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## **Emerging Research Leaders' Preparation and Practices**

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### **Background**

A common goal of doctoral institutions is to prepare future faculty members for teaching, research, and service success in the professoriate. Akerlind (2008) documented specifically that preparation that happens in doctoral programs is pivotal to the later research success of faculty members. Instructional components necessary for students to be successful in their profession have been investigated in previous studies, with common topics including mentorship and curricular experiences.

The mentorship that doctoral students receive from faculty members has been cited as an important part of research preparation (Campbell, 2002; Duerksen, 1992; Duke, 2010; Flowers, 2012; Geringer, 2000; Humphreys, 2006; Jellison, 2004; LeBlanc, 1992; Madsen, 1988; Radocy, 1998; Yarbrough, 1996). Rohwer and Svec (2014) documented that researchers perceived that through learning experiences with mentors in doctoral programs, students should be able to choose an important research question and present their own research; in addition, mentors should expose students to basic research courses and technological resources, such as SPSS and NVivo. Researchers have suggested that doctoral training institutions should include curricular experiences that encourage researchers to effectively use many research methods (Eisenhart & DeHaan, 2005; Young, 2001), and seek interdisciplinary perspectives (Eisenhart & DeHaan, 2005; Pallas, 2001).

Researchers have also documented possible barriers to research productivity, with time being the most common obstacle. Duerksen (1992) and Laudel and Glaser (2008) stated that a lack of time can be a hindrance to research productivity. May (1992) added that research expectations, including time allotted to research and the way that faculty value research, may vary based on whether a faculty member is at a university with a research or teaching emphasis. In 2012, Chandler and Russell documented the common workload of faculty to be 74% teaching, 14%

research, and 12% service. Participants stated that the ideal workload would include more research time.

Dressler (1986) noted that junior faculty may have a heavy teaching load that could negatively affect their scholarly productivity, and Asmus (1992) added that heavy administrative loads could also negatively impact research productivity. In health science, Grbich (1998) noted that heavy teaching loads and a lack of faculty development leaves were inhibitors to research success, while collaborative research experiences and grants were facilitators to success. In music education, Hoffer (1984) advised research centers/consortia to apply for grants to facilitate collaborative work on a valued topic area.

Common faculty characteristics have been investigated, with studies finding researchers in education to be mature, have professional experience, possess a passion for education (Labaree, 2003), and have self-sufficient, introverted personalities (White, 1965). Reynolds and Hamann (2010) documented the most productive researchers to be assistant professors, followed by associate professors, and lastly full professors. LeBlanc and McCrary (1990) found that productive researchers perceived the most common intrinsic rewards of conducting research to be enjoyment, self-improvement, and fulfilling curiosity, and the most common extrinsic reward was a salary increase.

The investigation of research leadership in music education has commonly been studied in terms of eminence. Researchers who have cited eminent journals have commonly utilized the *Journal of Research in Music Education* (Brittin & Standley, 1997; Diaz & Silveira, 2014; Ebie, 2002; Fung, 2008; Hamann & Lucas, 1998; Humphreys & Stauffer, 2000; Kratus, 1992; Lane, 2011; Miksza & Johnson, 2012; Price & Orman, 1996; Reynolds & Hamann, 2010; Sample, 1992; Schmidt & Zdzinski, 1993; Standley, 1984; Yarbrough, 1984), *Bulletin of the Council for Research in Music Education* (Brittin & Standley, 1997; Hamann & Lucas, 1998; Kratus, 1992; Lane, 2011; Sample, 1992; Schmidt & Zdzinski, 1993; Standley, 1984), and *Contributions to Music Education* (Hall, 1998; Hamann & Lucas, 1998; Kratus, 1992; Reynolds & Hamann, 2010; Sample, 1992; Schmidt & Zdzinski, 1993) as the journals for their analyses. Researchers have

determined researcher/journal eminence by citing the numbers of citations (Brittin & Standley, 1997; Hamann & Lucas, 1998; Lane, 2011; Randles, Hagen, Gottlieb, & Salvador, 2010; Sample, 1992; Schmidt & Zdzinski, 1993; Standley, 1984), or by citing the numbers of publications (Brittin & Standley, 1997; Standley, 1984).

While there are studies that have documented eminent research journals, described characteristics of researchers, and reported perceptions about preparation researchers receive while completing doctoral programs, there is a need for a study to provide in-depth information about emerging researcher leaders in terms of how they prepared for their career and how they utilize time and resources in their current positions in order to have continued research success. The purpose of the current study was to describe emerging research leaders' graduate school preparation and current research practices.

## **Method**

The participants in the current study were 13 purposefully sampled assistant and associate professors who had been cited extensively in research articles (Google Scholar Citations exceeding 100) and had served on the *Journal of Research in Music Education*, *Bulletin of the Council for Research in Music Education*, or *Contributions to Music Education* editorial review boards. Assistant and associate professors, documented as those in the most productive research stage, were chosen (Reynolds & Hamann, 2010), although it should be noted that the term 'emerging research leader' was chosen instead of 'research leader' to acknowledge the exclusion of full professors from this study. The standard of a minimum of 100 citations credited to their articles was used as an indicator of research productivity and scholarly leadership. Editorial board members from journals were chosen as an additional documentation of leadership, and the three journals from which board members were sampled were chosen in alignment with the many studies that have cited these journals in studies of eminence in music education.

All professors who met the emerging research leader requirements were invited to participate and all agreed to be interviewed for the study ( $N = 13$ ). The participants were male

( $n = 9$ ) and female ( $n = 4$ ), assistant ( $n = 3$ ) and associate ( $n = 10$ ) professors from 12 states in the United States and Canada, who specialized in instrumental ( $n = 10$ ), and general music/choral ( $n = 3$ ) music education. The average age of the participants was 46.69 (ranging from 36 to 68,  $SD = 9.35$ ), and they had been at their current institution for an average of 7.38 years (ranging from 3 to 15,  $SD = 3.91$ ), and had been at any previous institutions for an average of 4.85 years (ranging from 0 to 12,  $SD = 3.36$ ). In terms of personality, 10 participants categorized themselves as self-sufficient introverts (White, 1965), and three noted that they were more like self-sufficient extroverts, benefiting from their interactions with other researchers as a component of their working personality.

The 20 open-ended interview prompts addressed graduate preparation and current research practices (see Table 1 for a full listing of the interview prompts). The graduate preparation prompts (7 total prompts) addressed: coursework (2), out-of-class experiences (2), resources (2), and other pivotal preparation issues (1). The current research practices questions (13 total prompts) addressed: perceptions about research (3), process questions (4), university load (2), balance (1), co-author practices (2), and editorial review board practices (1). Survey research methodology served as the model for data analysis, with frequency counts being used to document the extent of response uniformity, and quotations serving to highlight the context of the themes. It should be noted that for the interview frequency counts, totals may be higher than the number of participants if the participants provided an answer that addressed more than one category.

Table 1. *Interview Prompts*Graduate Preparation

1. What graduate classes did you take that were research based while you were in your own doctoral work, and do you think these courses were sufficient for your success (if no, what do you think was lacking)?
2. Beyond basic coursework, what were the most important research experiences that you had in graduate school?
3. Based on your past experiences in graduate school, what do you prioritize as experiences that you encourage/provide for your own graduate students?
4. In what ways did your graduate school mentors help you achieve research independence?
5. What were the most important research resources (books, programs, etc.) that you learned about during your graduate work time?
6. What do you think the most important resources are that you use most today that you learned about after your graduate work time?
7. What other preparation issues do you think were important to your current success as a researcher?

Current Research Practices

1. What are your guiding thoughts about your scholarship (Why do you do it) and (To what extent do you enjoy writing research as an intrinsically motivating activity)?
2. What do you see as your greatest strengths in the research area, and what do you think is the key to your research success?
3. What are the goals you set for yourself in terms of research?
4. How do you continue to improve your skills in research?
5. What are any daily issues that may prevent you from doing your research?
6. How do you schedule your research gathering/writing time across a semester?
7. How do you prioritize these scholarly activities: poster sessions, research presentations at conferences, writing articles, and grant writing.
8. What is the teaching/research/service load expectation at your university, and if you had a choice, how would you change your teaching/research/service load weighting?
9. How does research productivity relate to load expectations at your university (i.e., could teaching loads be reduced for those with high levels of research productivity)?
10. How do you balance research and *you* time or family time?
11. What is your co-author philosophy/practice with colleagues?
12. How do you utilize undergraduate or graduate students in your research process?
13. Based on your current practice as an editorial board member, what research skills and knowledge do you think would be beneficial for music education researchers to learn more about or prioritize to a greater extent in their instruction to graduate students?

Demographic questions

1. What is your music content-area specialization (instrumental/choral/general music)?
2. What is your age?

3. How many years have you been at your current institution?
4. How many years were you at other institutions?
5. Would you consider yourself a self-sufficient introvert? Why or why not?

*Note:* Gender, assistant/associate status, and state demographic data were obtained online

In addition to the interview questions that provided results for the study, participants were also asked five demographic questions. All interview prompts and demographic questions came from review of the literature material and were checked for content validity by a panel of three experts on research who were not part of the current study.

After completing IRB consent forms, each participant was interviewed for an average length of 57.00 minutes (ranging from 39:08 to 85:47,  $SD = 11.71$ ). The interview time totaled 740.96 minutes (12 hours and 35 minutes), resulting in 56.50 hours of transcribing and 196 total pages in the final transcript. Each participant reviewed his/her own interview transcription as a member check. Also, an external evaluator reviewed the coding of the responses within the categories of graduate preparation and current research practices as an authenticity and auditability check (Miles, Huberman, & Saldana, 2014).

## **Results**

### **Graduate Preparation**

All participants noted that they took content courses that used research studies as source material. In addition, participants ( $n = 12$ ) completed an average of 4.00 (ranging from 2 to 6,  $SD = 1.13$ ) specific research methodology/analysis classes in and out of the music area. The one participant who had no methodology/analysis classes stated that all coursework had embedded research readings and that content was the main goal of the coursework:

I realized that research methods and advanced modes of inquiry could be easily understood if you are driven to learn and discover on your own. So if I want to learn about how to do linear regression appropriately I'm going to be an independent individual who can pull a book off the shelf or go to the business library and get some materials and learn it on my own.



Three participants had historical research, and nine participants had both qualitative and quantitative research courses. Advocating for comprehensive methodology/analysis course preparation, one participant stated:

It's clear to me that we can no longer prepare students who are only qualitative researchers or quantitative researchers. They have to have expertise in each of these areas. Even mixed-methods is something to understand and know about these days. If you understand various methodologies, then you can allow the research question to drive the selection of the methodology. And that's different than I think it was when I was a doctoral student. I think all students need to come in and be prepared broadly now in order to be successful.

When asked whether they perceived their coursework as sufficient to prepare them for research in their future, seven participants stated yes and six stated no. Those who stated yes tended to highlight the need for researchers to learn throughout their careers, and those who stated that they perceived inadequacies in their preparation cited weaknesses in qualitative research ( $n = 3$ ), quantitative methodology ( $n = 2$ ), historical research ( $n = 2$ ), research lab experiences ( $n = 1$ ), and pragmatic ethics discussions ( $n = 1$ ).

Participants perceived the most valuable out-of-class research experiences to be attending conferences/poster sessions ( $n = 9$ ), extra projects ( $n = 6$ ), and co-authoring with a major professor ( $n = 3$ ). For their own students, they valued having group/lab research experiences ( $n = 6$ ), having opportunities to do peer review ( $n = 5$ ), encouraging students to write frequently ( $n = 5$ ), and encouraging students to present research at conferences ( $n = 4$ ). All participants believed that mentors had served an important part of their socialization as a faculty member/scholar, using terms should as “encouraging”, “pushing”, “preparing”, “practicing”, and “finding a passion area to study”. A commonly described technique ( $n = 11$ ) was to practice and then have the students do it themselves, as in “they modeled, modeled, modeled, and then said ‘you’re on your own’; it was always with a net.”

Most participants ( $n = 10$ ) stated that they still use some foundational resources from their graduate years, but they have added newer, more up-to-date resources over time. Participants ( $n = 5$ ) specified that technological resources were the most common to be replaced on a regular basis.

Three participants stated that people-as-resources were much more important than any program or book.

The experience that was most commonly cited as pivotal to their own development as a researcher was choosing graduate experiences carefully to maximize the potential to promote a researcher identity ( $n = 7$ ), such as in the following participant quote:

I think selecting a major professor can profoundly influence your path towards being a researcher. And so, there, I would say we have to select wisely and look for individuals who publish regularly, are well versed in the field, and...this is really key...are more interested in your career than their own, at times.

Participants also documented the following pivotal experiences/traits: perseverance ( $n = 3$ ), being surrounded by bright, motivated people ( $n = 3$ ), hard work ( $n = 2$ ), maintaining a high level of musicianship, and teaching and research skill ( $n = 1$ ), and regularly reflecting on research ( $n = 1$ ).

### **Current Research Practices**

All participants agreed that doing research was an intrinsically motivating activity, because they were curious ( $n = 7$ ), enjoyed the research puzzle ( $n = 4$ ), and loved to learn ( $n = 4$ ). Some participants regretted not having enough time to do the amount of research they wanted to ( $n = 4$ ). Other participants ( $n = 6$ ) noted that they enjoyed research more now and were more motivated than when they first began because they are better at research now ( $n = 3$ ) and have a clear line of research that allows them to move to bigger questions ( $n = 3$ ). As one participant stated, "I learned that the more I write the better I get as a writer and the more things flow, the better ideas get captured on a page, and so that practice really taught me a lot about the right process."

The most commonly cited research-related strength was methodology/design ( $n = 5$ ), followed by idea generation ( $n = 3$ ), writing ( $n = 3$ ), and statistics ( $n = 2$ ). When asked what their key to success was, the greatest number of participants cited the ability to ponder interesting questions ( $n = 7$ ), followed by having a thorough grounding in research methodologies/analysis ( $n = 6$ ), working hard based on parent modeling from their youth ( $n = 2$ ), being mentored well during graduate school ( $n = 2$ ), having practice in writing ( $n = 2$ ), and having a reduced load that allows for the time to do research ( $n = 2$ ).

The most common research goals participants set were to always have multiple projects in various stages (short term and long term goals) ( $n = 9$ ), followed by having goals be driven by the specific research questions ( $n = 8$ ), having a line of research that leads to future goals ( $n = 5$ ), and having studies that can lead to promotion/tenure ( $n = 3$ ). Three participants noted that their goals were now based on more comprehensive research questions than the questions were when they first began their career. When asked how they improved their research skills, participants cited reading in and out of the field ( $n = 12$ ), interacting with intelligent colleagues ( $n = 9$ ), editing/reviewing research studies ( $n = 8$ ), teaching/mentoring/interacting with intelligent students ( $n = 6$ ), attending conferences ( $n = 3$ ), auditing courses ( $n = 3$ ), and receiving department of education training, attending campus lectures, MOOCs, podcasts, and TED Talks ( $n = 1$  each). The daily issues that were cited as preventing participants from doing their own research were administrative tasks ( $n = 7$ ), committee work ( $n = 6$ ), email ( $n = 5$ ), student projects/advising ( $n = 5$ ), editing ( $n = 3$ ), politics ( $n = 2$ ), and a long commute ( $n = 1$ ). In addition, one participant discussed the time challenge of serving on a review board by stating:

Reviewing has helped me grow a lot, but I think if I had to make one choice in the scholarship part of my career, I would have done less of that. I enjoy doing it. I enjoy helping others, but at the same time, all I could contribute, at times, to scholarship, was reviewing.

When asked about scheduling of research work, the participants tended to categorize the easiest time to write as non-teaching times during summers, weekends, evenings, or sabbaticals ( $n = 9$ ), followed by scheduling around other things as needed, such as teaching and editorial board responsibilities ( $n = 6$ ). Squeezing in an hour at a time was documented as an untenable option by some ( $n = 5$ ) although one participant stated:

When I set a little goal, I can manage to try to do something in the context of an hour or two hours, so I can schedule some smaller chunks for those kinds of things, but invariably there are things that need to happen that consume time. So, I do some small-increment stuff to make me feel good about goals accomplished, but then sitting down to write a paper I could do for hours and hours.

The majority of participants documented the need to have an extended period of time to approach research projects, with the most common protocol being a day or afternoon off at home or away

from the office ( $n = 11$ ). Avoiding distractors (e.g., phones and emails) was an important part of scheduling ( $n = 5$ ). The participants set specific goals based on where projects were in the pipeline or when application deadlines were for conferences or papers ( $n = 9$ ); the goal setting commonly clarified priorities and helped productivity ( $n = 7$ ). As one participant stated, “what I think you’ve got to do is not use that ‘busyness’ that we all have as an excuse to not do research. Somehow you’ve got to figure it out.”

In terms of the dissemination possibilities of poster sessions, research presentations, and publications, the most common perception was that all three were an important part of the development of a project, starting with a poster, leading to the presentation, leading to a publication ( $n = 10$ ). A publication was commonly viewed as most valuable by the profession and by institutions ( $n = 9$ ), such as in the following participant quote:

Looking at it from a promotion and tenure standpoint, publications hold the most weight. But, I see it as a process; a lot of times I’ll do a poster and then I’ll do a presentation and then I’ll publish, and the reason I do that is so I can get feedback from peers about the work prior to submitting it to a journal.

Participants ( $n = 7$ ) stated that they enjoy the feedback from presentations, such as in the following participant quote:

A conference presentation really forces you to boil things down and it often helps me decide what the headings are going to be in an article. What are the real key points here and so that helps me organize, plus, I think conference presentation and posters are helpful for getting feedback from peers: things I might not have thought about. To me it functions like peer review in a way.

Some participants stated that they enjoy the interaction/networking and learning from poster sessions ( $n = 5$ ), although there were dissenting opinions on posters ( $n = 2$ ), such as in the following participant quote:

My graduate students are in upright rebellion about poster sessions. They think they are dumb; they’re not meaningful; they don’t think that they engage people; they feel like they are back in seventh grade science class, and I have to say that I think I’m on the same page. We need a newer model. So, poster sessions I don’t do at all anymore.

Priorities may be different at different stages of a career ( $n = 6$ ); as one participant stated, “I’m most interested these days in publishing articles, and second would be research presentations, and a distant third would be posters, but I think for people who are just getting into it, maybe it

goes the other way.” Similar to different research activity priorities at different stages of a career, participants also noted different topic area priorities at different stages of a career. Participants ( $n = 4$ ) specifically discussed weighing priorities in terms of broad topic areas such as interdisciplinary research. As one participant stated with concern about preparing future faculty, “I think generically, just like I like kids and puppies, interdisciplinary research would be good, but we have to be really careful about it because it doesn’t tend to help people get tenure. The interdisciplinary part can be professionally dicey.” Another, however, said interdisciplinary research was a positive area at the current stage in his/her career: “I think the interdisciplinary aspect of research for me is really big. It’s one way to really understand whatever phenomenon I am interested in.”

For most participants, grants were not a common component of their research process ( $n = 10$ ), other than internal, university grants. The most frequently cited reason for not concentrating on grants was they were hard to find in music education ( $n = 5$ ), followed by grant writing being a frustrating process ( $n = 4$ ), and grants being time consuming to write ( $n = 3$ ). As one participant stated, “My mentor told me early on, ‘Do research that you can sustain yourself because if you spend your time writing grants you’re not doing research.’”

The stated teaching loads at the participants’ universities were 2/2 (or 2 fall classes and 2 spring classes) ( $n = 5$ ), 3/2 ( $n = 5$ ), 3/3 ( $n = 2$ ), and 4/4 ( $n = 1$ ), but load reductions were made for administrative tasks or overloads were described for assignments such as student teaching. When asked what the ideal teaching load would be, participants most commonly stated that their current teaching load is ideal ( $n = 5$ ), followed by the desire to: move to a 2/2 load ( $n = 4$ ), teach other classes ( $n = 3$ ), lessen administrative responsibilities ( $n = 3$ ), serve on fewer committees ( $n = 2$ ), and have fewer independent studies/student projects ( $n = 2$ ). When asked whether teaching loads could be reduced at their universities due to high research productivity, eight participants said yes and five participants said no. Participants clarified that faculty could make requests for course reductions for special projects through university or administration processes ( $n = 4$ ), faculty could

request sabbaticals ( $n = 3$ ), new faculty could negotiate a lower teaching load during the hiring process ( $n = 2$ ), and faculty could informally ask other faculty to cover classes ( $n = 2$ ).

When asked about how they maintained balance between their research and time for themselves and/or family, the most common response was having a supportive spouse to help ( $n = 6$ ), followed by the need to consider priorities, with work sometimes needing to happen at home when deadlines were near, but family being most important whenever they were home and could make it the top priority ( $n = 5$ ). Participants also stated that they had great focus at work so that they could make time at home about the family ( $n = 4$ ), and that their research time over the years had become more efficient because they were more practiced and refined at their research skills ( $n = 4$ ), and that they scheduled research and family activities on a calendar so that they maintained a strategic balance between the two ( $n = 3$ ). In addition, participants stated that they needed to prioritize space in their schedules for health and wellness so that they could stay active and happy ( $n = 3$ ). It should also be noted that there were participants who admitted that balance was not at all a perceived strength of theirs and they were constantly struggling with this issue ( $n = 3$ ).

With all students we need to talk about life balance. I think my wife, who is also an educator, has to carry the load with our children more than I, and so doctoral students need to be made aware of this issue and its potential impact on their lives, careers, and marriages. If females want to break through the glass ceiling and become lead researchers or university administrators, it's definitely a challenge juggling it all, especially with all of the single or male administrators out there who may not understand.

When asked about their co-author experiences, the participants described a process where the procedural path for the co-authorship decisions were made based on the specific co-authors involved; the most commonly cited protocol choices were to take the sections to write and divide them up to the various co-authors ( $n = 8$ ) or work organically in a brainstorming-collaborative process ( $n = 5$ ). Participants ( $n = 6$ ) stated that working with colleagues has the benefit of providing motivation and a variety of perspectives, and participants ( $n = 8$ ) stated that working with graduate students serves a mentoring function, with some participants ( $n = 3$ ) noting that they started their career by being mentored by co-authoring with their major professor. One participant also noted that he enjoys working with more experienced faculty so that he can be

mentored and grow even at this more experienced stage in his career. Co-authors usually linked up by area of interest ( $n = 5$ ) and personality match ( $n = 3$ ) and many participants ( $n = 7$ ) had tended to take the lead in organizing their co-author work.

The challenges with co-authoring were described as agreeing on deadlines and keeping them ( $n = 3$ ), the researching and writing process taking longer ( $n = 2$ ), writing style agreement and consistency ( $n = 2$ ), and the concern that co-authoring may delay the graduation of some graduate students ( $n = 1$ ). Four participants noted their perceived concern about whether co-authoring is valued by the profession as much as single author work. Overall, participants ( $n = 9$ ) tended to agree that the benefits outweighed the possible challenges, even with the concerns. As one participant stated about co-authoring and promotion and tenure (P & T):

I'll be the first to say that I'm convinced my co-authored work is better than my sole author work. How could it not be? I'm all for co-authoring, but it terrifies me because it just takes that one person on a P & T committee to say that this person has co-authored too often and you lose your job.

When providing feedback as editorial review board members, the most common comment the participants wrote was the need to clarify the methodology ( $n = 7$ ) followed by clarity in the research questions ( $n = 4$ ), providing a convincing need for the study ( $n = 4$ ), and improving writing style ( $n = 3$ ). When teaching their own graduate students about research, the participants prioritized the following concepts: writing style ( $n = 5$ ), peer critiquing ( $n = 4$ ), data analysis and statistical concept understanding ( $n = 4$ ), the extended editing/revising process ( $n = 4$ ), reading quality articles ( $n = 4$ ), education on each journal's style and which articles might fit best with which journal ( $n = 3$ ), and APA style mastery ( $n = 2$ ).

## **Discussion**

As with any study with a small, purposefully chosen sample, the results should be generalized with caution. The results of the study can, however, provide an initial, exploratory view of emerging research leaders in music education. A description of the path toward research leadership can provide university faculty with choices to weigh in the coursework and mentoring experiences that can be introduced to students.

Participants in the study tended to have taken multiple research methodology/analysis courses in addition to content area courses that used research reading source material. As past researchers have also cited (Eisenhart & DeHaan, 2005; Young, 2001), then, it may be ideal for programs to provide options for students to take a variety of methodology/analysis courses if they so desire. In case students do not partake of research methodology/analysis courses in programs that do not have such courses as degree requirements or options, it may be useful for content courses to address, strategically and systematically, the conceptual understanding of research methodologies and analysis techniques, in addition to covering music education content. That is, it would be important for classes not to skip the method and results sections for ease of reading; in these content courses it may be beneficial for students to discuss the methodological and analysis trends across the studies and ideally the faculty member could provide valuable resources in case the students might need to use and interpret the statistics/techniques in a study at a later time. In terms of class content, past researchers have documented interdisciplinary work as valuable (Eisenhart & DeHaan, 2005; Pallas, 2001), however participants in the current study described contrasting perspectives about interdisciplinary research depending on when in a career it might be undertaken, with later in the career possibly being preferable to earlier.

As found by past researchers (Campbell, 2002; Duerksen, 1992; Duke, 2010; Flowers, 2012; Geringer, 2000; Humphreys, 2006; Jellison, 2004; LeBlanc, 1992; Madsen, 1988; Radocy, 1998; Yarbrough, 1996) mentors were perceived to be important to students' research identity development. Because of the importance of the student-mentor relationship, it may be valuable for doctoral students to be able to choose their own mentor who will be able to meet their personality, content, and research needs.

The participants described research-nurturing experiences as being pivotal, including working with a group of motivated, intelligent people and having research modeled and experienced regularly during their studies. Ideally, universities would have a way for faculty to work together to be an example of cooperative research strength. Universities may also want to



consider adding lab experiences in music education, with other students, or students and faculty, or across complementary content areas such as music and cognition, so students can experience peers and mentors as researchers. The participants in the current study did not document grants as a common research practice, so in weighing doctoral experiences, grant writing may be lower on the list of important activities. Institutions may want to continue to monitor the status of grant requirements in terms of tenure for future doctoral preparation. If grants become more important in the future, music education labs could consider adding grant writing as an embedded learning activity. Then, faculty members would have had some contextual experience with grant writing in a safe environment without the pressures of the tenure time clock.

Encouraging students to attend and present at conferences as well as publish early in their career seemed to be an important developmental process for these participants that could be encouraged with doctoral students as they are progressing through a doctoral degree. Faculty who can highlight behind-the-scenes thought processes of how to search out, choose, and replace educational and research resources when they become obsolete may also help students think through steps that will be useful to them when they become faculty members.

As in past research (LeBlanc & McCrary, 1990), participants in the current study documented similar intrinsic motivations of curiosity, enjoyment, and love of learning; as an extrinsic factor some participants addressed meeting the demands of getting tenure. University faculty members may be able to spot curious, hard-working master's students to guide them into research experiences that would encourage their research outlet and clarify their future career path. For those students in the doctoral program, discussing how to progress through a line of research leading to tenure and presenting options for scheduling research time may put a spotlight on issues that are important to research success, but are commonly assumed as background knowledge instead of being strategically addressed in graduate school. Specifically, faculty could let students know that it might be in their best interests and should not be perceived as negative to take a day off campus for research time each week. Also, discussing the

learning benefits and scheduling challenges associated with becoming a review board member may help students determine the best time and best journal with which to start the editorial review board experience.

It may help educate students about university load issues if contextual information like faculty teaching loads at their own universities were discussed in terms of the variety of responsibilities that can impact time; this type of context may help empower students to be advocates for themselves when it comes time to negotiate for a manageable teaching load if they are considering a faculty line with research expectations. Having discussions about real life balance scenarios may also help students weigh which university might best be able to meet their work and life/family-related needs.

Because co-author experiences were generally considered to be valuable with colleagues and with students, it might be useful for universities to consider curricular additions/modifications to highlight this experience, whether that would be a new class or a specific activity in a doctoral seminar, or an independent study project with a chosen faculty member. Whether curricular or not, co-authoring may be an important topic to broach with students, not only for the experience itself, but to model the ways to approach the procedures for structuring co-authorships. Co-authoring activities could logically include peer/faculty review modeling. In addition, it would be useful for faculty to show students their own articles in various stages of progress; if students could attend poster sessions and research presentations with their mentors, they might get further context of the development of an article so that they could see the timeline and dedication it takes to complete a project.

While curricular changes are sometimes difficult to implement, faculty could approach many of the issues addressed in the current study in discussions with students during pre-existing seminars or independent study classes or even informally over lunches. While some of the topics may seem obvious to seasoned veteran researchers, new faculty members have so many new issues vying for their time, that providing an advance warning/experience for students may help them manage the transition better so that they, too, have the possibility of

becoming future research leaders.

### Keywords

research, preparation, graduate, coursework, productivity

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# **The Prevalence of the Use of Music as a Teaching Tool Among Selected American Classroom Educators: A Preliminary Examination**

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## **Background**

The importance of music education in American schools is well established, with 93% of Americans agreeing that music should be a part of a well-rounded education (Harris, 2005). Results of ongoing national surveys for 2009-2010 (the most recent data available) indicated that 94% of reporting public elementary schools offered instruction in music. Exactly who provides that music instruction is unclear, leading to ongoing discourse about the varying contributions of arts specialists, classroom teachers, and non-certified supplemental teachers as delineated in a recent position paper by the State Education Agency Directors of Arts Education (Richerme, Shuler & McCaffrey, 2012). Among elementary classroom teachers (non-music specialists), 6% indicated they taught music as a separate subject, while 92% incorporated music instruction in other subject areas (National Center for Education Statistics, May 2011); thus most school music instruction appears to be in the hands of music specialists.

Students preparing to teach in the elementary classroom (elementary education majors) in American colleges and universities typically take a music class (sometimes two) as part of their preparation. The content of these preservice classes for non-music majors often includes personal musical skill development, music literacy, ways to teach music, and occasionally strategies to use music as a tool to teach other subjects (Berke & Colwell, 2004; Hash, 2010; McCrary, 1999; Price & Burnsed, 1989). The specifics of integrating music into other subject matters have been of interest to researchers (Colwell, 2008; Giles & Frego, 2004; Kelly, 1998; Saunders & Baker, 1991; Whitaker, 1996). In an often-cited qualitative study, Bresler (1995) identified four types of integration styles ranging from *Subservient* in which arts serve to teach

other subjects, to *Co-equal, Cognitive Integration* in which arts objectives have equal importance with other subjects.

Subsequently, other researchers have used Bresler's terminology to evaluate whether music goals were being taught in arts integration situations (Colwell, 2008; Giles & Frego, 2004; Hash, 2010). Following that same philosophical direction, Barrett (2001) advised maintaining musical integrity in interdisciplinary settings. Fewer researchers examined music as a tool to teach other subjects, what Bresler (1995) called *Subservient Integration*, although some (Colwell, 2008; Giles & Frego, 2004) mentioned that the term was not meant to be pejorative. An examination of the literature revealed that, although not referencing Bresler's terminology, most researchers generally focused on music as subject matter when examining music taught by classroom teachers. Further emphasizing the focus on music as subject matter, Abril and Gault (2005) surveyed elementary classroom educators' belief in the importance of musical goals, while Kelly (1998) examined awareness of state and national music standards among preschool teachers.

Despite the pervasiveness of university music courses for preservice classroom teachers, relatively few researchers, with the exception of Giles and Frego (2004), Hash (2010), and Kelly (1998), have examined how music is actually used in the general classroom after teachers leave the university. These three studies focused on evaluating the use of music as a subject, and the teachers they surveyed represented relatively small geographic areas or those trained at a specific university. Thus we designed the present study to examine how in-service classroom teachers use music, while purposefully removing the factor of teaching music as a subject. In addition we sought to broaden the geographic reach of our survey.

Specifically, the purpose of this study was to examine: 1) To what extent do classroom teachers use music in their classroom? 2) Among those who use music, how and in what settings do they use music? 3) What materials and resources are found to be most useful? and 4) Where do classroom teachers acquire musical materials and strategies?

## Method

We designed a study in which in-service classroom teachers were questioned regarding their use of music in their classrooms. We debated whether to use completely open-ended questions or to offer menus with a selection of possible responses. Ultimately we decided to create an original survey using a menu of predetermined items in order to evaluate the response of each participant to identical questions. As a way of acquiring more open-ended responses not guided by our pre-determined lists, each participant was also invited to a more in-depth phone interview to explain and expand on his/her original survey responses.

## Participants

We purposefully sought to exclude classroom teachers who taught music as a subject matter to emphasize our research questions pertaining to the use of music rather than the teaching of music. Thus we limited our consideration to schools that had had an experienced music specialist on staff for at least 3 years. We reasoned that in settings in which music was taught as a subject by music specialists, classroom teachers might feel less pressured to teach music objectives (Colwell, 2008), thus allowing us to examine music used as a classroom assistive tool. To accomplish our goal of including only schools that had a history of music specialists, we contacted music teachers known to us, identifying teachers from different areas of the country and different socio-economic settings. Each music educator we contacted was asked to forward our survey to the classroom teachers in their schools or districts with a scripted invitation from themselves and us. Thus the resulting responses constituted a purposeful sample of convenience rather than a random sample. This methodology did not allow us to track exactly how many teachers were contacted, so our response rates were unknown.

Ultimately, classroom teachers from 12 schools ( $N = 79$ ) from diverse parts of the United States participated (five elementary schools in Texas = 39 respondents; three Georgia elementary schools = 21; a single elementary school in South Carolina = 14; a single Oregon elementary school = 3; and elementary schools in unnamed states = 2).



## The Survey

A researcher-designed survey was created and then evaluated by experienced elementary music educators ( $N = 3$ ). Modifications to wording and content were made until consensus was reached. Specific questions and menu items for possible ways to use music were based on advice from experienced elementary music educators, classroom teachers, the researchers' own experience, widely-available texts for classroom teacher music classes (Boyer & Rozmajzl, 2012; Campbell & Scott-Kassner, 2013; Fallin & Tower, 2011), and studies cited in the review of literature. Institutional Review Board permission was received from both researchers' institutions, and all informed consent protocols were followed.

The resulting survey was entered online using SurveyMonkey and a link was emailed to all participants via the music specialists in their schools. The survey consisted of ten questions requiring short answers or checkboxes from a menu of possible answers. The survey solicited demographic information (grades taught, years of experience, previous music experiences, university music courses taken), how often music was used in the classroom (daily, weekly, monthly, rarely, never), what types of music were used (children's songs, popular songs from CDs/radio, classical recordings, etc.), and, most importantly for the purposes of this study, how music was used (transitions between activities, reading stories, counting games, language songs, science lessons, energy release, background for quiet time, etc.). The survey appears in Table 1. A final question asked respondents to include their email addresses indicating their willingness to discuss their use of music in more detail via a phone conversation. Fifty of the 79 did so. We contacted the 50 and asked them to call us at a prearranged time; interviews were then held with 4 respondents. This paper reports the result of the survey responses ( $N = 79$ ) and interviews ( $N = 4$ ) collected to date as a window into the preliminary findings.

*Table 1.* Survey Questions: Use of Music in the Elementary Classroom

1. Number of years in the teaching profession?
2. Name of school(s) and grade(s) you are currently teaching?

3. Overall, how often do you use music in your classroom?  
Daily Weekly Monthly Rarely Never
4. How often do your students sing songs in your class?  
Daily Weekly Monthly Rarely Never
5. How often to you let students bring recordings to class?  
Daily Weekly Monthly Rarely Never
6. What kinds of recorded music (if any) do you plan in your classroom?  
(Check all that apply)  
Currently Popular  
Popular Music of the Past  
Classical Vocal  
Classical Instrumental  
Children's Songs  
Musical Theater  
Music from Movies  
Jazz  
Music from Other Countries  
Other (please specify)
7. How do you use music as a teaching tool? (check all that apply)  
Music as a reward for behavior or classwork  
Music to get students' attention  
Music as transitions between activities  
Music as background for quiet time  
Music for energy release  
Songs for classroom management (clean up songs, get-in-a-circle songs, etc.)  
Music as a break from academic activities  
Music to teach concepts in Social Studies  
Social Studies: Music from another time or culture  
Social Studies: Music representing other geographic areas  
Music to teach concepts in Language Arts  
Language Arts: Music to read stories  
Language Arts: Music for language learning  
Music to teach concepts in Mathematics (counting games, etc.)  
Music to teach concepts in Science  
Science: Music to explain acoustics and sound  
Science: Songs about science (rain cycle song, etc.)  
Music to aid in memorization (alphabet song times tables, names of states, etc.)  
Other (please specify)
8. Where do you find music to use in your classroom? (check all that apply)  
Music I learned as a K-12 student  
Music I learned from a collegiate teacher preparation course  
Music teacher at your school  
Fellow non-music teachers  
YouTube  
Internet  
Books

Movies/TV/Radio/CD  
Other (please explain)

9. Did you take courses in music or participate in music? (check all that apply)

As part of my collegiate teacher preparation

One music course

Two music courses

More than two music courses

In high school or middle school

Outside of school

Did not take music classes in college or secondary school

10. We would like to talk at length with selected classroom teachers who use music in frequent and innovative ways in their classrooms. Would you be willing to talk further with us about your use of music in your classroom? If so, please list your email and we will contact you about the possibility of further interview details.

### Telephone Interviews

Phone interviews consisted of a list of researcher-designed, open-ended questions to identify and categorize specific strategies, websites, songs, and activities used by these teachers as specified in Table 2.

*Table 2.* Script of Semi-Structured Phone Interview Questions

#### Overview

How do you use music in your classroom?

Where or when do you use music in your classroom?

What kinds of music do you use? Why?

#### Teaching Techniques

What do you think is your most successful way to integrate music into your classroom?

(Please share some examples that have worked for you.)

What do you wish you knew more about when trying to integrate music into your classroom?

Why do you (or do you not) think music is a valuable tool in your classroom?

#### Musical Sources

What is your own musical background?

How did/do you find out about different ways to use music?

(Prior Training, colleagues, any specific websites, etc.)

Do you have any favorite music websites?

What criteria do you use to select music for your classroom?

Would you use music more often if you had more training?

#### College Courses

Were your college music courses helpful?

How could college music courses more adequately address your needs in the classroom?

If you were to give advice on how to use music effectively in the classroom, what would you say?

### **Conclusion**

What else would you like us to know about your use of music as an educator?

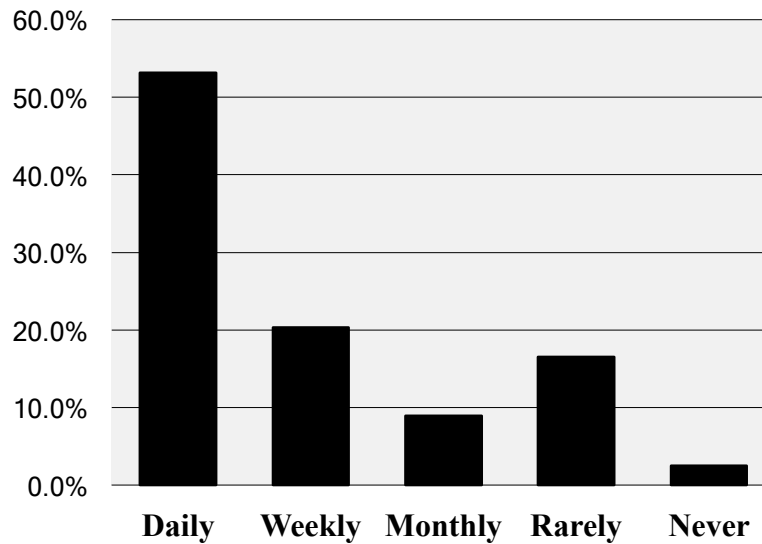
The open-ended questions were repeated for each interview, and generally guided the conversation, but we encouraged respondents to simply tell us about their experiences using music, creating a semi-structured environment (Wengraf, 2001). Phone conversations were audio-recorded and comments subsequently scripted in order to apply qualitative techniques to identify emerging categories and areas of contrasts and similarities among responses. Scripted data were analyzed using a constant-comparative model (Merriam, 2009), allowing continual comparison of a particular interview with the others.

## **Results**

### **Written Surveys**

**Demographics.** Teaching experience averaged 11.9 years, ranging from 1 to 35 years. All grades pre-K – 6<sup>th</sup> were represented (Pre k – 1<sup>st</sup> = 26, 2<sup>nd</sup>-3<sup>rd</sup> = 18, 4<sup>th</sup>-6<sup>th</sup> = 17; no grade mentioned = 15). Subjects taught included general classroom (58), special education (4), gifted and talented (2), and English as a second language (1).

**Frequency of Music Use.** The daily use of music was reported by 53.2% of the classroom teachers; 2.5% reported never using music. A total of 73.5% reported they used music daily or weekly; and 19% used it rarely or never. Details appear in Figure 1. Results of specific questions regarding frequency of singing indicated that 63.3% sang daily or weekly in class; 22.8% rarely or never sang.



*Figure 1.* Frequency with which classroom teachers ( $N = 79$ ) indicated they used music in their classrooms.

**Music as a teaching tool.** Respondents could check as many items as applicable from the list provided. Results indicated that respondents ( $N = 79$ ) selected 565 ways they used music in their classroom (with a mean of 7.15 responses per teacher). The most frequently mentioned uses for music in the classroom included music for quiet time (69.6%), music to aid memorization (60.8%), music to get students' attention (51.9%), music to teach concepts in mathematics (48.1%), music as transition between activities (45.6%), songs for classroom management (44.3%), music to teach concepts in language arts (44.3%), songs about science (39.2%), music to teach concepts in social studies (32.9%), music to read stories (31.6%), music to teach concepts in science (30.4%), and music for language learning (30.4%). All other responses were checked by fewer than 30% of the respondents. Details appear in Table 3.

*Table 3.* Use of music as a teaching tool. Respondents (N = 79) selected 565 ways they used music. Mean number of responses = 7.15 per teacher.

<b>How You Use Music in the Classroom?</b>	<b>Response Percent</b>	<b>Response Count</b>
Music as a reward for behavior or classwork	24.1%	19
Music to get students' attention	51.9%	41
Music as transitions between activities	45.6%	36
Music as background for quiet time	69.6%	55
Music for energy release	51.9%	41
Songs for classroom management	44.3%	35
Music as a break from academic activities	30.4%	24
Music to teach concepts in Social Studies	32.9%	26
Social Studies: Music from another time or culture	24.1%	19
Social Studies: Music representing other geographic areas	22.8%	18
Music to teach concepts in Language Arts	44.3%	35
Language Arts: Music to read stories	31.6%	25
Language Arts: Music for language learning	30.4%	24
Music to teach concepts in Mathematics	48.1%	38
Music to teach concepts in Science	30.4%	24
Science: Music to explain acoustics and sound	19.0%	15
Science: Songs about science	39.2%	31
Music to aid in memorization	60.8%	48
Other	13.9%	11

**Where do teachers find music?** The largest numbers of teachers found music on the internet (49.4%) or from movies/TV/radio/CD (49.4%). Others selected music they themselves learned as K-12 students (44.3%), YouTube (34.2%), and from fellow classroom teachers (30.4%). All other sources of music, including music from the music specialist at their school (24.1%) and music they learned in college classes (29.1%), were checked by fewer than 30% of the respondents (see Table 4 for complete results).

*Table 4.* Sources of music for the classroom.

<b>Where do you find music to use in your classroom?</b>	<b>Response Percent</b>	<b>Response Count</b>
Music I learned as a K-12 student	44.3%	35
Music I learned from a collegiate teacher preparation course	29.1%	23
Music teacher	24.1%	19
Fellow non-music teachers	30.4%	24

YouTube	34.2%	27
Internet	49.4%	39
Books	22.8%	18
Movies/TV/Radio/CD	49.4%	39
Other (please explain)	30.4%	24

**Kinds of recorded music.** Teachers indicated that they typically chose the following types of music: children’s songs (67.1%), classical instrumental (64.6%), music popular in the past (39.2%), and currently popular music (30.4%). All other responses were checked by fewer than 30% of the respondents. When asked if they allowed students to bring recordings, the vast majority indicated that they rarely or never did (91.1%). Few (3.8%) allowed students to bring recordings daily or weekly.

**Personal music experience.** Respondents indicated that they themselves had music experience in middle or high school (50.6%), as part of collegiate teacher preparation (46.8%), or outside of school (26.6%). Nearly one in five respondents indicated they had never had music classes (19.0%). See Figure 2.

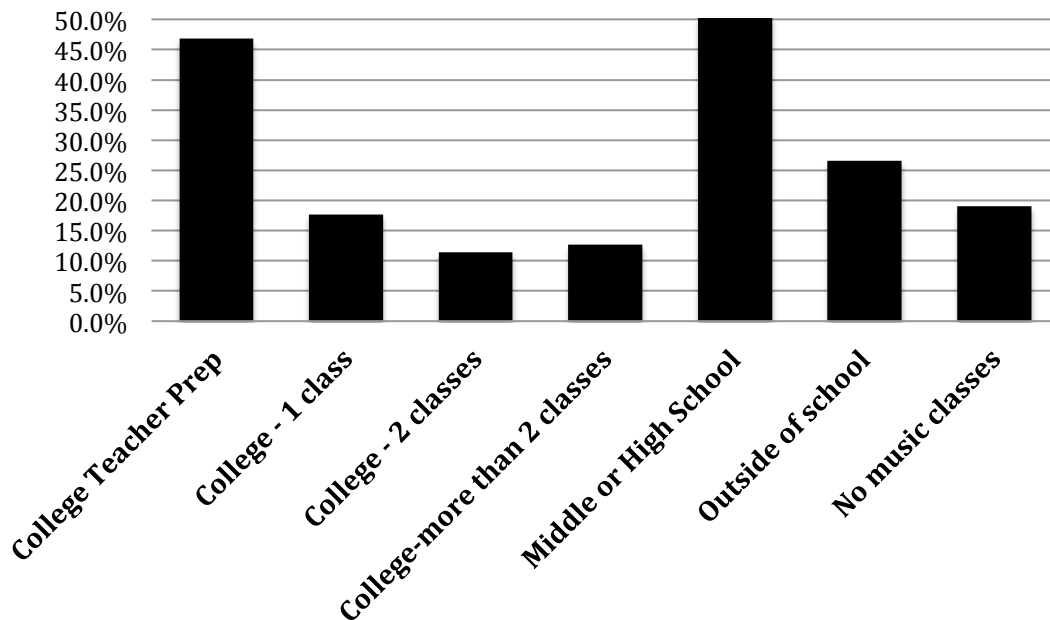


Figure 2. Personal sources of music experience.

### Telephone Interviews

Telephone conversations ( $n = 4$ ) confirmed and extended the survey responses. Interviews lasted between 12 and 38 minutes and were largely guided by how much the respondent wished to talk. Telephone respondents were uniformly enthusiastic about their use of music and its value in their classroom.

All interviewees mentioned using music because their own teachers had used it while they themselves were in elementary school. A Texas kindergarten teacher on a military base with a transient population explained:

Don't laugh at me, but I can still recite things that Ms. Taylor taught me in fourth grade because she taught them to me in a song. And I can still sing my prepositions from seventh grade because they taught them to me in songs. To me, it's just like I could always remember stuff so it's logical to assume that it works.



All four gave examples of using music. For example, a Texas third grade teacher from a large urban district explained:

I make CDs of music and put songs on them that the kids would like to check out. I have them high five each other when I put a clip of the song on. Well, all I know is that it brings them back. If it looks like they're getting bored, or it looks like they're getting tired then I usually just use (music) to get them energized.

Three of the four created their own songs to fit curricular needs (chiefly adding words to known tunes) and sang several of them during the phone conversation. None of the respondents felt their college preparation music classes were helpful. A Georgia fifth grade teacher in an urban setting was typical: "Well, (long pause) I guess I must have had such a class (long pause). I just don't remember anything from that class. Nothing I can possibly use now anyway."

## **Discussion**

The current study was designed to explore the use of music by elementary classroom teachers who presumably did not teach music as a subject because their schools had a music specialist. We asked to what extent classroom teachers used music in their classrooms and found that only two (2.5%) never used music and 42 of the 79 respondents (53.2%) used music daily. Such responses are even higher than the National Center for Education Statistics (2011) data that indicated that 92% of classroom teachers reported incorporating music in other subjects. Please note that it is possible that those replying to our survey might have tended to be more positive about the use of music. Teachers who did not to use music simply might not have completed the survey.

The respondents indicated that they sang frequently. The fact that 41.8% reported singing songs daily, as compared to 53.2% who used music daily, indicates the extent to which music other than singing was used. Note that approximately one in five (22.8%) sang rarely or never. Such findings seem consistent with Kelly's (1998) determination that his preschool in-service teachers found that the most useful pre-service instruction involved movement activities, rather than singing.

Perhaps the most important question addressed in this study concerned exactly how the teachers used music. The strategies and methods used varied considerably, but some consensus was apparent. Teachers indicated that they used music as background (70%), memorization (61%), cue for attention (52%), energy release (52%), transitions (46%), and classroom management (44%). Note that these most frequently chosen ways of using music might be categorized under Bresler's (1995) *Affective Style of Integration*, meaning music that is used to change mood, affect, or classroom environment as explained by Hash (2010) and Giles and Frego (2004). Other ways to use music included music to teach specific courses such as mathematics (48%), songs about science (39%), and social studies (24%). These uses could be categorized under Bresler's (1995) *Subservient Approach to Integration* in which music is used primarily as a tool to teach something else. No teachers mentioned using music as Bresler's *Social Integration Approach* that involves using the arts for school and community events, nor as Bresler's *Co-Equal-Cognitive Style* in which music and a subject are both taught with equal importance (Colwell, 2008).

Materials and resources used included heavy reliance on web-based media (internet, YouTube) and recordings. Interestingly, ideas for the use of music often came from the teachers' own experiences as children (44%), while many fewer mentioned using materials from a college class (29%) or from the music specialist in their school (24%). Remember that teachers could check as many of these resources as were applicable. The lesser importance of college methods classes was supported by responses to telephone conversations, in which all teachers mentioned that such courses were not applicable and were not memorable.

These findings were surprising to us as instructors of such courses. If our courses are truly not useful and not memorable, and if only 6% of classroom teachers report they are teaching music as a subject (National Center for Education Statistics, May 2011), then thoughtful curricular revisions would appear to be in order. This conclusion concurs with Giles and Frego (2005) and Saunders and Baker (1991) who identified a discrepancy in what is being taught and

what in-service teachers found useful. We intend for results of this particular study to generate methodology for a larger, more comprehensive examination of this issue. We anticipate that recommendations for instructors of university classes for non-music majors, as well as implications for further research, will be products of this research.

Based on these preliminary results, curricular suggestions that might address the findings of this study include: Building on what the in-service classroom teachers themselves learned as children (Apfelstadt, 1989); using more models of classroom teachers using music; placing less emphasis on music literacy and more on using music to teach other subjects (Giles & Fredo, 2005); focus more or continue to focus on singing, since the majority in our study indicated they sang daily or weekly; providing practice in using music to teach classroom subjects (Colwell, 2008); focusing less on skills needed to teach music as a subject matter, and more on working effectively with a music specialist (Giles & Frego, 2004); focusing more on building personal musical confidence and access to resources (Abril & Gault, 2005; Apfelstadt, 1989); providing opportunities for pre-service classroom teachers to use the internet to find high quality and useful musical examples; and making every class more memorable by using high energy and the most exciting musical examples.

Clearly further research is indicated. Curricular revision based on the responses of 79 classroom teachers is questionable. A wider sampling is called for, but the consensus among these 79 deserves thoughtful consideration. Do we teach music literacy during what is often a single semester course with these young teachers because we believe that is the information they will need? Or do we teach music literacy because we know how to teach that? Do we expect them to be able to read music after a single semester but offer music majors, who enter our institutions knowing how to read music, four to six semesters of music theory? As mentioned by Hash (2010), curricular re-examination as well as continued research is indicated.

One of our in-service interviewees with 31 years of teaching experience with young children offered this advice to young classroom teachers entering the profession:

They have to not be afraid to use their voice. I can't run to put a CD on every time I need a transition song. But they could start by finding a few CDs with children's music that they really, really like and think would be helpful in their teaching and start with that. And become really familiar with those instead of just trying to get tons and tons of different songs and not be adept at any of them. It might be a good idea to provide them a hot list of websites for them to choose. Start making a list, their own little file of songs. For instance, when it's time to clean up...there are tons and tons of songs out there, but none of them fit the exact directions for my class. So I just made up my own.

### Keywords

in-service teachers, classroom teachers, non-music majors, music integration

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## **Music Achievement and Academic Achievement: Isolating the School as a Unit of Study**

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### **Background**

Music participation and academic achievement have long been of interest to educators, researchers and policy makers. The literature is replete with studies linking music participation to higher state assessment scores, grade point averages, and Standardized Achievement Test (SAT) scores. This growing body of research is not without its critics. In 2000, the *Journal of Aesthetic Education* published a special issue dedicated to the topic of arts and achievement. Several researchers in this issue focused on limitations of the extant research, ultimately cautioning against conclusions that music participation causes greater academic achievement (Vaughn & Winner, 2000; Winner & Hetland, 2000). However, in a climate of increasingly centralized curriculum and high-stakes testing, interest in links between music participation and academic achievement persists as the music community seeks to protect music's place in school curriculum.

The majority of researchers tested a correlational rather than causal relationship between music participation and academic achievement. Kinney and Forsythe (2005), for example, found that students who participated in arts-rich curriculum scored consistently higher on math, science, and citizenship achievement tests than students who participated in conventional curriculum. Thornton (2013) found that Pennsylvania music participants scored significantly higher in math and reading at every grade level of state testing (fifth, eighth, and eleventh grade), when compared with nonparticipants. Miksza (2007) compared achievement test scores of 5,335 students and found those who consistently participated in music from eighth through twelfth grade scored significantly higher than students with no history of music participation.

Researchers have consistently found a significant relationship between music participation and academic achievement; the nature of this relationship, however, remains unclear. Some researchers chose to test the influence of additional variables, such as socioeconomic status

(Catterall, Chapeau, & Iwanaga, 1999; Fitzpatrick, 2006; Miksza, 2007); others isolated particular characteristics of music participation—its length (Fitzpatrick, 2006; Miksza, 2007; Vaughn & Winner, 2000), quality (Johnson & Memmott, 2006), and type, as in general music, band, choir, or orchestra (Catterall et al., 1999; Elpus, 2013; Johnson & Memmott, 2006).

Socioeconomic status (SES) as an additional variable has received considerable attention in the literature on music and achievement. Researchers agree that SES is a powerful predictor of general academic achievement (Fowler & Walbert, 1991). As such, several researchers testing the relationship between musical involvement and academic achievement chose to include SES as an additional variable (Catterall et al., 1999; Fitzpatrick, 2006; Miksza, 2007). Their findings, however, are inconclusive. Some concluded the gap between high- and low-SES students remained constant over time, regardless of music participation (Miksza, 2007); others stated that, for instrumentalists, the gap shrank over time (Catterall et al., 1999); still others found that over the course of five years, test scores of low SES instrumentalists surpassed high SES non-instrumentalists (Fitzpatrick, 2006).

Researchers focused on instrumentalists as a distinct subset of the music population in response to a growing body of research concluding instrumentalists score higher than choir students on standardized tests (Elpus, 2013; Fitzpatrick, 2006; Kinney, 2008). In a study of 15,431 Ohio school students, Fitzpatrick (2006) found instrumentalists outperformed their non-instrumental counterparts across every grade level and subject on the Ohio Proficiency Test. Kinney (2008) examined band, choir, and nonmusic students and also found significantly higher scores for band students on the Ohio Proficiency Test. Catterall et al. (1999) analyzed data from the National Educational Longitudinal Survey, which consisted of ten years of math proficiency scores for over 25,000 secondary students. They found the number of twelfth-grade instrumentalists who met proficiency standards was significantly higher than non-instrumentalists. Elpus (2013) suggested that the achievement scores of instrumentalists alone perhaps drove the data throughout the body of research evidencing an achievement gap between music participants and non-participants. It is noteworthy, however, that researchers also found

would-be instrumentalists scored higher on achievement tests before receiving instrumental instruction (Elpus, 2013; Fitzpatrick, 2006; Kinney, 2008). They concluded that instrumental programs might attract higher achievers.

Socioeconomic status (SES) and type of music participation are relevant—though not exhaustive—variables in the study of music and academic achievement. A failure to account for all potentially relevant variables exposes this body of non-experimental research to criticism. Critics have called for rigorously designed experiments to investigate a causal relationship (Winner & Hetland, 2000). There remains, however, a dearth of experimental research on music participation and academic achievement. Furthermore, those few researchers who have conducted experimental studies found only modest or nonexistent relationships. Schellenberg (2004) tested four groups of six-year-olds. For one year, the researcher oversaw administration of Kodály lessons to one group, piano lessons to a second, theater lessons to a third, and no lessons to a fourth control group. Schellenberg administered an IQ test before and after the treatment. Kodály and piano students showed modest but significant gains in IQ. Costa-Giomi (2004) tested two groups of low-income fourth-grade students with no formal music education. Each student in the test group received an acoustic piano and three years of weekly piano lessons. Students in the control group received neither a piano nor lessons. Piano instruction had a positive effect on students' self-esteem and grades in music class, but did not impact standardized test scores.

Elpus (2013) acknowledged the limitations of correlational research and the shortage of experimental research and responded with a quasi-experimental study, addressing the issue of causality through regression analysis and the issue of omitted-variable bias through inclusion of a far greater number of variables than previous researchers. The data set consisted of college entrance exam scores for 15,630 students. Elpus (2013) compared music participants and nonparticipants and found the expected gap in academic achievement. When demographic variables were added to the model—gender, race/ethnicity, SES, and native language—the gap shrank. With the addition of prior academic achievement, Individualized Education Plan status,



time use, and attitudes towards school, the achievement gap virtually disappeared. Elpus (2013) suggested that variables affecting the choice to participate in music (specifically, instrumental music) also affect academic achievement. He concluded that selection bias had skewed previous studies, evidencing a link between music participation and academic achievement.

Elpus (2013) controlled for a large number of variables but did not allow for between-school comparisons. In the interest of reducing potential error, he controlled for between-school variation, acknowledging the elimination of the possibility of examining the school as a unit of study. Vaughn and Winner (2000) commented on the shortage of research on school-level variables, noting that schools are a worthy unit of study. They posited that the link between music participation and SAT scores could be a result of schools excelling both academically and musically, thus attracting excellent students to the music program. Johnson and Memmott (2006) also acknowledged the shortcoming of their study in failing to allow for between-school comparisons. Deviating from previous research linking music participation with academic achievement, Johnson and Memmott (2006) tested the potential of a link between music *achievement* and academic achievement. They compared standardized test scores of students from exemplary music programs with standardized test scores of students from deficient music programs. They found that students from exemplary music programs scored significantly higher on standardized tests. However, because they did not include the standardized test scores of the student body beyond the music program, they still did not isolate the school as a unit of study.

Educational researchers have reported that school-level variables such as cohesion (Stewart, 2008), school size, district size, and pupil-teacher ratio (Fowler & Walberg, 1991) are significantly related to academic achievement. Thus far, researchers examining achievement and *music* have focused on individual-level variables, such as student SES and type of music participation, to the exclusion of school-level variables.

If students from quality music programs academically outperform students from deficient music programs, and if school-level variables impact academic achievement, the question

remains: is there a link between a school's overall academic achievement and its overall music achievement? If so, is this relationship consistent for each type of music participation?

### **Research Design**

For the purposes of this study, I operationalized music achievement as scores earned by middle school ensembles at the Concert & Sight-Reading Contest (C&SR) hosted by the University Interscholastic League (UIL) of Texas. The UIL is a statewide interscholastic organization created to provide educational competition in academics, athletics, and music. Each year, the UIL hosts a C&SR Contest in which secondary bands, choirs, and orchestras compete within prescribed regions. Per the C&SR Constitution and Contest Rules (University Interscholastic League, 2014), competing ensembles perform three prepared musical selections, comprising the concert portion of the contest, and one unfamiliar selection, comprising the sight-reading portion. Two panels of three judges adjudicate each portion. Judges assign ratings on a scale of 1 to 5, with 1 being the highest. Judges' scores are averaged to yield one contest score and one sight-reading score.

I operationalized academic achievement as passing rates on the State of Texas Assessment of Academic Readiness (STAAR), specifically, passing rates for seventh-grade and eighth-grade math and reading. Teachers administer STAAR tests for different subjects at different grade levels, but math and reading are consistently tested. The Texas Education Agency holds schools accountable for their passing rates on these two subjects alone (Adequate Yearly Progress, 2012), making them a key measure of a school's academic achievement.

I excluded sixth-grade passing rates because several schools participating in the UIL were junior high schools, comprised solely of seventh- and eighth-grade. Additionally, the UIL Constitution and Contest Rules require that ensembles be "comprised of a majority of 7th grade students and above" (2014), resulting in the isolation of seventh- and eighth-grade participants being the surest method of maintaining consistent measures.

### **Method**

Middle schools from Regions 4, 8, and 21 of the UIL ( $N = 122$ ) participated. These regions

constitute a moderate sample size and encompass a range of state assessment passing rates. I eliminated four schools from the data set: two because their STAAR scores were not available online, and two because they combined to form a single ensemble for the C&SR contest.

Raw data consisted of 2013 STAAR passing rates, retrieved from the website [greatschools.org](http://greatschools.org) (2014); 2013 was the most recent year for which data were available. I summed passing rates for seventh-grade reading, seventh-grade math, eighth-grade reading, and eighth-grade math for each school to produce an aggregate STAAR passing rate. I then grouped schools according to aggregate STAAR passing rates. Group 1 ( $n = 44$ ) consisted of high-performing schools, classified as those whose passing rates were more than half a standard deviation above the mean ( $M = 312.86$ ,  $SD = 37.21$ ). Group 2 ( $n = 46$ ) consisted of average-performing schools whose passing rates fell within or equal to half a standard deviation of the mean. Group 3 ( $n = 32$ ) consisted of low-performing schools whose passing rates were less than half of a standard deviation from the mean.

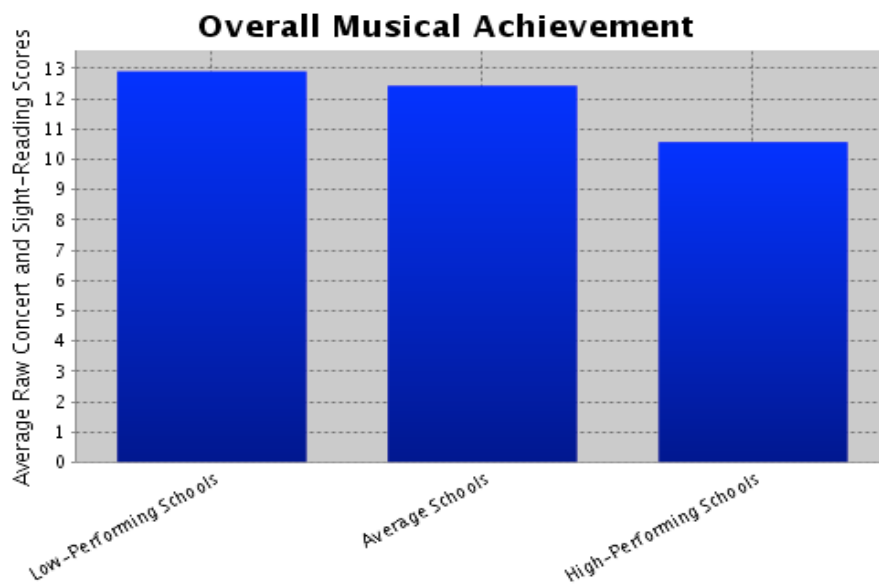
Raw data further consisted of C&SR scores for all middle school bands and choirs from schools in Regions 4, 8, and 21 of the UIL, and were retrieved from the website [TexasUILforms.com](http://TexasUILforms.com) (n.d.). For each ensemble, the website reports an average concert score and average sight-reading score in addition to individual scores assigned by each of the six judges. I bypassed average scores in favor of individual judges' scores, deeming discrepancies in individual ratings to be valuable data. I summed the six scores to produce a raw score for each ensemble. Because scores range from 1 to 5, 1 being the highest, raw scores then ranged from 6 to 30, 6 being the highest.

It is noteworthy that schools sent varied numbers and types of ensembles to the contest. There is no limit to the number of entries per school. The number of ensembles sent by a single school ranged from one to eight. A total of 174 bands—some from the same school—entered the contest, followed by 104 choirs and 28 orchestras. Thirteen of the schools that sent orchestras were academically low-performing schools. In practice, the number and variety of ensembles sent per school commonly reflects the size of the school's music program. I intended to examine

the overall quality of a school's music program, as opposed to its size or ensemble make-up, so I averaged raw scores for all ensembles from the same school to produce a single raw score for each school. I eliminated orchestras from the data set, deeming their numbers too small and unevenly distributed to yield significant results.

## Results

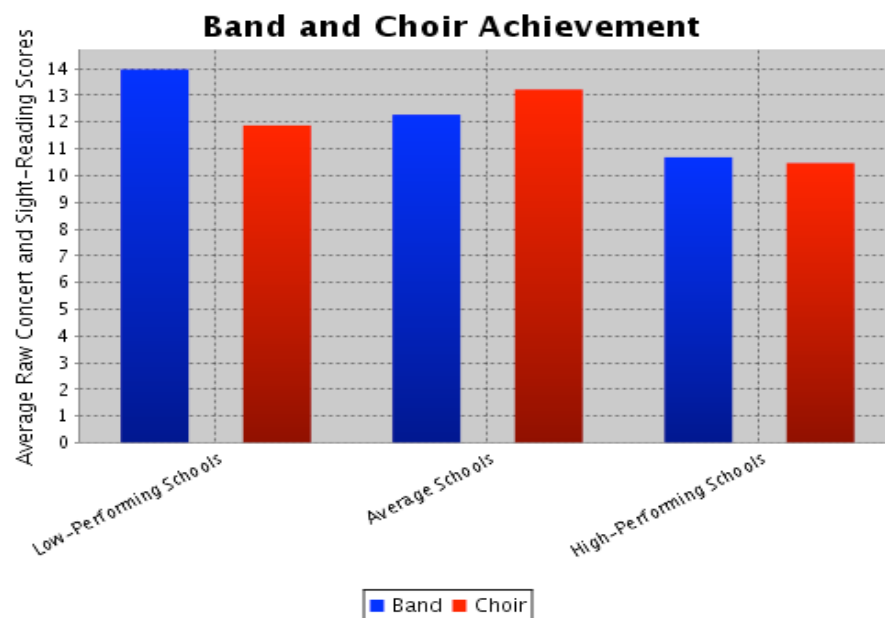
Given the ordinal nature of the data, I conducted a Kruskal-Wallis one-way analysis of variance and found significant differences in C&SR scores of Group 1 (high-performing schools), Group 2 (average schools), and Group 3 (low-performing schools),  $H(2, 122) = 10.18, p = .006$ . A series of Mann-Whitney U tests identified that the significance lay between Groups 1 and 2,  $Z(1, 90) = 2.47, p = .01$ , and Groups 1 and 3,  $Z(1, 76) = -2.99, p = .003$ . No significance difference was found between Groups 2 and 3. Figure 1 shows the average C&SR scores for schools in each group.



*Figure 1.* Average C&SR scores for all music ensembles by school STAAR passing rates. Note that a lower C&SR score indicates a greater musical achievement.

Next, I calculated Kruskal-Wallis analyses for bands and choirs separately, using average raw scores for each ensemble type. No significant difference was found between choir C&SR scores for high-performing, average, and low-performing schools.

I found a significant difference in C&SR band scores  $H(2, 116) = 10.16, p = .006$ . A series of Mann-Whitney U Tests revealed the significance lay between Groups 1 and 3,  $Z(1, 72) = -3.18, p = .002$ . No significant difference was found between Groups 1 and 2 or Groups 2 and 3. Figure 2 shows the average C&SR scores for bands and choirs.



*Figure 2.* Average C&SR scores for bands and choirs by school STAAR passing rates. Note that a lower C&SR score indicates a greater musical achievement.

## Discussion

It would appear that academically high-performing schools earned significantly higher Concert & Sight-Reading scores. This relationship could be the result of several variables omitted from this study. For example, if the demographic population of the music program closely resembles the population of the school, the relationship could be explained by individual-level variables. SES, for example, has been strongly linked to both academic achievement and music achievement (Catterall et al., 1999; Fitzpatrick, 2006; Miksza, 2007). If the school population and music population are similar, student SES could be a key variable

impacting this relationship.

This relationship may also be influenced by omitted school-level variables. The amount of money a district spends per child may impact both academic and musical achievement. School hiring practices could also play a role; schools that offer competitive salaries and hold teachers to high standards may excel in both arenas. Class size, school size, and district size may also have an impact.

School cohesion is another variable worthy of closer examination. Stewart (2008) described school cohesion as "the extent to which there is trust, shared expectations, and positive interactions among students, teachers, and administrators" (p. 190). Stewart (2008) found cohesion positively impacts student achievement. It is possible that school music programs have a two-way relationship with school cohesion. Additional research on music participation and school cohesion is warranted.

It is noteworthy that the relationship between academic and musical achievement was not consistent for each ensemble type. The difference between academically high- and low-performing schools virtually disappeared when choirs were isolated as a unit of study. Conversely, the difference between bands from high-performing and low-performing schools was significant at an alpha level of .01.

While several explanations could account for the difference between band and choir programs, one seems most likely: a disparity in resources available to high- and low-performing schools. Due to the very nature of instrumental study, band programs are more dependent on financial resources than their choral counterparts. There is cost involved in purchasing or renting an instrument, as well as maintaining it. Voices, on the other hand, are free. Private lessons are an added expense. One could argue that, in the absence of private lessons, vocal proficiency may be more attainable than instrumental proficiency—at least, at the middle school level. It is possible high-performing and low-performing schools represent a difference in resources that impacts band programs more than choir programs.

This study provides no basis for causal claims; it cannot support conclusions that schools

with strong academics produce strong musicians or that schools with strong music programs produce strong testers. The relationship could be causal, but an experimental or quasi-experimental study is necessary to test that possibility. The aforementioned omitted variables are equally likely to account for the link found between middle school STAAR scores and C&SR scores.

Readers are cautioned to avoid overgeneralizing the findings of this study. Participants were limited to a sample of three UIL regions. A replication including all 28 regions of the UIL would allow for statewide generalization. Replication that extends to other regions of the nation might allow for insights into the very nature of academic and musical achievement. An extension to high school C&SR scores and academic assessments would also augment the current findings. Finally, an expansion of the sample population might alter the definitions of high-performing, average, and low-performing schools, as these divisions were set according to the mean and standard deviation of the data set. A shift in that definition may yield a subsequent shift in results.

Nonetheless, there was a significant difference in C&SR scores of high- and low-performing schools at an alpha level of .01. At the very least, it can be concluded that musical excellence did not detract from the academic performance of students in these 122 schools in East Texas. Local administrators and policy makers may benefit from this knowledge as they allocate limited time and resources for the education of Texas's youth.

### **Keywords**

Music, musical achievement, academic achievement, band, choir, ensembles

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