

UNIVERSITY MUSIC EDUCATION STUDENT PERCEPTIONS AND ATTITUDES ABOUT INSTRUCTIONAL TECHNOLOGY

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The purpose of this study was to determine university music education students' perceptions of their technology skills and needs in three areas: (a) proficiency, (b) use for teaching/learning, and (c) need for training. A survey developed for a state department of education was adapted for music educators and was administered to 45 music education students. Students expressed greatest levels of proficiency with applications most likely learned through informal and/or recreational activities such as *running a videotape on a VCR, and using e-mail*. Highest levels of technology use were reported for *e-mail, word processing, playing a videotape on a VCR, and browsing the Internet*. Use of technology specifically related to music and teaching was relatively low. Students expressed high to medium need for training in a number of areas with greatest needs reported for *creating a homepage on the WWW, using a music editor such as Finale, and using music education software applications*. These results suggest that music education students need additional training to prepare them to incorporate instructional technology in their learning and teaching more fully. Additional research is needed to determine if similar results are obtained in other settings.

Over the past few decades, instructional technology has gained increasing acceptance as an important component of music education. This trend is evident in published standards for both K-12 and collegiate-level music education. The *Opportunity to Learn Standards for Music Technology*, an addendum to the 1994 *Opportunity-to-Learn Standards for Music Instruction* (MENC, 1999) states:

It is essential that all schools provide a basic level of music technology equipment and software with the appropriate facilities for implementation. It is also essential that all schools provide a minimal level of training for their staff and teachers, and make an effort to effectively incorporate the technology into the music curriculum. (p. 5)

The 1989 the College Music Society (CMS) Report, *Music in the Undergraduate Curriculum: A Reassessment*, listed "a familiarity with technology and the ability to consider the electronic age in aesthetic and humanistic, and scientific and mathematical terms" among the seven essential competencies the music student needs to develop "in order to participate in the musical life of the United States" (p. 16). The National Association of Schools of Music (NASM, 2003) also includes technology among competencies re-

quired for accreditation of all professional baccalaureate degrees in music and all undergraduate degrees leading to teacher certification.

While it is evident that prominent professional music organizations such as MENC, NASM, and CMS endorse the use of music instruction technology, there is a surprising lack of research on the topic.

Related Literature

Despite the wide and ever-increasing variety of music instruction hardware and software that is available, research indicates that music educators' instructional technology use tends to be infrequent and limited in scope. Studies typically report such activities as word processing, database management, e-mail, using the Internet, composing/arranging, accompanying, and theory/fundamentals as the most common computer uses during and outside music class (e.g., Bauer, 1999; Taylor & Deal, 1999). Only 25% of the music teachers in Taylor and Deal's (1999) survey indicated technology use with their students. A survey of graduate music education students at two Alabama universities ($N = 37$) revealed that only 5.4% "had fully integrated computer technology into their classroom instruction" and that less than half (38%) reported using the computer for instructional purposes (Jinright, 1998).

Surveys of professional educators' attitudes and use of technology indicate relatively low levels of confidence and experience. Only 10% of teachers responding to a national survey felt *very well prepared* to include technology as part of classroom instruction (National Center for Education Statistics, 2000). Studies of music educators have produced similar results. Taylor and Deal's (1999) survey of 222 music educators in three states found that only 22.9% claimed to be *considerably experienced* in computing.

Not surprisingly, music educators' use (or lack of use) of instructional technology may be related to a number of factors including support, funding, ownership, modeling, suitability, attitude, number of students, and class size (Jinright, 1998). A survey of music technology in Illinois public schools (Reese & Remington, 2000) identified a number of obstacles to technology integration including teachers' lack of formal training, lack of equipment and facilities, and lack of focused training in music instruction applications. Most of the music teachers in Taylor and Deal's (1999) study also reported having only limited access to computers in their schools.

Price and Pan's (2002) survey of 69 NASM accredited college music education programs also revealed a rather inconsistent and uncertain approach to music instruction technology in higher education.

As of Spring 2000, not all institutions of higher learning in the Southeastern United States were equipped to teach music education technology to their students. . . It is striking that many prospective music teachers are not introduced to the use of music technology to augment their teaching. (p. 64)

Results of this study pinpointed two main areas of concern regarding music education technology: concerns about resources (with financial and personnel support cited as main concerns) and concerns about teacher training and preparation (including concerns about lack of trained personnel, issues about adding additional material and requirements to an already overburdened curriculum, and concerns about how to decide what music education technology is essential for students). Almost two-thirds of the survey respondents indicated that sufficient research on music instruction technology is not available.

Music teachers at all instructional levels are under increasing pressure from professional music education organizations and accrediting agencies to integrate technology into their programs. However, research indicates that music educators generally lack confidence in their own ability to use technology, and that their use of music instruction technology tends to be sporadic, infrequent, and limited in scope. Additional research is needed to better understand music educators' perceived skills, interests and needs regarding music instruction technology. Results of such research can inform technology training programs for both pre-service and in-service music educators.

The purpose of this study was to determine university music education students' perceptions of their skills and needs in three areas: (a) proficiency with technology, (b) use of technology for teaching/learning, and (c) need for technology training. The study also explored students' attitudes towards the use of educational technology in the music classroom.

Method and Procedures

The Music Education Technology Skills Inventory (METSIS) was developed for use in the present study (see Appendix). The METSIS was adapted from the *Educational Technology Skills Inventory*¹ (Iowa Department of Education, 1996), an instrument developed and employed successfully "to understand the use of and proficiency with technology and to determine the need for technology training among Iowa educators." The METSIS was comprised of four sections. Section I requested background information from participants such as their current university status (undergraduate or graduate), whether they owned a computer, make and model of the computer, and whether they had Internet access at home. Section II asked participants to rate their skills and needs in three areas on a scale ranging from 0 to 4: (a) proficiency with technology, (b) use of technology for teaching/learning (versus personal use), and (c) need for technology training "to assist you in using technology for educational purposes." Section III asked participants to indicate their preferences for scheduling (time of day, day of week, length) and the format of technology training sessions (small group, Internet, computer based, etc.). Section IV presented 12 statements about using educational technology in the music classroom with a five-point Likert-type re-

sponse scale that ranged from SD (Strongly Disagree) to SA (Strongly Agree). Since the *Educational Technology Skills Inventory* already has been established as reliable and valid when administered to Iowa teachers, pilot testing was deemed unnecessary.² However, the METSI was reviewed by a panel of six experienced music educators and after minor revisions, was considered appropriate for data collection in the present study.

Instructors teaching music education courses at a large southwestern university were asked to administer the METSI to their students during regular class time. The instructors then returned the completed questionnaires to the researcher. Data were tabulated and analyzed using SPSS statistical software.

Results

Participants ($N = 45$) included 13 graduate students (29%) and 32 undergraduate students (71%). Most (93.3%) reported owning a personal computer, with the majority (73.3%) listing the type as PC in contrast with only 11.1% listing a Macintosh product, and 15.6% not listing the particular make and model of computer that they own. Most participants (95.6%) also reported having Internet access at home.

Proficiency levels varied among the fifty items included in Section II of the METSI, with the majority of respondents reporting only "some experience" or "no experience" for 70% of these items. However, the students did indicate high levels of proficiency for items dealing with running a videotape on a VCR (96% proficient), using e-mail (93% proficient), creating a document with a word processor (91% proficient), using a CD player to play back recordings (91% proficient), browsing the Internet (89% proficient), using an audio cassette recorder to play or record (84%), and accessing information on a CD-ROM (73% proficient). (See Table 1.)

Reported use of technology for teaching/learning was relatively low for most items. Highest levels of technology use were for e-mail (87% use regularly), word processing (86% use regularly), playing a videotape on a VCR (84% use regularly), browsing the Internet (82% use regularly), and playing a CD (78% use regularly). Use of technology specifically related to music for teaching/learning was also relatively low with only 35% of the students reporting that they regularly burn music files onto CD, 32% using a music editor such as *Finale* regularly, 26% using MIDI technology regularly, and only 14% using music education software regularly (see Table 1).

Students generally expressed high need for training in a number of areas including creating a homepage on the WWW (49% high need, 16% medium need), using a music editor such as *Finale* (42% high need, 27% medium need), using music education software applications (36% high need, 31% medium need), creating a HyperCard/Hypertext stack (36% high need, 16% medium need), adding animation to a computer presentation (33% high need, 33% medium need), creating a computer presentation such as PowerPoint (30% high need, 35% medium need), using a computer based portfolio as-

Table 1

Mean Ratings for Technology Proficiency, Use, and Need for Training

Item	Proficiency		Use		Training Need	
	Mean	SD	Mean	SD	Mean	SD
1. Create a document in a word processor	2.91	.29	2.84	.43	1.12	.79
2. Create a spreadsheet	1.73	.95	1.51	.84	1.60	.88
3. Create a database	1.50	1.02	1.29	.87	1.79	.94
4. Use graphics software to create pictures	1.60	.98	1.42	.85	1.82	.90
5. Import clip art into a document	2.19	.91	1.75	.89	1.55	.89
6. Create a newsletter using desktop publishing	1.74	1.04	1.25	.78	1.65	.95
7. Create a computer presentation using presentation software, such as Power Point	1.53	.93	1.11	.78	1.84	1.00
8. Add animation to a computer presentation	1.19	.79	.95	.57	1.88	.98
9. Create a HyperCard/Hypertext stack	.81	.91	.73	.66	1.59	1.26
10. Use an electronic grade book	1.48	.88	1.18	.97	1.61	.92

11. Use a computer-based portfolio assessment system	.70	.63	.84	.57	1.73	1.10
12. Use computer games in a classroom setting	1.73	.95	1.20	.76	1.24	.71
13. Use computer tutorials in a classroom setting	1.57	.83	1.18	.72	1.56	.87
14. Use electronic mail (e-mail)	2.93	.25	2.84	.53	1.05	.65
15. Use an online service (i.e., CompuServe) for information sharing	2.32	1.01	2.19	.96	1.40	.86
16. Browse the Internet	2.89	.32	2.82	.39	1.22	.74
17. Browse the World Wide Web	2.82	.54	2.76	.48	1.18	.76
18. Create a homepage for the World Wide Web	1.36	.69	1.28	.63	2.09	1.00
19. Access information on a CD-ROM disc	2.66	.64	2.41	.76	1.25	.75
20. Access information on a CD-I (Compact Disc-Interactive) disc	1.84	1.08	1.70	1.05	1.29	.89
21. Digitize images	1.23	.96	1.18	.76	1.64	1.13
22. Use a scanner to create a computer text file from a paper document	1.64	.94	1.32	.77	1.82	.96
23. Use a scanner to create a computer graphic from a paper document	1.61	1.04	1.43	.90	1.62	.98
24. Install a program on a computer hard drive	2.39	.87	2.20	.85	1.38	.81
25. Configure software to communicate with other computers/networks	1.30	.83	1.25	.69	1.67	.98

26. Install a program on a network file server	1.07	.70	1.00	.62	1.49	.94
27. Install an internal computer adapter/card (i.e., sound card)	1.55	1.04	1.52	1.05	1.51	.92
28. Troubleshoot malfunctioning computer hardware	1.52	.93	1.50	.93	1.76	.98
29. Troubleshoot a malfunctioning printer	1.95	.94	1.82	.95	1.62	.86
30. Troubleshoot malfunctioning computer software	1.73	.97	1.70	.90	1.71	.97
31. Use a video projector to display a videotape	1.82	1.04	1.70	1.00	1.51	.89
32. Use a video projector to display computer images	1.53	.91	1.42	.82	1.66	1.01
33. Use an overhead computer projection (LCD) panel to display a videotape	1.36	.92	1.20	.82	1.58	.99
34. Use an overhead computer projection (LCD) panel to display computer images	1.35	.92	1.16	.81	1.58	1.03
35. Run a videotape on a VCR	2.95	.21	2.80	.50	1.12	.59
36. Edit multiple videotapes into a final product	1.77	.81	1.48	.85	1.69	.90
37. Use a music editor such as <i>Finale</i>	2.09	.77	2.05	.81	2.11	.86
38. Use music education software applications	1.64	.84	1.52	.85	2.00	.88
39. Use a laser video disc to show video information	1.41	.87	1.23	.83	1.66	.96
40. Use a bar code reader to control a laser video disc	1.11	.72	.89	.62	1.58	1.10

41. Use a camcorder in the classroom	2.25	.84	1.93	.85	1.48	.76
42. Use an audio cassette recorder to play or make a recording	2.73	.69	2.45	.76	1.18	.72
43. Use a CD player to play back a recording	2.82	.62	2.68	.67	1.22	.77
44. Burn music files onto a CD	2.02	.98	1.95	.92	1.53	.85
45. Use MIDI technology	2.09	.68	1.95	.79	1.79	.89
46. Incorporate broadcast TV in teaching/learning	1.31	.87	1.12	.75	1.52	.97
47. Downlink a satellite teleconference	.91	.61	.84	.61	1.45	1.11
48. Use an interactive television system for distance learning	1.05	.66	.93	.69	1.49	1.12
49. Use a speakerphone in a classroom setting	1.38	.85	1.00	.62	1.48	.95
50. Set up a multi-phone conference for a classroom setting	1.07	.60	.90	.49	1.26	.90

Note. Response Scales: Proficiency: 3 = Proficient, 2 = Some Experience, 1 = No Experience, 0 = Unfamiliar with item; Use: 3 = Use Regularly, 2 = Use Occasionally, 1 = Do Not Use, 0 = Do Not Have Access; Training Need: 3 = High Need, 2 = Medium Need, 1 = Low Need, 0 = Can't Evaluate.

assessment system (29% high need, 36% medium need), using a scanner to create a computer text file from a paper document (29% high need, 33% medium need), digitizing images (29% high need, 29% medium need), and troubleshooting malfunctioning computer hardware (29% high need, 27% medium need). (See Table 1.)

Responses to items concerning scheduling preferences for technology sessions varied. Most frequently selected session durations were "a series of one-hour sessions" (38%) and "one-half day session" (29%) formats. The majority of respondents indicated preferences for scheduling technology training sessions during Summers (47%), between 7 to 9 in the evening (33%), on Saturdays, and/or between Semesters (25%). (See Table 2.)

Reliability analysis indicated high reliability coefficients for all scales on the METSI. Scales related to *current level of proficiency*, *use of technology for teaching/learning*, and *need for technology training* (each with 50 items) produced Alphas of .95, .94, and .97, respectively. The 12 items in *Section IV: Attitudes Toward Technology in Music* yielded a reliability Alpha of .85 (see Table 3).

This is a small study carried out at one institution. This sample of only 45 music education students is certainly too limited to warrant inferences of these results to other settings. Additional research is needed to determine if similar results are obtained in other institutions and geographic regions.

Discussion and Conclusions

University students in the 21st century interact with technology as a routine part of their lives. It is predictable that most music education students responding to this questionnaire would own a computer, have Internet access, and be familiar with equipment such as VCRs and CDs. However, in contrast with relatively high levels of proficiency and use for technology applications most likely learned through informal and/or recreational activities, proficiency and use of technology specifically related to music and teaching (such as *Finale*, MIDI, and music instruction software) were relatively low. Given the proliferation of technology throughout 21st century American culture, one might speculate that the current crop of university music education students would be much more familiar and comfortable with music instruction technology than in-service music teachers. However, findings from this study of pre-service music teachers suggest that this is not the case. These results are consistent with studies of in-service music teachers (Jinright, 1998; Taylor & Deal, 1999). It seems that music instruction technology proficiency and use is quite limited among both pre-service and in-service music educators.

High ratings for *need for technology training* contrast with relatively low ratings for proficiency and use of most items. Students indicated high interest in learning more about instructional technology and expressed high to medium need for training in a large number of areas with greatest needs reported for *Creating a homepage on the WWW* (49% high need, 16% me-

Table 2

Technology Training Session Scheduling Preferences

Item	<i>f</i>	%
<u>Length of Session</u>		
Series of one-hour sessions	17	37.8%
One-half day session	13	28.9%
One-day session	10	22.2%
Multi-day sessions	8	17.8%
Other	2	4.4%
<u>Day and Time of Session*</u>		
Weekday morning (8:00 to 12:00)	4	8.9%
Weekday lunch (12:00 to 1:00)	3	6.7%
Weekday afternoon (1:00 to 5:00)	4	8.9%
Early evening (5:00 to 7:00)	6	13.3%
Evening (7:00 to 9:00)	15	33.3%
Saturday	13	28.9%
Sunday	4	8.9%
Summer	21	46.7%
Between semester breaks	11	24.4%
Other	3	6.7%

*Respondents were instructed to "check all that apply" for this item

Table 3

Technology Attitude Scale Response Frequencies and Percentages (Section IV of the METSI)

Item	SD		D		U		A		SA	
	f	%	f	%	f	%	f	%	f	%
I think technology makes my professional work more difficult.	9	20.0	20	44.4	9	20.0	2	4.4	4	8.9
I think computers make work more enjoyable.	0	0	2	4.4	7	15.6	23	51.1	12	26.7
It has been a struggle for me to learn how to use a computer successfully.	15	33.3	18	40.0	6	13.3	3	6.8	2	4.4
I believe music teachers do not need to know how to use a computer.	25	55.6	17	37.8	1	2.2	1	2.2	0	0
I believe the quality of music education will be improved by the use of technology.	0	0	2	4.4	7	15.6	25	55.6	10	22.2
I would like to improve my skills in the use of technology.	0	0	1	2.2	3	6.7	25	55.6	14	31.1
I do not feel threatened by technology.	0	0	3	6.7	7	15.6	18	40.0	16	35.6
Technology should be used to improve learning throughout the curriculum.	0	0	4	8.9	6	13.3	20	44.4	14	31.1

Technology should be used by teachers more than it is now.	0	0	2	4.4	11	24.4	20	44.4	10	22.2
Technology is an unnecessary luxury in most school settings.	13	28.9	23	51.1	5	11.1	2	4.4	1	2.2
Technology is of little value in the music classroom because it is too difficult to use.	17	37.8	21	46.7	4	8.9	0	0	2	4.4
I would like to use technology more in my teaching/learning.	0	0	1	2.2	12	26.7	20	44.4	11	24.4

dium need), *Using a music editor such as Finale* (42% high need, 27% medium need), and *Using music education software applications* (36% high need, 31% medium need). These results support other research indicating that music educators have great interest in learning to use technology in their teaching (Bauer, 1999; Taylor & Deal, 1999).

General attitudes about music instruction technology tended to be very positive with students expressing confidence in the importance of instructional technology in music education and keen interest in using technology in their own teaching and learning. These results are consistent with other research. Even those music educators who are not currently using music instruction technology have a positive attitude and desire to learn how to integrate technology into their music classrooms (Taylor & Deal, 1999). College music educators also agree that “a functional knowledge of music technology is vital for musicians and music educators” (Price & Pan, 2002, p. 61).

Responses to items concerning scheduling of technology training sessions are not surprising. Given the busy schedule of most music education students (classes, ensemble rehearsals, lessons, etc.), participating in training sessions during the regular academic day may not be feasible. Their expressed willingness to participate in technology training during “break” time (summers, evenings, Saturdays or between semesters) may also be indicative of their high interest in this topic and their willingness to invest personal time in learning more about music instruction technology.

Responses to this questionnaire indicate that most students preferred a small-group, hands-on workshop for music instruction technology training with Internet based workshops and computer based tutorials ranked second (see Table 4). It is important to note that these results only indicate respondents’ stated preferences. Whether these instructional formats are most effective for developing instructional technology proficiency and use is beyond the scope of this study. Additional research is needed to determine which instructional approaches are most successful.

Perhaps one of the most useful findings of this study is the high reliability for the four scales on the METSI. These results indicate that the METSI is a valid and reliable instrument for surveying music education students’ attitudes about technology. Subsequent research is needed to determine whether the METSI is also a reliable instrument for in-service music educators.

While it may be safe to assume that university music education students are knowledgeable and proficient with certain technology applications such as using e-mail, VCRs, and CD players, results of this study indicate that they are generally not proficient and generally do not use specific music instruction technology applications. These results suggest that music education students need additional training to prepare them to incorporate instructional technology in their learning and teaching more fully. The university setting could provide this much-needed training; however, Price and Pan’s (2002) survey indicate that this is generally not the case. In order

Table 4

Ideal Technology Training Format Rankings (1-6)

Format	#1		#2		#3		#4		#5		#6	
	f	%	f	%	f	%	f	%	f	%	f	%
Small-group, hands-on	35	77.8	2	4.4	6	13.3	0	0	2	4.4	0	0
Via Internet/WWW	2	4.4	13	28.9	8	17.8	7	15.6	8	17.8	3	6.7
Computer based tutorial	4	8.9	12	26.7	12	26.7	6	13.3	6	13.3	1	2.2
Videotape	2	4.4	6	13.3	8	17.8	14	31.1	3	6.7	8	17.8
Printed workbooks	0	0	5	11.1	6	13.3	11	24.4	17	37.8	2	4.4
Other (responses varied)	1	2.2	1	2.2	4	8.9	0	0	3	6.7	7	15.6

Note. Some participants did not rank all items; therefore, percentages do not total 100%.

to prepare music teachers to integrate instructional technology into their teaching, music teacher education programs must include more focused technology training throughout the music education curriculum with particular emphasis upon applications such as instructional web page development, music editing software, and music education software.

Although not conclusive, the results of this study provide detailed information about music education students' technology proficiency, use, need for training, and attitudes. These results, when combined with the results of existing and subsequent studies, could help inform music education curriculum.

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Endnotes

¹Permission to modify and use the *Educational Technology Skills Inventory* was obtained from Professor Doreen Hayek, University of Northern Iowa, Information Technology Services (e-mail correspondence dated Tuesday, July 24, 2001, 9:16 a.m.).

²Information about test development procedures and results were obtained from Professor Doreen Hayek, University of Northern Iowa, Information Technology Services (e-mail correspondence dated Tuesday, July 24, 2001, 9:16 a.m.).

Appendix: Music Education Technology Skills Inventory

Name: _____

Section I. Background Information

1. What is your current status in the School of Music at the University of Oklahoma?
 faculty
 graduate student
 undergraduate student

2. Are you currently teaching any courses in the School of Music at the University of Oklahoma?
 YES NO

If YES, please list the courses that you are teaching: _____

3. Do you own a personal computer? YES NO

If YES, please indicate the make and model of computer that you own.

4. Do you have access to the Internet at home? YES NO

Section II. Educational Technology Proficiency Inventory.

You will now be asked to rate your skills and needs in three areas:

- A. your proficiency with technology;
 B. your use of technology for teaching/learning (versus for personal use);
 C. your need for technology training to assist you in using technology for educational purposes.

Circle your rating in each column as follows:

- | | | |
|---|--|---|
| Column A:
<i>Your current level of proficiency with technology.</i> | Column B:
<i>Your use of technology for teaching/learning.</i> | Column C:
<i>Your need for technology training.</i> |
| 3 = Proficient | 3 = Use Regularly | 3 = High Need |
| 2 = Some Experience | 2 = Use Occasionally | 2 = Medium Need |
| 1 = No Experience | 1 = Do Not Use | 1 = Low Need |
| 0 = Unfamiliar with item | 0 = Do Not Have Access | 0 = Can't Evaluate |

Please rate the following items:	A=Proficiency	B=Use	C=Training Need
5. Create a document in a word processor	3 2 1 0	3 2 1 0	3 2 1 0
6. Create a spreadsheet	3 2 1 0	3 2 1 0	3 2 1 0
7. Create a database	3 2 1 0	3 2 1 0	3 2 1 0
8. Use graphics software to create pictures	3 2 1 0	3 2 1 0	3 2 1 0
9. Import clip art into a document	3 2 1 0	3 2 1 0	3 2 1 0
10. Create a newsletter using desktop publishing	3 2 1 0	3 2 1 0	3 2 1 0
11. Create a computer presentation using presentation software such as <i>Power Point</i>	3 2 1 0	3 2 1 0	3 2 1 0
12. Add animation to a computer presentation	3 2 1 0	3 2 1 0	3 2 1 0
13. Create a HyperCard/Hypertext stack	3 2 1 0	3 2 1 0	3 2 1 0

Circle your rating in each column as follows:

Column A:
Your current level of proficiency with technology.

3 = Proficient
2 = Some Experience
1 = No Experience
0 = Unfamiliar with item

Column B:
Your use of technology for teaching/learning.

3 = Use Regularly
2 = Use Occasionally
1 = Do Not Use
0 = Do Not Have Access

Column C:
Your need for technology training.

3 = High Need
2 = Medium Need
1 = Low Need
0 = Can't Evaluate

14. Use an electronic grade book	3 2 1 0	3 2 1 0	3 2 1 0
15. Use a computer-based portfolio assessment system	3 2 1 0	3 2 1 0	3 2 1 0
16. Use computer games in a classroom setting	3 2 1 0	3 2 1 0	3 2 1 0
17. Use computer tutorials in a classroom setting	3 2 1 0	3 2 1 0	3 2 1 0
18. Use electronic mail (e-mail)	3 2 1 0	3 2 1 0	3 2 1 0
19. Use an online service (i.e., CompuServe) for information sharing	3 2 1 0	3 2 1 0	3 2 1 0
20. Browse the Internet	3 2 1 0	3 2 1 0	3 2 1 0
21. Browse the World Wide Web	3 2 1 0	3 2 1 0	3 2 1 0
22. Create a homepage for the World Wide Web	3 2 1 0	3 2 1 0	3 2 1 0
23. Access information on a CD-ROM disc	3 2 1 0	3 2 1 0	3 2 1 0
24. Access information on a CD-I disc (Compact Disc-Interactive)	3 2 1 0	3 2 1 0	3 2 1 0
25. Digitize images	3 2 1 0	3 2 1 0	3 2 1 0
26. Use a scanner to create a computer text file from a paper document	3 2 1 0	3 2 1 0	3 2 1 0
27. Use a scanner to create a computer graphic from a paper document	3 2 1 0	3 2 1 0	3 2 1 0
28. Install a program on a computer hard drive	3 2 1 0	3 2 1 0	3 2 1 0
29. Configure software to communicate with other computers/networks	3 2 1 0	3 2 1 0	3 2 1 0
30. Install a program on a network file server	3 2 1 0	3 2 1 0	3 2 1 0
31. Install an internal computer adapter/card (i.e., sound card, Ethernet card)	3 2 1 0	3 2 1 0	3 2 1 0
32. Troubleshoot malfunctioning computer hardware	3 2 1 0	3 2 1 0	3 2 1 0
33. Troubleshoot a malfunctioning printer	3 2 1 0	3 2 1 0	3 2 1 0
34. Troubleshoot malfunctioning computer software	3 2 1 0	3 2 1 0	3 2 1 0
35. Use a video projector to display a videotape	3 2 1 0	3 2 1 0	3 2 1 0
36. Use a video projector to display computer images	3 2 1 0	3 2 1 0	3 2 1 0
37. Use an overhead computer projection (LCD) panel to display a videotape	3 2 1 0	3 2 1 0	3 2 1 0
38. Use an overhead computer projection (LCD) panel to display computer images	3 2 1 0	3 2 1 0	3 2 1 0
39. Run a videotape on a VCR	3 2 1 0	3 2 1 0	3 2 1 0
40. Edit multiple videotapes into a final product	3 2 1 0	3 2 1 0	3 2 1 0
41. Use a music editor such as <i>Finale</i>	3 2 1 0	3 2 1 0	3 2 1 0
42. Use music education software applications	3 2 1 0	3 2 1 0	3 2 1 0
43. Use a laser video disc to show video information	3 2 1 0	3 2 1 0	3 2 1 0
44. Use a bar code reader to control a laser video disc	3 2 1 0	3 2 1 0	3 2 1 0
45. Use a camcorder in the classroom	3 2 1 0	3 2 1 0	3 2 1 0
46. Use an audio cassette recorder to play or make a recording	3 2 1 0	3 2 1 0	3 2 1 0
47. Use a CD player to play back a recording	3 2 1 0	3 2 1 0	3 2 1 0

Circle your rating in each column as follows:

Column A:
Your current level of proficiency with technology.
3 = Proficient
2 = Some Experience
1 = No Experience
0 = Unfamiliar with item

Column B:
Your use of technology for teaching/learning.
3 = Use Regularly
2 = Use Occasionally
1 = Do Not Use
0 = Do Not Have Access

Column C:
Your need for technology training.
3 = High Need
2 = Medium Need
1 = Low Need
0 = Can't Evaluate

48. "Burn" music files onto a CD	3	2	1	0	3	2	1	0	3	2	1	0
49. Use MIDI technology	3	2	1	0	3	2	1	0	3	2	1	0
50. Incorporate broadcast TV in teaching/learning	3	2	1	0	3	2	1	0	3	2	1	0
51. Downlink a satellite teleconference	3	2	1	0	3	2	1	0	3	2	1	0
52. Use an interactive television system for distance learning	3	2	1	0	3	2	1	0	3	2	1	0
53. Use a speakerphone in a classroom setting	3	2	1	0	3	2	1	0	3	2	1	0
54. Set up a multi-phone conference for a classroom setting	3	2	1	0	3	2	1	0	3	2	1	0
55. Other	3	2	1	0	3	2	1	0	3	2	1	0

Section III. Learning and Using Technology in the Music Classroom.

We would like some information about the ideal technology training session for you. Please mark the appropriate answer(s) or fill in the blank.

56. How long would you prefer a hands-on technology training session to last?

1. A series of one-hour sessions
 3. One-day session
 2. One-half day session
 4. Multi-day sessions
 5. Other _____

57. When would you prefer to participate in a technology training session? Check all that apply.

1. Weekday mornings (8:00 – 12:00)
 5. Evening (7:00-9:00)
 2. Weekday lunch (12:00 – 1:00)
 6. Saturdays
 3. Weekday afternoon (1:00 – 5:00)
 7. Sundays
 4. Early evening (5:00-7:00)
 8. Summer
 9. Between Semester Breaks
 10. Other _____

58. Please rank the following items to indicate your ideal technology training medium. Rank the items 1 to 6 with #1 indicating your first choice and a #6 to indicate your last choice for receiving technology training.

1. Small-group, hands-on workshop
 4. Videotape
 2. Workshop via Internet/WWW
 5. Printed workbooks
 3. Computer-based tutorial
 6. Other _____

Section IV. Attitudes Toward Technology in Music

To what extent do each of the following statements characterize your attitudes towards the use of educational technology in the music classroom? Using the categories below, indicate the extent to which you agree or disagree with each statement. Circle your answer.

SD = Strongly Disagree D = Disagree U = Undecided A = Agree SA = Strongly Agree

- | | | | | | |
|--|----|---|---|---|----|
| 59. I think that technology makes my professional work more difficult..... | SD | D | U | A | SA |
| 60. I think computers make work more enjoyable..... | SD | D | U | A | SA |
| 61. It has been a struggle for me to learn how to use a computer successfully..... | SD | D | U | A | SA |
| 62. I believe music teachers do not need to know how to use a computer..... | SD | D | U | A | SA |
| 63. I believe the quality of music education will be improved by the use of technology..... | SD | D | U | A | SA |
| 64. I would like to improve my skills in the use of technology..... | SD | D | U | A | SA |
| 65. I do not feel threatened by technology..... | SD | D | U | A | SA |
| 66. Technology should be used to improve learning throughout the curriculum..... | SD | D | U | A | SA |
| 67. Technology should be used by teachers more than it is now... | SD | D | U | A | SA |
| 68. Technology is an unnecessary luxury in most school settings.. | SD | D | U | A | SA |
| 69. Technology is of little value in the music classroom because it is too difficult to use..... | SD | D | U | A | SA |
| 70. I would like to use technology more in my teaching/learning.... | SD | D | U | A | SA |

71. Please add any comments for us to consider as we develop plans to help you with your technology and training needs. Feel free to use the back of this sheet.

Thank you for taking the time to complete this questionnaire.