and 13), it was accompanied by the "Task" typology – suggesting that "to do well" serves as the phrase which both participants used to initially respond to the question before illuminating their specific definition – task completion. For the three instances in music, however, the typology did not have any accompanying similarities in the music column – all three participants (2, 3, and 5) had different alternative typologies co-coded with "To Do Well." In the math typology column for these three participants, however, an interesting pattern emerges – all three emphasized understanding and scoring as key metrics for

performance in math while two also emphasized explanation. Indeed, all three had very well-developed and holistic answers to defining performance in math while they presented significantly less definite answers in music. The responses are presented in Table 9. Furthermore, while the young age of the participants could explain the ambiguity in some instances of this typology, these three participants are toward the upper limit of the age-range for this study. Indeed, in some school districts, Participants 2 and 3 could be considered high-school age. Thus, young age is not a good explanation for this finding. Instead, I propose that while standards for "doing well" are clear for math, and for younger students who are not as performance-oriented, standards for "doing well" in music are not well understood if they are even communicated in the first place.

Table 9

Side-by-Side Comparison of Answers with Ages for Participants 2, 3, and 5

Participant	Defining Performance- Music	Defining Performance - Math	Age
2	Performing in music lessons is improving and applying new understandings, techniques, musicality, etc. from one lesson to the next. With music, there isn't really a set rule on "grades or scoring", so students can express more emotion and creativity. Teachers can give their constructive feedback and intuition, which help students expand their understanding of a piece, sort of like creating a bond with the music. During my music lessons, I would play music in my understanding, and listen to the feedback of my teacher who may have a deeper understanding/different interpretation, and apply that to my playing.	I believe "performing" in math class includes understanding the concepts being taught thoroughly and being able to apply the methods/equations to alternate problems/situations. Another important point is to be able to explain the curriculum accurately and in your own words, so you will have a solid understanding. As a student, I strive to score well on tests and quizzes, but understanding the concepts is more important to me, then having an "A" on a test which determines if I am "performing well", because our understanding shouldn't be determined by a letter or percent, right?	14
3	To perform in music lessons means to play well and understand all that my piano teacher has taught me	To perform in my math class means to understand the material well and get good grades	15
5	Have more to show every week, apply past week's feedback, do well in my CM/recitals	To understand the concept, show how I know by solving problems, do well on tests	12

In addition to the three significant findings discussed above, one case presents a highly unique and intriguing instance for study. Participant 10 indicated that performance was synonymous with a sense of accomplishment in both situative types. However, the cause for that experiential feeling was different for the two contexts. Thus, the overall definition ("sense of accomplishment") was the same while the justification for this sense of accomplishment was different. Additionally, there was a layer of the ontological difference discussed above. Participant 10 explained, "In math class, performing is when you get your grade back on a quiz or test. After seeing your grade you may feel like you accomplished something good, like after a piano recital." Regarding music, the participant wrote, "In music lessons, performing is when you have a recital, play for your family, or play for a judge. After playing the piano for people, it feels like you made a big accomplishment." Interestingly, the sense of accomplishment was absolute in music while it was dependent on some other variable ("may feel like…") in math. Arguably, it would be dependent on an "acceptable" score for which the participant could feel a sense of accomplishment. This is a highly unique answer which seems to indicate that the standard for "doing well" in music is presenting a performance. It is important to note that the student assumed the performance is fulfilling and something to be proud of. This suggests the teacher does a good job preparing the student for this mastery experience.

Summary of Findings

Based upon the quantitative data presented, goal orientations for middle school students are predominantly of a Mastery-type in both their math class and private lessons. Furthermore, the different situative types do not seem to impact goal orientation in a discernable way. This, however, is likely due to flaws in the design in which sudents with a mastery orientation would

be more likely to complete the questionnaire and those with other (less positive) orientations would not.

Based on the qualitative data presented, there are differences in how middle-school aged students define performance in differing situative types. Specifically, three differences emerge – the distinction between completion versus exploration and/or demonstration versus growth; a noticeable ontological difference between the disciplines which suggests an objective approach to performance in math and a subjective approach to performance in music; and, finally, in the aggregate, there appears to be a more nebular understanding of what it means to "do well" in music. This suggests either a lack of clarity from the teacher on expectations or a lack of understanding on the part of the student.

Implications

While I had anticipated finding that goal orientations in music tended toward a mastery-type and, in a math context, toward performance-type, this finding is not supported by the data. Further, as displayed in Table 5, the data do not show support for the relevance of classroom context to goal orientation type in a sample of middle-school aged students. The data do still provide interesting insights, however. Given that pre-service teachers are taught about the importance of mastery goal orientations, it is possible that, with these younger students, teachers have been successful in fostering mastery orientations in their students – regardless of context. It is also possible that a larger sample would completely alter the trends of the data and produce completely different findings and implications. Regardless, it is advisable that a similar study be conducted with a larger sample size in order to verify the findings of the present study.

Based upon the seeming uniformity of the data collected, it is possible that the instrument developed by Elliot and McGregor (2001), though valid in its use with college students does not

have validity with younger learners. Further, given that little research on goal orientation formation in middle-school aged students has been conducted, it is possible that goal orientation does not have as pronounced an impact on learning in middle-school aged populations as it does in secondary- and tertiary-education.

Regarding the impact of this study on the trichotomous model as a whole, there does seem to be room for discussing whether the Mastery-Avoidance goal-type is warranted given that no participants of the present study were identified as having a dominant MAv orientation.

Based upon the qualitative findings, it appears that students perceive a difference between math and music which, while it might not present itself in goal orientations, might present itself in a metacognitive understanding of what it means to succeed, do well, or perform in math as opposed to music. Specifically, the data seem to suggest that students might need more guidance in understanding what it means to be doing well or to succeed in music lessons.

Limitations

The predominant limitation on this study is the COVID-19 pandemic. Through several channels, this world-event necessitated several limitations on the design and findings of this study. Two in particular stand out. First, the use of the hard-copy questionnaires and traditional mail approach significantly impacted the number of responses. In the interest of ensuring proper consent and pandemic safety, however, this limitation was necessary. Because of this, the only quantitative analyses that could be run were descriptive analyses of the responses. Further, participants were only recruited through affiliates and members of MTNA. While a large organization, the group is dominated by pianists and piano teachers and does not have significant membership of elementary educators, recreational music-making teachers, or band directors. Because of this, the data skews heavily toward pianists.

Second, the rapid shift from traditional learning to digital or hybrid learning for nearly all students in nearly all subjects in the mid-spring of 2020 caused the potential or perceived differences between educational contexts to be all but eliminated. For the average student, there would be very little differentiating a music lesson from math class in a digital environment. This blurring of lines and atypicality severely limited the findings of this study.

Future Directions

Further exploration is needed with a larger sample in order to truly understand the trends in this population regarding goal orientation in diverse contexts. In addition, it ought to be shown that the Elliot and McGregor (2001) instrument is valid with younger participants and that goal orientation as a whole is a potent, impactful element of learning and instruction at the middle-school level. Once the exploratory process has been completed, however, future directions of research ought to focus on understanding the role of personality, persistence, and the compulsory nature of math versus the frequently elective nature of music lessons within the context of goal orientation and formation as well. In all, the goal would be to develop a path model for goal orientation formation.

Most critically, from my perspective as a piano pedagogue, it is remarkable to me that there was such a lack of coherence when defining performance in a musical context. Further, what definition could be cobbled together from the data is not in accordance with the overall aim of music pedagogy – creativity, expression, and art versus precision, technicalities, and perfection. Based upon the qualitative data, further research needs to be conducted in order to determine how students understand what doing well or succeeding/performing in music means impacts their performance, motivation, or goal orientation. These findings would then need to be incorporated into future work tailored to matching the definition of success with the music

pedagogue's learning objectives. This could lead to significant impacts on instructional methodology in music education and scaffolding expectations in music lessons.

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Appendix A: Questionnaire

Demographic Information

Instructions
For the following questions, please circle or write the answer that best describes you.

1. How old are you?	
2. What Gender do you identify as?	M F Other
3. What grade in school are you?	3 4 5 6 7 8 9
4. What type of school do you go to?	Public Private Homeschool Other
5. How long have you taken music lessons? Number of years:	<1 1-2 2-3 3-4 4-5 5-6 6-7 7-8 8-9 9-10 >10
6. What instruments do you take lessons for?	
7. How long are your music lessons?	30 Min. 45 Min. 1 hour or more
8. How many other students are in your music lessons with you?	0 2-3 3-5 5 or more
9. How much do you practice for music lessons each day? Number of minutes:	<20 20-30 30-40 40-50 50-60 60+

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Music Goal Orientation

Instructions
For the following questions, please indicate how well the statement describes you in your **music lessons**.

1 = Not at all true of me
2 = Not true of me
3 = Somewhat not true of me
4 = Neither true of me nor not true of me
5 = Somewhat true of me
6 = True of me
7 = Very true of me

	Not True						True
1. It is important for me to understand the content of my **music lessons** as thoroughly as possible.	1	2	3	4	5	6	7
2. I want to learn as much as possible from my **music lessons**.	1	2	3	4	5	6	7
3. It is important for me to do well compared to others in my **music lessons.**	1	2	3	4	5	6	7
4. I worry that I may not learn all that I possibly could in my **music lessons**.	1	2	3	4	5	6	7
5. It is important for me to do better than other students who take **music lessons**.	1	2	3	4	5	6	7
6. Sometimes I'm afraid that I may not understand the content of my **music lessons** as thoroughly as I'd like.	1	2	3	4	5	6	7
7. I desire to completely master the material presented in my **music lessons.**	1	2	3	4	5	6	7
8. My goal in each **music lesson** is to avoid performing poorly.	1	2	3	4	5	6	7
9. I want to keep doing **music lessons** after I'm done with them this year.	1	2	3	4	5	6	7
10. I feel I want to do **music lessons**.	1	2	3	4	5	6	7
11. I just want to avoid doing poorly in my **music lessons**.	1	2	3	4	5	6	7
12. My fear of performing poorly in **music lessons** is often what motivates me.	1	2	3	4	5	6	7
13. I am often concerned that I may not learn all that there is to learn in my **music lessons**.	1	2	3	4	5	6	7
14. I feel I have to do **music lessons**.	1	2	3	4	5	6	7
15. My goal in my **music lessons** is to get a better grade than most of the other students.	1	2	3	4	5	6	7

AMERPP IRB APPROVAL DATE: 02/26/2021

Math Goal Orientation

Instructions
For the following questions, please indicate how well the statement describes you in your **math class**.

1 = Not at all true of me
2 = Not true of me
3 = Somewhat not true of me
4 = Neither true of me nor not true of me
5 = Somewhat true of me
6 = True of me
7 = Very true of me

	Not True						True
1. It is important for me to understand the content of **math class** as thoroughly as possible.	1	2	3	4	5	6	7
2. I want to learn as much as possible from **math class**.	1	2	3	4	5	6	7
3. It is important for me to do well compared to others in **math class**.	1	2	3	4	5	6	7
4. I worry that I may not learn all that I possibly could in **math class**.	1	2	3	4	5	6	7
5. It is important for me to do better than other students in my **math class**.	1	2	3	4	5	6	7
6. Sometimes I'm afraid that I may not understand the content of **math class** as thoroughly as I'd like.	1	2	3	4	5	6	7
7. I desire to completely master the material presented in **math class**.	1	2	3	4	5	6	7
8. My goal in each **math class** is to avoid performing poorly.	1	2	3	4	5	6	7
9. I want to keep doing **math classes** after I'm done with it this year.	1	2	3	4	5	6	7
10. I feel I want to do **math**.	1	2	3	4	5	6	7
11. I just want to avoid doing poorly in **math class**.	1	2	3	4	5	6	7
12. My fear of performing poorly in **math class** is often what motivates me.	1	2	3	4	5	6	7
13. I am often concerned that I may not learn all that there is to learn in **math class**.	1	2	3	4	5	6	7
14. I feel I have to do **math**.	1	2	3	4	5	6	7
15. My goal in **math class** is to get a better grade than most of the other students.	1	2	3	4	5	6	7



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Defining Performance

Instructions
For the following questions, please answer the questions in your own words.

1. What does it mean to “perform” in your **math class?**

2. What does it mean to “perform” in your **music lessons**?

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Appendix B: Recruitment Email

Subject: Research Participation Request

Dear _____ (Organization Name) Members,

My name is Jared Rixstine, NCTM and I am a Master's degree student in the Learning Sciences program in the Jeannine Rainbolt College of Education at the University of Oklahoma. I am also a private music instructor/ piano pedagogue and am currently working on a research project entitled "Exploring Middle School Students' Goal Orientation in Two Contexts: Math and Music." This important work will help inform ideas about motivation and learning in the private music lesson.

In order to actually complete this research, I am in need of participants – middle school students currently taking private music lessons who are willing and able to complete a brief, anonymous, hard-copy questionnaire and return it to me with a pre-paid return envelope. I am reaching out today to ask if you and your studio would be willing to participate in this research.

If you are able to help me out, please simply reach out to me with the number of eligible students in your studio and I will mail that number of questionnaire consent packets to you for distribution to potential participants. No identifying data will be collected in this questionnaire – it is entirely anonymous.

If you have any questions or would like to participate, please reach out to me at either jrixstine@ou.edu or 309-265-1660.

Thank you in advance for your help!

All best,

Jared Rixstine, MM | NCTM
Jrixstine.oucreate.com



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Appendix C: Consent Documents

Signed Parental Permission to Participate in Research

Will you allow your child to be involved in research at the University of Oklahoma?

I am Jared Rixstine and I am a Master's degree student in the Learning Sciences program in the Jeannine Rainbolt College of Education at the University of Oklahoma and I invite your child to participate in my research project entitled "Exploring Middle School Students' Goal Orientation in Two Contexts: Math and Music." This research is being conducted using anonymous, hard-copy questionnaires. Your child was selected as a possible participant by recommendation of your private music teacher.

Please read this document and contact me to ask any questions that you may have BEFORE allowing your child to participate in my research.

What is the purpose of this research? The purpose of this research is to see if students have different goals in different types of learning environments. Specifically, I am comparing and contrasting the goals of selected middle-school students in their math class and in their private music lessons.

How many participants will be in this research? Up to 1000 students will participate in this study – all of them in middle school.

What will my child be asked to do? If you allow your child to be in this research, s/he will simply complete the attached questionnaire about her/his goals in math class and her/his goals in music lessons. There will also be some questions about her/his background, what instrument s/he plays, and how long s/he's been taking lessons. Don't worry though – no identifying information will be collected so it will be anonymous.

How long will this take? Your child's participation will take no more than thirty minutes.

What are the risks and/or benefits if my child participates? There are no risks and no benefits from being in this research.

Will my child be compensated for participating? Your child will not be reimbursed for her/his time and participation in this research.

Who will see my child's information? In research reports, there will be no information that will make it possible to identify your child. No identifying information is being collected in this questionnaire.

Does my child have to participate? No. If your child does not participate, s/he will not be penalized or lose benefits or services unrelated to the research. If your child does participate, s/he doesn't have to answer any question and can stop participating at any time.

Will my child's identity be anonymous or confidential? Your child's name will not be retained or linked with her/his responses.

Who do I contact with questions, concerns or complaints? If you have questions, concerns or complaints about the research or have experienced a research-related injury, contact me at 309-265-1660 or jrixstine@ou.edu or my advisor, Dr. Maeghan Hennessey at maeghan@ou.edu.

You will be given a copy of this document for your records. By providing information to the researcher(s), I am allowing my child to participate in this research.

Parent's Signature	Print Name	Date
Child's Name		
Signature of Researcher Obtaining Consent	Print Name	Date



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Signed Assent to Participate in Research

Would you like to be involved in research?

I am Jared Rixstine and I am a Master's degree student in the Learning Sciences program in the Jeannine Rainbolt College of Education at the University of Oklahoma. I invite you to participate in my research project about goals students your age have in school and music lessons. This research is being conducted using the attached questionnaire. You were selected as a possible participant because your private teacher suggested you might be a great candidate to help me learn more about students your age. In order to participate in this research, you must give your assent and your parent/s must give their permission.

Please read this document and contact me to ask any questions that you may have BEFORE agreeing to take part in my research.

What is the purpose of this research? The purpose of this research is to see if students have different goals in different types of classes. Specifically, I am comparing and contrasting the goals of selected middle-school students in their math class and in their private music lessons.

How many participants will be in this research? Up to 1000 students will participate in this study – all of them in middle school.

What will I be asked to do? If you agree to be in this research, all you need to do is complete the attached questionnaire about your goals in math class and your goals in music lessons. There will also be some questions about your background, what instrument you play, and how long you've been taking lessons. Don't worry though – no identifying information will be collected so it will be anonymous.

How long will this take? Your participation will take about thirty minutes on the survey.

What are the risks and/or benefits if I participate? There are no risks and no benefits from being in this research.

Will I be compensated for participating? You will not be reimbursed for your time and participation in this research.

Who will see my information? In research reports, there will be no information that will make it possible to identify you. No identifying information is being collected in this questionnaire.

Do I have to participate? No. If you do not participate, you will not be penalized or lose benefits or services unrelated to the research. If you decide to participate, you don't have to answer any question and can stop participating at any time.

Will my identity be anonymous or confidential? Your name will not be retained or linked with your responses.

Who do I contact with questions, concerns or complaints? If you have questions, concerns or complaints about the research or have experienced a research-related injury, contact me at 309-265-1660 or jrixstine@ou.edu or my advisor, Dr. Maeghan Hennessey, at maeghan@ou.edu.

You will be given a copy of this document for your records. By providing information to the researcher(s), I am agreeing to participate in this research.

Participant Signature	Print Name	Date
Signature of Researcher Obtaining Consent	Print Name	Date



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Appendix D: Parent/Guardian Letter and Teacher Letter

Dear Parent/Guardian,

My name is Jared Rixstine, NCTM and I am a Master's degree student in the Learning Sciences program in the Jeannine Rainbolt College of Education at the University of Oklahoma. I am also a private music instructor/ piano pedagogue and am currently working on a research project entitled "Exploring Middle School Students' Goal Orientation in Two Contexts: Math and Music." Your child was selected as a possible participant by recommendation of your private music teacher.

Enclosed please find a parental consent form, a participant assent form, the actual questionnaire, and a postage-paid return envelope. Please complete the attached forms and return them to me using the envelope as soon as possible. As a reminder, no identifying data will be collected in this questionnaire – it is entirely anonymous.

If have any questions or need assistance, please reach out to me at either jrixstine@ou.edu or 309-265-1660.

Thank you in advance for your help!

All best,

Jared Rixstine, MM | NCTM
Jrixstine.oucreate.com



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Dear Teacher,

Thank you for agreeing to participate in my research project entitled "Exploring Middle School Students' Goal Orientation in Two Contexts: Math and Music." This important work will help inform ideas about motivation and learning in the private music lesson!

Enclosed please find ___ (Number) of packets for distribution to your students' families. The packet includes a parental consent form, a participant assent form, the actual questionnaire, and a postage-paid return envelope. Please ask your students and their family to complete the attached forms and return them to me using the envelope as soon as possible. As a reminder, no identifying data will be collected in this questionnaire – it is entirely anonymous.

If you or your students/families have any questions or need assistance, please reach out to me at either jrixstine@ou.edu or 309-265-1660.

Thank you in advance for your help!

All best,

Jared Rixstine, MM | NCTM
Jrixstine.oucreate.com



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Appendix E: IRB Approval Letter

The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects

Approval of Initial Submission – Expedited Review – AP01

Date: February 26, 2021

IRB#: 13065

Principal Investigator: Jared L Rixstine, BA

Approval Date: 02/26/2021

Status Report Due: 01/31/2022

Study Title: Exploring Middle School Students' Goal Orientation in Two Contexts: Math and Music

Expedited Category: 7

Collection/Use of PHI: No

On behalf of the Institutional Review Board (IRB), I have reviewed and granted expedited approval of the above-referenced research study. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

Please note, the IRB reviewer has made minor revisions to the Child Assent form. Since it is unlikely that the PI will know the exact age of each minor participant, it is appropriate to use one Child Assent form (the over 12 version). The IRB has stamped and approved the over 12 Child Assent form. Please ensure you utilize the stamped, approved version of the Assent form found in iRIS.

Requirements under the Common Rule have changed. The above-referenced research meets one or more of the circumstances for which continuing review is not required. However, as Principal Investigator of this research, you will be required to submit an annual status report to the IRB.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Obtain informed consent and research privacy authorization using the currently approved, stamped forms and retain all original, signed forms, if applicable.
- Request approval from the IRB prior to implementing any/all modifications.
- Promptly report to the IRB any harm experienced by a participant that is both unanticipated and related per IRB policy.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- **Submit an annual status report to the IRB to provide the study/recruitment status and report all harms and deviations that may have occurred.**
- **Submit a final closure report at the completion of the project.**

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or irb@ou.edu.

Cordially,

Lara Mayeux

Lara Mayeux, Ph.D.
Chair, Institutional Review Board

Appendix F: Theoretical Framework

Because one's philosophical orientation significantly impacts one's research design, analysis, and application, it is critical to understand and explicate my own perspective in order to provide the context necessary for the reader to interpret my research. Based on Crotty's (1998) discussion on epistemological orientation, I am primarily an objectivist but recognize the presence of a constructionist lens in nearly all situations. While this may seem to be contradictory, I have found them to work well in a certain hierarchical relationship.

Objectivism posits that items have meaning independent of an agent's awareness of or experience with the object. This meaning (or truth, as it is frequently called in epistemology) is inherent to the object and must be discovered by a researcher. Because this truth or meaning is inextricably linked to the item, it is objective (not dependent upon an agent or other subject). It is for this reason this viewpoint is termed "Objectivism."

Constructionism, conversely, contends that meaning and truth are constructed by individuals based upon context and prior experience with the object. This is an inherently subjective epistemology in which meaning and truth are rooted in what one constructs it to be – it is in no way dependent upon (or, potentially, even informed by) the object itself. In order to reconcile these two seemingly incompatible perspectives, there must be a hierarchy. Thus, I believe in an objectivistic orientation but accept that nearly all people (especially children) utilize a constructionist approach prior to reaching a true, scientific understanding of the truth and meaning about objects. For instance, suppose there is a water bottle on a table. The water bottle is a water bottle and its "water bottle-ness" is inviolable. I may use that water bottle as a vase (constructionistic meaning) or as a target for tossing rings around, but my present purpose for or use of the water bottle does not violate its inherent water bottle-ness. I find this to be an

invaluable perspective when teaching. Students frequently believe they fully understand the truth, meaning, or nature of something when, in actuality, they do not. Humans do construct meaning for the objects, items, and entities around them, but this construction is not inherently accurate – it may be, but only if the constructed meaning is in alignment with the inherent, objective meaning/truth/purpose of the object.

This combination of epistemological stances is known in the literature as critical realism. Critical realism suggests that the natural world (or, more specifically, anything under investigation) is real and actual and our study of it is a form of cause-and-effect inquiry – a process by which one is able to determine a sort of truth by identifying a relationship between the subject of study and something else manipulated by the researcher. While this is definitely true of the natural world, it cannot be automatically assumed to translate to the social sciences or human interaction. As mentioned above, these interactions are governed by the inherent constructionistic tendencies of humans. Utilizing a critical realist orientation in social science research focuses on, first, recognizing that the human world is unique from the natural world and natural sciences and second, on identifying mechanisms or phenomena within the constantly shifting and fluid human world. These mechanisms and phenomena are understood as explications of human activity and, if sufficient evidence can be obtained and the structures remain unchanged, can be generalized to greater levels of understanding the overarching Reality.

Given this epistemological orientation, it is important for me to outline which sorts of research I lean toward. While many objectivistic researchers gravitate toward positivism, I align myself with post-positivism. Post-positivism suggests that there exists a true Reality independent of one's awareness of or interaction with it (Creswell, 2018; Crotty, 1998). This Reality is knowable, but only within a high degree of probability. Positivism would argue that this Reality

is truly knowable, but I believe this to be inaccurate due to the inherent constructionistic nature of humans. Thus, I firmly believe that there is a Reality (rooted in the truth and meaning inherent to objects/entities) which is knowable, but that we can only have a high probability of knowing it exactly (due to the constructionistic tendencies of individuals when encountering new or less-familiar things). In order to utilize this theoretical perspective within actual research, my research questions will frequently answer "what" and "how" type questions. For instance, "What is the goal orientation of middle school students enrolled in private music lessons?" Such questions allow me an opportunity to potentially get a glimpse of Reality.

Because of my theoretical orientation toward post-positivism, my research will tend to be more explicative – focused on attempting to uncover the true meaning/truth existing in an independent Reality. This, however, is still extremely relevant to qualitative methodologies. For instance, in order to discover Reality, it is important to understand what different meanings/truths people have constructed for certain objects/entities/etc. These multiple perspectives must be gathered using case studies, narrative research, symbolic interactionism, or even phenomenology. Such research forms the bedrock upon which further inquiry can take place. From my perspective, the first step toward discovering Reality is finding the realities constructed by individuals.