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Technology & Middle School Philosophy: Applications in Music Education

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TECHNOLOGY & MIDDLE SCHOOL PHILOSOPHY:

APPLICATIONS IN MUSIC EDUCATION

by

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A Thesis Submitted in Partial Fulfillment
of the Requirements for a Degree with Honors
(Music Education)

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Philosophy

When using technology as a learning tool, teachers can meet the unique needs of adolescent learners in any content area. Society tends to view music as a "special" or "extra" subject and we often miss the opportunity to link music and technology in the classroom. Technological tools teach organizational skills, strategies, abstract thinking, cross-curricular connections, creativity, and non-linear thinking skills, while simultaneously meeting individual learning styles and increasing confidence and motivation for students to learn. In community centered learning, where learning is a constantly re-evaluated long-range plan, a variety of skills can be introduced, practiced, and reinforced with the integration of technological tools.

Over the past thirty years, the middle school philosophy of education has evolved to meet the specific needs of adolescent learners and help them succeed through such a transitory time. Middle school, usually grades six through eight, acts as a bridge between elementary and high school and offers students a chance to gradually shift from one world to the other. These students are cognitively starting to comprehend the way the world works and develop abstract thinking skills, but their education is not yet prescribed by college expectations and high school graduation requirements.

Middle school educators relate learning to a bigger picture through interdisciplinary projects, community centered learning, socially significant learning, and a curriculum that helps students make sense of themselves and their world. They help students to understand themselves through lessons that have personal relevance, and through learning that is exploratory and full of discovery. The goal is to help students learn about themselves, about the world around them, and how they can thrive in it. Everything relates to a bigger picture in middle school, and teachers must vary the pace of learning and often break learning down into smaller increments to relate

more easily to that bigger picture. All of these things, coupled with a positive school climate allow for an environment where students are comfortable and are encouraged to take risks in their learning.

Adolescent learners are encountering a variety of teachers for the first time in middle school as they begin to switch classes multiple times per day, with different teachers and a changing peer group in each class. Teachers are grouped into "houses" or "teams" with one teacher per subject in each group, except for physical education and arts teachers who usually work with all students. "Instruction is enhanced when team members collaboratively strive toward meeting the needs of individual students by combining their philosophical perspectives, creative talents, resources, and knowledge." (Mason, 1995, p. 214) This set up allows for ease in developing integrated curricula, and establishes a system for teachers to collaborate on projects and communicate about students' needs and development.

In 2001 the National Middle School Association (NMSA) expanded their list of seven characteristics of developmentally responsible middle schools to twelve: (Erb, 2001, p. 3)

1. Curriculum that is challenging, integrative, and exploratory
2. Assessment and evaluation that promote learning
3. Varied teaching and learning approaches
4. Flexible organizational structures
5. An adult advocate for every student
6. Comprehensive guidance support services
7. A shared vision
8. High expectations for all
9. Positive school climate
10. Educators committed to young adolescents
11. Programs and policies that foster health, wellness, and safety
12. Family and community partnerships

This list reflects the awareness of educators at a national level about the importance of meeting the needs of the middle school student, and it applies to every classroom in the middle school.

Community-centered learning is crucial to the middle school learning environment because it is the best way to incorporate all of the goals of middle school philosophy into the classroom. The idea is that projects should build on one another to support students in more sophisticated ways of thinking, feeling, and being. There is a long-range plan for students and teachers to meet common goals and work together in learning across the curriculum. The schedule and agenda for learning is flexible within a structured sequence to meet the many needs of those involved (Wilhelm, 2001, p. 38).

In the chapter, *Age Appropriate Teaching Strategies*, from the book *Educating Young Adolescents: Life in the Middle*, Mary Ann Davies discusses what it takes to be an effective educator in a classroom of adolescent learners:

> Effective middle level teaching strategies are developmentally appropriate,
> personally meaningful, and actively involve students. Adapting instruction to young
> adolescents' needs enables them to experience success and grow in their potential.
> Variety in grouping practices, instructional approaches, and resources assist in meeting
> the diverse needs of young adolescents. Relating content to students' lives and providing
> them with challenging experiences heighten motivation and promote active involvement.
> As a result, young people grow to view learning as a lifelong interactive and enjoyable
> process (1995, p. 346).

Here, Davies puts forth the nuts and bolts of community-centered learning and adolescent education as a whole. The idea is to incorporate some of everything in as meaningful a way as possible, helping students at every level and ability find relevance in what they are learning to themselves and their community. Technology is a teaching tool for students to discover this relevance.

The role of the teacher is to create an environment of collaboration among students allowing them to work alone, in pairs, and small groups, while ultimately gaining competence with a skill or concept. Ideally students take on the challenge of collaborating and negotiating as a member of a dynamic community of learners, where they need to negotiate and converse with

other students about standards and needs of the project. The teacher works to encourage inquiry among the students that leads to a dialogue where students can identify and challenge misconceptions, and lessons and projects are created that support and challenge students as they learn. Assessment is used as a tool for learning as well as to see how much the students have learned. Teachers, individual students, and the entire class play an important role in assessment and each offer their own perspective on how well goals were achieved. After an assessment is done, it is then time for students and teachers to set new goals for themselves and their learning.

The schedule in community centered learning involves students and teachers spending extended amounts of time together, like a community with ongoing relationships. The physical set up of the room is usually in circles, or students work at tables and stations, as opposed to desks and rows. The set up also may rely on the nature of the project at hand, and is changed accordingly to meet the needs of teachers and students. This environment is created and constantly being reevaluated to get the most out of every project and lesson. Community centered learning allows for students to have more freedom in their thinking and expression because assessment is based on individual expression of the information, and, with guidance from the teacher, it all relates back to the original curriculum goals (Wilhelm, 2001, p. 38).

With the rapid changes occurring in our world because of technology comes the need for curriculum change. This does not mean a change in the subjects being taught, but rather a change in how schools think about their curriculum as a whole. Technology offers a chance for increased interdisciplinary projects as well as increased relevance to the world surrounding our students and schools. Links between subjects are easier to see with current websites and up to the minute information on an infinite number of topics, giving educators a highly-relevant and high-speed way to dig deeper into subjects that interest students.

The responsibility for teachers is to create a balance of technology and other strategies for learning and teaching. Some teachers might begin to rely on technology as the teacher for everything in the classroom. These educators would be missing the point entirely. Technology is another tool for teaching, not a replacement teacher. "For technology to make a lasting impact educators must use a variety of teaching and learning approaches when utilizing technology in their classrooms. Time and again, the research comes back to the teacher as the most influential component of a successful technology program." (Quinn & Valentine, 2000)

For true learning to take place the teacher needs to be able to link what the students do to other subject areas, and the overall learning goals of the curriculum. "Computers provide flexible environments... that are far more consistent with what we know about children, about learning, and about effective teaching than traditional instructionist notions of teaching and preset curricula." (Wilhelm, 1998, p. 13) The teacher should not be replaced, and it is the teacher's responsibility to use technology as a tool towards more effective learning in their classroom. It is easy for students to be distracted from learning at first with the glitz and newness of technology, but when the sparkle wears off, it is the educator's job to re-engage students using the tools of technology and effective teaching strategies to impart concepts and skills to students.

Technology along with all of its conveniences and inconveniences is everywhere in our lives, and plays an important role in the efficiency and speed of our society. Students in our schools have been born into this high-tech world, unlike many teachers and administrators in schools who have learned as they have needed to, but not simply as they went along. "New Media tools offer great promise for a new model of learning – one based on discovery and participation. This combination of a new generation and new digital tools will cause a rethinking of the nature of education – in both content and delivery." (Tapscott, 1998, p. 127)

In his book, <u>Growing Up Digital: The Rise of the Net Generation,</u> Don Tapscott (1998)

has created a list of the positive transitions for education that technology offers us:

Eight Shifts of Interactive Learning (p. 142 – 148)

1. **From linear to hypermedia learning**
2. **From instruction to construction and discovery**
3. **From teacher-centered to learner-centered education**
4. **From absorbing material to learning how to navigate & how to learn**
5. **From school to lifelong learning**
6. **From one-size-fits-all to customized learning**
7. **From learning as torture to learning as fun**
8. **From the teacher as transmitter to the teacher as facilitators**

The technological link to middle school philosophy is obvious and exciting, and it is

becoming more recognized in school curriculums around the United States. In Maine, educators

are making technology a priority by implementing laptops into learning for all seventh graders in

Fall 2002. Knowing what we know about middle school philosophy, and the benefits of

technology in schools, as music educators we have a challenge before us to use technological

tools in the general music classroom to make learning more effective.

Student Sessions

Community-centered learning is easily achieved through clear expectations and fostering projects that involve community decision-making and student-designed learning. There are endless ways to use technology in music as a tool for learning that is accessible to all students at all levels. The use of technology for these projects means results can be immediately seen and heard in music. Students collaborate virtually within the same classroom, school, and beyond. Teachers also collaborate for projects involving technology and are assured that what they are doing is relevant to the lives of the middle school students because technology is a force that is only getting stronger in our world.

Through this research I wanted to give the students and myself an opportunity to experience what is possible with music technology in middle school. This particular project fulfills the National Standards for grades 5-8, content standards #4-8 (see Appendix A for standards) and is easily linked to other subject matters for interdisciplinary projects. Composition is a means of expression whose inspiration can be drawn from any subject. This project incorporates many components of middle school philosophy including: community-centered learning, student designed learning, the need for a physical artifact, peer-review, social significance, learning through exploration, varying degrees of structure, and risk-taking.

I held three, 2-hour Saturday morning sessions, where I ran lesson plans (see Appendix B) involving music technology with middle school age children, grades 6-8. There were between 4-8 students per session, each with varying musical abilities and backgrounds.

Permission slips signed, and students at their computer stations, meant we were ready to begin (see Appendix C for letter to parents and Appendix D for consent form). The students took quickly to the software, but needed some encouragement to explore the idea of original

composition. We discussed what makes a good composition, reviewed harmony, tempo, the use of different rhythms, instrument ranges, and much more. I stressed that none of their compositions could be "wrong," and stressed how eager I was to see and hear the originality in each composition.

The lesson plan goals were as follows:
- To become familiar with a computer notation software, such as Sibellius or Finale through student group and individual exploration of the software, with teacher guidance and support.
- To create and notate an original composition using 2-4 differing instruments with all musical decisions being made by the student composer.
- To play the pieces for the class followed by peer-review.
- To record that composition into a sound sequencing software, such as Cool Edit Pro or Sound Edit 16, take 4 clips from the original composition and change them using the sequencing software, and then mix them back into the original composition. This is done with the idea that the students are taking risks with the integrity of their original composition to give it a new identity.
- To have two physical artifacts for each student at the end of the sessions: a CD and a paper copy of their song.
- To have fun and learn.

The students worked at their own computer stations, where they were equipped with computers, midi keyboards, notation software, and their own imaginations. My function was to trouble-shoot when necessary and to help them realize the infinite possibilities for composition in front of them. The students had a blast! Towards the close each class we held a mini-concert and every student presented his/her piece. This was the best part of the day for me because each composition was radically different from the next and really allowed every child to express themselves openly. The student reactions to the presentations were always "Wow!" "Neat!" "Cool!" "How did they do that!?"

At the end of each Saturday morning session, students were asked to independently complete a short questionnaire (see Appendix E for sample questionnaire). I have divided up the responses into two categories: the notation software/composition sessions and the final session with the sequencing software/revised composition session. It is important to note again that the make up of the classes range in age and musical ability. In each class I had representatives from grades 6, 7, and 8, as well as the usual variety of maturity levels found at the middle school level. I believe that the responses to the questionnaires accurately reflect this mix.

The first two classes focused on completing an original composition. There were four students at the first session on 2/2, but on 2/9 I had eight students who needed to get on track with the first four. I asked students who had learned the program the week before to help new students learn how to use it. It was amazing how much they remembered and how quickly and easily they were able to pass on the information and help the new students with its application.

It was also beneficial for the students to practice using the notation they learned from their regular music class in school. The use of proper notation applied to all aspects of the sheet music, including markings for tempo, rhythm, expression, technique, and even the title and composer (see Appendix F for notated compositions). I held them to a high standard of musical excellence and talked with them about what composers in the world have to think about as they write each piece. I wanted to link what they are doing to the world around them and discuss what their perceptions were about composition and the hard work that is involved.

The responses below can not begin to fully represent what occurred during the Saturday morning sessions, however they do give a good idea about the mix of students in the class.

2/2 and 2/9 - Notation Software & Composition

1. **Did you learn anything new today? If so, what?**
   Yes. Everything. I didn't know anything about computer stuff before.
   How to make music with a computer.
   I learned that my friend and peers have the ability to come up with awesome compositions
   How to make the harmony better

2. **What musical concepts did you learn today?**
   I learned how important it is to make chords and rhythms, etc that go together well
   Differences in music
   I learned a little about musical computer programs

3. **Did the music technology help you to learn about music in a way you had never experienced before?**
   Yes, I found it easier to write music
   Yes, how to make harmony into a piece
   It helped me organize what I wrote better than a pad of staff paper

4. **Do you think you learned about music faster or better because of the technology than you would have without it?**
   Yes, before using this program I had a hard time contemplating what notes sound like together.
   Faster
   No, because I still don't know the low notes.
   I learned how to write faster.

5. **What did you like best about today's lesson?**
   The program
   Making the music
   How I got to write my own music
   Listening to people's sounds and getting ideas
   Writing terrible music
   Listening to what other people had made
   Completing my composition and listening to other's compositions

6. **What did you like least about today's lesson?**
   My music was bad
   My computer was not working as well as we hoped
   Editing other people's. It was fun to listen, but I didn't like telling what I thought.
   Nothing, it was great.
   Editing it

7. **If you could use this technology in your music classes at school all of the time would you like that?**
   In a way
   Totally
   Absolutely. I think it would make a great addition to middle school & could help kids learn
   No

8. **Any other comments about today's lesson you would like to share?**
   Nope
   It was fun
   I love pizza
   It was fun. Thank you for the pizza
   I was very impressed by everyone else's compositions.

The student reactions to the sequencing software in the third session were amazing. They seemed in awe of what they were creating on their own. I taught them the basics about sound waves and recording and demonstrated a few basic programs that could be found on the internet to mix sounds. The sound sequences created with these programs sound very similar to ones used on pop radio stations and in a lot of popular music today. The students could not believe that something they heard on the radio could be so simple to create.

For their individual projects, we recorded their composition from the weeks before into Cool Edit, a sound-sequencing program. The task was to pick four small sound bytes from their composition, and change the qualities of the sound to produce a new sound. There are several pre-set effects in Cool Edit to do this as well as ways to change the nature of the sound wave in original ways. This was a challenge for some of the students who really loved their original composition. They were afraid this new project might "mess it up" or "ruin it." Others reacted as if it was the best project ever. I encouraged the students to take risks, and reminded them that there was no "right" way to do this, and that they ultimately had the control over what changes in their composition were permanent. Overall, everyone got very creative and when concert time came at the end of class, the students were amazed by what they had created. I was amazed at how different each piece was from the next. Some students wanted to uphold the original style and integrity of their original composition, while others found it more satisfying to change it around as much as possible (see Appendix G for copy of class CD). It is evident in the questionnaire responses that the students really enjoyed working with this program.

2/23 – Sequencing Software/Revised Composition

1. **Did you learn anything new today? If so, what?**
   I learned in detail how to add special effects to my piece and to combine them
   Yes, how to use Cool Edit
   Yes, I learned everything that you taught today
   I learned how to transfer pieces from one thing to another change the clip at the same time
   Yup. I learned how to edit songs on the computer

2. **What musical concepts did you learn today?**
   I learned about enveloping and overlapping waves
   Every song is different
   Yup. I learned how to make alien warning noises

3. **Did the music technology help you to learn about music in a way you had never experienced before?**
   Yes
   More today than ever. It was fun to rearrange and edit my piece using a computer.

4. **Do you think you learned about music faster or better because of the technology than you would have without it?**
   no
   Yes, because it was just easier
   Yes
   The computer helped me hear the effect of changing my piece
   Yep!
   I'm not sure

5. **What did you like best about today's lesson?**
   Cool Edit
   Everything
   Playing around and trying to get my piece to fit together
   Taking the 'revised' sections and putting them together
   Playing with the sound waves
   Presenting my piece

6. **What did you like least about today's lesson?**
   Nothing. It was great.
   Nothing
   When I couldn't find an effect I liked
   The beginning

7. **If you could use this technology in your music classes at school all of the time would you like that?**
   Yes
   Yes, I think it would be fun for my classmates to experiment with a mixing program

8. **Any other comments about today's lesson you would like to share?**
   Thanks for the pizza and I love cool edit. It's lots of fun
   It's a lot harder than it seems, but I enjoy the challenge and thanks for the pizza.
   It was neat to see how some professional recorders mix their music

The questionnaires reveal only the surface of the student reactions, while the classroom experiences and conversations I shared with the students really tell the story. Every child was different in how they approached the talks at hand, and each offered their own challenges for me as an educator.

I had only one male in the class, an eighth grader who was very serious all of the time. He asked direct questions and always asked permission before trying anything that he considered to be out of the ordinary. The challenge with him was to keep him from getting too serious and remind him that this was about having fun and expressing himself, which he did beautifully through his compositions. Of all of the students, he was the most advanced musically and he prided himself on his exact notations and chord progressions. He approached his composition very systematically and thought deeply about every note he placed on the page. He clearly articulated the purpose of his piece and the serene mood it was meant to portray. He wrote a lullaby and could describe in great detail the inspiration from nature for the song. The best part about having him in class, though, was his reaction to the compositions of the other students. Compared to his piece, theirs were wild and unruly, but he loved them just the same. He pulled me aside after each class to ask me how the other students had done that, and to remark on how amazing and talented they all were. He never wanted to take risks, but he was in awe of the other students who did.

The female students ranged in grade from 6-8, and the range of maturity was just as wide. One girl, a seventh grader, decided she wanted to incorporate the melodies of songs she already knew into one piece. They were all in different keys, so this was a bit of a challenge, but when we narrowed it down to two melodies and one key, she was on her way. I helped her learn by exploring what she could add to the melodies in her composition. I encouraged her to try new things with harmony and overlapping melody lines, and she was amazed at how simple changes in the music could create dramatic changes in the sound of the piece. Another girl, a sixth grader, was fascinated by the percussion sounds on the keyboard. This girl was very shy, but her

composition was wild. My challenge here was to help her use her creative energy and imagination, but at the same time talk about what was realistic for musicians in performance.

I learned a great deal as an educator over the course of these three sessions and there are a few things I would change for the next time I teach similar lessons. These changes all would come because I underestimated how much and how quickly middle school students were capable of learning and ended up with too much time for simple projects.

I would add projects focused more around community-centered learning requiring students to pair up or move into groups to complete short tasks with the software. This gives them the opportunity to teach and learn from one another, a key aspect in middle school teaching. I would also give them less time to complete the projects and require them to move more rapidly. I would require students to write a short paragraph about their piece and what they hoped it portrayed. We would do more peer review by assigning criteria for each piece to be reviewed, such as use of instruments, shape of musical lines, use of varying rhythmic patterns, the form of the piece, and based on the composer's paragraph about the piece, did it accomplish what it was supposed to for the listener?

The questionnaire was problematic as well. I would change my questioning techniques so that every question required a well thought-out answer and not a simple 'yes' or 'no.' Middle school students tend to be very literal and they answered the questionnaires this way. The revised questionnaire would also include questions about their perceptions of composition before and after each class, to attempt to see if the students link what they are doing in the classroom to the world around them.

This technology is a great way to reach all students at all levels because it allows them to learn about music while at the same time, composing and creating music at their own level. The

notation software can be used to help students learn not only about notation, but also about music theory, types of instruments and ensembles, form, harmony, and much more. Without the challenge of having to draw note heads and stems properly, students can feel more comfortable about notation. Similarly, a seventh grader who plays the saxophone at a seventh-grade level will be able to experiment with composition and range for his/her instrument and possibly become motivated work harder and be able to play the new music. I see the sequencing software as an outlet for the creative musical energy students have. It is perfect for learning about sound waves and recording, as well as a unique way to compose music for a class presentation, accompaniment, video, or theatrical production. Based on this research I will definitely incorporate technology as a tool in my general music classroom as often as possible. With more time and the structure of a school environment music teachers and their students can accomplish music lessons with new and exciting twists.

Middle School Music Educator Surveys

In order to achieve a better understanding of technology in the middle school general music classroom, I sent out a letter and comprehensive survey to 140 middle school teachers across the state of Maine (see Appendix H for letter and Appendix I for a copy of the survey). The survey not only asked for information on what types of technology is used and how frequently, but also asked questions about how it is utilized, frustrations that may or may not occur, and why students and educators liked or disliked it. Middle school educators in Maine are in a unique situation with laptops on the horizon for their everyday use. Using their input for my research is important to get an idea of what is happening now, pre-laptops, to help students learn. The questions asked in the survey cover not just "do you use technology?," but rather seek out how music teachers are applying technology to teaching methods, curriculum development, and students needs in the general music classroom.

Of the 140 surveys mailed out, 25 were returned. A few of the surveys came back with comments like "we have no general music" or "we have no technology available to us," but many came back with real and honest responses about how technology works in the middle school general music classroom (see Appendix J for complete survey results). School enrollment ranged from 22 students to 900 students. The results of the survey seem to represent a healthy cross-section of school sizes as well as teachers. It is important to note that many of the teachers who responded are in schools where they do not have their own classrooms and they travel from room to room and often from school to school on a daily basis. These teachers need to use portable technology that, at this point, limits their options. With the arrival of laptops, several of these teachers remarked they hoped to see an increase in the amount of technology they use with their students.

The survey responses reveal that technology-assisted-learning is happening in middle school music classrooms in Maine, but it is limited and not consistent. Of the twenty-five teachers who responded, only thirteen have keyboards available to them for classroom use, and only nine reported computer use. However, of the nine who use computers, seven use word-processing, eight use CD-ROM, six have MIDI capabilities, five use sequencing software, and seven use notation software. This is encouraging because it seems that those who have access to computers are using them in some way. Frequency of use varied in areas and there was a reasonably even spread as to who used each kind of technology termly, monthly, weekly, or daily. For example, of the thirteen teachers who use keyboards, three use them termly, three monthly, four weekly, and three daily.

How technology is used in the music classroom depends on the comfort level of the educator and their available resources. The most common uses of technology include equipment for listening examples that relate to topics being studied such as world music; use of the internet for research and exposure to a variety of information; sharing resources; and "pre-packaged software." Teachers who have to travel from classroom to classroom and school to school usually have to carry their equipment with them at all times. This is currently an obstacle for regular use of technology, and it will be interesting to see how the arrival of laptops changes this problem.

The ways technology enhances teaching in middle school general music, as reported by the surveys, can be divided into three categories: student benefits, time-saving techniques, and increased variety and currency of information. They cite the "hands-on" and "interactive" qualities of technology as a benefit, and one teacher described the use of technology in his/her teaching as a "more comprehensive passing of knowledge." The student benefits are aesthetic as

well as academic. The teachers believe that by using technology in their classroom they are teaching students relevant information about music as well as important lessons in culture, self-esteem, and quality of work. The technology also seems to offer teachers ease in preparation for classes, also benefiting students, and gives them the opportunity to focus their teaching on current issues, comprehensive lessons, as well as offering a variety of examples and information that otherwise would not be available to them. This variety in information is a major benefit of technology in the classroom, with the internet being used as tool to shrink the distance between world music and other information for the classroom.

Two major limitations of using technology in music classrooms came to light in the survey responses: limited access to quality equipment and software and lack of teacher training. Additionally, the absence of funding, competition for time in school computer labs, and regular technological failures prevent regular and quality use of technology in the music classroom. The absence of thorough teacher technology training limits teaching ability because students need music educators who can effectively use the new equipment as positive tools for learning. There can be no equity for student opportunities in music technology when it is not available, and if and when it is, teachers are not prepared to incorporate it.

Despite these limitations, student learning is enhanced through the use of technology. It was reported that students have greater access to resources that allow them to practice musical skills and interact with information relative to their world. It enables students to receive immediate feedback from peers and teachers on projects, such as the composition tools that students seem to enjoy. The limitations for students put forth in the survey results revolve around technological issues, not learning obstacles. Inadequate time to use equipment and too many options that lead students to get "stuck on visuals" in technology can all be overcome with

good teaching methods and carefully designed projects. It was mentioned as a limitation that more "affluent students progress faster" through the use of technology, but I would say that this is a prime example of how well technology can adapt to the needs of all students at all levels in every subject area.

Music teachers in Maine do recognize the link between technology and middle school philosophy. They see connections through hands-on projects, and clear connections to National Standards. One educator responded that the two go together because of "communication with community and cultures via internet," saying "Any time more aspects of life or learning can be brought to a lesson, the better the lesson and the more learned the students." Another teacher wrote "It's where we're headed," recognizing the link between the importance of technology in education as it becomes more intimately involved with the functioning of society.

Every teacher responded to the area of the survey regarding "greatest frustrations," and when all of the responses were considered, no one or two frustrations came through as the most common. Lack of classroom space, lack of software, application relevance, and student interest were all listed in addition to the choices given, which were access, funding, quality, lack of training and lack of technical support.

The reports from the teachers about what students seem to like best are perfect examples of how important technology is in realizing middle school teaching ideals. Teachers responded that students "seem to be energized by the thought that there is more to music class than drums and singing" and that "it is appealing to their sense of emerging adulthood – they feel 'cool' and glamorous." Students also seem to enjoy that their individual learning needs can be more easily met and they feel "ownership of the class." The regular use of keyboards gives students the opportunity to learn to play an instrument that they otherwise may have never played and, as

they play and compose, students get to hear their music instantly through technology. While students enjoy technology in many ways, their teachers also report that they sometimes have trouble following directions and dealing with the details of equipment use. Having to wait to use the technology is another source of dissatisfaction for students and when school technology is outdated, it is not immediately relevant to the lives of the students.

Complaints from teachers about what they like least using technology included: technological mishaps such as freezing, crashing, and power outages; technology's inability to teach performance skills; and lack of teacher knowledge. One teacher wrote that "the 'uncomfortable' feel of using (technology) and explaining it (students know more than I do)" is what he/she likes least. The list of likes was longer, including areas such as students inspiration towards composition, hands-on learning, convenience, variety, and increased student interest in the music classroom. Written survey responses such as "kids think it is 'cool'" and "It is slick!" show the enthusiasm that can come from music teachers using technology in their middle school classrooms.

With laptops quickly on their way to adolescent learners, music educators in the state of Maine have a unique opportunity to experiment with technology in their classrooms. It would be very interesting to administer this same survey two years from now and measure the difference in teacher perceptions about technology, methods and frequency of use, and how teachers observe students responding and achieving because of technological tools.

Laptops in Maine

The state of Maine is currently in the beginning stages of implementation for its Maine Learning Technology Initiative that provides laptops to all seventh and eighth graders across the state. The idea was spearheaded by Governor Angus King in the year 2000, and after large amounts of public debate, proposal changes, and hammering out of details, the first laptops entered test sites around the state in March of 2002. More are due in August 2002 for all seventh and eighth graders. Maine is first in the country to implement a program like this at a state level giving Maine the opportunity to act as a leader across the nation with technology in the classroom.

In September of 2001, a Request for Proposals: Maine Learning Technology Wireless Classroom Solution, was published by Maine's Department of Education looking for corporate bidders to supply the laptops to the state's middle schools. In this request, the history and justification of the laptop initiative are outlined as well as what the state must plan for to be successful:

> Maine's state learning technology plan must provide for: Portable computing devices for every student and teacher with functional software appropriate to grade level; obtaining basic research information and databases; an alternative equivalent value factor option to school administrative units if they meet the standards of the learning technology plan; Teacher technology and professional development; external and internal networks and technical support, costs for replacement of portable computing devices, servers, and other equipment and; An evaluation component. (2001)

This is a long-range plan for the state of Maine with intentions to eventually supply laptops to all students in grades 7-12. The state recognizes that because of the increasingly large role technology plays in our society, it "is a challenge for our education system" (2001) to integrate technology as a solution for better learning in our schools.

The laptop initiative has been backed not only by the Governor, but also by numerous state legislators and educators as well as educational associations, such as the Maine Association

for Middle Level Education. (Washuk, 2001) Critics of the project are concerned this is just another educational fad that will pass, except this time it will be an expensive experiment. "Rarely has an educational initiative generated such a maelstrom and understandably so – big bucks are at stake in a field with so many compelling needs and competing interests." (Bain, 2002) Increasing technology does not mean an automatic fix to the recurring problems that schools face, but it does mean that teachers can more readily implement new strategies for teaching and learning, equally for all students state-wide, that create stronger connections with students.

Other critics warn of student irresponsibility and foresee mistreatment of these expensive educational tools. Eileen King, Boothbay Region Elementary School Principal, addressed such criticisms in a letter to Maine's seventh graders by citing that students at the middle level often begin babysitting at this age and wrote, "Isn't it ironic that you are considered 'adult enough' to take care of other human beings yet not responsible enough to take care of a piece of equipment?" (Freeman, 2002) In the same letter, King blames adult ignorance and lack of confidence in what middle school students are capable of as the source of the derogatory remarks about student responsibility and reminds students that adults can just as easily make mistakes.

I contacted three professors from the College of Education at the University of Maine to get their educational perspectives on the laptop initiative and asked them how they saw the laptop fitting into the middle school, specifically within the general music classroom at the middle school level.

Ed Brazee is a member of the Design Team of the Maine Learning Technology Initiative (MLTI), and "a long-time middle school advocate." He supports the laptops because of the long-overdue recognition being given to adolescent learners and middle level schools. He feels "the

laptops will encourage inquiry – not passive and inert learning of trivia. Students will have opportunities to explore answers to questions they have about all sorts of important things." One of the strongest benefits of the laptops, he feels, is that student access to high quality knowledge will finally become equal, leveling the playing field for teachers and students across the state. He stresses that this program is not a technology initiative, but rather a "learning initiative" that challenges middle level teachers "to move ahead with a curriculum that is challenging, integrative, and exploratory." In the music classroom, Brazee sees the same benefits of the laptops coming, in the way of connecting with people, accessing information, and the development of "a rich and varied curriculum" (personal communication, April 2, 2002).

Gail Garthwait is also a member of the MLTI Design Team. She sees the laptops fitting into middle school philosophy because they offer interactivity for students with information and with each other, increased student motivation for active learning, as well as opportunities for students to make decisions based on learning as they test hypotheses and use technology to expand their ways of thinking. The benefits to the music classroom, like any classroom, are that this offers students a new non-linear way of thinking, allowing them to connect in an associative way the current and relevant information available to them. She also sees it as an opportunity for teachers to construct new and innovative projects because students will have one-to-one computing, more ownership of their work, and the chance to create learning portfolios. Garthwait also expressed some concerns for the laptop initiative in the areas of ergonomics for students and increased danger of plagiarism with all of the information available. She also warns against teachers who feel they don't have the training to be using the computers in their classroom, and see the laptops simply as "expensive workbooks," who may sabotage the project and not do

everything they can to grasp all of the new opportunities available to them (personal communication, April 4, 2002)

Jeff Wilhelm is on the Inservice Committee of the MLTI, which works to help prepare teachers to develop new ways of teaching that can be supported by the laptops. He believes the computers "are the world's greatest inquiry and design kit, or construction kit" and that for educators who advocate "a developmentally appropriate, learning centered, co-constructivist, integrated curricula consistent with middle school principles, the laptops are an incredible opportunity." He sees also sees benefits in increased individualized instruction that relates to classroom objectives, more resources for students to design their own "knowledge artifacts," and the opportunity for students to publish their work. Wilhelm also believes teachers benefit with laptops because they are being handed the opportunity "to re-conceive teaching and learning and to do it in more powerful ways." In the music classroom, Wilhelm sees the laptops offering kids a chance for "learning music like musicians," because they have the capacity to analyze and compose music right at their fingertips. Increased integration can occur in music as well, like in all classrooms, and Wilhelm suggests that students could analyze digital video of performance, much like a science class would have the ability to analyze sound waves (personal communication, March 30, 2002).

Gail Garthwait connected me with an active middle school music educator named Cindy Streznewski, who is completing her master's degree in Instructional Technology at the University of Maine. Cindy offered the perspective of someone who has been using technology in her music classroom for eleven years and who is excited about the laptops coming in the Fall. She sees the clearest links between middle school philosophy and technology in two areas: ownership and ties with other teachers. Through independent and group research as well as

preparation for projects and lessons with the laptops, she sees students making more individual decisions and taking a more personal and active role in their learning. Connecting lessons with other teachers in other content areas is a definite bonus of the laptops because students can literally carry information from one class to the next, simplifying the sharing of information and materials for interdisciplinary projects. Cindy believes, however, that while this is one of the perks of the laptops, it will not happen at first when they are brought in. She sees it taking time, teacher training, and tightly knit teams in the schools before interdisciplinary projects are widespread. She also sees it working more readily in actual middle schools, than in schools that are K-8, because the structure of the middle school is more conducive to cross-curricular teaching. Despite these minor hesitations Cindy believes "Middle school kids will press every button to find it all out. Technology makes them go farther" (personal communication April 9, 2002).

The Laptop Initiative in Maine continues to create controversy among legislators, educators and the general public. There are many concerns about student responsibility, the best use of state education funds, and what is best for the students and their learning. The laptops put the state of Maine is on the cutting edge of educational technology and educators in Maine have the unique opportunity to demonstrate the strong link between technology and middle school philosophy. Teachers and students can prove that this updated way of teaching and learning is only the beginning of what is possible with technology in schools.

APPENDIX A
NATIONAL STANDARDS FOR ARTS EDUCATION
GRADES 5-8

1. **Content Standard:**   **Singing alone and with others, a varied repertoire of music**

Achievement Standard:
Students
    a. sing accurately and with good breath control throughout their singing ranges, alone and in small and large ensembles
    b. sing with expression and technical accuracy a repertoire of vocal literature with a level of difficulty of 2, on a scale of 1-6, including some songs performed from memory
    c. sing music representing diverse genres and cultures, with expression appropriate for the work being performed
    d. sing music written in two and three parts
Student who participate in a choral ensemble
    e. sing with expression and technical accuracy a varied repertoire of vocal literature with a level of difficulty 3, on a scale of 1 to 6, including some songs performed from memory

2. **Content Standard:**   **Performing on instruments, alone and with others, a varied repertoire of music**

Achievement Standard:
Students
    a. perform on at least one instrument accurately and independently, alone and in small and large ensembles, with good posture, good playing position, and good breath, bow, or stick control
    b. perform with expression and technical accuracy on at least one string, wind, percussion, or classroom instrument, a repertoire of instrumental literature with a level of difficulty of 2, on a scale of 1 to 6
    c. perform music representing diverse genres and cultures, with expression appropriate for the work being performed
    d. play by ear simple melodies on a melodic instrument and simple accompaniments on a harmonic instrument
Students who participate in an instrumental ensemble or class
    e. perform with expression and technical accuracy a varied repertoire of instrumental literature with a level of difficulty of 3, on a scale of 1 to 6, including some solos performed from memory

3. **Content Standard:**   **Improvising melodies, variations, and accompaniments**

Achievement Standard:
Students
    a. improvise isimple harmonic accompaniments
    b. improvise melodic embellishments and simple rhythmic and melodic variations on given pentatonic melodies and melodies in major keys
    c. improvise short melodies, unaccompanied and over given rhythmic accompaniments, each in a consistent style, meter, and tonality

4. **Content Standard:**   **Composing and arranging music within specified guidelines**

Achievement Standard:
   Students
   a. compose short pieces within specified guidelines, demonstrating how the elements of music are used to achieve unity and variety, tension and release, and balance
   b. arrange simple pieces for voices or instruments other than those for which the pieces were written
   c. use a variety of traditional and nontraditional sound sources and electronic media when composing and arranging

5. **Content Standard:**   **Reading and notating music**

Achievement Standard:
   Students
   a. read whole, half, quarter, eighth, sixteenth, and dotted notes and rests in 2/4, 3/4, 4/4, 6/8, 3/8, and alla breve meter signatures
   b. read at sight simple melodies in both the treble and bass clefs
   c. identify and define standard notation symbos for pitch, rhythm, dynamics, tempo, articulation, and expression
   d. use standard notation to record their music ideas and the musical ideas of others
   Students who participate in a choral or instrumental ensemble or class
   e. sightread, accurately and expressively, music with a level of difficulty of 2, on a scale of 1-6

6. **Content Standard:**   **Listening to, analyzing, and describing music**

Achievement Standard:
   Students
   a. describe specific music events in a given aural example, using appropriate terminology
   b. analyze the uses of elements of music in aural examples, representing diverse genres and cultures
   c. demonstrate knowledge of the basic principles of meter, rhythm, tonality, intervals, chords, and harmonic progressions in their analyses of music

7. **Content Standard:**   **Evaluating music performances**

Achievement Standard:
   Students
   a. develop criteria for evaluating the quality and effectiveness of music performances and compositions and apply the criteria in their personal listening and performing
   b. evaluate the quality and effectiveness of their own and others' performances, compositions, arrangements, and improvisations by applying scientific criteria appropriate for the style of the music an doffer constructive suggestions for inmprovement

8. **Content Standard:**   **Understanding relationships between music, the other arts, and disciplines outside of the arts**

Achievement Standard:
    Students

    a.   compare in two or more arts how the characteristic materials if each art (that is, sound in music, visual stimuli in visual arts, movement in dance, human interrelationships in theatere) can be used to transform similar events, scenes, emotions, or ideas into works of art

    b.   describe ways in which the principles and subject mater of other disciplines taught in the school are interrelated with those of music

9. **Content Standard:**   **Understanding music in relation to history and culture**

Achievement Standard:
    Students

    a.   describe distinguishing characteristics of representative music genres and styles from a variety of cultures

    b.   classify by genre and style (and, if applicable, by historical period, composer, and title) a varied body of exemplary (that is, high-quality and characteristic) music works and explain the characteristics that cause each work to be considered exemplary

    c.   compare, in several cultures of the world, function music serves, roles of musicians, and conditions under which music is typically performed

(National Standards for Arts Education, 1994)

APPENDIX B
STUDENT SESSIONS: LESSON PLANS

SESSION ONE

- Check to make sure everyone brought their signed consent forms
- Introductions
    - name, school, grade
    - what made you want to come here today?
- Introduction to my thesis – what you are doing here. Thanks for coming
- Let's talk about technology
    - Kinds of technology
    - What do you have in front of you at your station
- How do you observe technology in music on a daily basis?
    - Commercials, radio, TV, CDs, DVDs, movies, radio, keep going!
- Today – compose a piece of music with set criteria
- Activity 1 – Discover Sibellius/Finale
    - Open, new document, how to input
    - Each person discovers how to input certain things and then teach peers
- Activity 2 – Get Acquainted with Sibellius
    - Practice inputting short melodies
    - Use the functions we discovered in activity 1
    - Questions: What else would you like to do with this program? How do you think you could use this at school? At home? In your music lessons?
- Activity 3 – Begin Composition
    - Using Keyboard, try out musical ideas. See how they look instantly and evaluate them instantly by playing them back
        - Criteria: no longer than 1 minute, 2-4 instruments, melody, harmony, be creative!
        - Peer edit at stations
- Activity 4 - Peer Review of Compositions – mini concert – let's see what we have so far!
- Questionnaire
- Clean up the computer lab
- Pizza Time!

SESSION TWO

- Check for permission slips from new students
- Introductions
    - Name, school, grade
    - What made you want to come here today/come back?
- Review again why I am doing this – Thank you!

- Activity 1 - Peer Teaching
  - o returning students teach new students about Sibellius, while I teach a few students about Finale
- Returning students – have you been noticing technology in music more since last week? How? Where? What do you think?
- Activity 2 - Compositions
  - o Returning students, get started, work on making yours better
  - o Review criteria with new students and get them going
  - o Remind everyone that today compositions must be completed
- Facilitate peer help when questions arise
- Print compositions when done
- Activity 3 - Getting ready for next week – computer music – changing sounds
  - o Demonstrate programs on the computers like ACID
    - Does this sound like what you hear on the radio? Like what DJs use?
    - Visual representations of sound besides traditional notation
- Activity 4 - Concert Time!
  - o Students present their pieces – get student reactions/feedback – what would you change if you could do it again? Why?
- Questionnaire
- Clean up the computer lab
- Pizza Time!

SESSION THREE

- Welcome back! Last class. Review names
- Activity 1 – Cool Edit demo – what we will be doing today
  - o Go over software tools, what is possible
  - o Sound Waves – what are they (basically)? What do they look like? How can we manipulate them to change how they sound?
- Activity 2 – Cool Edit Compositions
  - o Criteria: take original composition fro last 2 weeks, record it into Cool Edit. Choose 3-5 small sound clips from your composition, change them, and reinsert them multiple times into your old composition, creating a new one
  - o What do you like about this? Dislike?
  - o Could you see using this in your music classes at school?
- Activity 3 – Concert Time!
  - o As we play compositions & get peer feedback, talk about how you changed your piece. Do you like it better this way?
- Questionnaire
- Clean up the computer lab
- Pizza Time!

If there was more time… burn CDs, review available CD ROMs.

APPENDIX C
STUDENT SESSIONS: PARENTAL CONSENT LETTER

Emily Ann Cain
323 Colvin Hall, Orono, ME 04469
207-581-6380 emily.cain@umit.maine.edu

January 16, 2002

Dear Parent:

Your child is being asked to voluntarily participate in a research project I am conducting as part of my undergraduate honors thesis at the University of Maine. Your child's music teacher has selected him/her as someone who would benefit from this experience.

The purpose of my research is to study the relationship between the middle school philosophy of education and the use of music technology in general music lessons.

You child will be involved in a series of original music lessons to take place in room 314 of the Class of 1944 Hall on the University of Maine campus. This is the music technology lab on campus. Included with this letter is a list of the topics that will be covered as well as the simple questions your child will be asked to answer at the conclusion of each session.

The schedule of sessions is as follows:

~~**Saturday, January 26, 10am-noon**~~ **CANCELLED**
Saturday, February 2, 10am-noon
Saturday, February 9, 10am-noon
Saturday, February 23, 10am-noon *(optional, if students still need time to complete their projects)*

At the end of each session pizza and beverages will be provided for interested students.

There are no more risks in participating in this research than in a typical day at school, except the time taken on a few Saturday mornings. Your child's participation in this research is voluntary. He/she may stop at any time or skip any questions they do not wish to answer. It is my hope that your child will choose to attend all four sessions of music lessons, but it is important to know that attending one does not obligate them to attend them all.

Benefits to your child include exposure to new technology for music, and basic training on the software and hardware available in the computer lab. Students will also be thinking about topics in music that they have dealt with before, but in new and exciting ways with the technology. At the conclusion of the entire study, students will have completed at least two original compositions, which they will be able to take home with them in CD format to share with parents and friends. I suspect that you will be surprised at the quality of composition your child will achieve!

Complete confidentiality is insured to you and your child with this research. No identifying information will be linked to your child's responses. All identifiable data will be kept in a locked office, will be destroyed upon completion of the project, and will be seen only by me and my thesis advisor, Peggy Jo Wilhelm. In the thesis, your child's identity will remain confidential through the use of a pseudonym.

Please return the Consent Form attached to this letter to your child's music teacher by **Thursday, January 24.** You will see directions to the Class of 1944 Hall and instructions on how to find room 316 on page two of this letter. Each class starts at 10am and you can pick up your child at noon in room 316 each Saturday.

If you have any questions about this research, feel free to contact myself, Emily Cain, at 207-581-6380 or on email at Emily.cain@umit.maine.edu. You may also feel free to contact my thesis advisor, Peggy Jo Wilhelm at 207-866-0359. If you have questions about your rights as a research participant, please contact Gayle Anderson, Office of Research and Sponsored Programs, University of Maine, at 581-1498.

I look forward to meeting you and your child to collaborate on this exciting research!

Sincerely,

Emily Ann Cain

DIRECTIONS TO THE CLASS OF 1944 HALL:

After taking Exit 50 of Interstate 95 onto the Kelley Road, turn right (east) and travel until Kelley Road ends at an intersection. Turn left (north) and travel through Orono. After crossing the Stillwater River, bear right at the top of the hill. Travel about a mile until you see the University of Maine entrance on the left. After entering the University, bear left at the fork and you will see the Maine Center for the Arts straight ahead. As you approach the MCA, bear right at the fork past the parking lot. The MCA will now be on your left. Make your first left after the MCA. You will see the Class of 1944 Hall connected to the back of MCA.

Enter the building through the first entrance you will see on your left. Walk up the ramp and look to your right. You will see an elevator up another ramp. Please take the elevator to floor 3E. Walk straight out of the elevator down the hallway. The computer lab is room 316, and it is the fourth door on your left.

Informed Consent Form/Permission Slip*

Music Technology and Middle School Music Education Research Study

Emily Ann Cain, principal researcher (581-6380)
Peggy Jo Wilhelm, faculty advisor (866-0359)

Student's Name_____

Parent's Name_____

Parent Contact Information (in case of emergency)

_____

_____

_____

Does the student have any allergies or dietary needs that would prevent them from eating pizza and drinking soda or juice? If yes, please explain.

_____

_____

_____

The signatures below indicate that my child and I have read and understand the attached letter and information regarding the research project on music technology and middle school music education that my child will voluntarily be participating in.

Parent Signature_____   Date_____

*You will receive a copy of this form at the first session.

Thank you for your willingness to participate in this research project!

APPENDIX E
STUDENT SESSIONS: STUDENT QUESTIONAIRE

STUDENT QUESTIONAIRE – HONORS RESEARCH THESIS
Given By Emily Ann Cain

Name_____

Date_____

1. Did you learn anything entirely new today? If so, what?

2. What musical concepts do you feel you learned today?

3. Did the music technology help you to learn about music in a way you have never experienced before?

4. Do you think you learned about music faster or better because of the technology than you would have without it?

5. What did you like best about today's lesson?

6. What did you like least about today's lesson?

7. If you could use this technology in your music classes at school all of the time, would you like that?

8. Any other comments about today's lesson you would like to share?

APPENDIX F
STUDENT SESSIONS: NOTATED STUDENT COMPOSITIONS

These are notated compositions,
composed by students,
from the music technology classes.

music

Nights Glory

The Wilderness Lullabye

the booby shoewup

Twinkle, Twinkle little Star
And Heart and Soul

unknown

APPENDIX G
STUDENT SESSIONS: COMPACT DISC

This is a CD of compositions
created by students in my music technology class.

APPENDIX H
MUSIC EDUCATOR SURVEYS: SURVEY LETTER

Emily Ann Cain
323 Colvin Hall, Orono, Maine, 04469
207-581-6380   emily.cain@umit.maine.edu

March 3, 2002

Dear Middle School General Music Teacher,

My name is Emily Ann Cain and I am a senior Music Education major at the University of Maine. I am currently in the process of writing my Honors Thesis for graduation this May, and I would like your help.

My topic for research is Music Technology and Middle School General Music. I am looking at how the use of technology in the general music classroom meshes with the philosophies behind middle school education (i.e. community-centered learning, interdisciplinary projects, team teaching, etc.). In addition to researching the theoretical support for this topic, I am also studying how students react to the technology, as well as trying to assess what technology middle school music educators in Maine are using and having success with in their general music classrooms.

Enclosed with this letter you will find a brief survey asking questions revolving around this topic. I am asking that you take a few minutes to think about and fill out the survey. Feel free to skip any questions you do not wish to answer.

Your participation in this research is voluntary and all information will be kept confidential. **Please return the survey to me in the enclosed self-addressed stamped envelope, ideally by the last week in March, so it can be fully incorporated into my thesis.** Returning the survey implies your consent to participate. Except for your time and inconvenience, there are no risks to you in participating in this study, and the surveys will be destroyed upon the completion of my thesis defense this May.

If you have any questions, or would like to talk with me about my research, feel free to contact me at any time. You will see my address, phone number, and email at the top of this letter. You may also feel free to contact my Thesis Advisor, Peggy Jo Wilhelm at (207) 866-3059.

If you have any questions about your rights as a research participant, please call Gayle Anderson, Assistant to the University of Maine's Protection of Human Subjects Review Board, at (207) 581-1498 or email gayle@maine.edu.

Thank you in advance for any time and consideration you may give this request.

Sincerely,

Emily Ann Cain

APPENDIX I
MUSIC EDUCATOR SURVEYS: SURVEY

TECHNOLOGY AND MIDDLE SCHOOL GENERAL MUSIC SURVEY

School name * _____
Teacher name* _____
Contact Info * _____
Grades (please circle all that apply)   6   7   8
School size_____
      * These fields are optional. The names of all schools and teachers will be kept confidential.

Can Emily contact me with specific questions about what is happening with technology in my music classroom?
    _____ yes   _____no

Please rate how often you use these types of technology in your general music classroom.
Feel free to add additional items.

TYPE	Never/No 0	Termly 1	Monthly 2	Weekly 3	Daily 4
Computer	0	1	2	3	4
Word processing	0	1	2	3	4
CD ROM	0	1	2	3	4
Laser disc	0	1	2	3	4
DVD	0	1	2	3	4
Hypermedia	0	1	2	3	4
Midi	0	1	2	3	4
Keyboards	0	1	2	3	4
Sequencing software	0	1	2	3	4
Notation software	0	1	2	3	4
Musical Games	0	1	2	3	4
_____	0	1	2	3	4
_____	0	1	2	3	4
_____	0	1	2	3	4

Please explain three examples of how you use technology in your general music lesson plans.

1.

2.

3.

Please list three ways you feel technology enhances your teaching in middle school general music.

1.

2.

3.

Please list three ways you feel technology limits your teaching in middle school general music.

1.

2.

3.

Please list three ways you feel technology enhances your students' learning in general music.

1.

2.

3.

Please list three ways you feel technology limits your students' learning in general music.

1.

2.

3.

In what ways do you believe technology in the general music classroom relates to the middle school philosophy of teaching (i.e. community centered, interdisciplinary)?

What is your greatest frustration with technology?
Please rank the following, using 0 as the least frustrating. Feel free to add to the list.

_____ Access _____ Funding _____ Quality _____ Lack of training

_____ Lack of technical support _____ Other_____ Other_____

Please tell me what your middle school students seem to like best about using technology in general music.

Please tell me what your middle school students seem to least like about using technology in general music.

What do you like best using technology as a tool in general music?

What do you least like about using technology as a tool in general music?

APPENDIX J
MUSIC EDUCATOR SURVEYS: COMPILATION OF RESPONSES

→ **Please rate how often you use these types of technology in your general music classroom. Feel free to add additional items.**

TYPE	Never/No Total #	Termly Total #	Monthly Total #	Weekly Total #	Daily Total #
• Computer	16	1	3	1	4
• Word processing	18	0	3	2	2
• CD ROM	17	2	3	3	0
• Laser disc	25	0	0	0	0
• DVD	25	0	0	0	0
• Hypermedia	23	1	1	0	0
• Midi	19	1	1	3	1
• Keyboards	12	3	3	4	3
• Sequencing software	20	0	1	2	2
• Notation software	18	4	2	1	0
• Musical Games	21	1	2	1	0
• (Tape)	2	0	0	2	0
• (CD)	3	0	0	2	1
• (VCR)	1	0	1	0	0

→ **Please explain three examples of how you use technology in your general music lesson plans.**
- *almost none yet, but midi composition will be added this spring*
- *internet – suggested lesson plans*
- *pre-packed software*
- *Music Ace software*
- *Musicians birthday calendar*
- *students use school & library & personal computers for projects*
- *Listening by CD/Recording songs and sounds*
- *Yamaha MIE Program w/ Keyboards*
- *Internet Search (very seldom, also not in class)*
- *I must go to classrooms and each room has a TV and VCR*
- *The portable CD player is carried around with me*
- *We listen to musical examples and watch world music videos*
- *I use a CD player and guitar as well as video*
- *Laptop computers with Timeliner Program – jazz history unit project*
- *Keyboard Unit (7th grade) keyboards used in Lessons gr 5 & 6*
- *Internet for student research*
- *researching info*
- *CDs for general listening*
- *Word processing for student hand-on materials*
- *we share (in the district) 12 keyboards (6 w/ headphones) and do a keyboard unit for about 6 weeks*
- *We have the MIE system for Yamaha. This is my first year using it and there have been software issues BUT every class plays keyboard weekly and midi options are available*
- *research, presentations*
- *games for mechanical aspects of music*
- *We utilize technology for program design, frequent communication, as well as ear training and composition work*

• *we have a 25 station lab with Print Music 2000 on each machine. Students reinforce theory and composition concepts they learn in the classroom by creating composition they can hear through the headphones*

→ **Please list three ways you feel technology enhances your teaching in middle school general music.**

• *visual representation of audio-based music theory*
• *Gives students access to such a variety of information.*
• *Frees them of inhibitions*
• *Hands-on*
• *Ease of assessment*
• *more interactive for the 'electronic' generation*
• *provides timely information*
• *provides legible documents easily read by students*
• *allow for a greater variety of music to be heard*
• *students get creative/composing simple tunes*
• *We don't have it available to us or we would use it.*
• *Up-to-date methods are more exciting to kids*
• *I can use examples instead of just lecturing*
• *Introducing many component*
• *History of electronic instruments*
• *for the first time students can create (compose) and immediately critique their work without the problem fo finding skilled musicians to perform their creations.*
• *wish we had it so I could! We'd be writing (composing), going online for different info, as well as theory, etc.*
• *Most of the kids have never been outside of Maine and the videos help them to understand world music and cultures*
• *Student love keyboards and learn very quickly*
• *Music Ace is a good review for students who need extra help.*
• *Use of computers for Jazz history project really enhances what we learned in class.*
• *More comprehensive passing of knowledge (multi-media)*
• *Because it is totally fun, current, and hands on*
• *Quicker access for me to record songs/accomp.*
• *To plan lessons – using a format that includes learning standards*
• *prepare worksheets, assessments, & tests/quizzes*

→ **Please list three ways you feel technology limits your teaching in middle school general music.**

• *If I was expected to use it everyday it may intrude upon hands-on activities and movement*
• *I have limited access to computer lab, however with laptops it is going to be great!*
• *My own training in this area is the biggest limitation.*
• *not enough hardware for every student*
• *Not enough software for every student*
• *I am not familiar with new technology enough to use it freely*
• *I do not have adequate computer software*
• *When power is out, plan is out (always keep backup)*
• *Software or hardware issues when crashing takes time to fix*
• *Delicate often for students – not a problem if addressed*
• *Have not incorporated notation software into the school computer lab*
• *Not enough access to equipment*
• *not enough time to stay current with developing technologies*
• *Money – not each kid can have their own station*
• *I really can't find limitations aside from money – it's totally endless – the possibilities*
• *lack of music specific software – difficult to get all students to have the opportunity to try programs*

→ **Please list three ways you feel technology enhances your students' learning in general music.**

• *it gives us a ton of resources*
• *Hands-on (keyboard training)*
• *Visual/audio demonstrations*
• *Allows students to be actively involved in the lesson*
• *Allows students opportunities to practice lower level skills in an attractive package*
• *Allows students access to composition tools*

- *Up-to-date (they connect better to that)*
- *more control over all playing/performance aspects of music*
- *better experience/more rewarding composition*
- *great listening and interviews*
- *facilitates composition*
- *Hands-on learning (keyboard)*
- *Immediate feedback (games)*
- *Organization and presentation of learned material (word processing)*

→ **Please list three ways you feel technology limits your students' learning in general music.**

- *I can't think of one*
- *Too much 'playing around' with features – hard to keep students focused with only one teacher for twenty students.*
- *New equipment takes awhile for some to learn – not all students take long*
- *some students are not able to respect the equipment in order to use it*
- *I don't feel or witness and limitations with my students*
- *Kids get stuck on the visuals*
- *More affluent students get more practice and progress faster*
- *Some students are overwhelmed with all of the options (buttons) and become distracted*
- *It gives each student access to instrumental music thru timbre, pitch, etc*

→ **In what ways do you believe technology in the general music classroom relates to the middle school philosophy of teaching (i.e. community centered, interdisciplinary)?**

- *hands-on, video scene, it's where we're headed*
- *It is totally in alignment with all philosophies I believe!*
- *Hands-on*
- *not sure of this yet*
- *Students must experience modern methods of composition according to the National Standards*
- *Interdisciplinary, well-rounded, effective communicators, individualized instruction is possible*
- *Communication with community and cultures via internet, any time more aspects of life or learning can be brought to a lesson, the better the lesson and the more learned the students*
- *I feel that technology can provide opportunities for students to reach the community via websites, etc. I also think that when it comes to composing, technology can further their achievements.*

→ **What is your greatest frustration with technology?**
Please rank the following, using 0 as the least frustrating. Feel free to add to the list.

Access	Funding	Quality	Lack of training	Lack of technical support

- *Every teacher that responded to my survey answered this area differently, and in the end when all of the results were accounted for, there was not one particular area of frustration that stood out. In addition to the suggested areas, the following were also listed as frustrations: lack of classroom space, lack of software, application relevance, and student interest.*

→ **Please tell me what your middle school students seem to like best about using technology in general music.**

- *they get to hear their music*
- *Gives them a definite part to do – ownership of the class*
- *It is appealing to their sense of emerging adulthood – they feel 'cool' and glamorous*
- *Individualized work access relative to skill needs*
- *They are big into research in their own classrooms*
- *Individualized to allow for different learning styles and rates*
- *listening to examples*
- *They seem to be energized by the thought that there is more to music class than drums and singing*
- *Love checking out cool websites*
- *the possibilities*
- *KEYBOARDS! – many students have always wanted to learn to play.*

→ **Please tell me what your middle school students seem to least like about using technology in general music.**

- *after awhile they are bored*
- *following direction – limits put on them – defined class lessons, not just 'fun and free' time*
- *Some are very confused by 'hows' and 'whys' dealing with delicate, complicated equipment*
- *nothing*

- *not sure*
- *I think they would like more!*
- *I haven't seen anything I would call dislike except that they have to wait their turn.*
- *not enough time or access to machines — outdated technology*
- *The students who enjoy playing Orff instruments seem to miss it when we use the computers*

→ **What do you like best using technology as a tool in general music?**
- *It inspires a handful of students to continue to compose months after the course is over*
- *Hands-on; immediate response, kids think it is 'cool'*
- *Keyboards with MIDI, for composition*
- *composing*
  convenience
- *the possibilities*
- *It is slick! not sure*
- *The variety*
- *Access to much wider areas of music than what was available*
- *keeps students interest much longer*

→ **What do you least like about using technology as a tool in general music?**
- *It does not at this time develop performance skills*
- *When the lesson is planned around the internet and it crashes!*
- *Our lab is slow and stuff freezes frequently*
- *nothing!*
- *Having them create the music would be better educationally so they could fully understand the performance process*
- *Takes a little more time when crashing (very seldom)*
- *computers freezing*
- *my own lack of knowledge – the 'uncomfortable' feel of using it and explaining it (students know more than I do)*

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