

A Mixed Methods Study on the Status of School Orchestra Programs in Oregon: An Explanation of Inhibiting and Promoting Factors

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Abstract

The purpose of this explanatory sequential mixed methods study was to examine the status of school orchestra programs in Oregon and to explain the reasoning behind the descriptive data. The quantitative phase of the study reported the data on the number of school districts and schools by type that offer orchestra instruction as well as the profile of those schools, their orchestra programs, and orchestra teachers. Unexpected findings from the quantitative phase indicated that among the three large school districts that are comparable in size, budget, and students' demographics, only one offers orchestra instruction in every school within the district ($n = 65$) while the other two districts offer orchestra instruction in one high school each. This finding prompted the qualitative phase of the study that illuminated factors that inhibit and promote the quality of education within Oregon schools. The mixed methods findings explained the discrepancy in music offerings among the three large school districts through the perspectives of the three arts administrators, one from each district.

Keywords

school orchestra programs, status, Oregon, mixed methods

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With periodic stagnations, orchestra instruction in American schools has enjoyed continuous popularity since the early 20th century (Hamann & Gillespie, 2012; Humpreys, 1989; Turner, 2001). At the same time, research on teaching strings in schools and school orchestra programs remained to be limited in quantity (Ebie, 2002) and scope (Kantorski, 1995). An area of research in strings that is in need of more scientific based evidence is the status of school orchestra programs at the national level, and particularly at the individual states level (Tast, 2014). One of these states whose orchestra offerings in schools have not yet been examined in a systematic way is Oregon.

In the 1990s, music education researchers began to gather quantitative data on the status of string education in schools with the aim to establish a baseline dataset to be used for research-based intervention when needed. One of the variables frequently examined is the number of school districts that offer strings. In study on the status of school orchestra programs that included all 50 states, Smith (1997) reported that only 15% of school districts across the nation offered instruction in strings. Smith indicated that among the six Music Education National Conference (MENC) geographical divisions the highest number of school districts that offer string instruction are located in the Eastern Division, in states such as New Hampshire and New Jersey ($N = 2,258$), while the lowest number of school districts that offer strings are situated in the Northwest Division, in states such as, Washington, Oregon, and Montana ($N = 104$). Doerksen and Delzell (2000) investigated the status of string programs at the national level through surveying instrumental music coordinators. They found that only 18% of school districts offered strings, which is just slightly higher than Smith's findings in 1997.

Another variable of interest to researchers on the status of school orchestra programs is the number of schools by grade level that offer strings. Leonhard (1991) analyzed findings of the national survey conducted by the National Arts Education Research Center at the University of Illinois (1989) with regard to arts education in American schools. He found that approximately 35% of elementary schools, about 41% of large middle schools, 14% of small middle schools, about 36% of large high schools, and only 5% of small high schools offered string programs. Elpus and Abril (2011) investigated commonly offered music courses in American high schools through the perceptions of school principals. Their findings revealed that orchestra was placed in the category of "less common courses" and was offered in only 42% of participating high schools. The most up to date national study on the status of music programs in the U.S. public schools (Give A Note Foundation, 2017) reported that the most frequently offered music class at the high school level is band (93% of high schools) followed by choir (89% of high schools) and that string ensembles and orchestra classes are offered in only 36% of high schools.

Several studies investigated school size as a predictor for having orchestra in schools (Bergonzi, 1995; Gillespie & Hamann, 1998; Smith, 1997; Stewart, 1991). These studies indicated that larger schools, regardless of the level of schooling, are more likely to offer orchestra.

Gillespie and Hamann (1998) reported findings on profiles of orchestra students and teachers along with data on the structure of programs and their curricula. Their

findings indicated that participating orchestra students were predominantly White (73%), with African American students being the second largest group (9%). Orchestra teachers were also predominantly White and the great majority of them (72%) taught for more than 10 years. Sixty-seven percent of teachers reported one of the four bowed string instruments as their primary instrument and most teachers had a 2-year master's degree. The most used teaching setting was heterogeneous classes with a combination of Suzuki and more traditional string teaching methods. A follow-up study conducted by Hamann, Gillespie, and Bergonzi (2002) affirmed findings of the 1998 study: The majority of school orchestra students and teachers in this study were White and teachers tend to have a master's degree.

To date, six studies have provided descriptive data on the status of school orchestra programs in individual states. Horvath (1995) studied the status of both the string and full symphony orchestras in Ohio. She reported that most orchestra teachers in Ohio played string instruments as their primary instrument and that they had been teaching in schools for about 13 years. Abeel (1995) surveyed school districts in Virginia and found that 24% offered string instruction. In their study on school orchestra programs in Indiana, Schmidt, Baker, Hayes, and Kwan (2006) found that approximately 16% of districts in Indiana offered string instruction. Moss (2002) investigated string programs in 44 rural school districts in South Georgia and found that only 11% offered strings. Tast (2014) reported that 13% of school districts in Kansas offered string instruction, that 95% of orchestra teachers were White, and that 75% of teachers indicated a string instrument as their primary instrument. Kuehne and Harrison (2016) investigated music educators' views on the state of string/orchestra programs in four focus states: Alabama, Arkansas, Louisiana, and Mississippi. The findings suggested a teachers' perception that fewer school orchestra programs exist in these four states than in other parts of the country.

Researchers also investigated what factors promote and what factors inhibit the development of school orchestra programs. Gillespie and Hamann (2010) identified parental support, administrative support, competent string teachers, and funding as critical factors in the formation of new string programs. In their study on the state of music instruction in secondary schools at the national level, Abril and Gault (2008) reported standardized tests and *No Child Left Behind* as the factors that had the most negative impact on music programs. Kuehne and Harrison (2016) suggested that "the largest barriers to implementation of new [string] programs were financial costs and administrative support, then scheduling, availability of qualified teachers, and lack of facilities" (p. 83).

Why is offering orchestra instruction in schools so challenging? While quantitative studies and their descriptive data provide baseline information on the current state of string programs in American schools, a different mode of inquiry might be needed if we are to understand the reasons behind the identified tendencies.

Music education research has a long and robust tradition in the quantitative paradigm of inquiry. More recently, qualitative research has become a more common and better understood research mode among music education researchers. Creswell and Plano Clark (2018) made a case for combining quantitative and qualitative research

paradigms into a methodological paradigm known as mixed methods. “In general,” they stated, “research problems suited for mixed methods are those in which one data source might be insufficient” (p. 8).

Prichard (2017) used a sequential explanatory mixed methods design to investigate music teaching efficacy and commitment to teaching beliefs of preservice teachers in music education introductory courses. She pointed out “a problematic element of prior research in this area is that studies of pre-service music teachers’ efficacy beliefs or career commitment have been restricted almost exclusively to quantitative methodologies” and proposed the need for “using more diverse methodologies, including qualitative and mixed-methods designs” (Prichard, p. 240).

This study builds on Smith’s (1997) study on the access to string education in American public schools in which she reported that school districts in the Northwest MENC Division (Oregon, Washington, Idaho, Alaska, Montana, and Wyoming) had the lowest access to string education (roughly 10%) in the nation, with Oregon offering strings in only 9.6% of school districts. Establishing updated and more complete descriptive results on the status of school orchestra programs in Oregon through quantitative data while also providing an explanation of the mechanisms and contexts behind them through qualitative findings warranted the use of a mixed methods research design.

The purpose of this study was to examine the status of school orchestra programs in Oregon. An explanatory sequential mixed methods research design was used to collect quantitative data and then to explain the quantitative results with in-depth qualitative data. In the first, quantitative phase of the study, publicly available archival data and reports from the Oregon Music Educators Association (OMEA) Districts Chairs were used to obtain numerical data on school districts and schools that offer orchestra instruction. An open-ended electronic questionnaire was administered to orchestra teachers ($N = 44$) to gather descriptive data on the profiles of schools, orchestra teachers, orchestra students, and orchestra programs in their respective schools. In accordance to explanatory sequential design, the first integration point occurred between quantitative and qualitative phases of the study. It included identification of the results from the quantitative phase that needed further explanation as well as purposeful selection of participants for the qualitative phase of the study. The second, qualitative phase of the study used semistructured interviews with three experienced school district administrators from three largest school districts in Oregon to collect data that further explained one unexpected finding from the quantitative phase. The second integration point took place after the qualitative data were analyzed. This mixed methods phase served as the platform for enhancing the understanding of the quantitative results through the lens of qualitative findings while providing a broader perspective on the position of music and orchestra classes in well-rounded curricula in U.S. schools. Several audiences, including school administrators, advocacy team members, teachers, policymakers, and researchers, might benefit from addressing the status of orchestra programs in Oregon schools through multiple research modes and their integration.

This study sought to answer four research questions: two quantitative, one qualitative, and one mixed methods research question.

Quantitative research questions:

Research Question 1: What was the number and percentage of school districts and schools by grade level that offered orchestra instruction in Oregon schools in the 2016-2017 school year?

Research Question 2: What was the demographic profile of schools that offered orchestra programs and what was the profile of orchestra teachers, orchestra students, and orchestra programs in Oregon schools in the 2016-2017 school year?

Qualitative research question:

Research Question 3: What factors inhibit and what factors promote the development of music and orchestra programs in Oregon schools?

Mixed methods research question:

Research Question 4: How do the perspectives of arts administrators at district level explain that the school districts of the similar size, similar budget, and similar students' demographics provide very different access to well-rounded music curricula?

Method

Pilot Study

The quantitative phase of this study was preceded by a pilot study conducted during the 2015-2016 school year. The purpose of the pilot study was to clarify operational definitions and to test the feasibility and validity of the proposed research protocols (Miksza & Elpus, 2018). The quantitative data of the pilot study served as the starting point for updated findings on school orchestra programs in the 2016-2017 school year that are presented in this study.

Study Design

A two-phase mixed methods research design, namely, the explanatory sequential design (see Figure 1), was developed and utilized to answer research questions. Basic procedures consisted of four steps as suggested by Creswell and Plano Clark (2018): (a) design and implementation of quantitative phase (2016-2017 school year), (b) integration for mixing (2017 year), (c) design and implementation of qualitative phase (2017 year), and (d) interpretation of connected results (2017-2018 school year).

Design

Quantitative phase. Research strategies adhering to descriptive research design, including archival data analysis and questionnaire, were used to answer the quantitative questions of this study (Research Questions 1 and 2).

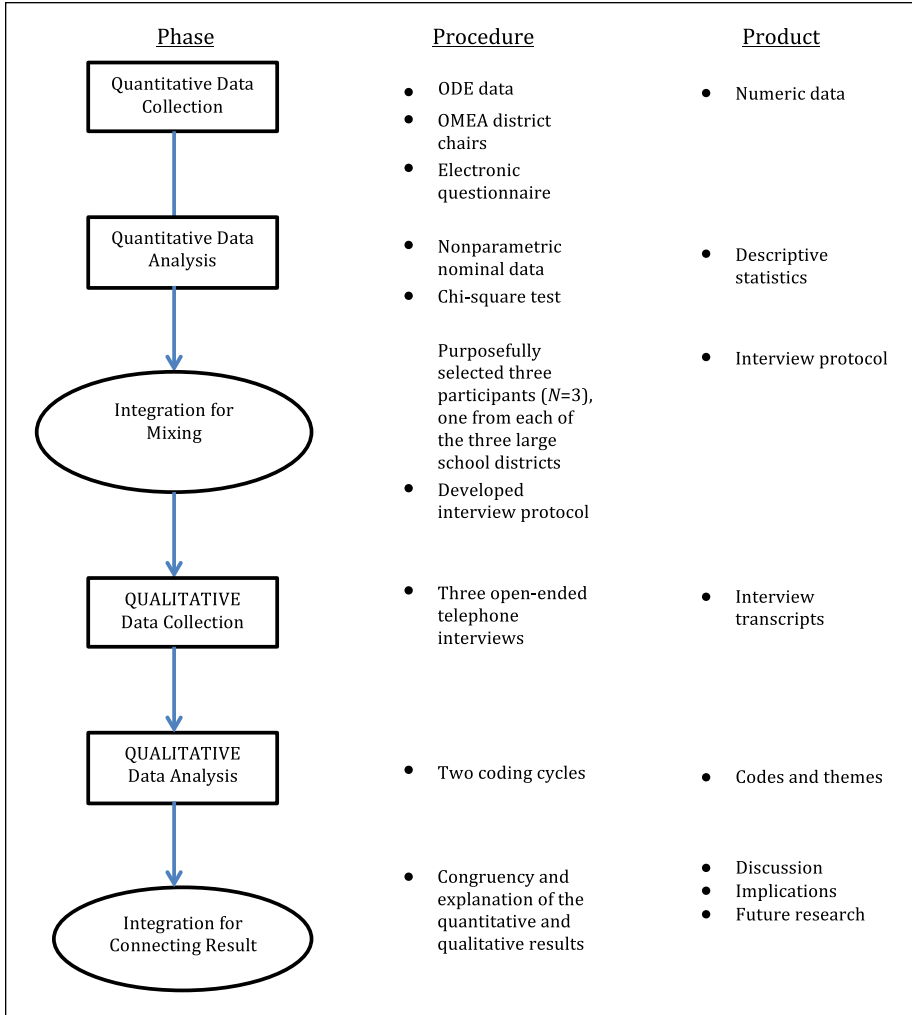


Figure 1. Procedural diagram of the explanatory sequential design.

Note. ODE = Oregon Department of Education; OMEA = Oregon Music Educators Association.

Participants. Participants in the quantitative phase of this study were orchestra teachers ($N = 44$) who taught orchestra in Oregon schools during the 2016-2017 school year. Names and contact information for high school orchestra directors were identified through their respective schools' websites. Names and contact information for elementary and middle school orchestra teachers were obtained through phone calls to the main offices of their respective schools as such information was not readily available on the school districts' websites.

Data collection. Two sources of information were used to answer Research Question 1: (a) archival data publicly available on the Oregon Department of Education (ODE) website to obtain the list of all school districts and schools by grade level in Oregon and (b) responses from 15 OMEA District Chairs to obtain the names of the districts and schools by grade level that offer string classes and/or orchestra in Oregon. Two other sources of information were used to answer Research Question 2: (a) responses from orchestra teachers to gather information on teachers and students' profiles and the profiles of their orchestra programs and (b) ODE website to collect data on free and reduced-price lunches as an indicator of socioeconomic status as well as race categories for the school districts and schools that offer orchestra instruction.

School districts and schools that offer string instruction were identified through an electronic questionnaire sent to 15 OMEA Districts Chairs who serve on the OMEA Board. The questionnaire asked District Chairs to enter the names of school districts and schools by level within their jurisdiction that offer orchestra instruction on the provided Excel spread sheet. The school districts and the schools that were identified by District Chairs as ones that offer orchestra instruction were then contacted one by one via phone to verify the provided information. The Excel spreadsheet was modified as needed, and the verified information was once again sent to District Chairs for final validation.

Another electronic questionnaire was developed to investigate the profile of orchestra teachers, students, and programs. The development of this questionnaire was based on reviewing the literature on the development of questionnaires (Gillham, 2000) and examining published examples of questionnaires (Hamann et al., 2002). Once developed, the initial questionnaire was sent to two well-established music education scholars for feedback. Based on this feedback, the questionnaire was further revised and a pilot test was conducted with the two orchestra teachers from different states. The final version of the questionnaire consisted of 11 closed-ended, multiple-choice questions. Questions 1 to 5 concerned teachers' professional background information (e.g., primary instrument they play, educational background, and years of experience) and Questions 6 to 11 referred to the characteristics of their orchestra programs (e.g., enrollment, scheduling, and type of classes). The questionnaire was administered via Qualtrics, an online survey platform, to all previously identified orchestra teachers in Oregon ($N = 97$). Forty-four teachers responded for questionnaire within given time frame for respondent rate of 45%.

Data analysis. Nonparametric nominal data (numbers and percentages of school districts and schools) were obtained through a simple counting and calculation of percentile. A chi-square test was used to determine the relationship between the presence of orchestra programs and school levels. Another chi-square test was used to determine the relationship between the presence of orchestra programs and the racial backgrounds of students.

Integration for mixing step. In accordance to explanatory sequential design (Creswell & Plano Clark, 2018), the first point of integration in this study took place between

quantitative data analysis and qualitative data collection. The integration included three steps: (a) identification of quantitative results that require additional explanation, (b) development of qualitative and mixed methods research questions, and (c) use of quantitative results to guide the design of the qualitative phase of the study. As will be revealed in the “Results” section, the unexpected finding of the quantitative phase of this study was that among three large school districts in Oregon, that are all located within 50 miles of one another and that operate on similar budgets, one district offers strings in every school ($n = 65$) and at every level of schooling, while the other two offer strings in only one school ($n = 1$) and only at high school level. This finding informed the development of the qualitative and mixed methods research questions as well as the selection of participants in the qualitative phase of the study.

Qualitative phase. Research strategies adhering to descriptive research design, including semistructured, open-ended interviews were used to answer Research Question 3 of this study.

Participants. Participants in the qualitative phase of this study were three fine arts/music administrators, one from each of the three large school districts in Oregon. Participants were selected through sequential mixed method sampling (Creamer, 2018) while using purposeful sampling procedures (Creswell, 2009). All three participants first taught music and then served as arts administrators in one of the three large school districts in Oregon for more than 20 years.

Data collection. Data collection for this phase of the study consisted of conducting an hour-long open-ended telephone interview. Interview protocol was developed based on guidelines suggested in Creswell (2009) and it consisted of a heading, four open-ended interview questions, and four probe questions. In-depth interviews were conducted following the guidelines proposed by Seidman (2013). All three interviews were recorded via external microphone for further analysis.

Data analysis. Three hours of recorded material were transcribed by a professional transcription service, Verbal Ink. Transcribed interview data were analyzed by using three coding cycles as suggested by Saldana (2015): (a) in vivo coding, (b) analytic memo notes, and (c) pattern coding. The choice of three coding cycles was guided by Research Questions 3 and 4.

Validation procedures in the qualitative phase of this study included three strategies: (a) triangulation, (b) member checking, and (c) peer debriefing (Creswell, 2009). Triangulation consisted of examining Oregon Department of Revenue online documents on two constitutional amendments that restricted Oregon school revenues: Measure 5, passed in 1990 and Measure 50, passed in 1997, with the purpose of building a coherent justification for inclusion of these measures in themes. During member checking, the researcher provided participants with a write-up of polished themes to check whether participants agreed with the themes and their descriptions. Peer debriefing consisted of the researcher identifying and talking to a person within the music

Table 1. Comparison of Three Large School Districts in Oregon.

District size	Total number of schools	Enrollment	Free/reduced-price lunch	Operating budget	Number of schools with orchestras
Large District 1	53	40,868	36.6%	\$471,284,740	1 high school
Large District 2	65	42,198	No data on free lunch ^a	\$479,000,000	65 schools
Large District 3	79	46,503	23.6%	\$579,000,000	1 high school

^aFifty-eight percent of students considered to be living in poverty.

education community in Oregon who has a record of successful advocacy for music programs in Oregon schools and who knows the history of funding music programs in Oregon schools to enhance the accuracy of the qualitative findings.

Integration for connecting results step. In accordance with a explanatory sequential design (Creswell & Plano Clark, 2018), the second point of integration of quantitative and qualitative results took place after the qualitative data analysis was completed. The purpose of this second integration was twofold: (a) to draw integrated conclusions about how the qualitative results explained and expanded upon the quantitative results and (b) to answer Research Question 4 through the research strategy adhered to explanatory sequential design, known as joint display (Creswell & Plano Clark, 2018).

To better understand unexpected quantitative result of this study, additional descriptive data on three large school districts in Oregon were gathered. The website of each district was evaluated, and information on total number of schools in each district, students’ enrollment, poverty level, and operating budget was summarized (see Table 1).

Results

Quantitative Phase Results

Number and percentage of school districts that offer orchestra programs. Of the 197 school districts in Oregon, 24 (12.18%) offered orchestra classes during the 2016-2017 school year. All identified districts are classified as *unified school districts*, meaning that they include and operate both primary schools and high schools. An analysis of district sizes revealed that six school districts are *small* school districts (less than 5,000 students), 15 are *medium* (5,000-20,000 students), and three are *large* (20,000-48,000 students; see Table 2).

Among the small school districts ($n = 6$), none offered orchestra at all three levels of schooling, but all offered strings at the middle and high school level. Among the medium school districts ($n = 15$), six offered orchestra at all levels of schooling, eight offered strings at middle and high school level, and one offered it at high school level only. One unexpected result was that among the three large

Table 2. Summary of the Quantitative Results: School Districts.

Districts without orchestra	$N = 170$	88%
Districts with orchestra	$N = 24$	12%
Small districts	$n = 6$	
Medium districts	$n = 15$	
Large districts	$n = 3$	

Table 3. Summary of the Quantitative Results: Schools by School Type.

Total schools in Oregon	1,304	
Schools with orchestra	174	13.3%
Elementary	Total schools	789
	N	77
	%	9.7
Middle	Total schools	239
	N	43
	%	18
High	Total schools	267
	N	54
	%	20.2

school districts, one offered orchestra in every school in that district for 65 schools in total and at all three levels of schooling. The other two large districts offered strings only at one high school each.

Number and percentage of schools by grade level that offer orchestra. Of the 1,304 schools in Oregon, 174 (13.3%) offered strings during the 2016-2017 school year. The least number of orchestra classes was offered at the elementary level; out of 798 elementary schools, 77 (9.7%) offered orchestra instruction. Of 239 high schools, 43 (18.0%) offered strings. The number of middle schools that offered orchestra instruction was the most promising as out of 267 middle schools, 54 (20.2%) offered orchestra classes (see Table 3).

A chi-square analysis was conducted to determine whether having orchestra instruction in Oregon schools depends on school level. The probability level of $p < .001$ indicated a significant level of dependency between the existence of an orchestra program and the school level. Specifically, elementary schools ($z = -2.86$) were far less likely to have orchestra instruction, whereas middle schools ($z = 3.08$) and high schools ($z = 1.97$) were more likely to have string programs.

Racial background of schools and students. An analysis of ODE 2016-2017 Report Cards and Enrollment Data indicated that in the 174 schools that offered orchestra instruction, the most common racial background of students was White (67.8%). The most represented minority group was Hispanic/Latino (15.5%).

A chi-square analysis of race at the student level was used to examine whether the presence of a string program depends on the racial background of the students who attend schools with orchestra programs. The probability level of $p < .001$ indicated a significant difference between the observed and expected frequencies with regard to White and Hispanic/Latino students. Specifically, significantly more Hispanic students but fewer White students attended schools with orchestra programs than what would be expected if those two variables were independent.

Socioeconomic background of school students. Data on free and reduced-price lunches as an indicator of the socioeconomic status of students at schools with orchestra programs was obtained through ODE 2016-2017 Report on Free and Reduced-Price Lunch. It was determined that 89 (51.2%) of the 174 schools that offer orchestra instruction had students who received free and reduced-price lunches.

Qualitative Phase Results

Results of the qualitative phase of this study were reported through four themes. Themes were named by a two-part label consisting of short quotations from a participant followed by a second short phrase that summarized the meaning of the quote into a conceptual statement, as suggested by Creswell (2016). The first two themes served as a means for answering the research question on inhibiting and promoting factors, and Themes 3 and 4 served as the starting point for explanations for the unexpected finding of the quantitative phase of this study.

Theme Label 1: “A lot of it had to do with Measure 5.” Factors that inhibit music and orchestra programs in Oregon schools

All three participants pointed out inhibiting impacts that state tax policies, such as Measure 5 (1990) and Measure 50 (1997), as well as federal educational policies such as No Child Left Behind (2002), had on school music programs in Oregon. Eliminating property taxes (Measure 5) and making these limitations permanent (Measure 50) “really hit public schools in a major way.” While all music programs, including the band and the choir, felt the negative effect of these policies, the greatest reductions in number of students and number of programs was experienced among orchestra programs. “Prior to that elimination, our district had 1,700 elementary school string players. Every middle school and every high school had a string orchestra class.” The federal educational policy No Child Left Behind (2002) unintentionally further damaged Oregon’s schools music programs because “administrators began focusing on testing and what they would describe as core subjects, reading, writing, and arithmetic.”

In addition to state and federal policies of the 1990s and early 2000s, participants highlighted “scheduling and money [as] the two biggest challenges” for music programs in Oregon schools. Blocked scheduling, when students have 90-min long classes dedicated to one subject, “restricted the number and access to elective classes, so in many cases, the orchestra was gone, as AP or IB classes are often scheduled

head-to-head with the band or orchestra class.” The money issue was illuminated through the lens of “limited number of teachers that administrators can hire.” The final negative impact that participants discussed was “finding qualified teachers because of so many cuts for so many years, there were not as many graduates choosing to go into music education.”

Theme Label 2: “You need a squeaky wheel at the district level.” Factors that promote music and string programs in Oregon schools

Having contests in districts and at the state level was reported as the factor “that is directly connected to the growth of band and orchestra programs as seen starting in 1987.” Educating the public, including parents, administrators, members of the school board and budget committees, about the value of music in students’ education and lives was explained as another important promoting factor. Making the public aware of “the research around brain development and music is very critical,” as is the understanding of how involvement in music “can be used as a vehicle for development of communication and skills [needed] for participation in complex social interactions.”

The single most important factor for having strong and resilient music programs in schools, as indicated by all three participants, was having an arts/music administrator position specifically designated to represent arts and music at district level. Participants pointed out that simply assigning the duties of this position to a “teacher on special assignment” will not produce meaningful results. Having arts/music administrator is particularly important when it comes to funding music programs:

That’s why you need that squeaky wheel at the district level because the budget committee is made up of many public people. Parents, citizens, that don’t really necessarily know all the ins and outs of the school, so they have to rely on the expertise of the school district leadership, so if you don’t have a voice at the district leadership level, and a strong one, it will not happen.

Theme Label 3: “The message needs to be, it’s important to have music and that includes strings.” Toward better future and well-rounded music curricula

Participants strongly suggested that advocacy for orchestra programs needs to aim for well-rounded music curricula rather than just a focus on advocating for strings:

The message needs to be, it’s important to have music, and that includes strings as one of the options. I think that’s really an important message because you do not want to compete with other music offerings. The strings are the minority, and you’ll lose that battle.

In explaining why string programs are always the last to be added to well-rounded curricula and always the first to go in times of budget cuts, participants pointed out that

“although orchestra music is far more compelling, lots of people never experienced orchestra so they don’t know what to look for.” All three participants recognized the vulnerability of string programs because of the lower visibility of string programs in comparison to choir and the band programs and because of the need for early age instruction:

“Any kid can sign up for choir without any background, so choir is an easy one to offer. Band is probably the next easiest one to offer, because it’s the most publicly seen at the football games, in concerts, in parades, et cetera. The string program is less visible because of its particular and acute demands on learners and lower enrollment” and because “strings truly need to start in elementary schools to fully blossom . . .”

Theme Label 4: “Who is getting big salaries in this country: It is entrepreneurs, sports people, CEOs, and not artists and teachers.” A broader picture on inequality and values

Participants talked about the issues of inequality from several perspectives.

One participant commented on the unequal position of music and arts with regard to the concept of core subjects in American education: “Even though the Goals 2000 Act placed arts in a category of core subjects and even though the Every Student Succeeds Act (ESSA) delineated music as a separate core subject, music is still considered to be a non-core subject.” This participant added: “Like many other things that come down from the federal government, it is a policy but it is not a financed policy so therefore, people, choose to take freedom to do what they prioritize.”

Participants also commented on “the culture of our country that is lucky to have as much art and wonderful creative energy that we have even though government support for arts and culture is not there.”

Integration for Connecting Results

Findings for integration for the connecting results step were reported in joint displays that aligned quantitative and qualitative results: (a) confirmation and explanation of quantitative results and (b) explanation of discrepancies among the three large school districts (see Table 4). The qualitative results confirmed a small number of districts and schools in Oregon that offered orchestra instruction, and participants pointed to various public tax measures and federal educational policies explaining budget short-ages and scheduling difficulties that prevent schools from offering well-rounded music curricula that includes orchestra. The fact that school districts of similar size, close location, and with similar operating budgets provided students with very different access to music education was explained through the broad range of reasons including the importance of having an arts/music administrative position at district level, the inequitable place of music in core curriculum hierarchy, and the little value that the U.S. general public places on arts and music.

Table 4. Joint Display: Mixed Methods Results.

Quantitative results	Mixed methods results	Qualitative results
Out of 197 school districts in Oregon only 24 offer orchestra instruction (12%).	Congruent/Explanatory Alignment: Integrating quantitative and qualitative results illuminated the detrimental role that Oregon state tax policies established during the 1990s has had and are still having on Oregon education.	Participants discussed inhibiting factors such as Oregon state tax policies and federal educational policies
Out of 1,304 schools in Oregon only 174 offer orchestra (7.4%).	Congruent/Explanatory Alignment: Integrating quantitative and qualitative results illuminated how federal policies such as No Child Left Behind inadvertently negatively affected music programs in Oregon schools.	Participants discussed inhibiting factors such as scheduling and a shortage of qualified orchestra teachers.
Unexpected quantitative result that needed further explanation: Among the three largest school districts in Oregon, that are comparable in size, budget, and students' demographics, one offers orchestra instruction in all of the 65 schools and the other two offer orchestra in only one high school each.	Explanatory Alignment: Integrating quantitative and qualitative results illuminated the reasons behind the unexpected finding from quantitative phase of the study. The importance of having arts/music administrator at the district level was highlighted as the main promoting factor for strong music programs.	Participants discussed promoting factors such as having an administrative position dedicated to the arts/music programs at district level as well as the unequal position that music and arts hold in the hierarchy of CORE subjects.

Discussion

Quantitative Results Discussed

The quantitative findings of this study revealed that in comparison to Smith's (1997) study, only a slightly higher number of school districts in Oregon offered orchestra instruction in the 2016-2017 school year (1997 study 9.7%; this study 11.7%). The qualitative findings of this study, namely, the establishment of property tax reforms in the 1990s and federal educational policies, may provide an explanation for this very slow growth of string offerings in Oregon school districts. Analysis of the relationship between school level and orchestra indicated that elementary schools were far less likely to have orchestra (9.7%), a finding that is in line with Leonhard (1991) who reported that the least number of orchestra classes at national level are offered in elementary schools (35%). Again, it could be that limited budget caused by tax measures prevents Oregon's school districts from offering orchestra at elementary level of schooling in more schools.

This study revealed that most orchestra students in Oregon schools were White, which is in accord with Gillespie and Hamann's (1998) national study. Unlike reports of national study that identified African American minorities as the largest among school orchestra students, this study found Hispanic/Latino minority as the largest. This is likely due to the different racial configurations of U.S. states on the West Coast.

An unexpected finding of the quantitative phase of this study was that among the three large districts ($n = 3$) one offered orchestra in every school and at every grade level, while the other two offered strings only at one school each and at high school level only. This finding is in disaccord with Gillespie and Hamann (1998) who reported that, at national level, strings are most frequently offered by large school districts. This curious discrepancy was further investigated in the qualitative phase of the study.

Qualitative Results Discussed

Insufficient budget, scheduling difficulties, lack of administrative support, and a shortage of highly qualified music teachers were pointed out as major inhibiting factors. All of these reasons were proposed to be the main negative factors for the development of string programs in schools in previous studies (Abril & Gault, 2008; Gillespie & Hamann, 2010; Kuehne & Harrison, 2016). Strong parental and administrative support, sufficient funding, scheduling, and quality music teachers, on the other hand, were identified as promoting factors, which is also in accordance with findings of previous studies (Gillespie & Hamann, 2010).

Mixed Methods Results Discussed

While we know that budget cuts are common reasons for cutting music programs in schools, the qualitative findings of this study informed us that in Oregon it is specific tax measures, Measure 5 and Measure 50, that fundamentally changed the public school funding system. Due to these measures that are still in place, Oregon's public schools became primarily dependent on the state's general revenues controlled by the legislature rather than on local school boards as it is in states that have different regulations for property taxes. This could be an explanation as to why in Oregon only very few districts and schools offer orchestra instruction even two decades after Smith's (1997) study.

Integration for connecting results provided deeper insights into why among the three large school districts in Oregon that operate on a very similar budget one district offers orchestra in every school and the other two districts offer strings in only one school each. As qualitative results of this study indicated, the biggest difference among these three school districts was that the district that offers strings in every school has well-established music and arts administrative positions. The administrator in this position was the one who guided this district in process of overcoming hurdles of debilitating tax measures, scheduling and other inhibiting factors, while the other two districts had only teachers-on-special assignment, and such a position did not carry the same weight as an arts administrator. It appears

that having this position firmly in place is the key to all other promoting factors because through this position music and arts are championed and take their rightful place in well-rounded curricula.

One of the participants commented on federal policies, such as Goals 2000: Educated America Act (1994) and ESSA (2015), as policies that delineated arts and music as core subjects. As such, one would expect, arts and music should be treated as core subjects when it comes to scheduling and allocating budgets, which as we are learning from this study is not the case.

This discrepancy between what the U.S. government envisions for young American students and the reality of the American school system can be explained through another important qualitative finding of this study, which is where American society places its core values. Placing core values away from education and arts might be the most significant underlying issue in explaining the limited access to arts and music education that appears to be so typical of U.S. K-12 education at present (Fowler, 2001).

The findings of this study should be interpreted in the context of its limitations. The quantitative variables used to describe orchestra programs were limited in scope and the response rate was relatively low (45%). The number of participants in the qualitative phase was small ($N = 3$) to reach the level of saturation, which undermined the generalizability of qualitative results. Further investigation of important question “what does it take to develop and sustain an exemplary music program that offers well-rounded music curriculum that is available to all students?” through exploratory mixed methods study that would start with qualitative case study investigation and end with quantitative examination of exemplary program properties could provide clear guidelines on what it takes to develop and sustain a well-rounded music program that is available to all students as well as what are the characteristics of an exemplary music program in schools.

Methodological and practical implications of this study are multiple. To music education researchers interested in furthering baseline data on status of orchestra programs at national or individual states level, the detailed description of steps used in this mixed methods study may serve as starting point for expanding interests in collecting data and reporting results that are beyond two traditional research modes. To advocate for music programs in Oregon, unexpected finding of this study may serve as research-based evidence for unequal access to well-rounded music education which may be viewed as a secondary indicator of unequal access to well-rounded education. Considering the emphasis that late federal K-12 legislation ESSA (2015) places on “well-rounded education,” findings of this study may prompt stake holders to look into Oregon having so very few school districts and schools with full range of music classes with more care and urgency.

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