

CHALLENGES FACING ADOLESCENT STRING CHAMBER MUSICIANS IN
IMPLEMENTING A STUDENT-DIRECTED STYLE OF LEARNING

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ABSTRACT

This study was designed to examine the self-directed learning strategies used by adolescent string quartets in their daily student-led rehearsals. The researcher created two worksheets to help facilitate self-directed learning and efficient rehearsal structure based on the work of Berg (2008), and the action research done by Mark and Ingrid Kovacs (Kovacs & Kovacs, 2014). One of these worksheets was a template for students to fill out in their rehearsals as a group detailing their plan and goals for that day's rehearsal. The other worksheet was a list of possible strategies and techniques they could refer to during daily rehearsals. Sixteen students ranging from ages thirteen to eighteen participated in the study while attending the Indiana University Summer String Academy. The researcher filmed their daily student-led rehearsals and conducted interviews with each student individually at the conclusion of the camp to assess their personal opinions about their chamber music experiences.

Video and rehearsal analysis pointed to several themes the students encountered when trying to achieve daily productive rehearsals. The majority of students reported that, when they remembered to use the worksheets provided, they found their rehearsals to be more productive. However, only three out of the four participating quartets ever remembered to use the worksheets and only one quartet used them somewhat consistently. Additionally, many other aspects of being in a student string quartet affected the productivity of the daily rehearsals of the students. The most prevalent themes observed by the researcher included the status of the interpersonal relationships between the quartet members, whether or not the quartet had any plans for time management if

they were not using the planning worksheet that day, and the level of commitment each student felt towards their chamber group.

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CHAPTER I

Statement of the Problem

Rationale

Researchers today are citing an increased use of student-directed learning in the music classroom and highlighting it as an effective pedagogical tool to combat a lack of student engagement (Justice et al., 2007). Allsup and Benedict (2008) state that, traditionally, the director of a musical ensemble is an omniscient, larger-than-life figure, and is responsible for disseminating information to students with a focus on product over process. However, they conclude that this style of teaching does not require students to think or be vigilant in their own learning and therefore suggest a new pedagogical approach is required. One such approach could be a pedagogy centered around student-directed learning. This type of pedagogy calls for students to set their own goals and seek out the knowledge required to attain them. In this type of setting, the teacher guides student learning and is available to assist the student, but does not assume to be the sole source of information. By engaging in this type of learning, students have more opportunities to develop independence, critical thinking, and problem-solving skills.

Research has been done for decades on the benefits and limitations of using a student-centered teaching style in the classroom (Geis, 1976; Myrow, 1979; White & Howard, 1970). Myrow (1979) found that when students were allowed to pick their own research topic in one group and randomly assigned a topic in a second group, the students who were allowed to select their own subject material were more willing and enthusiastic to continue researching that subject after they had completed the assigned project. White

and Howard (1970) also examined the effect of implementing student-directed learning activities in the classroom. They assigned the students a science project where they were given a semester to pursue any interest as long as it related to science. The students were then asked to design and conduct at least two experiments related to these interests over the course of the semester. They found that these activities seemed to be most beneficial for students who identified as being extrinsically motivated learners. This could indicate that using a student-directed style of instruction in other subjects, such as music, would also benefit extrinsically motivated learners. More recently, Collmer (2012) and Bazan (2011) examined the use of student-directed teaching in the choir and band rehearsal setting, respectively. Both researchers found that student-directed learning activities improved student engagement and motivation, but cautioned that implementing these activities requires a preliminary development of skills in independent thinking at a developmentally appropriate level in order to be successful.

Bartolome (2013) interviewed the members of the Seattle Girls' Choir and found that they also were motivated to continue in the choir because of personal and social benefits. She concludes that, since this aspect of the program seems to be the most beneficial to retention and enjoyment of music, ensemble directors might consider using a more socially-oriented, student-directed approach to take advantage of this benefit. From a chamber music perspective, allowing students to lead their own rehearsals offers them multiple opportunities to develop these social skills and take advantage of the benefits this independence offers.

Student chamber music ensembles have been suggested as a potential place to

increase student engagement through student-led rehearsals. Latten (2001) points out that chamber music allows students to simultaneously play independently and develop social and ensemble skills necessary for group cooperation. Berg (2008) also states that by allowing students ownership over their own rehearsals with constructive teacher facilitation, students will learn how to make musical decisions in the same context as professional musicians. She argues that, without both student ownership and teacher facilitation:

the potential for musical growth inherent in chamber music participation is often unrealized due to either a lack of teacher guidance and support or by too much teacher involvement in decisions about rehearsal content and musical interpretation. As a result, students are engaged in “hands-on” rather than “minds-on” learning. (p. 48)

Berg (1997) specifically investigated student-directed learning in chamber music ensembles. She looked at two high school chamber music ensembles that met weekly, both for coaching sessions with an experienced teacher and rehearsals, which they led on their own. Berg found that the students were able to challenge and motivate themselves to grow as individual musicians through the independence inherent with student-led rehearsals. However, Berg notes that the groups went through some personality conflicts which were not anticipated or addressed by their coaches and recommended that the study be repeated, possibly with different age groups and keeping this source of conflict in mind.

Gilboa and Tal-Shmotkin (2010) looked at the skills found in professional

chamber music groups, which they labeled as necessary skills for a self-managed team. These self-managed teams required high levels of organization, independence and flexibility in order to fulfill all the different responsibilities of a professional chamber music group. It seems that these skills would not only apply to groups at the professional level, but to any cooperative group trying to achieve a common goal, including students learning how to function in a self-directed chamber music rehearsal.

It would seem that the use of student-directed learning could be an effective way to address the concerns about lack of engagement and help adolescent students develop their personal identity through music. One approach to utilize this would be to implement a curriculum in the music classroom that allows for problem-based discovery learning through participation in small chamber music ensembles. In these ensembles, the responsibility could be split between the teacher, through regular coaching sessions, and the ensemble, through student-led rehearsals. However, giving students the responsibility to plan and conduct their own rehearsals in a productive and effective way can be problematic, both in the way it is designed and how it is implemented.

Dolmans, Wolhagen, van der Vleuten and Winjen (2001) looked specifically at these challenges and made many suggestions for how to approach them from a theoretical perspective. Challenges included students who appeared to lack the necessary motivation, an inability to learn from other students due to different opinions, and too much responsibility being given to the students to seek out information without a proper foundation of knowledge. Berg (2008) also looked at these challenges and noted that the most prevalent issues in her experience were students who did not know how to rehearse

beyond repeatedly playing the piece, and personality conflicts that led to an inability to reach a group consensus on musical decisions without a teacher present. It seems that these challenges are worth further investigation to discover possible solutions, as well as benefits that students can take away from this style of pedagogy.

Problem Statement

Bazan defines student-directed instruction as a pedagogical approach “where the teacher serves as a facilitator of student-driven learning” (Bazan, 2011, p. 23). This is to say that the teacher helps the students to develop and acquire skills so that they are able to pursue their interests and guide their own learning in a personally meaningful way. Research has shown that this style of instruction not only helps students develop deeper knowledge and understanding of the topic, but also promotes the development of social skills and independence (Allsup and Benedict, 2008; Bazan, 2011; Berg, 2008; Collmer, 2012; Gilboa and Tal-Shmotkin, 2010; Latten, 2001; White and Howard, 1970). Through this independence, students are more motivated to continue pursuing their own learning (Latten, 2001; White and Howard, 1970). However, some research has also shown that this approach to learning can be difficult to implement and comes with a unique set of challenges. Although there has been some research done on the topic of student-directed learning with string students, such as the study done by Berg (1997), it appears that more is needed to help fill the gap relating to the challenges faced by adolescent string chamber music groups who are engaging in self-directed rehearsals.

Purpose Statement

The purpose of my research is to investigate the challenges facing adolescent

string chamber musicians when engaging in student-directed learning. I also aim to look more in-depth at the development of the skills necessary for students to guide their own learning through teacher facilitation.

Questions

1. What challenges do adolescent string chamber musicians face when experiencing student-led rehearsals?
2. What skills and tools are necessary for students to successfully lead their own chamber music rehearsals?
3. What differences exist in rehearsals between different age groups?

Definition of Terms:

Teacher-Directed Learning: The instructional style where the teacher is the primary source of knowledge. While students are allowed to contribute to the lesson, all questions and final decisions are determined by the teacher.

Student-Directed Learning: The instructional style where the teacher serves as a facilitator to help students guide their own learning through the acquisition of skills necessary to pursue their interests in a personally meaningful way.

Problem/Inquiry-Based Learning: The topic for investigation is derived from questions or curiosities posed by the students or teachers.

Student-Led Rehearsals: The process of rehearsing where no teacher is present or is present but not giving direct instruction. The students are responsible for determining rehearsal goals, pacing, and strategies.

Teacher-Directed Coaching Sessions: The process of rehearsing where a teacher serves as

a coach for the ensemble and is responsible for leading the rehearsal.

Chapter II

Review of Related Research Literature

Research relevant to this study has been categorized in the following way: the use of student-directed learning in the general classroom, the use of student-directed learning in the music classroom, and student-directed learning in chamber music ensembles.

Student-Directed Learning in the General Classroom

Several research studies have discovered that using student-directed learning in the classroom is beneficial to student motivation (Green, 2008; Myrow, 1979; White and Howard, 1970). One of the earliest research studies to look at the effect of a student-directed style of teaching on achievement was done by White and Howard (1970). This study challenged seventh-grade students to direct their own learning in science class. Involving 32 students at an all-boys school in North Carolina, the researchers told the experimental group ($n = 16$) that they could pick any topic to study for the semester as long as it pertained to science. Additionally, the students were expected to design and conduct at least two experiments related to their topic and report on their findings at the end of the semester. The students in the control group ($n = 16$) were assigned a topic by the teacher and given reading and writing assignments for the semester created by the teacher. These students were also assigned experiments to complete based on this topic.

Following the project's completion, the researchers measured the achievement of the students using the Sequential Test of Educational Progress. They found that students who identified as intrinsically motivated were not affected by the teaching style, but students who identified as extrinsically motivated did better using a student-directed style

of teaching and learning. In the “analysis of covariance for posttest [*sic*] achievement with pretest achievement and IQ as covariates...the interaction was significant ($F = 6.20$, $df = 1,26$, $p < .02$) and in the predicted direction” (White & Howard, 1970, p. 80).

Although my research does not differentiate between intrinsically and extrinsically motivated students, all of the students in my study were allowed input in picking at least one piece to work on. White and Howard's (1970) study is one of the first studies to highlight the potential benefits of using problem-based learning, which is the focus of my study.

Myrow (1979) examined the effect of student choice on motivation to continue the study of a particular topic. Approximately 200 11th and 12th grade students from a high school in central Illinois participated. Similar to White and Howard's (1970) study, students were either assigned a topic to study or allowed to pick their topic from a list of choices. Students then read an essay on their topic and took a multiple choice test related to the essay. Following this questionnaire, students filled out an affective questionnaire to determine how interested they were in continued study on the topic they had just read about. Using ANOVA tests, the researchers determined that the students had more positive attitudes toward instruction when they picked the topic ($df = 1/121$, $F = 5.03$, $p < .03$) and were more willing to continue learning about the topic they had picked following the completion of the study ($df = 1/121$, $F = 19.33$, $p < .0001$). This study showed significant relationships between attitude and student-choice, which highlights benefits of student-directed learning and speaks to the possible benefits of my proposed research.

An action study at a mid-size Canadian university was conducted by Justice et al. (2007) to determine the challenges of implementing a student-directed undergraduate class. The class was one of three options freshmen students could choose from and was taught once a week for three hours. Students in the class developed their own research questions and were instructed during class time on critical thinking and research skills, as well as independent and collaborative learning strategies. Students were encouraged to interact in groups during class time and frequently self-evaluate their progress. Challenges the researchers encountered when trying to implement the course included “resistance to the very idea of inquiry, difficulties in finding appropriate and willing instructors, and barriers related to power and financial structures” (Justice et al., 2007, p. 847). Strategies used to deal with administrative challenges included holding informational sessions for administration to learn more about the course, anticipating criticisms and developing sound counterarguments, and seeking out knowledgeable resource sources. While my study deals more with student challenges than administrative ones, this study highlights how challenging implementing a student-directed style of learning can be from an administrative perspective. In terms of a music class, these challenges are seen in my study in terms of appropriate amounts of time being given for students to spend in coaching sessions versus in self-directed rehearsals.

Dolmans, Wolhagen, van der Vleuten and Winjen (2001) conducted a literature review examining the challenges facing the implementation of problem-based learning, an approach to student-directed learning, in previous studies. The authors identified the most common challenges of this method being “ritual behavior and the problem of

dysfunctional tutorial groups” (p. 885). Ritual behavior is defined as a “situation in which students maintain an appearance in the tutorial group of being actively involved . . . [such as] during activation of prior knowledge in the tutorial group, when new ideas are brought into the discussion without connections being made to other ideas” (p. 886). The authors suggest that one possible reason for this problem is that the students do not have enough prior knowledge to make the necessary connections between previous lessons and the new information. They suggest that in order to avoid this problem, a solid foundation of relevant knowledge needs to be established before the problem-based learning can occur. The other problem the authors mention is the potential for dysfunctional group dynamics. This problem can encompass group members who do not prepare, do not attend meetings, or expect other group members to do their work for them. The authors recommend that the teacher devise strategies to oblige students to attend group meetings prepared, such as with an attendance grade or using a peer-tutor who gives the members of the group a regular evaluation. The authors also recommend that the role of the peer tutor can be used to encourage team spirit and make expectations clear at the beginning of the meetings. Finally, the authors caution that using problem-based learning is not a guarantee of success and must be properly set-up and monitored to ensure that the student's potential is reached. In a musical setting, these strategies might be adapted to encourage active student participation from all members of an ensemble.

Student-Directed Learning in the Music Classroom

Research on the benefits of student-directed learning in the music classroom dates back to the 1960s. Moon and Humphreys (2010) examined some of the earliest records of

student-directed learning in the music classroom by researching the Manhattanville Music Curriculum Program. This program was founded and directed by Ronald B. Thomas in 1966. Thomas was interested in designing a project to overhaul the public school music education curriculum. Thomas' stated goals were:

(1) to prepare a curriculum guide and related materials designed for the primary through the high school years, all using discovery approaches; (2) to develop a meaningful sequence of basic musical concepts in terms of the childrens's [*sic*] understanding; and (3) to more closely unify philosophies and directions of all areas and levels of music learning through the development of a spiral-type curriculum. (p. 76)

The first phase of this project involved a five-week intensive seminar for current music teachers during the summer of 1966. Following the seminar, the new curriculum was pilot tested with 19 public school music teachers from the state of New York. Following this initial year of pilot testing, teachers continued to meet and work on revisions for the curriculum. The first publication of this curriculum created 16 cycles of concepts to create a spiral curriculum with an emphasis on student-directed assignments and individual compositions. Though this publication was meant to function as a flexible guide and not an instructional manual, it relied heavily on contemporary art music and modern compositional techniques. However, teachers who tried to implement this curriculum often did not feel comfortable with the modern compositional techniques and technologies that were required of them, and so they either did not implement the method in their programs or they did so unsuccessfully. Because of these challenges, Moon and

Humphreys (2010) concluded that the project had “little direct influence on music education in American schools” (p. 94). This study is relevant to my research because it highlights one of the first attempts to utilize a student-directed style of teaching in the music classroom and outlines some of the difficulties involved in successfully implementing this style of curriculum that Thomas and his colleagues faced. Although my study does not deal with composition, which was a primary focus of Thomas' work, there are parallels between the challenges faced in both his study and mine. The challenges he saw were primarily teachers feeling uncomfortable with the compositional and instructional techniques they were expected to use such as explaining serialism and tone matrices to students, and then assigning them a student-directed composition based on these techniques. This feeling the teachers had of being unsure of what was expected of them can also be seen in the students in my study.

While Thomas' research focused on the benefits of student-directed learning from the perspective of technical knowledge, other studies have looked at this pedagogical style in terms of the social and emotional benefits it can have. Campbell, Connell, and Beegle (2007) tried to determine what adolescent students valued most in musical experiences. The researchers used responses submitted by adolescent students in a nationwide music advocacy essay competition. Students had the option to give permission for their responses to be sent to the researchers when they entered the contest, resulting in a total of 1,155 submissions used in the study. As the essay contest was run by the *Teen People Magazine*, the researchers found that the number of female student participants greatly outnumbered the male participants, with 78% of responses used in the

study from female students. The majority of responses were submitted by students between 14 and 16 years of age. The researchers analyzed the essays using qualitative analysis categories. The themes the researchers discovered included:

(a) identity formation in and through music, including individual identities (instrumental, vocal, listener, etc.) and group identities (band, choir, orchestra, etc.), (b) emotional benefits that span enjoyment, expression, emotional release and control, and coping, (c) music's benefits to life at large, including the building of one's character and life skills, (d) social benefits encompassing camaraderie, the acceptance of differences, high morale at school and at home, distraction from vices such as drugs and alcohol, and the prevention of suicidal behaviors, and (e) music in schools, including positive and negative impressions of the program, particular courses and course content, and teachers. (Campbell, Connell & Beegle, 2007, p. 224)

Students often gave credit to their school music program for getting them interested in music and teaching them the necessary skills and background to be successful in music later in life, whether or not they were hoping to pursue a career in music. Additionally, music often was suggested to be the primary way students felt they could express themselves and let their personality come out, even in a potentially therapeutic way. As part of this self-expression, students mentioned that they used music classes and groups as ways to make important social connections. Many students related being part of a musical group to being part of a family. These results highlight the importance of allowing students outlets of social interactions within their musical experiences. While

this certainly happens in a teacher-directed setting, it is the central component of learning music in a student-directed setting and offers students unlimited opportunities within the time allotted to explore these social connections through music.

Allsup and Benedict (2008) looked at the idea of student-directed learning from a philosophical point of view. They stated that one of the problems facing the band classroom today is that rehearsals are run exclusively by the director, who is omniscient and all-powerful, and gives students the answers without allowing questions. They claimed that this style of teaching eliminates the opportunity for students to discover their own musicality and artistry. They also asserted that, in this role, the music teacher ceases to act as an educator and instead becomes a conductor, which does not effectively teach the students an instrument, but rather focuses only on learning repertoire. They suggested engaging students in the problem-solving process during rehearsals and allowing for more student input in order to achieve a better balance of student and teacher communication in the music classroom. My study examines these issues by looking at rehearsals in which students are given all of the power to examine and solve problems that arise.

Green (2008) had a similar philosophy to that of Allsup and Benedict. Prior to their article, she was also exploring the idea of students playing a larger role in their own music education. In her study, students from eight different schools in and near London were allowed to form their own groups, and then these groups completed five different stages of music learning, first imitating a song they knew and liked and working up to composing their own songs in a similar procedure to that of a modern popular musical

group. She named this practice “informal learning” and claimed that its purpose was for students to develop the tools they needed to learn songs that they liked with minimal assistance from a teacher. She states that this practice leads to increased motivation, skill building and enjoyment. However, she also states that the most significant challenge of introducing this pedagogical style was getting the teachers to cede most of their control to the students. She states that the teachers were incredibly nervous at the outset of the study because they did not know what the outcome would be and could not decide what pieces or instruments the students would be learning. Although the students in my study were restricted to preexisting classical repertoire, they were given some freedom to choose pieces that appealed to them and work on it during rehearsals without any teacher assistance.

A study that looked directly at student-directed learning in the music classroom was conducted by Allsup (2003). The researcher was interested primarily in expanding the activities of a standard school music program. He felt that the ensembles typically offered in these programs did not give students a chance to connect with their culture or feel a connection to their peers through music. The author decided to pursue this interest by giving students the opportunity to form their own small ensembles and compose their own music. Allsup developed four research questions:

How would the participating groups evolve and define themselves through the practice of composing and analyzing music? What would our choices reflect or signify? How might this experience affect individual growth as well as community-making? And finally, how is such a project congruent with

philosophies of democratic education? (p. 25)

Allsup then conducted a small qualitative study using these research questions.

The participants of this study were nine intermediate to advanced high school instrumentalists. These students formed two “mutual learning communities” (p. 25), with one group choosing to take the form of a garage band and the other group choosing to remain on their traditional classical instruments. The aim of the study was for both groups to create an original composition over the course of about three months of weekly rehearsals, with the focus being the process of composing rather than the final product of performing the compositions.

Allsup found that both groups approached the project from very different perspectives. Group 1, the garage band, focused on improvisatory contributions from each member to help create a cohesive song. Group 2 decided against using popular music as a model and spent a great deal of time discussing the theoretical approaches to their song and writing out compositions, with less time spent on instruments. Group 2 later turned their attention to composing a jazz piece, which the group approached in a manner similar to the approach of Group 1, and found this piece to be much more successful as both a composition and an enjoyable experience. Allsup noted that the main advantage of peer learning seemed to be that the collaboration of the group as a whole resulted in more discovery among the learners due to the input of their peers. Allsup concluded by proposing the idea that students who are given the freedom to make musical discoveries in their own way will produce a result that is more meaningful to those students. Although my study does not give the students as much freedom in terms

of instrument choices or styles of music as Allsup does, it does examine the effect of freedom from teacher-direction in the context of rehearsing chamber music.

Bazan (2011) conducted a two-part study examining how much student-directed learning was occurring in the middle school band setting and what techniques were being used to facilitate this style of learning. The first part of Bazan's study used a demographic survey to discover which band teachers considered themselves to use the most student-directed styles of teaching in their classrooms. Surveys were sent to 122 band teachers in 6 northeastern Ohio counties, with a return rate of 40%. The results of the survey were analyzed using teacher-directed instruction (TDI) and student-directed instruction (SDI) scores based on the 5-level Likert-type scale questions. Bazan was then able to obtain permission from three of the schools whose surveys had ranked them among the top six most student-directed band classrooms to continue with a qualitative observation.

In the second stage of this study, Bazan videotaped five rehearsals run by each participant using coded observational notes. Following the completion of the final observation, Bazan conducted interviews with the teachers “to determine student-directed instructional practices that occurred beyond the classroom” (p. 27). Validity and reliability were ensured by using a number of established practices such as triangulating data sources, consulting experts, basing observational and interview procedures on relevant research literature, and extensive member checking. Bazan found, based on his time-coded observations, that even these three teachers who had reported high levels of student-directed instruction in their classrooms used significantly more teacher-directed instruction than student-directed instruction. In fact, of all the teaching styles Bazan

observed and coded into his notes, student-directed instruction was the least frequently utilized style of all. Bazan concluded by asking three questions:

(a) Are there reasons to deemphasize teacher-directed instruction in the band room and accommodate student-directed instruction? (b) Can merely adding *some* student-directed instruction have a positive impact on student learning in band programs? (c) Are there student-directed strategies that could be efficiently and effectively delivered during rehearsals and balance teacher- and student-directed instruction within the band program, capitalizing on the strengths of both teaching styles? (Bazan, 2011, p. 52)

He also noted that a fully student-directed rehearsal may be an unrealistic expectation for a middle school band and recommends that “further research and exploration of alternative student-directed teaching and learning strategies seem necessary before any widespread change might occur to the traditional rehearsal model” (p. 54). My study aims to further investigate student-directed learning through chamber music rehearsals. I am also interested in examining possible effects that the age and experience level of students have on the success of their student-led rehearsals.

The purpose of Bartolome's (2013) ethnographic study was to determine the values and benefits of membership in the Seattle Girls' Choir. This particular program is a well-respected all-girls choir program consisting of six different choirs separated by age and level with annual auditions. At the time of the study, Bartolome noted that there were 119 girls enrolled in the program ranging from 1st to 12th grade. Bartolome asked:

(1) what do various participants consider to be the values and benefits of their

participation in the SGC community? (2) how do the values of the organization manifest themselves in action during rehearsals, performances, classes, meetings, and other SGC events? (p. 399)

Bartolome determined that there was no previous research done on these particular aspects of membership in an all-girls choir program.

As a member of the faculty of this particular program, Bartolome was able to be a participant observer in her own choir, consisting of 24 girls ages 10 through 13. She also conducted more than 150 hours of observation of different aspects of the program over the course of one year. Additionally, Bartolome conducted interviews with 42 of the singers from the upper 4 choirs, as well as 10 of the teachers and administrators.

Bartolome also sent out a survey to the parents of the students, of which 20 were returned. Finally, Bartolome examined 26 years of previous documents pertaining to the choir and engaged in extensive member checking.

Bartolome noted that the most interesting discovery she made during her research was that the emergent themes were not the same as those found by previous researchers who had conducted similar studies. Previous studies found that the members of the program placed the highest value on the performances. However, Bartolome found that members of the Seattle Girls' Choir placed the highest value on the social, personal, and educational experiences they had. Her research cites numerous examples of students expressing gratitude and appreciation for the discipline, leadership skills, and focus they have learned as a result of being part of the program. She also notes that many of the students felt that choir was a safe space to make mistakes and still feel accepted by their

peers. Additionally, she notes interviews with students, parents and staff members who felt that the program also served as a tool for teaching tolerance and perspective-taking using differences such as age, cultural differences, sexual identity and family composition. Bartolome concluded by stating that, although the results of her study are not generalizable, “Choir directors might consider adopting a more education-driven approach to performance-based curricula, moving away from a product-oriented process toward a more process-oriented approach” (Bartolome, 2013, p. 416). This study is relevant to my own research because I also plan on using qualitative observation to examine a more process-oriented approach to learning.

Student-Directed Learning in Chamber Music

One of the first studies to look at student-directed learning in a chamber music setting was conducted by Zorn (1973). He examined the effectiveness of participation in a chamber music ensemble on ninth grade band students' performing abilities, cognitive understandings of history, literature, and structure, and attitude changes. This experiment was conducted at a New York high school where Zorn was a teacher of ninth grade band. Pre- and post-tests were conducted, with the pre-tests determining the performing ability of the students and leading to their placement in nonrandomized groups. Two of these groups were control groups and two were experimental chamber music groups, which met for one additional 50-minute class period each week to rehearse their chamber music piece. During the course of the school year, Zorn conducted a series of tests with the students, three of which he designed himself. The other three tests were the Musical Aptitude Profile, the California Test of Mental Maturity and the Differential Aptitude

Test. Zorn found that while participation in chamber music did not have a significant effect on performing ability or cognitive understanding, it did improve attitudes towards music and music participation. This study is significant because it looked directly at chamber music, which is the focus of my study, but does appear to have possible flaws. Zorn states that he created three tests for the students on his own, but does not offer evidence to support their merit or reliability. My study aims to examine the effects of engaging students in a chamber music rehearsal setting, which can contribute to the literature regarding the benefits and limitations of such a method.

Although my study focuses on student chamber music groups, Gilboa and Tal-Shmotkin (2010) examined the structure of professional chamber groups. These researchers examined whether the members of string quartets perceived themselves to be a self-managed team. Self-managed teams are defined as empowered groups “responsible to a 'whole' work process, which delivers a product or service to an internal or external customer” (p. 21). This includes managing a rehearsal schedule, dealing with travel and financial concerns, and making decisions about concert times and repertoire. In order to coordinate all of these different aspects of working in a string quartet, cooperation and communication between all members is essential. A total of 72 professional musicians participated in the study, with 40 of the participants having previous experience in chamber music ensembles. The researchers administered questionnaires based on Cohen's Self-Managing Work Team Effectiveness questionnaire to string quartets to see if their answers aligned with those characteristics of a self-managed team. The results of the study were analyzed using ANOVA and the researchers found significant differences

between the types of ensembles the musicians had previously participated in [$F(3, 213) = 338.94, p < .001, \eta^2 = 0.83$], with the participants who had been in chamber music ensembles demonstrating the highest self-managed team level. Interestingly, those musicians who had participated in chamber orchestras showed an intermediate level of self-managed team skills, and those who had only participated in symphony orchestras and choirs demonstrating the lowest self-managed team skill level. The researchers then replicated the experiment with an additional 26 professional musicians and found the results to be the same. I am interested in examining how the degree to which student-led chamber ensembles possess these communication and organizational skills affects the success of their rehearsals.

Bononi (2000) aimed to “investigate the nature of student thinking based on the verbal interactions of four high school instrumental musicians as they learned to perform music compositions in a beginning chamber music ensemble” (p. 4). Since many band students never get the chance to rehearse and perform outside of the large ensemble, Bononi looked to chamber music as a possible way to engage students in self-directed learning. He also examined this strategy of teaching as a means to transfer knowledge from their large ensemble training.

Bononi acted as a participant observer by coaching the group of high school students participating in the study. In gathering data, Bononi used background questionnaires, videotapes, field notes, and concert debriefing sessions where the students would analyze their own performances. Bononi videotaped all 17 student-directed rehearsals as well as two performances over four months and coded all the verbal

interactions between the participants. Bononi offered the students several choices of music to learn, but the final decision was given to the group. Additionally, he gave several ideas and suggestions specific to the progress each group was making at the beginning of every rehearsal, but then only intervened when it seemed that the student-directed rehearsals were breaking down. Bononi discovered that the most challenging aspect of the study was determining his own role and allowing the students to make their own decisions rather than jump in and assume the role of primary decision-maker again.

Bononi observed a correlation between the number of comments made by a student and the grade level, or social hierarchy, status of that student. For example, students who were either older or seemed to be more popular among their peers also tended to be the students who made more comments. This correlation was not found when the on-task nature of each comment was taken into consideration meaning that students who made several comments were not necessarily making comments the instructor considered to be at a level appropriate to the musical ability of the student. Additionally, Bononi noticed that the students tended to conduct their own rehearsals using the same types of routines and comments made in their large ensemble rehearsals. During these rehearsals, Bononi found that by giving minimal prompting, students were able to successfully adapt what they had learned in the ensemble to a learning technique appropriate for the chamber music rehearsal. He notes that it seemed that these prompts were often small but critical, for without them the students were not able to consistently make the connections on their own, resulting in what Bononi termed as “missed opportunities” (p. 131). However, Bononi did notice that when unprompted transfer

occurred, it had a much wider range of potential categories it might fall into than the prompted transfer. He concluded that, although a challenging endeavor, the chamber music setting was highly effective in providing a safe place for these particular students to transition from the teacher-directed learning they had grown up with to a more student-directed style, which is also a transition the students go through in my study.

A qualitative study done by Berg (1997) examined the ways in which high school chamber musicians constructed musical interpretation through their communication. Specifically, Berg looked at the ways that this communication helped push students into Vygotsky's zone of proximal development. Berg observed two chamber music ensembles comprised of high school students over a period of five months: a string quartet that had been together for five years and a violin/piano/horn trio that had formed at the beginning of that year. Both of these ensembles had regular coaching sessions as well as student-led rehearsals, which Berg observed and videotaped. The horn trio was formed as part of a public school music program. All three of the musicians were considered to be among the best in the school and had been studying privately for several years. The orchestra teacher, who held a B.M. in violin and an M.M. in conducting with eight years of teaching experience, coached them weekly. The string quartet was formed as part of a private youth music program, with all four members having started their instruments through private study at a very young age. They were coached by a faculty member from a nearby university who frequently performed internationally as a soloist.

Berg observed and videotaped a total of 13 rehearsals, 16 coaching sessions, and 4 performances across the two groups. She also conducted 11 formal interviews and several

informal interviews, and collected biographical information sheets for each student as well as miscellaneous relevant documents. Throughout the study, Berg acted primarily as an observer and did not offer any advice or insights related to the rehearsal processes she observed. Berg noticed that the horn trio focused their rehearsals primarily on issues related to tempo, while the string quartet focused primarily on intonation, ensemble, and tempo issues. Both ensembles frequently spent time working on small sections of the music using group cooperative communication to establish the direction of the rehearsal.

Within these themes of recurring rehearsal strategies, Berg noted many interesting social roles played by each group member. Both groups had members who tended to be the default leaders during the rehearsals, but these roles were not set in stone and could sometimes change, although not always easily. The horn trio tended to have an easier time shifting the leadership role and also utilized rehearsal time to practice individually and ask other group members for feedback, which Berg stated supports Vygotsky's theory of *interpsychological* support. This theory states that child development is a result of social interactions, and that when a child is able to perform a task with assistance that would be too difficult for them to perform on their own, they are in their zone of proximal development. Berg's conclusion was that, by using their peers to help them accomplish tasks that they would otherwise not have been able to complete, these students created a support system for each other. This system helped them achieve higher levels of musical and social development. The student-directed rehearsals pushed each member of both groups to challenge themselves as musicians and as people, thus bringing them into Vygotsky's zone of proximal development.

Berg expressed the opinion that many of the conflicts during these rehearsals, especially the rehearsals of the string quartet, could have been avoided if more time was spent during coaching sessions discussing effective group rehearsal strategies and ways to resolve such conflicts. She also recommended that the study be replicated, possibly using different age groups of participants, to further examine these patterns and contribute to the literature. My study aims to expand on her findings relating to the challenges that groups faced in self-directed rehearsals by exclusively using string players with a more diverse range of student ages.

Summary

There have been many studies related to the benefits and challenges of student-directed learning, both in a general sense as well as in the music classroom. Research has shown that benefits include a deeper understanding of the subject matter, as well as increased motivation towards learning and the development of social skills. Challenges include properly stated teacher expectations and explanations on how to execute these expectations, as well as student conflicts which, unresolved, prevented learning from happening. However, there have been few studies looking at this approach in a chamber music setting, and almost no studies looking at string chamber music, student age and experience, and student-directed learning. It appears that more research is needed to help fill this gap.

CHAPTER III

Methodology

Context

Merriam (2007) states that the purpose of qualitative research is to try and determine the meaning that individuals assign to their experiences. In order to achieve this goal, it is necessary for the researcher to observe the individuals in a comfortable environment where the participants will demonstrate the experiences of which the researcher hopes to gain a better understanding. This often involves a relatively small number of participants over a longer period of time. Qualitative research also frequently utilizes interviews. The purpose of these interviews is to assess the meaning that the participants assign to their own experiences. Additionally, the interviews will examine whether the meaning the researcher has assigned based on observations matches the perceptions of the students (Merriam, 2007).

This study examined four student string quartets enrolled in the four-week long Indiana University Summer String Academy. This camp ran from June 21 to July 19, 2014. The Indiana University Summer String Academy takes place each year in Bloomington, Indiana on the Indiana University campus. It is stated on the camp's website that the purpose of the Summer String Academy is to offer “serious young string players an intensive and varied program under the direction of an outstanding faculty at one of the world's most renowned schools of music” (Jacobs School of Music, n.d.). Students must audition to be admitted to this program. All students who attend this camp take private lessons regularly during the school year, and many have been playing since

they were very young. As a result of this training, all students who attend the program play at an exceptionally high level for their ages. All students at this camp are required to spend four hours a day practicing their instrument and a certain amount of time in chamber music, depending on their level of playing. Additionally, all students are required to attend weekly masterclasses with their studio teacher and concerts or guest masterclasses every evening. In this study, the Bach and Mozart Quartets were required to spend two hours in chamber music rehearsal on Monday, Tuesday, Thursday, and Friday, with their studio masterclasses taking place instead of their chamber rehearsal on Wednesday. The Dvorak and Mendelssohn Quartets were among the oldest and most advanced students in the camp. Because of this, they were required to spend two hours in chamber music rehearsal Monday through Friday.

Participants

The selection of the quartets for this study was based on the recommendation of the camp director, Mimi Zweig, and represents a purposive sample. Merriam (2007) states that a purposive sample is one where all participants fit a list of pre-determined criteria and are thought to be strong candidates to provide the most useful information to the research. Professor Zweig was responsible for forming the quartets after the students auditioned for her on Sunday, June 22, 2014. Criteria for selection included (a) a minimum of one year of previous chamber music experience, (b) a minimum of three years of private instruction on their instrument, (c) a minimum age of 12 years old, and (d) enrollment in the camp and parental consent of all members of each quartet. Due to the availability of video cameras, only four quartets could participate. Of the quartets that

met all of the criteria for selection, and due to the limited time frame during which the study could take place, the first quartets to return all of their consent forms were the groups used in this study.

The student participants in this study consisted of 8 males and 8 females ranging in age from 13 to 18. Fourteen of the students were American, from California, Virginia, Hawaii, Minnesota, Ohio, Indiana, Texas, Kentucky, and Massachusetts. One student was from Mexico and one was from Canada. Four of these students were Asian, one was Latina, and the remaining 11 were Caucasian. All of these students had been studying their instrument privately since they were quite young, with a minimum of 5 years of lessons and a maximum of 14 years.

At the conclusion of the study, each of the coaches for the four quartets was asked to participate in an e-mail interview. Of these four coaches, three agreed to participate and one never responded to any of my attempts to reach her. Of these three participants, all three were professional musicians with extensive backgrounds in international performances and teaching. Two of these participants were male, and one was female. Two of these coaches, for whom I will use the pseudonyms “Shannon” and “Roman,” were members of the same professional string quartet based in the Netherlands. The third coach, “David,” was a faculty member at the University of Notre Dame in Indiana.

Data Sources

In order to observe the use and development of student-directed learning skills, the participants were given a rehearsal planning sheet (see Appendix B), as well as list of

self-directed rehearsal strategies (see Appendix D), once parental consent for their participation in the study was obtained. The rehearsal planning sheet was adapted from a similar sheet created by Berg (2008) in order to account for the shorter amount of time students would spend together in this camp than they did in Berg's study (see Appendix A). The adaptation of the planning sheet also did not list specific goals for specific weeks, as Berg's did, but rather asked the students to set their own goals, with a list of possible goals suggested at the bottom of the sheet. The reason for this change was again due to the shorter amount of time that the participants in this study had before their final concert. It did not seem possible to create specific goals beforehand, knowing that each quartet would be in a different place and have different needs. The planning sheet was designed to encourage the students to set specific goals each week to help them develop independent learning skills and serve as a basis for frequent self-evaluation of their progress using these skills. Of the four participating quartets, three used the planning sheet at least once and two of the quartets handed their sheets in to me at the end of camp. The fourth quartet did not hand theirs in despite repeated requests.

The list of rehearsal strategies was adapted from those created by Drs. Mark and Ingrid Kovacs (see Appendix C) and presented at their session, titled "The Self-Directed Classroom," at the 2014 American String Teachers' Association (ASTA) national conference in Louisville, KY (Kovacs & Kovacs, 2014). These adaptations were made to reflect the average musicianship and experience level of the students participating in this study, which was significantly higher than the students discussed by Kovacs and Kovacs (2014) in their original session. The rehearsal strategies included specific techniques

designed to serve as prompts to help the students achieve their musical goals. Examples of these strategies include “clap and count your part” and “shadow bow your part while saying finger numbers.”

The participants were given at least one coaching each week from a faculty member of the Indiana University String Academy. They also engaged in at least eight hours of self-directed rehearsals each week in an assigned room at the Jacobs School of Music. The purpose of these coaching sessions and rehearsals was to prepare at least one chamber music work to be performed at the conclusion of the camp. Following an explanation of these resources to the students, each group was asked to fill out their plan and goals on the planning sheet as a group at the beginning of each week. Whether or not they did this was noted in observations of their rehearsals and considered when assessing the effectiveness of a rehearsal on a given day. I video-recorded all subsequent rehearsals that took place during their assigned rehearsal time. If students chose to schedule additional rehearsals outside of this required rehearsal time, I did not record those. This meant that, by the conclusion of the program, I had between 10 and 12 videos for each group.

For each group, five to six videos were selected to be observed and coded. Videos were selected to evenly represent rehearsals in the beginning, middle, and end of the study. By doing this, I hoped to create a more complete picture of how the group dynamic and rehearsal structure for each group changed over the course of the study. When watching these videos, I noted the time on the video where each change in action occurred. For example, I noted each time the group started and stopped playing, as well

as when conversations started and when breaks took place in order to help me assess how much time was being devoted to each activity and how the timing of each rehearsal affected its productivity and group dynamic. This also allowed me to look broadly at the percentages of time quartets actually spent playing music in their rehearsals, which will be reported in each case study.

While reviewing these videos for emergent themes, I paid special attention to which techniques from the rehearsal strategy list are used, as well as whether the students adhered to the goals they set for themselves on the rehearsal planning sheet each week. Dialogue was transcribed during the rehearsals. I conducted interviews with each student and his or her chamber music instructor at the end of the camp (see Appendix F). All 16 participating students, and 3 of the 4 chamber coaches gave interviews. The purpose of these interviews was to determine what the students and teachers liked and disliked about their String Academy chamber music experience and whether or not they felt that the prompts and planning sheet had an effect on their rehearsal strategy and/or their final performance as a group. I did not participate in the rehearsal process after the initial explanation of the study at the first rehearsal. Coaching sessions were not observed, as the main purpose of this study was to observe the behaviors of the students when they were left to lead their own rehearsals.

Interviews were also conducted with the students and their teachers at the conclusion of the camp. Interview questions were created based on the recommendations of Merriam (2007). The primary consideration was to ask questions to try and understand aspects of the rehearsals that could not be observed, such as how certain interactions or

events made students feel. The questions were also created with the intention of avoiding unfamiliar jargon or concepts, as well as establishing a non-threatening environment so students felt comfortable speaking with me (Merriam, 2007). Each student interview took place in person and lasted between ten and fifteen minutes during the last week of camp. These interviews were semi-structured, with all students being asked the questions seen in Appendix F, and follow-up questions were asked for the purpose of elaborating on a point brought up in an answer to one of these questions. Interviews with coaches were done through e-mail and each coach was emailed the same list of questions (see Appendix F). These interviews assessed strengths and weaknesses each student and teacher felt their group had, whether they felt the provided worksheets improved their rehearsal process, and what the students valued in their chamber music experiences (see Appendix F). All students in this study have been assigned pseudonyms to retain anonymity.

Procedure

Following approval from the camp's director, Mimi Zweig, as well as IRB approval, a permission slip was created for parental consent in the study. After the quartets were formed on Sunday, June 22, those ensembles selected by Prof. Zweig for the study had consent forms scanned and emailed to their parents. Once parental consent was obtained, the rehearsal planning sheet and rehearsal strategy sheet was distributed to the participants.

Students participating in this study attended the Summer String Academy for a total of four weeks. It took ten days to gather consent forms from all sixteen participating

students and their parents. Once all consent forms had been signed by parents, I was present at their next rehearsal, which fell either on June 30 or July 1. I explained the purpose of the strategy and planning sheets and answered any questions the students might have about them (see Appendix E). I then filmed all of their subsequent required rehearsals. As the concerts took place on July 16, this meant that I was able to film between 10 and 12 rehearsals for each group. The reasons for not recording the same number of rehearsals for each group included groups not showing up for rehearsal and cameras being unavailable at the necessary times.

During the last week of camp, I interviewed each of the 16 participating students for 10 to 15 minutes (see Appendix F). Following the conclusion of the camp, each participating quartet's coach was contacted for an email interview. All interviews were transcribed and a sample of the rehearsal videos were transcribed and time-coded.

Data Analysis

Observational notes made during rehearsals, including transcribed dialogue and time stamping of activities, and interviews were coded to help discover emergent themes relating to the research questions previously stated. As stated by Merriam (2007), “The most common situation is when the investigator comes up with the terms, concepts, and categories that reflect what he or she sees in the data.” Transcribed dialogue, actions, and observational notes were color-coded based on what they were depicting. For example, if a student was writing something in his or her part, that activity was coded as being a rehearsal strategy. If students were arguing about when they should take a break, that was coded as a time management issue. After initially coding these videos and interviews,

specific groupings were combined into more general categories to create the themes highlighted in the results of this study. When time stamping these videos, actions were listed next to the time displayed on the video. For example, every time a group began playing, I noted the time on the video when they started and stopped playing. This allowed me to analyze the amount of time groups spent playing versus doing other activities during their rehearsal time.

I also utilized two additional independent coders as well as triangulation of data sources to ensure validity of my observations and coding. Merriam (2007) explains that independent judges help confirm the findings of the researcher by examining a sample of the data sources and analyzing them based on the methods of the researcher. In this case, two independent coders examined different samples of transcripts and confirmed the themes I had assigned to specific interactions. However, during revisions, the first theme, which I had originally labeled as “motivation and expectations,” was changed to “commitment.” While none of the material discussed changed, it became clear that commitment was a more appropriate label for the information I was examining. This seems to indicate that my independent coders were still grouping the information into themes the same way that I was, but that we did not think through the names for these themes as thoroughly as possible during the initial labeling.

Creswell (2007) explains that triangulation is the confirmation of findings based on multiple data sources and methods. This study utilized observations, interviews with both students and coaches, informal discussions about the chamber music program with faculty members, and independent coders to confirm emergent themes. The results of this

analysis will be presented first as individual within-case analyses and then as a cross-case analysis.

CHAPTER IV

Results and Discussion

Themes found during data analysis highlighted both the strengths and challenges each quartet faced over the course of the camp as well as the skills necessary for groups to lead successful self-directed rehearsals. These emergent themes included (1) commitment, (2) interpersonal relationships and conflict resolution, and (3) time management and rehearsal strategies. An overview of these themes will be discussed below, followed by an in-depth discussion of how they appeared specifically in each quartet. This will be followed by a cross-case analysis, and how the experience of each quartet related to the relevant literature.

All of these themes are important when considering how productive a group's rehearsal might be from one day to the next. The first factor in helping to determine this productivity was the expectation of commitment each student had of the camp's chamber music program when they arrived at camp. Those students who viewed the chamber music component of the camp to be more supplementary and secondary to their own personal practicing often did not seem as invested in the rehearsal process. This was seen in observations, as well as discussed by the students during interviews. Those students who arrived to camp with the expectation of working hard in their chamber groups tended to do so. Characteristics such as choosing their own piece, conducting their own rehearsals, and choosing the points to focus on that day were all factors observed in rehearsals that demonstrated the commitment level of the quartet. In all of the participating groups, the most productive rehearsals happened when all members arrived

motivated to work hard towards common goals.

The theme of interpersonal relationships and conflict resolution played a central role in determining the success of the rehearsal process. In this study, conflict between group members had the ability to completely derail a rehearsal. This is a theme seen in similar studies done by Berg (1997), Collmer (2012), and Bazan (2011). Examination within each case study will show how, when groups were able to communicate effectively, they were able to compromise on differing opinions and make decisions as a group. However, when these communications broke down, quartets struggled to rehearse effectively. This theme, as well as its presence in the literature, shows that these kinds of professional relationships are a significant challenge for students to navigate, but also an essential skill for them to lead productive rehearsals.

Throughout the course of this study, another prominent theme was the development of time management skills within all four quartets. When I first started recording the rehearsals of each quartet, I gave them a list of rehearsal strategies, separated into categories based on the technical difficulty of the musical passage. I also gave them a worksheet they could use to plan out their rehearsals, listing their goals and the strategies they might use to accomplish those goals (see Appendices B and D). However, quartets struggled throughout the camp to effectively utilize the time available to them. Quartets often figured out their rehearsal plan as they went along, picking something to play and then only stopping if something went wrong. It will be shown that quartets in this study did not always recognize that it was challenging for them to develop effective time management and rehearsal strategies.

The Dvorak Quartet

Background

The Dvorak Quartet was in the rare position at the Summer String Academy of being comprised of students who already knew each other and had almost all played together before. Three of the four members, "Luke" (18), "Bill"(18), and "Ella"(17), were already good friends and their fourth member, "Josh" (18), seemed to have no trouble integrating into the group socially. When I asked each member individually about the social aspects of being in a quartet, they were all extremely positive and enthusiastic about having had the opportunity to play high-level music with people they considered to be good friends. Josh captured the sentiment of the group by stating:

In a really successful quartet, or any ensemble, it really takes good connections between all the players because, like, I mean if you look at our quartet Bill and Luke are best friends and Luke and I have gotten really close 'cause, I mean we're playing the same concerto, so I mean we defer to each other whenever we need help and gosh we play for each other all the time and we're really good friends and then, like, I mean same for Bill and Ella. I mean they're really close so like we've all become really good friends and I think that's what it takes.

Luke was about to begin school at New England Conservatory, and Bill was about to attend the University of Michigan. A rising high school senior, Ella was planning to attend a similarly high-level conservatory. Although Josh was not planning on going into music as a career, he had attended a high school where he had pursued dual concentrations in science and the arts and was currently working with his teacher on the

Sibelius Violin Concerto, one of the most difficult concerti in the standard repertoire. Clearly, these students considered music to be part of their identity, which seems to lead to an increase in musical engagement similar to that found by Campbell, Connell and Beegle (2007).

As one of the most advanced groups at the camp, this group was put on an “alternate schedule,” meaning that, while most students at the camp practiced individually from 9 am to 11 am each morning, those students on an alternate schedule rehearsed with their quartet and were given a bigger room to rehearse. This alternate schedule also meant that these students did not have stringent practice monitoring. Students on the regular schedule were checked throughout the day by university students or parent volunteers to make sure they were in the correct room either practicing individually or rehearsing with their chamber group. Students who were on the alternate schedule were given more responsibility to monitor themselves and be more self-directed with their time management.

Commitment

In a camp full of serious musicians, this group stood out as being some of the most dedicated. Right at the beginning of camp, they agreed to tackle Dvorak's String Quartet no. 14 in its entirety and were frustrated at the end of camp that there were simply not enough performance opportunities available to allow them to perform all four movements. The quartet rose to the challenge of being on the alternate schedule, often arriving before 9 am to start warming up individually, and frequently communicating with each other about when they had to leave early to go to a private lesson or when they

were free later in the day to set up extra rehearsals. They clearly all appreciated this dedication from each other. In his interview, Luke stated:

This group stood out in that we were all quite serious about what we wanted to get done and it certainly made it easier to achieve those goals, as opposed to previous groups, which generally tended to be larger and, um, inevitably there would be someone who wasn't really into the rehearsal process and so that would be a drag on productivity. And it's understandable, I mean that happens, and I certainly can't fault people for feeling that way but, um, no I think it was especially nice this summer to be involved in a chamber group to which everyone was contributing actively.

This quote demonstrates the importance of uniform levels of commitment within these groups. As Luke points out, the dedication of each member meant that they were all able to actively participate in the rehearsal process and bring the group to a new level of musicianship by the conclusion of camp.

Time Management and Rehearsal Strategies

One of the Dvorak Quartet's main strengths was that they were able to identify problems and make suggestions of appropriate rehearsal strategies to fix those problems. An excerpt of a particular rehearsal might look like this:

Taken from transcript of rehearsal on 7/11/14:

58:15- Bill: Yeah we've spent a long time on (rehearsal number) seven to the end so we can get through (movement) three today. And it sounds really bad so...so you guys wanna do Luke's solo again? Actually let's do where Josh

starts having notes, it's also very not together.

Ella: Yeah we don't have the same pulse. This time I actually think there are four different pulses.

59:16- Bill: Can we just do Josh and Ella once?

Ella: How do you feel about a metronome?

Bill: Insecure?

[Ella stands up to get a metronome.]

1:00:54- [Play, just Luke and Josh.]

1:01:06- [Stop]

Bill: Yeah, you guys aren't feeling it together.

Luke: Let's try it again.

1:01:09- [Play]

1:01:27- [Stop]

Bill: Yeah that was a lot better. You guys wanna try that again?

Bill Sings the phrase he is talking about, talks about what he believes should be the bowing.

During this 10 minute long excerpt, the group was able to discuss their goals for a specific section of music, reach a consensus and figure out how they intended to achieve the goal, in this case by discovering that the quickest way to solve the problem was to use a metronome.

However, they often struggled with staying on track and not letting the rehearsal get derailed by stories they wanted to share, as well as conflicts between quartet

members. This led to a lot of time not being used to rehearse; analyzing the time stamps in the video-recorded rehearsals indicated the quartet spent about 20-25% of their rehearsals playing. This is not to say that 75-80% of the rehearsals were wasted, just that they were not spent playing, and usually they were spent talking. Ella acknowledged this challenge in her interview. She said:

I think actually the problem is we're all like really, really good friends and so it was like, I guess it's like a married couple going to work together; it was like none of us ever got a chance to like get our complaints out because we'd go to lunch and instead of like getting a chance to complain to our friends about our quartets, you know we can't do that, so we'd just enjoy ourselves and then we'd get back and just still have all of those things so I think that may have been something that caused some tension but there was some. You know there really weren't so many really hard days, I mean if worse came to worse we'd just be like okay, we're not gonna get anything done and it's just gonna get worse from here why don't we just leave now.

During their rehearsals, I never saw this quartet use either one of the sheets I gave them. However, they all told me that Ella was responsible for keeping track of their rehearsals and that she would write down what they had done each day after they had concluded. Despite asking Ella if I could have a copy of these sheets on a weekly basis, she never actually showed them to me as she did not bring them with her to their morning rehearsals. In his interview, Josh stated that the sheets:

Definitely helped us get on track and stay on track and a lot of the stuff we did

helped a lot. I think Ella was really the one writing down things and I'm not sure about all of the things she wrote down but I'm definitely sure she did a good job of taking notes and keeping track of what we were doing. There were a lot of things we did over and over again like splitting up parts and there was one drill that really helped in the fourth movement where we actually swapped the roles like with the noodling we'd play as loud as we could and then the melody, Luke and Bill, we'd tell them to shut up and they'd have to listen to the background noise. And so there were a lot of things that really helped us and writing them down definitely, I mean, 'cause writing down things is generally just like a really good thing to stay focused.

In this quote, Josh refers to strategy number 27 on the list of rehearsal strategies (Appendix D). Although I did not observe them using this strategy, they did have extra rehearsals that I did not tape where they could have used the strategy sheet. At the very least, it does seem that they at least looked over these resources or had prior knowledge of a similar strategy.

Interpersonal Relationships

Although all four members of the Dvorak Quartet were good friends, managing the relationships amongst themselves was by far their biggest challenge. This was possibly made even more difficult by the fact that Ella and Bill were dating at the time. Ella described it in her interview:

You know we have four very strong personalities in that group. Very strong. With all very valid opinions you know it's not like someone's just pulling it out of

nowhere, they were all very good arguments just like it was like well you know Guarneri [quartet] and Emerson [quartet] both do it this way...but the score and the urtext both say this, and it was just like, um, you know, it was like very good arguments so it's not like it was a waste of time to argue necessarily but, um, that was the one problem; I think just that we were all so close anyway we never got anything off our chest outside of the rehearsals.

“Strong personalities” is a good way to describe the group dynamic of the quartet. Perhaps because of the high level of each musician individually, they sometimes found it difficult to compromise. In one such tense situation, the rehearsal broke down almost completely:

Taken from transcript of rehearsal on 7/16/14:

22:12- [Play]

23:11- [Stop], Ella tells Bill not to play a wrong note, Luke makes a comment about dynamics and transition.

24:00- Random talking, Bill making fun of Ella again.

25:49- Ella asks Luke to explain something from the score to her.

26:20-Luke tries to make rehearsal suggestion, Bill talks over him.

26:47-[Play]

27:55-[Stop]- Bill tells Luke he is doing something wrong, asks for him and Josh to play alone.

28:21- [Play], just Bill and Josh.

28:35- [Stop], Luke agrees to follow Josh and Bill better.

29:58- [Play]

30:31-[Stop], Bill tells Ella she was not correct.

31:02- Ella asks if Josh has an *f#* in a certain measure, also makes a comment about dynamics.

32:00- Luke asks to start at the fortissimo measure.

32:20- Ella starts telling a story.

In this excerpt, the group was trying very hard to rehearse, but found it almost impossible to overcome the power struggle happening between Luke, Bill, and Ella. When Ella chooses to tell a story rather than go along with the suggestion of Luke to start playing again at the fortissimo measure, it seems that she is intentionally halting the rehearsal briefly to allow the group to refocus and let go of the several emerging conflicts.

To summarize, the Dvorak Quartet easily put more time into rehearsals than any other group participating in this study. They had high expectations for themselves and were incredibly motivated to produce the best sound they possibly could. However, they were also the group that encountered the greatest amount of conflict between members. This is an outcome also cautioned by Berg (1997), and this quartet struggled the most to resolve these conflicts, which resulted in many hours of rehearsal time being lost.

The Bach Quartet

Background

The Bach Quartet was on a less intense track than the Dvorak Quartet. Ranging in age from 13 to 15, these students were all considering music as a possible career choice, but still had several years before making the decision whether or not to attend a music

school or conservatory. All of these students had been taking private lessons for many years and were at a fairly advanced level, though in general they had limited experience playing chamber music. Because they were on the “regular” schedule, they rehearsed each day from 11 am until 1 pm in a standard practice room, which left them very cramped for space and often left me struggling to find the best place to leave the camera to see as much of their rehearsals as I could. When their coach came in, he had no choice but to sit on the floor in the middle of the quartet.

Commitment

Perhaps because of the younger age of the students, the work ethic of the quartet as a whole was very different from the Dvorak Quartet. The students played two pieces over the course of the camp, a Bach Fugue, picked by their coach, and the first movement of a Beethoven Quartet, which they selected themselves with minimal guidance from their coach and a camp administrator. Their personal goals for the camp centered more about their own solo playing and they were less interested in playing chamber music, which their cellist, "Noelle," pointed out in her interview:

Me: What was your least favorite part about your chamber music experience this summer?

Noelle: I think we didn't need that many rehearsals, like for example the quartets in the chamber orchestra, I think that was like, because they only met twice a week, and I think that would have been enough.

Me: You felt like there was a little bit too much rehearsal?

Noelle: Yeah, so sometimes we like played around and there was no point [to

rehearsing].

This was basically the sentiment of the whole group; two hours a day was too much time to spend in chamber music and they would have rather just had less rehearsal. This seemed to leave them with the expectation that, because they felt they had so much time at their disposal, there was never any sense of urgency. Collmer (2012) and Bazan (2011) might have determined that this group did not have quite enough preliminary training in self-directed rehearsal skills to be left on their own for such long periods of time. In the following rehearsal excerpt, about halfway through the camp, they seem to have a sudden realization that they have not worked on very much since their last coaching.

Taken from transcript of rehearsal on 7/8/14:

20:36- [Play] (researcher comment: they aren't *really* playing, just sort of thwacking at the notes perfunctorily) - calling out measure numbers, lots of foot tapping even though they have had this piece for more than two weeks.

24:15- [Finish the piece]

24:25- "Walter": We kind of made it.

"Shawn": Kind of.

"Dylan": If kind of means I got lost after the third measure.

Shawn: Can we do it one more time and do it a bit slower?

Noelle: WHAT?!?! Can we just....

Shawn: But I don't want to totally fail at our next coaching. Like I don't want him to think we didn't practice.

Dylan: Okay, well if I practice this I can play it.

Shawn: When is the coaching on Thursday?

Dylan: Should I go look? I'm gonna go look.

Walter: No we'll look when we go down.

Shawn: No, please look now so we know when it is.

Walter: Are we gonna go get a new piece though?

Shawn: After we practice Bach a little bit more.

Walter: But if we're gonna get a new piece...

Shawn: Well he still wants to see that we haven't just been fooling around
for two days.

26:06- They agree to practice the Bach a little more but say that they need more
individual time to practice.

This excerpt demonstrates the desire of the group to do well but the lack of mental readiness to work hard to achieve their goals. Rather than try to focus in on what needs to be done before the next coaching, they choose to blame it instead on a lack of individual practice. "Dylan," the violist, who had, to be fair, never played viola before camp started, particularly seems to imply that the only problem is that he is still struggling to adjust to reading alto clef and if he just practices a little more the group will sound fine and there is no need to spend more time rehearsing as a group.

Interpersonal Relationships and Conflict Resolution

Before coming to the camp, the first violinist, Shawn, and the second violinist, Walter, had met, but had never spent time together and had never met their violist, Dylan,

or their cellist, Noelle. This naturally created a very different group dynamic than in the Dvorak Quartet. When I asked about how long it took before they felt comfortable with each other, Walter said “not very long actually. We started with the Bach so it took a long time to get through but as far as playing together it came pretty naturally.” However, when it came time to pick the next quartet to play after finishing the Bach, the group was unable to reach any consensus. Rather than talk about it, they ignored each other for about three days and did not really rehearse at all. After the first day of this, Noelle stayed behind after the rest of the group had left and explained to the camera why they had not rehearsed that day:

So as you've seen, and I really hope that during our, um, our whole rehearsal we didn't really do anything, but I have some things to say so can you please look at this part? K thank you. So the problem right now is that Walter and Dylan don't like Borodin number 2, I think, which Shawn said that “we agreed on” (her air quotes) so he told that to our coach when our coach came and asked him so there's like a conflict here I guess. So we all went down to her office, Christina's office (a camp administrator), to tell her what's going on and Christina said that since it's three against one, we should, I mean Shawn's gonna end up quote unquote losing against us anyway, so we picked like a random piece um, Mozart C major or something, and then, and then I guess we're going along with it. I mean I don't really care, at this point we have to have something so but then like now they just ran away to watch world cup I think. Boys. I learned from my quartet that you can't expect productivity from teenage boys.

This raises the question of whether the gender composition of the group had an effect on the rehearsal process, and is a topic not addressed in the review of related literature. While it is impossible to say whether or not the group would have found it easier to communicate and resolve conflicts if the gender composition had been different, the reality was that Noelle felt uncomfortable voicing her opinions or playing a role in the way rehearsals were structured. When I asked her if she felt like “being the only girl in your group changed anything about rehearsals?” she said:

So, one day they played around and I just kind of went along with it, but then later they were playing around and I was kind of like “What? Like, are boys always like this, are they always wanting to play around?” So I found out that the answer is yes, so I just kind of went along with playing around, but then by like the middle of second week I guess we started paying more attention to, like, and being more productive I guess. And yeah, I was kind of scared to speak up actually.

This experience seems to reinforce Myrow's (1979) findings from the opposite perspective. While Myrow found that students who were able to pick their own topic to study were more motivated to continue to study it, this anecdote shows that when these students did not agree with the selected topic, they were disinclined to put any effort at all into making the piece a success. Eventually, the group did decide on a Beethoven quartet, of which they performed the first movement at their final concert. However, the difficulties they faced getting to the point where they could resume the rehearsal process seems to suggest that it might be beneficial for student chamber musicians to spend more

time with their coaches talking about communication skills. Alternatively, perhaps, it might have been better for the coach to have simply assigned them a piece, or give them a choice between a smaller number of quartets after they had been unable to come to an agreement after several days. The fact that they lost more than a day's worth of rehearsal time simply because they could not agree on a piece suggests that they were not equipped to handle making such an unrestricted choice.

Time Management and Rehearsal Strategies

When I asked the Bach Quartet whether they felt the sheets offered to them at the beginning of the study were useful to them at all, I got mixed answers. All four students admitted that they only really used the resources I gave them during the first few days that I was recording. During Shawn's interview, I asked if in “the weeks that you weren't using the sheets do you think you still had specific goals like that, or do you think it got a little blurrier?” He replied:

Um, well the first couple weeks we weren't really working towards any specific goal because we didn't know if we were going to perform the Bach in any concerts, which we never ended up doing, but yeah, it was kind of like don't get lost because that's what we did every time because it was so confusing. But yeah, it wasn't really focused because we didn't know what we were working towards.

I asked if he thought “that sort of lack of knowing what you were working towards...how do you think that changed your rehearsals?” He said, “Well, I don't think we were as productive and we kind of got distracted more. But yeah, it's hard to rehearse for two hours on one piece when you don't really know like what's happening next.” In contrast

to that, Noelle said, “I think like we didn't really need it (the planning sheets). Like we could figure it out ourselves without it.” I followed up by asking “so when you were using them, did you talk about what kinds of goals you wanted to set for yourself as a group?” She said “well, like we all knew it and remembered it I guess so we didn't write it down.” Here is an excerpt that exemplifies what a normal rehearsal for this group might look like:

Taken from transcript of rehearsal on 7/1/14:

10:57- [Play]

12:16- [Finish movement], comment that rhythm was only off at the very end.

12:30- Talking about manuscript.

13:04- Random talking.

13:30- Decide to go back to playing from normal score, had been playing from manuscript.

14:03- They realize they are just playing the movement over again, but say that they don't know what else to do.

14:13- [Play], starting over again from beginning, do a run-through.

17:19- Cello comments that they got slower.

17:30- Decide to rehearse a specific section where they always get off, at a slower tempo.

17:53- [Play]

18:14- [Stop], decide to go back a little further.

18:30- [Play]

18:35- Confusion

18:45- [Play]

19:30- [Finish movement.]

In this excerpt, they start by playing from the manuscript, a suggestion made by their coach to get a better sense of what Bach actually wanted when he wrote the fugue. However, this lasts less than four minutes before they switch back to looking at the normal score. Over the course of ten minutes, they run the movement a total of four times, admitting that they do not know what else they should be doing despite all of the resources at their disposal. On average, this quartet spent 18.7% of their rehearsal time playing together. This inability to identify problems and appropriate strategies to fix them highlight what Collmer (2011) and Bazan (2012) would label as an underdeveloped skill set. When this excerpt ends, they have only been rehearsing for about 20 minutes, leaving them with more than an hour and a half to go in that day's rehearsal.

This fits well with Dolman, Wolhagen, van der Vleuten, and Winjen's (2001) observation of ritual behavior preventing groups from being as successful as they could. The group did seem to acknowledge that, during the brief period they had used my sheets to help structure their rehearsals, they had felt more focused and productive. However, it seems that they were unable to make connections between the resources I gave them, the things their coaches were telling them, and the way that they normally structured rehearsals, which is to say, fairly minimally. For them, it was basically an all-or-nothing situation. They could use my sheets, or they could do what their coach had told them, or they could rehearse the way that was easiest and most comfortable, essentially to start at

the beginning of the piece and stop if there was a problem. To combine these ideas and try and achieve a rehearsal that they felt satisfied both what was being asked of them by others and was structured in a way that gave them a feeling of control and ownership did not seem to occur to them.

Based on their rehearsals and interviews, the struggles faced by the Bach Quartet seem to indicate that they did not know how to transition from being told what to do all the time by a coach to being left to rehearse on their own. While I did not see their coaching sessions, I did correspond with their coach via e-mail after the camp had ended. When I asked what he had focused on in their coaching sessions, he explained:

When I teach, I like to pose them questions. Simple things like “Did you all hear that this passage was not in tune?” or “Did you all like how you played this passage?” I try to listen to what they say first so that I can find a way to teach them how to rehearse effectively based on their current experience. Based on their answers, my goal is to introduce exercises and ideas that are appropriate to their level of understanding in a simple way. I am opposed to stopping a group playing and having them repeat without a reason or simply telling them what to do without trying to understand where they are coming from and why they are doing something in the first place.

While introducing these ideas to quartets is certainly necessary, it seems it was not enough for this quartet. They perhaps needed to have even more specific instructions about which exercises to complete specifically at each rehearsal until they were able to figure that step out on their own. It seems that having a system in place here to help the

quartet develop the skills to transition into leading their own rehearsals could have been beneficial.

The biggest challenge in general for the Bach Quartet was that they did not really bond as a quartet until right before the concert. Because of this, in conjunction with them all being early adolescents, they seemed to feel uncomfortable voicing opinions and communicating with each other most of the time. When they were able to overcome this, especially in their final week of rehearsal, they showed a great deal of progress in determining appropriate rehearsal strategies and working together to solve problems.

The Mozart Quartet

Background

The Mozart Quartet was comprised of four girls, "Lisa" (15), "Maria" (15), "Shelby" (15), and "Mary" (17). All four of them had been taking private lessons for at least seven years. Of the four of them, Lisa and Maria were generally shy and agreeable in rehearsal, while Mary and Shelby tended to assume leadership roles. This was an interesting duality, because Mary, who was a rising senior and planning on going to school for music, wanted the quartet to be a very serious thing and generally kept the rehearsals from getting too unfocused. Shelby, on the other hand, was interested in the quartet—and music in general—just being something that was fun and relaxed. Lisa and Maria were both concerned with making the group sound excellent, but also felt like rehearsals should be fun and not overly serious.

Commitment

This group tended to have different levels of work ethic between days. However,

they were generally willing to adapt the intensity of rehearsal to fit the energy level of the group. For example, if they arrived feeling more tired than usual, they might have a more laid-back rehearsal, but they were also capable of accomplishing a great deal. Leadership in this group was a big factor in determining the intensity of rehearsals. The leadership roles were not discussed and could sometimes change several times during the course of a rehearsal. From an observational point of view, it seemed that whoever spoke first became the leader until someone else spoke up and took it over. When Mary was leading rehearsals, they tended to look like this:

Taken from transcript of rehearsal on 7/3/14:

17:26- [Play]

17:29- [Stop]

Mary: I think it would also help to have more vibrato even.

17:40- [Play]

18:11- [Stop]

Mary: Okay, so then at the (plays a part) it descends into that (the next phrase) but it's also building and then it resolves. Okay, sorry, let's start at the forte.

18:46- [Play]

20:02- [Stop]

20:22- Mary: Okay I don't really know what to do in the second half of this first part.

20:30- Shelby sings the phrasing she wants.

21:02- Lisa plays her part for the group to hear.

21:15- Mary: Well let's just go from 27 and instead of playing this the same level making contrasts just for the phrasing.

21:38- [Play]

22:14- Mary: (to Maria) when you play this [demonstrates] I think it should be more light-hearted.

22:55- [Play]

23:33- [Stop]

Mary: Let's just look up before the triplets.

In a different rehearsal, Shelby had taken the lead. About ten minutes before the following excerpt, Shelby had suggested that they sing their parts. Mary had agreed to do this, but only at the end of rehearsal, as something silly to finish off the day.

Taken from transcript of rehearsal on 7/10/14:

38:59- [Play]

39:59- [Stop]

Shelby: Can we sing it once?

Lisa: Uh, sure.

[Maria gets out her phone]

Mary: Wait, we're not recording it?

Maria: I will

Lisa: Oh, can you send the recording to me afterward?

Mary: We're recording it? Ew!

Shelby: This is my favorite part of being in a quartet, like singing together.

Mary: I mean, is it really beneficial?

Lisa and Shelby: Yes.

Shelby: Because honestly, like right now, we're doing really well, honestly, we started it this week. Evan Rothstein's quartet has been playing the same thing for like three weeks.

Maria: Okay, here we go.

Mary: I can't believe we're recording it.

Lisa: No one else is gonna see it.

41:25- [Sing]

44:28- [They stop.]

Mary: That was terrible.

Shelby: No, it helps because it like forces us to listen to each other.

Lisa: I think we got some of the sforzandos here more than when we were like playing it.

Mary: I am not good singing this low.

Shelby: I mean did you hear me? (screeches)

[Practice monitor comes in]: It's 11:50.

Shelby: It's break time!

Mary: No, not until we listen to this.

While both of these rehearsal excerpts demonstrate the use of good choices of rehearsal strategies for the current goals of the group, the expectations and rehearsal preferences of

their two dominant members come through in their choices and executions.

Interpersonal Relationships

When I asked The Mozart Quartet in their interviews about getting along with their other quartet members, I got a wide range of responses. Maria and Lisa both immediately said that their group was easy to get along with and they liked all of their fellow quartet members. However, Shelby and Mary reported varying levels of frustration. From Shelby's point of view, Mary was unwilling to explore new courses of action in the rehearsal and generally took them too seriously. In Shelby's interview:

Me: What was your favorite part about being in a chamber group this summer?

Shelby: I like some of the people in my group.

Me: Only some of them?

Shelby: Certain people bothered me at times, but yeah, I like my violinists they're really nice. And also I like that we got to change pieces in the middle, I know it was kind of disorganized but it was still fun to get to learn like another piece.

Me: What was your least favorite part, or just something you struggled with?

Shelby: This is awful but last year I was in a quartet with three boys and they all just kind of goofed off. But like I think that we were all like friends (last year) so that made it easier to play together and connect within the music so I feel like this year if we could've just like had more fun rather than being so strict about like practicing and having all these coaching sessions and like we would've connected more with the music and been able to

have more fun with the music.

Me: Interesting. So you feel like it was almost too structured?

Shelby: Yeah. Which is stupid because obviously I'm supposed to say "I wish we could've practiced more," but I want to play with people who just want to have fun with the piece and not like overdo it and like kind of get like mean about it and it ends up being better than if we had just been really strict about it.

Me: Did you get along with everyone in your group?

Shelby: The cellist was kind of like bossy and like she might be older than us but she can't necessarily like boss us around. So I know like Maria and I kind of got annoyed with that and we're trying to have fun as well as play so I feel like that's what was bothering us. Like we would just be like plucking while she was speaking like really lightly and she would be like "would you please stop plucking," and then she would play the piano while we were talking and it was like hypocritical.

Me: Did you do anything to try to make it better?

Shelby: I was just like you know what I don't want to explode on her.

Me: So you just kind of let it go?

Shelby: Yeah, I mean occasionally I'd say things that would be kind of sharp and mean then I'd be like eh I shouldn't have said that but oh well.

Me: Did you feel like you had trouble deciding on things related to the music or was it mostly just personality issues?

Shelby: It was just personality issues like the music I think we all agreed on like the musicality of it like where it's supposed to get louder and that kind of thing it just like makes sense how it's supposed to be because she's more like I want to be a musician blah blah blah and I'm just like okay well I just want to have fun cause like most groups don't really like take these competitions super seriously they just like have fun with the music too and just hang out and I wish we had done that more.

From Mary's point of view, the quartet could have worked harder and she would have liked to have been in a group with more dedicated peers. In Mary's interview:

Me: What was your least favorite thing about your quartet this summer, or just something you struggled with?

Mary: Days when we couldn't really get work done on the Mozart because we just didn't want to. Like sitting in the room and not doing anything was not great.

Me: Did you feel like having a quartet of four girls made it harder to get things done?

Mary: Probably, but then again it could have been trouble if there was a guy depending on the person and the other members.

Me: Did you guys generally get along though?

Mary: Yeah, we did, we had our tired days but no grudges held so yeah...

Me: How did you deal with conflicts in your group?

Mary: It didn't always come out because we didn't always notice we'd just kind

of play past it and if we disagreed on a bowing articulation or something we'd just play it both ways and take a vote and everyone was really chill about going one way or the other.

Me: Nobody was really headstrong?

Mary: Not too much...I mean I probably was the most headstrong.

What I found interesting about this was that, had I just observed the quartet's rehearsals and not done these interviews, I would not have guessed that there was any tension. I think that the quartet did an admirable job of compromising positions of power and perhaps even unknowingly used the personality differences to their advantage by making use of a wider variety of rehearsal strategies because of the compromising of differing opinions. In this rehearsal excerpt, Mary and Shelby actually end up working together to come up with a new rehearsal strategy:

Taken from transcript of rehearsal on 7/3/14

1:35:26- Mary: Let's just try it really quick starting from Shelby's part with the triplets with the metronome.

1:35:35- [Play]

1:35:46- [Stop]- Mary: That's really fast. [They slow down the metronome]

1:36:05- [Play]

1:36:15- [Stop]

1:36:18- [Play]

1:36:26- [Stop]- Mary: Listen to the metronome! [They figure out what tempo they want the piece to be at]

1:38:58- [Play]

1:39:14- [Stop] Lisa: Does your metronome have one of those lights that flashes?

Shelby: We should play in the dark! [Shelby turns the lights off to see the metronome light]

1:39:36- [Play, in the dark]

1:39:54- [Stop, turn lights back on]

[They dissolve into laughter, decide rehearsal should be over]

Rehearsal Strategies and Time Management

Of the four quartets I observed during the Summer String Academy, the Mozart Quartet was the only one that made a consistent effort to use the resources I offered them at the beginning of my study. Here is an excerpt from the first rehearsal where I was video-taping them:

Taken from transcript of rehearsal on 6/30/14

0-5:00- [Filling out planning sheet together]- Decide goals include getting a good core sound, unified articulation, working on character, improving balance, and figuring out set tempos.

5:00- Talking about how to achieve goals: breathe together, more eye contact, listening to recordings to agree on favorite tempo, coming up with stories to find character, comparing articulation approaches one at a time, watching each other's bows.

7:15- Random talking.

7:36- Deciding where to start playing, which movement.

9:00- Singing melody, talking about character of minuet.

10:39- Random talking, watching youtube videos.

11:42- [Play]

11:54- [Stop]- Mary asks Maria to play to hear her tempo.

12:27- [Play]

13:03- [Stop], decide to only play if your part has the melody.

13:48- [Play]

14:20- [Stop], talk about balancing to better accompany the melody.

15:07- Random talking.

15:13- Decide to try faster to make it more "flowing".

16:07- [Play]

16:52- Mary stops to match articulation with Shelby.

While these goals may be a little bit on the broad side, they were goals the group actively came back to and continued to work on throughout the camp, highlighting the benefits of increased efficacy brought on by advanced planning noted by Berg (1997). In Lisa's interview, she talked about these goals and how she felt about them:

Me: How long do you think it took before you all got used to each other?

Lisa: I think it took a couple of days to get used to each other, but we never quite found a core group sound either, like playing wise, we never got used to each other.

Me: Why do you think that was?

Lisa: I don't know, I mean we could have definitely had more focused

rehearsals, of like finding a group sound cause that was one of the things that we wanted to do but we didn't quite get there.

Perhaps this goes along with what Shelby said about having more fun. Though they could be very productive during rehearsal, on average this group spent 21.5% of their rehearsal time playing together. Part of this seems based on their reliance on Mary to keep the rehearsal going. Mary definitely determined the structure of the rehearsals. She was always the person to initiate tuning, thus beginning the rehearsal, the person who seemed to pick what their broad focus was for the day, and the person to decide which movement they would work on. If Mary was late to rehearsal or had a lesson, the group often found themselves unable to get started without her. In one such rehearsal, Mary arrived about fifteen minutes late to the rehearsal but had not warned the group ahead of time. After nine minutes had passed, they started to wonder if they should begin rehearsal without her, but Shelby said "I'm just not sure how much we'll get done without her, I feel like the three of us just like to have fun." They decided to tune anyway but then once they were done tuning they resumed their previous conversations. When Mary showed up about five minutes later, they were playing within two minutes of her arrival. While Mary was not the only one to lead rehearsals or come up with suggestions or rehearsal strategies, it is clear that she assumed the role of time manager. Because Mary seemed to have a different set of expectations for the intensity of the rehearsals than her other quartet members, they seemed to feel unwilling to take on that particular role in her absence.

This dependence on Mary to hold the group together exemplifies the struggles highlighted by Dolmans, Wolhagen, van der Vleuten and Winjen (2001). Although the

other members of the group were willing to rehearse and participate, they had adapted the ritual behavior of waiting for Mary to get the rehearsal started each day and were unable to transfer that role to someone else in her absence.

The Mozart Quartet proved to be something of a wild card throughout this study. When they arrived to rehearsal motivated and excited, they were the group that used the planning sheet I provided most frequently and seemed to put it to good use, appropriately pacing out their rehearsals and picking inventive and creative strategies to achieve their goals. However, on days when some or all of their members showed up disinclined to work hard, tensions between members could cause rehearsals to come to a standstill and prevent them from being productive for the rest of the day.

The Mendelssohn Quartet

Background

The Mendelssohn Quartet was similar in composition to the Dvorak Quartet. Like the Dvorak Quartet, the Mendelssohn Quartet was on an alternate schedule that allowed them to rehearse at a different time and in a bigger room than most of the other quartets at the camp. This group was comprised of three rising high school seniors, "Anna" (17), "Seth" (18), and "Maxine" (17). Anna and Maxine were both planning on attending college for music, while Seth was hoping to complete a music minor in college. Their fourth member, "Chad" (18), was an incoming freshman at Indiana University in violin performance. All four had been taking private lessons for at least nine years and were playing very advanced repertoire.

Commitment

In terms of expectations for chamber music at the Summer String Academy, this group seemed to be well matched. In her interview, Maxine reflected the sentiments of the group when she said she wished the camp were longer because “if my quartet had more time, we would have learned more movements of the quartets we played. Because we only learned two movements.” This group worked hard throughout the summer to try and create a really strong performance. Seth noted how picky they were about getting the best out of each other in his interview when he said that he felt like it took the first two weeks of camp “to really get used to each other's sound, like I was used to hearing what their parts sounded like and how they played by like two weeks.”

Interpersonal Relationships and Conflict Resolution

When I asked the Mendelssohn Quartet in their interviews what their favorite part was about chamber music that summer, all four of them said something about how they really liked the people in their group because they were easy to work with, supportive, friendly, or passionate musicians. When I watched their rehearsals, this definitely seemed to be true. While they did feel comfortable to make suggestions to each other and correct things in the music, there was no clear leader of the group and they were all consistently very respectful of each other. A typical rehearsal for this quartet might look like this:

Taken from transcript of rehearsal on 7/7/14

9:03- [play]

9:06- [stop]

9:10- Seth: Was that better? I can't really tell.

Chad: Yeah, I don't know. Want to backup to (rehearsal letter) B now?

9:28- [play]

9:43- [stop]- Maxine says something about 8th notes, asks to try it again.

9:47- [play]

11:56- [finish movement]

12:02- Anna: Can we just do from D to E again?

12:33- [play]

13:15- [stop]- Chad: Can we go like 7 after E or maybe 6 after E? Because it's
when we start passing that thing.

13:25- [play]

14:07- [stop]

14:13- Chad: So we actually pass it all down the line so I have it and then you
(Seth) have it and then Maxine has it all in different beats.

In this five-minute clip, every person in the quartet chimes in to the rehearsal with a suggestion or opinion. This was the only quartet in this study where there was no leadership role and everyone felt completely comfortable to jump in at any time with an idea.

Time Management and Rehearsal Strategies

The main challenge for this quartet was making good use of their time. While this was also a struggle for the Dvorak Quartet, the Mendelssohn Quartet struggled with it for different reasons: mainly because, at 9 am, they were still waking up and not mentally

ready to be in a quartet rehearsal. In general, it took them about 15 to 20 minutes before they would start rehearsing. They fully acknowledged this problem, talking to the camera in one of their rehearsals, after sitting around talking for the first fifteen minutes:

Seth: Yeah if you wanna see the part where we start practicing you should probably skip like ten minutes ahead and we'll probably be started by then.

Anna: I think we should just tell her that in every one of our tapes just...

Maxine: Skip the first ten minutes.

Anna: No, skip the first half hour!

However, once they did begin to rehearse, they often were able to retain their focus for the rest of the rehearsal, and frequently scheduled extra rehearsals in the afternoon.

Mendelssohn Quartet did not use the resources I offered them. When I asked about how they structured their rehearsals, I got mixed answers. Anna said they definitely had a routine, "we ran through the piece once and then we discussed it and figured out like what areas needed work and went through and worked on those."

However, Chad said the routine was "kind of free for all, I think. We would, at the end of our rehearsal, we'd always try to run it after we worked on everything and see if it worked out." From my own observations, in every rehearsal I watched, they did talk about which movement of which piece they wanted to work on in the rehearsal, but then they would start at the beginning of that movement and keep going until they hit a spot they thought they needed to work on. While this is sometimes a good strategy, the numerous repetitions each day of that day's piece from beginning to end cost them a lot of time where they could have been focusing on more specific issues. Interestingly, this

quartet spent significantly more time in their rehearsals playing than any other participating quartets, averaging 38.5% of rehearsal time spent playing. However, the number of run-throughs they did on a daily basis of a fairly long piece certainly inflated this number. It is therefore unclear exactly what percentage of time was spent actively rehearsing versus simply running through the piece.

Of all the quartets in this study, the Mendelssohn Quartet probably had the highest levels of skills Gilboa and Tal-Shmotkin (2010) associated with self-managed teams. They were extremely dedicated to the development of their chamber music and had the ability to run highly-effective rehearsals. Once they had developed a plan, they were able to execute it efficiently and plan extra rehearsals if they did not get to all of their goals for that day. However, they reported in their interviews that, since these extra rehearsals happened in the afternoon right after lunch, they were often feeling drowsy and were not always especially productive during this time either. It seems that if this group had had a coach or monitor to come in at the beginning of each rehearsal and force them to make a plan and start rehearsing right away, they would have gotten a lot more accomplished.

Cross-Case Analysis

These themes are discussed below as they distinguished each quartet from the others. In the case of commitment, it was found that older quartets seemed to be more dedicated to their chamber music experience. In terms of interpersonal relationships and conflict resolution, groups entered into conflict for very different reasons and had different ways of handling those issues. Finally, all groups struggled with time management and effective rehearsal strategies. Some groups recognized this as an issue

and took steps to work on it, while others did not recognize it or try to modify anything about their rehearsal structure.

Commitment

The older students in this study tended to be the ones who arrived with higher levels of commitment towards their chamber music experience. This could be seen right from the beginning of their rehearsals, when older groups would arrive, often immediately unpack their instruments, and begin practicing their individual quartet parts in preparation for the rehearsal. This also came up in their interviews, such as when “Luke” stated: “this group stood out in that we were all quite serious about what we wanted to get done.” In another interview, “Maxine” stated: “I came here to improve my own playing and kind of improve, like, other peoples playing in ensembles and stuff.” These expectations and the actions that the Dvorak and Mendelssohn Quartets took to fulfill those expectations throughout the camp, such as choosing their own piece, structuring their rehearsals, and scheduling extra rehearsals to reach the level of musicality that they as a group decided was their goal, exemplify Myrow's (1979) findings that students who are given ownership over their own learning will demonstrate increased motivation to continue their own learning beyond what is required of them. While the younger quartets picked one of the two pieces they worked on during the summer, this did not seem to be a source of ownership, especially in the Bach Quartet where picking that piece was a decision filled with tension, and the eventual choice was something to settle on rather than something about which to be excited. Additionally, although the Bach and Mozart Quartets had the ability to schedule extra rehearsals, they

never did so.

In terms of daily work ethic, students with uniform levels of commitment between themselves and their group members on a given day tended to have highly productive or unproductive rehearsals, depending on which way they were all inclined. If these levels of work ethic differed between members, such as was occasionally seen in the Mozart Quartet, rehearsals had the potential to be productive or unproductive and it was up to the group to figure out which direction to take that day's rehearsal. In the case of the Bach Quartet, when commitment levels were not in agreement, the direction of the rehearsal was driven by conflict rather than agreement. When Shawn wanted to rehearse, but his peers just wanted to move on to a different piece, it significantly decreased the productivity for that day's rehearsal because Shawn was the only person actively contributing. These interactions show a lack of the cooperation and communication skills needed for the group to act as a productive self-managed team (Gilboa & Tal-Shmotkin, 2010).

Interpersonal Relationships and Conflict Resolution

Some groups had more trouble with conflict than others from the very beginning. In the Mendelssohn Quartet, where the commitment level was often fairly uniform and the group members were easily able to communicate and compromise, conflicts tended to be infrequent and small. In the Dvorak and Bach Quartets, where members tended to try and argue for their opinion without taking opinions of other members into consideration, conflicts could arise on a daily basis and had the potential to cut the rehearsal short. This was shown especially by the Bach Quartet, when they struggle to agree on a piece to play,

end their rehearsal early because of it, and then take an additional two days of rehearsal time to try and come to an agreement. However, instances of conflict caused problems for other groups as well, regardless of age. This was a difficulty highlighted by Berg (1997) and these groups tended to face the same types of challenges in overcoming a conflict.

It was also these groups that found it more difficult to resolve conflicts when they did occur. As might be expected, whether or not groups were capable of amicably resolving their conflicts as they came up also was very important to determining whether or not the remainder of the rehearsal would be effective. In the Dvorak Quartet, the struggle for control over the group's decisions could prevent rehearsals from moving forward. However, in the Mozart Quartet, it was observed that, despite the tension between Mary and Shelby, the group was often able to come to a compromise and sometimes even developed their own unique rehearsal strategies as a result of a disagreement. This theme of the importance of conflict resolution was one of the areas that Collmer (2012) and Bazan (2011) both cautioned would need to be developed by a teacher in order to prevent social problems in self-directed learning situations. In terms of interpersonal relationships, the Dvorak Quartet was the only group that had some friendships formed before camp started. While no groups reported an inability to work with their other quartet members, some groups did report that feeling uncomfortable during the process of getting to know their other members did seem to impact their earlier rehearsals.

Time Management and Rehearsal Strategies

When I created and distributed the rehearsal strategies and planning sheets, I did

not anticipate the resistance I would encounter when offering these suggestions. Most students were more polite in their interviews with me, and would often say something along the lines of “oh yeah, those sheets would have probably been really helpful if we had used them more.” Noelle, however, stated directly that “I think, like, we didn't really need it (the planning sheet). Like we could figure it out ourselves without it.” This seems to highlight the main challenge of resistance that Justice et al. (2007) found in their study. Similar to Justice et al.'s experiences, I discovered that the challenge was not helping the groups figure out how to best utilize the available resources, but rather trying to get them to use any resources at all. While these students were generally not opposed to having their rehearsals videotaped, they were not especially interested in using the extra resources I offered them. It is likely that this had to do in part with the fact that I did not have much time to get to know these students before asking them to participate. The quartets were aware that I was a graduate student at the Jacobs School of Music, but I had never met or worked with any of the students prior to the study. Because of this, they did not have a lot of time to decide if I was a trustworthy source of information whom they could trust. I believe that this short amount of time spent devoted to building this trust led to their skepticism in the usefulness of my suggestions.

However, I also think it has something to do with Dolmans, Wolhagen, van der Vleuten and Winjen's (2001) idea of ritual behavior; the quartets had already been rehearsing for a week together before I began videotaping them, and they had formed routines that, for better or worse, they found hard to change. During the student interviews, all of the students of groups who did use the planning sheet in the rehearsals

together reported that those rehearsals were the ones where they felt most productive such as when Shelby stated “When we were using them [the planning sheets], they kept us on track because we had a specific goal that we wanted to achieve so we weren't just kind of aimlessly playing because we had something we wanted to do with them.” Berg (1997) also found that groups who planned their rehearsals out together tended to make more connections and be more productive in general.

While the focus of this study was not on the teachers, I did briefly interview them over e-mail after the camp had ended, and the responses all mentioned how hard the groups had worked, how impressive they were as musicians, and how much their teachers enjoyed working with them. Even when I specifically asked about things they felt their group might have struggled with, every coach mentioned only musical aspects of being in the quartet, and only one coach mentioned that she thought there might have been some “unnecessary discussions” in the rehearsals. This seems to point towards a disconnect in what coaches believe is happening during student-led rehearsals and what the students are actually experiencing.

When they were rehearsing, students often experimented with different strategies to achieve their current goals. It seemed here that older groups had an advantage over younger groups. The older groups consisted of students who were all either 17 or 18. The younger groups had ages ranging from 13-17, but the majority of the students in these groups were 14 or 15. During interviews, the younger group members stated that, in general, they had fairly limited experience playing in a chamber group and rehearsing on their own for an extended period of time. However, many of the older students played

chamber music regularly during the school year and generally had more experience with self-directed rehearsals than the younger students. This experience seemed to lead to the older quartets being able to recall rehearsal strategies that had previously been effective more quickly than the younger groups. This highlights the required preliminary skills noted by Collmer (2012) and Bazan (2011), in this case showing that, because the older groups had more experience, they tended to have a better grasp on what to do in self-directed rehearsal.

The issue of time management also seems to relate back to what Gilboa and Tal-Shmotkin (2010) discuss in their research about quartets as self-managed teams. Perhaps because three of the four groups did not know each other, or perhaps in part due to their maturity levels, they struggled to connect as a team and actively plan to work together. In the two younger quartets especially, the intention to rehearse was good, but they were easily distracted. If the situation was not just right, if someone was missing, or if two people were having a disagreement, rehearsals seemed to feel almost impossible. In the Dvorak Quartet, disagreements pushed the rehearsal in an unpleasant direction, which made it incredibly difficult for them to come to an amicable compromise or solution. In the Mendelssohn Quartet, while the group did not seem to have any trouble reaching compromises or getting along, their struggle to collectively be alert and know what they wanted to accomplish when they arrived to rehearsal meant that hours of rehearsal time were spent sitting and trying to wake up or spent running through a piece multiple times.

Summary

The main challenges facing these students seemed to be planning out how to use

their time and then working together cooperatively to effectively execute that plan. When students struggled with these challenges, it often seemed that the group lacked a necessary skill such as communication skills, knowledge of rehearsal strategies, or organization. Perhaps it was the expectation of the coaches that these groups would struggle to figure out the best way to rehearse together, but this study suggests that the biggest challenges all of these groups faced had to do with the social aspects of working closely with three other people who, for the most part, were strangers. While these students all played individually at a very high level and had the potential to pursue careers in music, working as a group was a struggle for them and this study suggests that there are things that could be done to increase the efficiency of that process.

Chapter V

Summary, Conclusions, Implications and Recommendations

Summary

The purpose of this study was to investigate the challenges facing adolescent string chamber musicians when implementing a student-directed style of learning. This study also examined the skills necessary for students to successfully run their own chamber music rehearsals.

The participants in this study included 16 students and 3 teachers from the Indiana University Summer String Academy. In order to observe as many rehearsals as possible, I only looked at quartets who were scheduled to rehearse four or five days a week. I also tried to arrange having an equal balance of younger and older quartets so that it would be possible to observe developmental differences between the groups. After obtaining permission from all of the students and their parents, I video recorded all subsequent rehearsals of the four participating quartets. At the end of the camp, I conducted one-on-one interviews with each participating student. Following the conclusion of the camp, I emailed each teacher who had worked with one of the participating quartets to request a brief interview via e-mail. Of the four teachers I contacted, three responded.

All videos and interviews were transcribed and then coded for emergent themes. These emergent themes included (1) commitment, (2) interpersonal relationships and conflict resolution, and (3) time management and rehearsal strategies.

Research Question Answers:

Based on these themes, the answers to the research questions of this study are as follows:

Research Question 1:

What challenges face adolescent string chamber musicians when utilizing student-led rehearsals?

One of the primary challenges the students participating in this study faced, also mentioned by Berg (1997), was aligning the expectations for the quartet and the levels of work ethic among the students in each group. Although there were not any participants in this study who did not want to be in the chamber music program, some of these students felt that participation in chamber music was a secondary activity to their own individual practicing and saw self-directed rehearsals as an opportunity to relax. In the Bach Quartet, three of the four members seemed to feel this way and Noelle especially struggled throughout to negotiate the expectations of the majority against her own. In the Mozart Quartet, these expectations seemed to shift slightly every day, and sometimes more than once in a given rehearsal. Determining which direction they should guide the rehearsal in was a constant struggle, and seemed to be the source of a lot of the tension between Shelby and Mary. The Dvorak and Mendelssohn Quartets did not struggle as much, as they were all highly invested in their chamber music experiences, but the Dvorak Quartet did have trouble deciding what should be the specific expectations of the day and which plan they should follow. On days when they agreed on the direction the rehearsal should take, they did very well sticking to this course of action. When they did not agree however, conflicts tended to arise and disrupt the rehearsal process.

The development and use of effective communication skills to maintain positive relationships between group members was another challenge for these students. This was

a result also noted by Bononi (2000). Again, this was something the Mendelssohn Quartet did not exhibit as much as the other quartets, perhaps because of their more laid-back personalities and higher maturity levels. For the Dvorak Quartet, though they were older, they did not have particularly laid-back personalities and had a lot of difficulty making compromises as a group. Bill in particular struggled to listen to and consider the opinions of his peers, which put a lot of strain on the group emotionally as the camp progressed. Although the Mozart Quartet reported feeling some tensions between members to me in their interviews, they did not communicate with each other about the tensions they were feeling, which caused them to build up and resulted in some animosity between Shelby and Mary by the end of camp. Finally, the Bach Quartet also struggled with communication. It seemed they had never been given quite as much freedom in the context of a chamber music rehearsal, and were not always sure how to proceed or decide as a group what should be the next step.

In conjunction with these communication skills was the challenge of developing and using positive and effective conflict resolution strategies in both social and musical conflicts. The Dvorak Quartet clearly struggled with this more than any of the other participating groups. Although Josh and Luke sometimes attempted to act as a mediator when conflicts arose, it was clear that this group needed someone with authority to step in and help them resolve what could be heated and sometimes very personal conflicts during rehearsals. Although their conflicts were more infrequent, the Bach Quartet also struggled with this, especially when trying to choose a new piece to work on, resulting in more than a day's worth of rehearsal time being lost. Again, because the Mozart Quartet tended to

internalize conflict, it seems that they never really resolved any issues between members because the students in the group did not express any frustrations they were having to each other. Berg (1997) cautions in her research about the possibility of conflicts derailing rehearsals, and Collmer (2012) and Bazan (2011) recommend that these are skills that need to be taught and developed before giving students complete freedom over their rehearsal processes.

Finally, and perhaps most predictably, all quartets struggled to select and execute rehearsal strategies appropriate for the desired outcome in order to utilize time effectively. While older quartets did seem to do better in selecting appropriate strategies, they did still struggle with executing them in an efficient manner. In the Mendelssohn Quartet, this was a result of being unable to get rehearsals started on time. In the Dvorak Quartet, the inability to resolve conflicts resulted in a lot of good potential suggestions that went ignored, as well as a great deal of rehearsal time being lost. In the Mozart Quartet, they were observed several times working hard to develop strategies for effective rehearsals. However, in order for them to be able to continue that development, it required all members to be motivated to work hard during a given rehearsal period. The Bach Quartet seemed to struggle with this the most. In terms of rehearsal strategies, they were not always sure what the next step should be and how to communicate it to their peers. It seemed that the Bach Quartet might have benefited the most from the provided list of rehearsal strategy suggestions (Appendix D), but they were never observed using them.

Research Question 2:

What skills and tools are necessary for students to successfully lead their own chamber music rehearsals?

Collmer (2012) and Bazan (2011) stress the importance of these skills in the results of their research. Students need to possess good communication skills, as well as the ability to plan ahead. When students did not make connections from one rehearsal to the next, rehearsals were often repetitive, or the students were easily distracted. Students also need to possess a wide array of rehearsal strategies and understand how to apply them appropriately to a specific problem. When students did not know how to solve a problem, they often selected an ineffective rehearsal strategy or simply ignored it.

This also means that students have to be able to communicate what they believe are the expectations of the teacher to each other. For example, in one of the Bach Quartet's first rehearsals, they had been assigned a Bach Fugue but were unsure of what to do with it. They spent almost the entire rehearsal playing it from start to finish without identifying anything to improve. At one point, they question this choice of strategy but quickly dismiss the idea of changing course:

Shawn: I wanna get another piece though.

Walter: We will.

Shawn: I mean, we're just playing this thing over and over again.

Walter: Yeah, well, that's kind of all we can do... [starts playing at the beginning of the piece again]

Clearly there are a myriad of problems in this rehearsal, but the main one seems to be that

they just don't know what else they are supposed to do, or are unable to articulate what they think the next step should be. Based on the advanced solo playing level of all students in this program and the amount of time they were required to spend practicing each day, it did not seem that any of the quartets were playing pieces beyond their capability. However, they clearly needed more guidance to conquer the ensemble aspects of the piece.

In this study, there seemed to be a disconnect between recognizing the availability and usefulness of resources and the desire to utilize them. In Lisa's interview, I asked if she thought there was a difference between rehearsals when her group used the planning sheet versus rehearsals where they did not. She stated:

Well we tried (not using the planning sheet) and it didn't work as well maybe, I think its better to like write it down ... the act of writing it down forced us to sit down and talk about what we wanted and guided us so we could be like oh yeah by the way we should try for this.

This was a common response. Students clearly recognized the value of planning their rehearsals more carefully, but did not often actually do it. The ability to recognize the most efficient path towards achieving a musical goal, and the discipline to follow through with that plan seems to be an essential skill in order for self-directed rehearsals to be successful.

Research question 3:

What differences exist in rehearsals between different age groups?

It seems to me that all of the quartets who participated in this study were capable

of engaging in student-directed rehearsals. However, the low percentages of time that groups spent actually playing during their rehearsals seems to indicate that they were perhaps given too much time to rehearse between each coaching, which led to much of the ineffective time use, especially in the younger quartets. While a higher percentage is not necessarily indicative of a high level of productivity, as shown in the Mendelssohn quartet, it is clear that all of these groups were often sidetracked and engaged in off-task behavior. In this case, even doing repeated run-throughs of their pieces would have been more productive than watching soccer games on their cell phones.

In terms of commitment, the older students certainly seemed to demonstrate a higher level of initial commitment to their chamber music group. Based on the observations and interviews of the younger groups, it seems their main priority was for chamber music to be a fun, supplementary activity, and they did not always feel the need to try and push themselves to work harder in rehearsals. The priority of the older students seemed to be more about achieving the best sound and this led to the desire to schedule extra rehearsals and practice individual parts before rehearsal started.

In the Dvorak and Mendelssohn Quartets, where students were older and more experienced, rehearsals seemed to have a flow and rhythm. There also seemed to be a more developed knowledge of how to apply rehearsal strategies to fix emerging problems. In the Bach and Mozart Quartets, while rehearsals could be effective, they were often halting and productive periods of time were followed by long periods of trying to figure out what the next step should be. This also led to some experimentation of different types of rehearsal strategies and methods to try and figure out how to fix a

problem.

What I find interesting is that being older did not affect the ability to manage conflict. While it might have been expected that the Bach quartet struggled with this based on their younger ages and less experience with self-directed rehearsals, the other quartet to struggle significantly with this issue was not the Mozart Quartet but the Dvorak Quartet. It seems here that the presence of conflict in a group relates more to the communication skills, personalities, and flexibility of individuals within the group than the age or experience level of that group.

To further summarize, the main results of this study are as follows:

1. In developing adolescent chamber music groups, the development of communication skills seems to be equally important to the development of musical skills.
2. When quartets were not in agreement about how important of a role they wanted chamber music to play in their camp experience, it often resulted in tension between group members.
3. The ability to effectively and quickly resolve conflict in a positive way was a critical skill for rehearsal time to be used productively.
4. Time management was a skill that was still developing in all of the participating quartets.
5. The younger quartets in this study seemed to need more explicit directions from their teachers in order to understand what was expected of them when they were rehearsing by themselves.

Conclusions

This study supports many of the findings of Berg (1997). Similar to Berg's study, my study also found that the main sources of rehearsal time being used ineffectively were problems with communication and social skills. I agree with Berg's conclusion that a lot of these problems could be avoided if more time were spent working on social skills in coaching sessions. Berg's research showed that leadership roles were more fixed in the string group she observed and more flexible in the brass group. While my study only looked at string players, I did notice that the leadership roles tended to be more flexible in the older groups and more fixed in the younger groups.

This study also supports the findings of Bononi (2000), Allsup (2003), and Bazan (2011), which all state that student-directed learning is a valuable part of music education, but needs to be carefully monitored. In all three of these studies, although the focus was student-directed learning, there was always a teacher or authority figure present in the room to gently steer students back on track when they got frustrated or distracted. This was not the case for the participating students in this study. If an authority figure was present during the allotted rehearsal time, it was always to provide a teacher-directed coaching. The findings of these previous studies suggest that having a teacher as a facilitator more than as a coach might be a good intermediate step before leaving students to lead their rehearsals entirely on their own.

Some of the themes of this study are similar to the themes of the study done by Dolmans, Wolhagen, van der Vleuten and Winjen (2001), primarily the theme of trying to overcome what the researchers called "ritual behavior." Their article talks about the

difficulties facing students when trying to shift towards a more problem-based approach, and how that shift can make it more difficult for students to make connections between topics. In this case, it seems possible that, although many, if not all, of these students are successfully directing their own individual practicing for several hours a day, they are finding it difficult to make connections between strategies they use in their own practice and strategies they could use in chamber music.

Implications for Pedagogy

This research highlights some practical implications for teachers with adolescent chamber ensembles. One of the unique things about a setting like the Summer String Academy is that every student I talked to had an extremely positive attitude about their chamber music participation. I don't think this is a scenario that is easy to replicate and it is noteworthy that there were no groups that floundered because of a lack of desire to participate. All of these students had access to private lessons and extensive, high-quality training, which is certainly not a luxury afforded to all adolescent music students. However, this study seems to point towards a need for coaching sessions focused more on the development of rehearsal skills. The students in this study spent several hours each week not focused on the musical development of their repertoire, either because they were unable to figure out how to do so or because they were unable to look past the social issues distracting them from their rehearsals. In order to create more self-directed musicians, teachers must provide and reinforce the tools and strategies needed for students to be successful on their own.

When considering what tools are needed for students to be successful, teachers

must consider the age and past experience of the group. Based on the observations of these groups, it seems that the proportions of time spent in coaching sessions versus in self-directed rehearsals needs to be adjusted to maximize the development of the group, especially if the group has never engaged in self-directed rehearsals before. With the less experienced quartets, I might propose that there be a step in between having groups only rehearse with coaches and having the coach offer suggestions of exercises. Based on the suggestions and structure of teacher “checkpoints,” as described by Allsup (2003), Bazan (2011), and Bonini (2000), perhaps having a set list of exercises in a specific order for groups to go through could serve as an appropriate intermediate step. This might allow them to focus on the execution of the exercises without having to go through the preliminary step of choosing the exercises. Once groups had a deeper understanding of which exercises could address specific problems, they might be able to accomplish more during their self-directed rehearsals.

Additionally, though it seems the planning sheet and rehearsal strategy sheet were helpful when used in this study, it would be beneficial for the teacher to enforce their use more regularly in order to help students develop the skills and vocabulary they need to grow. Finally teachers should also strive to create open lines of communication between themselves and the group so that the group feels comfortable letting the teacher know when a problem has come up in rehearsal. In this study, the biggest challenge seemed to be the development of effective communication and social skills. It seems that it is of the utmost importance for teachers to spend time discussing this and developing these skills with students during coaching sessions. By doing this, students will develop an

understanding of the value of these skills and can work in self-directed rehearsals to avoid situations where musical development is prevented due to unresolved social issues.

Recommendations for Further Research

The following research recommendations can be made based on the results from this study:

1. In order to generalize to a broader population, this study should be replicated using a more diverse group of participants. These populations could include, but are not limited to, public school students, students from diverse socioeconomic situations, specific gender compositions of groups, or university students.
2. When replicating this study, it may be beneficial if the researcher is also the chamber music coach of the students. From this position, the researcher would be more able to mandate the use of the rehearsal planning worksheet and observe the benefits of students using that sheet in their rehearsals. Alternatively, the researcher could work in tandem with the chamber coach to make sure the use of the planning worksheet was mandated.
3. It may be useful to design experimental research examining the personality characteristics of successful chamber musicians. This research makes it clear that personality conflicts can be a barrier to productive rehearsals, and examining the types of personalities that work best together could provide valuable information.
4. This study highlights the need for chamber music teachers to spend more time

teaching students how to rehearse. However, musical skills also need to be communicated during these coaching sessions. Therefore, future research should investigate the necessary balance between these two tasks in coaching sessions to maximize student efficiency in rehearsals.

5. Because this study only looked at student-directed chamber music rehearsals, it would be interesting to investigate the rehearsals of professional chamber ensembles and take note of their time management and rehearsal strategies.
6. In this study, students often had four to ten hours of self-directed rehearsal time in between each coaching session. This often seemed like too much time for the students to handle being unguided. Future research should look at the optimal amount of self-directed rehearsal time in between coaching sessions based on the age and developmental level of the students.
7. This study did not pay close attention to the use of repetitions of exercises or passages within rehearsals, but rather focused more broadly on how much time students actually spent playing, talking, or using time ineffectively. Future research could focus more specifically on how time spent playing is being used.
8. This study did not take into consideration the individual practice habits of each participating student. Future research could examine what strategies students use most frequently when practicing alone, and how these skills are transferred when applied, or not applied, to a group rehearsal.
9. Further research could also look at the factors student chamber groups take

into consideration when selecting their own repertoire.

This study highlighted concerns about the preparation of adolescent student musicians to be self-directed learners. With additional research, these concerns could be addressed and beneficial resources could be provided for teachers to help instill their students with the necessary skills to be successful.

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Appendix A: Original Rehearsal Planning Sheet

FIGURE 1
Chamber Ensemble Weekly Goals Log

Members: _____

Piece: _____

Week	Goals	Decisions Made	Grade
1	<ul style="list-style-type: none"> • Select a piece • Assign group member roles (write the name of group member on the line next to role) <i>Calendar</i> <ul style="list-style-type: none"> • Set rehearsal dates • Set coaching dates • Discuss concert location/ dates <i>Week 2 rehearsal agenda</i> <ul style="list-style-type: none"> • Complete first rehearsal preparation (place an 'X' in the box next to the completed tasks) 	<p>Read through 2–3 pieces; select 1 piece or movement _____ _____</p> <p>Set performance metronome marking goal(s) _____ _____</p> <p>Timekeeper _____ Consensus builder _____ Rehearsal/coaching manager _____ _____</p> <p>Paperwork manager _____ Scores/CD manager _____ Other _____</p> <p>Rehearsals: _____ Coaching: _____ Possible concert dates/location: _____ _____</p> <p><input type="checkbox"/> score/recording <input type="checkbox"/> measure numbers <input type="checkbox"/> mark score <input type="checkbox"/> practiced part</p>	
2	<ul style="list-style-type: none"> • read through the piece • set rehearsal tempo • identify challenging sections • role member check <i>Week 3 rehearsal agenda</i> <ul style="list-style-type: none"> • measure numbers • rhythm spots • intonation spots • other spots 	<p>✓ completed? (circle) Yes No ✓ completed? (circle) Yes No list measure numbers; describe _____ _____</p> <p>discuss contributions of each member _____ _____ _____</p>	

(Continued)

Week	Goals	Decisions Made	Grade
3	<ul style="list-style-type: none"> • rehearse rhythm spots • rehearse intonation spots • rehearse other spots • assign program note duties (write the initials of the group member on the line next to the task) <p><i>Week 4 rehearsal agenda</i></p> <ul style="list-style-type: none"> • measure numbers • articulation spots • phrasing spots • other spots 	<p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>composer background _____</p> <p>piece background _____</p> <p>composer picture _____</p> <p>type program notes _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
4	<ul style="list-style-type: none"> • Finalize concert location/date • rehearse articulation spots • rehearse phrasing spots • rehearse other spots <p><i>Week 5 rehearsal agenda</i></p> <ul style="list-style-type: none"> • measure numbers • entrances/cues • balance spots • other spots 	<p>Concert location/date _____</p> <p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	
5	<ul style="list-style-type: none"> • rehearse entrances/cues • rehearse balance spots • rehearse other spots <p><i>Week 6 rehearsal agenda</i></p> <ul style="list-style-type: none"> • measure numbers • melodic exchanges • other spots • play 1x without stopping 	<p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>List measure numbers; describe _____</p> <p>_____</p> <p>_____</p> <p>_____</p>	

(Continued)

Week	Goals	Decisions Made	Grade
6	<ul style="list-style-type: none"> • rehearse melodic exchanges • rehearse other spots • play 1x without stopping • check performance tempo • compile/type program notes <p><i>Week 7 rehearsal agenda</i></p> <ul style="list-style-type: none"> • spot #1 • spot #2 	<p>List measure numbers; describe</p> <hr/> <p>List measure numbers; describe</p> <hr/> <p>✓ completed? (circle) Yes No</p> <p>✓ (circle) Faster Slower Same as the originally agreed upon tempo</p> <p>✓ completed? (circle) Yes No</p> <p>List measure numbers; describe</p> <hr/> <p>List measure numbers; describe</p> <hr/>	
7	<ul style="list-style-type: none"> • rehearse spot #1 • rehearse spot #2 • play through 3x without stopping • print and submit program notes • discuss concert dress and concert preparation 	<p>List measure numbers; describe</p> <hr/> <p>List measure numbers; describe</p> <hr/> <p>✓ completed? (circle) Yes No</p> <p>✓ completed? (circle) Yes No</p> <p>✓ completed? (circle) Yes No</p>	
8	<ul style="list-style-type: none"> • concert • postconcert chat: what went well; improvements • chamber ensemble experience chat 	<ul style="list-style-type: none"> • Summary of postconcert chat: <hr/> <hr/> <ul style="list-style-type: none"> • Summary of chamber ensemble experience chat: <hr/> <hr/>	

(Berg, 2008)

Appendix B: Adapted Rehearsal Planning Sheet

Weekly Rehearsal Planning Sheet

Piece _____

Group Member Jobs:

Timekeeper _____

(responsible for making sure rehearsals start on time and stay on track according the schedule)

Rehearsal Manager _____

(responsible for keeping track of planning sheet and writing down goals and strategies used)

Date and Time of Rehearsals	Goals for the Week (use back if necessary)	Strategies Used in Rehearsals to Achieve Goals (use back if necessary)	Was it helpful?
	1. _____ _____	1. _____ _____	1. _____ _____
	2. _____ _____	2. _____ _____	2. _____ _____
	3. _____ _____	3. _____ _____	3. _____ _____
	4. _____ _____	4. _____ _____	4. _____ _____
	5. _____ _____	5. _____ _____	5. _____ _____
	6. _____	6. _____	6. _____

Suggestions for Rehearsal Goals:

1. Read through piece and identify challenging sections
2. Work on rhythmically challenging sections until they can be played without mistakes
_____ number of times in a row
3. Improve intonation of specific sections
4. Unify articulation of specific sections
5. Decide on phrasing of specific sections and how to achieve that phrasing as a group
6. Improve balance of specific sections
7. Record a run through of the piece and then listen to recording as a group; discuss what went well and what still needs work.
8. Any other specific goals your group feels are important

Appendix C: List of self-directed learning strategies developed by Drs. Mark and Ingrid Kovacs (2014, March)

1. Clap and count rhythm
2. Clap and say note name
3. Clap and say finger #

4. Pizzicato and count rhythm
5. Pizzicato and say note name
6. Pizzicato and say finger #

7. Air bow and count rhythm
8. Air bow and say note name
9. Air bow and say finger #
10. Air bow and say bow direction

11. Shadow bow and count rhythm
12. Shadow bow and say note name
13. Shadow bow and say finger #
14. Shadow bow and say bow direction

15. Play and count rhythm
16. Play and say (sing) note name
17. Play and say finger #
18. Play and say bow direction

Appendix D: Adapted List of Rehearsal Strategies given to Participants

Rehearsal Strategy Sheet

<ol style="list-style-type: none"> 1. Clap and count rhythm 2. Pizzicato and count rhythm 3. Air bow and count rhythm 4. Play and count rhythm 5. Play with a metronome at a slow tempo to achieve perfect rhythm 6. Play with a metronome at a medium tempo to achieve perfect rhythm 7. Play with a metronome at a performance tempo to achieve perfect rhythm 8. Play sections with different members watching the metronome to ensure tempo remains steady 9. Play each part individually with a “drone” note 10. Play in pairs with a “drone” note 11. Play as a group with a “drone” note 12. Tune each chord individually, play only the root of the chord 13. Tune each chord individually, play the root and the fifth of the chord 14. Tune each chord individually, play the root, fifth, and third of the chord 15. Tune each chord individually, play the root, fifth, third, and any other additional notes 16. Play with a metronome at a slow tempo to achieve perfect intonation 17. Play with a metronome at a medium tempo to achieve perfect intonation 18. Play with a metronome at a performance tempo to achieve perfect intonation 	<ol style="list-style-type: none"> 25. Observe the printed dynamic and expressive markings printed in the music 26. Discuss exactly how each dynamic and expressive marking should sound 27. Play each dynamic and expressive marking in a section the opposite way it is printed (i.e., if a dynamic is printed as forte, play it piano) 28. Play dynamic and expressive markings as printed 29. Have each member play by themselves with the phrasing they like 30. Experiment with several phrasing options 31. Decide on a specific phrasing for the group to play 32. Play in pairs to match phrasing 33. Play as group to match phrasing 34. Decide as a group which part has the melody in each measure of a specific section 35. Play through the section as a group, but only playing if your part has the melody 36. Play through the section as a group, but only playing if your part does not have the melody 37. Play through the section as a group bringing out the correct part at the correct time
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<ol style="list-style-type: none">19. Have each member play by themselves with the articulation they like20. Experiment with several articulation options21. Decide on a specific articulation for the group to play22. Decide what the appropriate bow placement would be for the desired articulation23. Play in pairs to match articulations24. Play as a group to match articulations	<ol style="list-style-type: none">38. Divide the piece into large sections39. Record a run-through of the piece40. Listen to the run-through and have each member assign a letter grade to each section of the piece41. Compare grades with other group members42. Isolate the section that got the lowest overall grade, discuss why it got the lowest grade43. Fix the problems of that section using the appropriate strategies
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Appendix E: Introductory script read at the first taped rehearsal of each quartet

“Thank you all for volunteering to participate in my study. The purpose of my research is to try and help students like you get better at rehearsing on their own. I gave each of you two different pieces of paper when you arrived at camp. The first one was a planning sheet. I would like your group to spend a few minutes the beginning of each week deciding what your goals are for your rehearsals the coming week. Examples of these goals might be to play all the correct notes and rhythms, to improve your dynamics, or to make a couple of challenging passages really in tune. Your coach might also have suggestions of goals for your rehearsals. The second sheet was a rehearsal strategy list. This list has lots of suggestions to help you achieve your goals. If you are not sure what to do when you are rehearsing on your own, I would like you to pick one of your goals from the planning sheet and try and find some techniques from the list you can use to help you get better as a group. I hope that using these sheets will help your group sound really great and also help you to learn a lot while you are at the String Academy this summer. I will be present at your rehearsals whenever I can, but I will just be sitting and watching. I am not going to tell you what to do. When I can't be at your rehearsals, I will make sure to record them on a video camera so I can watch them later. At the end of camp, I will interview each of you to ask what you liked and didn't like about your chamber music experience this summer at the String Academy. I will not use any of your names when I write about my study. At this point, does anyone have any questions for me?”

Appendix F: Interview questions

For Students:

1. What was your favorite and least favorite thing about chamber music at the String Academy?
2. What did you think about using the planning sheets and rehearsal strategies?
3. What do you think your group was really good at?
4. What are some things you think you could have worked on more as a group?
5. Was there a hardest and easiest part about being in your chamber music group?
6. Do you think that the next time you are in a chamber group you will do anything differently?

For Teachers:

1. What did you think about your experience coaching chamber music at the String Academy this summer?
2. What did you think about having some of your groups using the rehearsal strategies and planning sheets?
3. Are there things you thought those groups did especially well?
4. Are there things you thought those groups could have worked more on?
5. Do you feel that participating in this study impacted the group's performance in any way?