

Measuring Responses of Music Majors and Music Technology Majors

Regarding Perceived Career Potential

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Abstract

The purpose of this study was to measure the responses of fourth year undergraduate music majors and fourth year undergraduate music technology majors regarding their opinion of the potential their program of study offered them in attaining employment in a music-related discipline. Participants in this pilot study included 17 University of Rhode Island (URI) and 17 University of Massachusetts-Lowell (UML) students, ranging in age from 20 to 26 years. A Likert-type questionnaire was used to measure responses in three areas: (1) The students' perception of their level of preparedness for employment; (2) The measure of their positive outlook for employment in a music-related field; (3) The extent that music technology core subjects were covered in their study. In the responses, the UML students reported receiving comprehensive training in most of the music technology core subjects including audio recording, audio lab, MIDI and electronic music, and the creation of music for multimedia, whereas the URI students reported receiving very little training in any of these disciplines. Regarding employment outlook, the results revealed that, although students from both groups generally felt well prepared for employment in their primary concentration, only 17% of URI students felt positive about the job market with 47% reporting a positive outlook for employment within 12 months of graduation. Conversely, 41% of the UML group felt positive about the job market with 88% reporting a positive outlook regarding the attainment of employment within 12 months of graduation. The study found a significant correlation between the inclusion of audio recording in the curriculum and the students' positive outlook for employment within 12 months of graduation.

Measuring Responses of Music Majors and Music Technology

Majors Regarding Perceived Career Potential

During the 1950's and 1960's the fields of music and technology began a process of integration that would continue to grow and evolve, becoming more multifaceted and groundbreaking with each passing year. At present day, as a result of that incorporation, we are witness to the 5th generation of music technologists. However, during this period of integration, the growth and development of music technology as one interdisciplinary major in higher education has failed to keep pace with the advances of musical technology. With a tightening job-market, the skill set required to attain employment in a music-related discipline has been expanding, yet the skills learned in collegiate music programs may not have sufficiently changed to compensate for this expanding need. Incorporating the instruction of transferrable skills into the curriculum for the purpose of embedding employability has been a topic of controversy. As a further challenge, the inclusion of comprehensive music technology skills in the music major's course of study has not been embraced by a majority of US colleges and universities (NASM, 2011).

This research intends to show that the core curriculum for music majors may not be adequately preparing students for a portfolio career, examining the conflicts associated with the inclusion of transferable skills study in the curriculum, as well as investigating the premise that a majority of US schools of music in higher education have not adequately invested in music technology education, resulting in a large number of music majors graduating without acquiring these added skills, which may assist them in their fulfillment of a successful music-related career. The research will consider the potential that internships may offer in attaining

transferable employment-based skills. Further, given the possibility that music majors are aware of the current advancements in music technology, this awareness, coupled with the knowledge that their course of study doesn't include significant training in these areas may affect the students' perception of their employability in music-related fields. The possible outcomes of this realization may include: (1) students choosing to change majors in favor of an area with a more positive outlook for employment; (2) a decrease in the number of students enrolling in collegiate music programs.

For the purposes of this study, the term 'music technology' refers to the interdisciplinary study of the broad fields of music and technology. The term 'music technology core subjects' includes the following subjects: sonic and recorded arts, electro-acoustic composition, sound design for visual media, and electronic music (Boehm, 2007). A 'portfolio career' refers to a career characterized by multiple concurrent roles (Winterson and Russ, 2009).

In the evolving job market, the skill set required to effectively compete has continued to expand, demanding eclectic (Kassner, 2009) and wide ranging skills (Winterson and Russ, 2009). The literature is replete with studies focused on the employment benefits that students realize by learning transferable skills in higher education (Barrow, Behr, Deacy, Mchardy, & Tempest, 2010; Brown, 2007; Dockwray, 2008; Bennett, 2007; Monks, Conway, & Ni Dhuigneain, 2006). These transferable skills offer the student a portfolio career (Brown, 2007). The Dearing Report was one of the first studies to conclude that there was a need for including 'key skills' in higher education curriculum, thereby equipping students with desirable capabilities for the workplace (Barrow, et al., 2010). Dockwray's study found that learning transferable skills provided music majors with the potential for employment in a wide variety of careers (Dockwray, 2008). Bennett's findings found that a musician's early recognition of this

need for added skills had a positive effect on the potential for success in a wide variety of professions.

Yet the literature implied that higher education might not have adequately prepared music majors for portfolio careers. Kratus' research found that music education had failed to adequately change with the evolving culture, and that collegiate music schools were out of touch, adhering to an "outmoded nineteenth-century model of conservatory training for professional classical performers" (Kratus, 2007). Winterson and Russ brought into question the relevance of current music degree courses. Their research implied the possibility that universities have been grooming music majors to be unsuccessful as performers and composers (Winterson and Russ, 2009).

The notion of embedding transferable skill content into the curriculum has been considered in the literature. Moore and Dockwray's investigation (Moore and Dockwray, 2007) and Bennett's study (Bennett, 2007) both found that graduating music majors depart with a variety of transferable skills, yet many of these skills have not been readily apparent to employers or the students. Kratus found that employers perceived an education in the arts as lacking in transferable skills (Kratus, 2007). Brown's study found that some university curricula has been embedded with content focusing on employability skills (Brown, 2007). Other universities including, The University of Gloucester and the University of Surrey, have developed a personal development program (PDP), ensuring opportunities for the development of transferable skills (Dockwray, 2008; Monks et al, 2006). However, other studies suggested that transferable skills are a 'theoretical construct' that should be considered unobservable (Holmes, 2007), and that developing such skills was impossible in a teaching system based on lectures (Drummond, 1998). A study by Carruthers implied that any effort to sidetrack music

education from its fundamental musical aims only hinders the development of musicianship, diminishing the possibility of attaining transferable skills (Carruthers, 2009). Elliot stated, “In the aesthetic view, a truly musical experience serves no practical purpose” (Elliot, 1995).

In the mid-1980’s, a new area of study emerged with potential for new, transferable, employment-related skills. Ferreira’s research found that since that emergence, music technology had been steadily gaining strength as an interdisciplinary study in a number of musical and technological areas (Ferreira, 2007). Boehm’s study found that music technology was truly interdisciplinary, encompassing a multitude of disciplines including acoustics, music performance, composition, engineering, and others (Boehm, 2007). NASM developed guidelines for including music technology courses in the music major, and Deal and Taylor’s research suggested that some universities had begun to implement the NASM guidelines (Handbook, 2010), which stated that “through study and laboratory experience, students should be made familiar with the capabilities of technology as they relate to composition, performance, analysis, teaching, and research”, including computer-based instruction (CBI), notation programs, sequencing programs, MIDI, multimedia hardware, digital recording, and web content techniques (Deal and Taylor, 1997). However, even though NASM had adopted these guidelines, the literature showed that a majority of US music colleges and universities had not established music technology degrees (NASM, 2011). Beyond the NASM guidelines, the literature found a need for investment by universities into the acquisition and maintenance of hardware and software supporting a music technology degree, yet funding these programs has remained a challenge (Deal and Taylor, 1997). Deal and Taylor’s survey of ten US universities founds that only a few music departments were prepared to provide adequate training in computer skills, and there was no agreement on the content for music technology training or its incorporation into the

curriculum, noting that the most prevalent use of computer technology involved music notation, CBI, music analysis and music appreciation (Deal and Taylor, 1997). Results from the CAREER Project indicated that faculty members from the study reported that they valued computer literacy at a level of low importance (Brown, 2007). Even though the research implied that music graduates needed to be able to work comfortably within these technologies (Deal and Taylor, 1997), and that an increasingly competitive job market called for employees to have enhanced computer and communication skills (Race, 2005), most music majors have graduated without transferable skills in music technology core subjects (NASM, 2011).

Deal and Taylor's teacher survey found that 71% of participants were self-taught in computer literacy and 94% felt that higher education music programs should include courses in music technology for their music majors (Deal and Taylor, 1997). Bennett's research found that 33% of participants characterized music technology as fundamental to their musical practice, and 66% reported that they continued to learn new technologies to remain competitive in the job market, including all of the music technology core subjects (Bennett, 2009).

Work placements have traditionally been a part of science, economics, and social science programs, but have been increasingly appearing in arts and humanities programs (Brown, 2007). The literature showed that employers perceived music majors who experienced a year of work placement as having acquired highly desirable, transferable, employment-related skills (Dockwray, 2008). Students that experienced a work placement reported enjoying the stimulation, responsibility, time demands, networking and the social aspects (Priest, 2010), as well as reporting that they learned to communicate and to deal well with other people (Barrow, et al., 2010).

The evolution of music technology has democratized music, making it more accessible

for production and consumption, which has had a significant impact on music education (Carruthers, 2009). Interest in music careers has grown with student enrollment in collegiate music programs rising by 37.9% (Brown, 2007). Bennett's research implied that positive attitudes towards non-performance study required the exploration of those options within the sanctuary of student life, leading to growth and development of their artistic identities (Bennett, 2009). However, results of the CAREER Project found that 78% of performing arts students were not confident that they would find meaningful work as a performer (Brown, 2007). A study by Winterson and Russ surveyed music majors regarding their career plans, finding that 41% were undecided regarding their chosen area of employment, yet, music technology students that were surveyed were more positive and enthusiastic about their future, and reported potential careers in music production, studio work, programming, sound design, composition, music for film, studio ownership, acoustic design, teaching, and performing. A very small percentage reported no preference (Winterson and Russ, 2009).

Research was needed to explore the potential effect that adding a comprehensive music technology module to a music major's course of study may have on their perception of future music-related employment. The purpose of this study was to measure the responses of fourth year undergraduate music majors and fourth year undergraduate music technology majors regarding their opinion of the potential their program of study has offered them in the pursuit of gainful employment in music-related disciplines.

This study explored three research questions: (1) What was the students' perceived measure of their level of preparedness for employment? (2) As students reached the completion of their undergraduate music program, how positive was their outlook for attaining gainful employment in a music-related discipline? (3) To what degree was each of the music technology

core subjects covered in the students' course of study?

Method

Participants

Participants included 34 college students ($N = 34$), 17 of which were fourth year music majors from the University of Rhode Island (URI) in Kingston, RI ($n_1 = 17$) and 17 fourth year music technology majors from the University of Massachusetts (UML) in Lowell, MA ($n_2 = 17$). As this was a pilot study, the two groups were selected from area universities as samples of convenience. Of the URI participants, 58.82% were male and 41.18% were female, with ages ranging from 20-22 years. The UML participants were 94.12% male and 5.88% female, with ages in the following age groups: (1) 20-22 years, 58.82%; (2) 23-26 years, 41.18%.

Materials

Each participant was given two copies of the Consent Form For Research shown in Appendix A. They were also given a copy of the questionnaire shown in Appendix B. The questionnaire contained 15 questions designed to measure responses on the topics of music technology core subjects, preparedness for employment, and employment outlook. Questions were designed so that participants could respond by making selections on a 5-position Likert-type scale: 1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree.

Procedure

The researcher visited each institution to conduct the pilot study. The participants were asked to participate in the study at the conclusion of a regularly scheduled class. They were told that their participation was voluntary and they were not obligated in any way to participate. The participants each completed 2 copies of the Consent Form For Research, one of which was collected by the researcher and the other retained by the participant. Then they were given a copy

of the questionnaire to complete, with instructions that their personal information would not be disclosed and that there was no time limit to complete the questionnaire. When completed the forms were collected by the researcher. Participants were not compensated for their participation.

Data Analysis

The responses for each question on the questionnaire were tabulated, calculating means and standard deviations, which are shown in Tables 1, 2, and 3. The responses were also reduced to nominal levels of agree versus disagree and analyzed using Chi-square testing for p levels. These nominal level results were converted into percentages, and are shown in Tables 4, 5, and 6. Correlations were calculated using Pearson's correlation formula to measure the relationship between the responses from questions #3, the audio recording measure, and from question #15, the degree of positive outlook for obtaining employment in a music-related field within 1 year of graduation.

Results

The purpose of this study was to collect and evaluate the opinions of fourth year music majors and fourth year music technology majors regarding the potential their education offered them in finding employment in a music-related field. The first area in inquiry dealt with the students' perceived measure of preparedness for employment. Regarding preparedness in their primary area of concentration, Table 1 shows that both the URI group ($M = 3.94$, $SD = 0.56$) and the UML group ($M = 4.35$, $SD = 0.60$) reported feeling well prepared. Similarly, regarding preparedness for employment in alternate music-related occupations, the URI group ($M = 3.65$, $SD = 1.00$) and the UML group ($M = 4.24$, $SD = 0.83$) both reported feeling positive. In addition, they both reported sufficient experiential training through internships and student-teaching (URI: $M = 4.24$, $SD = 1.15$; UML: $M = 5.00$, $SD = 0.00$). In each of these

measurements, there were no statistically significant differences between the groups.

The next area of study measured the students' degree of positive outlook for employment in a music-related area. As shown in Table 2, the results of the question regarding current job opportunities in their concentration show that URI ($M = 2.65$, $SD = 0.86$) and UML ($M = 3.24$, $SD = 1.15$) students reported different outlooks. Reducing nominal levels to agree versus disagree, 17% of URI students were positive about the job market as opposed to 41% of UML students. In the four questions which inquired about employability feedback from peers (URI: $M = 3.18$, $SD = 0.88$; UML: $M = 3.53$, $SD = 1.13$), faculty (URI: $M = 3.47$, $SD = 0.80$; UML: $M = 3.94$, $SD = 0.97$), personal research (URI: $M = 3.24$, $SD = 0.90$; UML: $M = 3.82$, $SD = 0.73$), and employer feedback (URI: $M = 2.24$, $SD = 0.83$; UML: $M = 2.88$, $SD = 0.78$), the UML scores were slightly higher. Looking at nominal levels, 47% of URI students reported positive employment feedback from peers compared to 58% of UML students. In faculty advice, 64% of URI students had positive feedback versus 76% from UML. Similarly, in personal research, 53% of URI students reported positive feedback while UML reported 76%. Feedback from employers was low for both groups, with 6% of URI students stating they had received positive employer feedback versus 12% from UML students. In each of the employability feedback questions, there were no statistically significant results. However, when asked about positive outlook for employment within 3 months after graduation 6% of the URI group ($M = 2.77$, $SD = 0.66$) reported positively compared to 41% of UML students ($M = 3.24$, $SD = 0.90$), showing a statistically significant difference (chi-square = 5.79, $df = 1$, $p < 0.05$). When students were asked about their positive employment outlook for 12 months after graduation 47% of the URI group ($M = 3.53$, $SD = 0.62$) felt positive versus 88% of the UML students ($M = 4.41$, $SD = 0.71$), again showing a statistically significant difference (chi-square = 6.58, $df = 1$, $p < 0.03$).

The last area of inquiry dealt with the students' measure of music technology courses included in their curriculum. As seen in Table 3, in learning to use music notation software and computer-based compositional software training, 41% of URI students ($M = 2.71$, $SD = 1.31$) reported positively versus 29% of UML ($M = 2.47$, $SD = 1.13$), revealing no statistical difference. However, when asked about the level of electronic music & MIDI training received, 65% of UML students stated they had sufficient training as compared to 6% of URI students, showing a statistically significant difference (chi-square = 20.89, $df = 1$, $p < 0.001$). When asked to describe the level of audio recording instruction received, about 100% of UML students ($M = 4.94$, $SD = 0.24$) were positive versus 12% of URI students ($M = 1.88$, $SD = 1.05$) showing statistically significant results (chi-square = 26.84, $df = 1$, $p < 0.001$). Similarly, regarding audio recording lab experience, 100% of UML students ($M = 4.94$, $SD = 0.24$) reported positively versus 12% of URI students ($M = 1.65$, $SD = 0.79$), again showing statistically significant results (chi-square = 30.22, $df = 1$, $p < 0.001$). In regards to the skills involved in creating music for video and multimedia, 12% of URI students ($M = 2.00$, $SD = 1.17$) stated sufficient training as compared to 88% of UML students ($M = 4.18$, $SD = 0.81$), revealing statistically significant results (chi-square = 20.38, $df = 1$, $p < 0.001$).

Pearson's correlation formula was used to calculate the coefficient correlation between the following data: (1) the inclusion of audio recording technology in the curriculum; (2) the students' positive outlook for employment in 12 months. The results revealed a significant correlation between the two factors ($r = 0.51$, $p = 0.036$).

Discussion

The purpose of this study was to gather the responses of fourth year music and music technology majors regarding their education and its potential in helping them attain employment

in a music-related field after graduation. As seen in Table 4, students in both the URI and UML groups reported being well prepared in their area of concentration, both receiving substantial internship and student teaching experience, with UML displaying a slight edge (88%) versus URI (70%) in preparedness for alternative music-related occupations. However, regarding job opportunities in their primary field, 82% of the URI group were either *not sure* or *disagreed* that sufficient employment opportunities were available, supporting Brown's findings that 82% of performing arts students were not confident that they would find meaningful performance work (Brown, 2007). Conversely, 41% of the UML group was positive about the job market, reinforcing the study by Winterson and Russ, which showed that, generally, music technology majors had positive attitudes about employment (Winterson and Russ, 2009). The four questions relating to employment feedback received from peers, faculty, research, and employers generally showed a slightly more positive outlook from UML students. The most significant employment-related finding was found in the inquiry regarding the attainment of employment within three months of graduation. Table 5 shows that 94% of the URI group were either *not sure* or *disagreed* that they would find employment within three months, however 41% of the UML group were positive about attaining employment within that period. In addition, the research revealed a wide difference between the groups when asked if employment would be attained within 12 months of graduation, with the UML group reporting 88% positively compared to 47% for the URI group.

The results, which measured the amount of music technology core subjects in the students' curriculum, were one-sided for the most part. Aside from training in computer-based composition and notation software training, which URI reported 41% positive versus UML at 29%, the remainder of the music technology core subjects were thoroughly covered in the UML

curriculum, with positive results of 65% for MIDI, 100% for both audio recording and audio lab, and 88% for music for multimedia, while URI reported positive results of 6% for MIDI, 12% for audio recording, 6% for audio lab, and 12% for music for multimedia.

These results may point to a correlation between the inclusion of music technology in a music major's core and their positive outlook for employment.

Implications

One of the unexpected results of this study came out of the question regarding student feedback from employers, with positive results from both groups ranging between 6% and 12%. Further study is indicated to test this measure, since open communication between undergraduates, faculty, and employers is fundamental. Another unexpected finding was revealed in the computer-based notation and composition software inquiry. In both groups, negative results ranged from 59% to 65%, indicating further study to test this level, in view of the essential nature of this skill in the successful career of a professional musician.

The significant correlation found between the inclusion of audio recording in the curriculum and the students' measure of positive outlook for employment 12 months after graduation warrants further study of a larger population. Results from this research provide significant evidence that embedding comprehensive music technology core subjects into the music major's curriculum may have a profound effect on their positive outlook for employment.

References

- Barrow, R., Behr, C., Deacy, S., Mchardy, F., & Tempest, K. (2010). Embedding Employability into a Classics Curriculum : The Classical Civilisation Bachelor of Arts programme at Roehampton University. *Arts and Humanities in Higher Education*, 9, 339-352.
doi:10.1177/1474022209350294
- Bennett, D. (2007). Utopia for music graduates. Is it achievable, and how should it be defined? *British Journal of Music Education*, 24(2), 179-189. doi:10.1017/S0265051707007383
- Bennett, D. (2009). Academy and the Real World : Developing realistic notions of career in the performing arts. *Arts and Humanities in Higher Education*, 8, 309-327.
doi:10.1177/1474022209339953
- Boehm, C. (2007). The Discipline That Never Was: Current Developments in Music Technology in Higher Education in Britain. *Journal of Music, Technology and Education*, 1(1).
- Brown, R. (2007). Enhancing Student Employability? : Current practice and student experiences in HE performing arts. *Arts and Humanities in Higher Education*, 6, 28-49.
doi:10.1177/1474022207072198
- Carruthers, G. (2009, September). Engaging Music and Media: Technology as a Universal Language. *Research and Issues in Music Education*, 7(1).
- Dearing, R. (1997). *Report of the National Committee of Inquiry into Higher Education* [Retrieved from <http://www.leeds.ac.uk/educol/ncihe/>].
- Drummond, I., Nixon, I., & Wiltshire, J. (1998). Personal transferable skills in higher education: the problems of implementing good practice. *Quality Assurance in Education*, 6(1), 19-27.
doi:10.1108/09684889810200359

- Elliott, D. (1995). *Music matters: A new philosophy of music education*. New York: Oxford University Press.
- Ferreira, G. (2007). Crossing borders: issues in music technology education. *Journal of Music, Technology and Education*, 1(1), 23-36.
- Handbook 2010-11*. (2010). Reston, VA: National Association of Schools of Music.
- Holmes, L. (1998). *One more time, transferable skills don't exist...(and what we should do about it)*, 'Embedding Key Skills Across the Curriculum. Reading presented at Higher Education for Capability Conference.
- Kassner, K. (2009). Reflections on Career Development and Eclecticism in Music Education. *Music Educators Journal*, 96(1), 62-66. doi:10.1177/0027432109340869
- Kratus, J. (2007). Centennial Series: Music Education at the Tipping Point. *Music Educators Journal*, 94(2), 42-48.
- Monks, K., Conway, E., & Ni Dhuigheain, M. (2006). Integrating personal development and career planning: The outcomes for first year undergraduate learning. *Active Learning in Higher Education*, 7(1), 73-86. doi:10.1177/1469787406063216
- Moore, A., & Dockwray, R. (2007, January 1). *Evidencing Transferable Skills in Undergraduate Music Education* (National Association for Music in Higher Education, Ed.). Retrieved from <http://78.158.56.101/archive/palatine/files/1650.pdf>
- National Association of Schools of Music. (2011). *Accredited Institutional Members List*. Retrieved from http://nasm.arts-accredit.org/index.jsp?page=List_Accredited_Members
- Priest, R. (2010). The Value of Placements to Undergraduate BSc (Hons) Music Technology Students. *Journal of Music, Technology and Education*, 3(1), 47-65. doi:10.1386/jmte.3.1.47_1

Race, P. (2005). *Making Learning Happen: A Guide for Post-Compulsory Education*. Thousand Oaks: Paul Chapman Publishing.

Winterson, J., & Russ, M. (2009). Understanding the Transition from School to University in Music and Music Technology. *Arts and Humanities in Higher Education*, 8, 339-354.

doi:10.1177/1474022209339962

Table 1

Students' measure of how well they've been prepared for employment

Preparation variable	Music Majors		Music Technology Majors	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Preparedness through internship	4.24	1.15	5.00	0.00
Preparedness in primary area of concentration	3.94	0.56	4.35	0.61
Preparedness in alternate music related occupations	3.65	1.00	4.24	0.83

Note. 1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree.

Table 2

Students' measure of their positive outlook for employment

Positive outlook variable	Music Majors		Music Technology Majors	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Significant job opportunities exist	2.65	0.86	3.24	1.15
Positive peer feedback	3.18	0.88	3.53	1.13
Positive faculty feedback	3.47	0.80	3.94	0.97
Positive personal research	3.24	0.90	3.82	0.73
Positive employer feedback	2.24	0.83	2.88	0.78
Obtain employment within 3 months	2.77	0.66	3.24	0.90
Obtain employment within 12 months	3.53	0.62	4.41	0.71

Note. 1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree.

Table 3

Students' appraisal of the measure of music technology core subjects in their curriculum

Music Technology Core Subject	Music Majors		Music Technology Majors	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Composing and notation software	2.71	1.31	2.47	1.13
Midi and electronic music	1.82	0.88	3.82	0.89
Audio recording and mixing	1.88	1.05	4.94	0.24
Audio recording lab	1.65	0.79	4.94	0.24
Creating music for multi-media	2.00	1.17	4.18	0.81

Note. 1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = agree; 5 = strongly agree.

Table 4

Students' measure of how well they've been prepared for employment

	<i>Agree</i>	<i>Not Sure</i>	<i>Disagree</i>
Participated in internship or student teaching			
Music major	88%	0%	12%
Music technology major	100%	0%	0%
Well prepared in area of primary concentration			
Music major	82%	0%	18%
Music technology major	94%	0%	6%
Well prepared in alternate music-related areas			
Music major	70%	18%	12%
Music technology major	88%	6%	6%

Note. 1 = In order to reduce the nominal values for percentage calculation, *strongly disagree* and *disagree* were reduced to *disagree*; *strongly agree* and *agree* were reduced to *agree*.

Table 5

Students' measure of their positive outlook for employment

	<i>Agree</i>	<i>Not Sure</i>	<i>Disagree</i>
Job opportunities are available in my concentration			
Music major	18%	35%	47%
Music technology major	41%	24%	35%
Received positive employment feedback from peers			
Music major	47%	24%	29%
Music technology major	59%	24%	17%
Received positive employment feedback from faculty			
Music major	65%	17%	18%
Music technology major	76%	12%	12%
Received positive employment feedback from research			
Music major	53%	18%	29%
Music technology major	76%	18%	6%
Received positive employment feedback from employers			
Music major	6%	29%	65%
Music technology major	12%	59%	29%
Will find music-related employment within 3 months			
Music major	6%	70%	24%
Music technology major	41%	35%	24%
Will find music-related employment within 12 months			
Music major	47%	53%	0%
Music technology major	88%	12%	0%

Note. 1 = In order to reduce the nominal values for percentage calculation, *strongly disagree* and *disagree* were reduced to *disagree*; *strongly agree* and *agree* were reduced to *agree*.

Table 6

Students' appraisal of the measure of music technology core subjects in their curriculum

	<i>Agree</i>	<i>Not Sure</i>	<i>Disagree</i>
Comprehensive skills in computer-based composition and notation software			
Music major	41%	0%	59%
Music technology major	29%	6%	65%
Comprehensive skills in MIDI and electronic music			
Music major	6%	12%	82%
Music technology major	65%	29%	6%
Comprehensive skills in audio recording and mixing			
Music major	12%	12%	76%
Music technology major	100%	0%	0%
Comprehensive skills in audio recording lab work			
Music major	6%	0%	94%
Music technology major	100%	0%	0%
Comprehensive skills in creating music for multimedia			
Music major	12%	12%	76%
Music technology major	88%	18%	6%

Note. 1 = In order to reduce the nominal values for percentage calculation, *strongly disagree* and *disagree* were reduced to *disagree*; *strongly agree* and *agree* were reduced to *agree*.

Appendix A

The University of Rhode Island

Department of Music

Kingston, RI

Research Title: "Measuring Responses of Music Majors and Music Technology Majors Regarding Perceived Career Potential"

CONSENT FORM FOR RESEARCH

You have been invited to take part in a research project described below. The researcher will explain the project to you in detail. You should feel free to ask questions. If you have more questions later, John Rametta, the person mainly responsible for this study, (401) 732-1880, will discuss them with you. You must be at least 18 years old to be in this research study.

This research study will gather opinions and information regarding music technology in collegiate music programs. It will also gather opinions regarding employment opportunities.

The research instrument is a questionnaire. It will have 15 questions, and should take approximately 5 minutes to complete.

There are no risks or discomforts involved in this study beyond what one would normally experience in everyday life.

The potential benefits of this study include an understanding of the enrichment to the general music knowledge base that a fuller knowledge in the area of music technology may provide.

Your part in this study is confidential. None of the information will identify you by name. All records will be stored with the lead researcher. The decision to take part in this study is up to you. You do not have to participate. If you decide to take part in this study, you may quit at any time. Whatever you decide will in no way affect your grade or status as a student. If you wish to quit, simply inform John Rametta of your decision.

If you are not satisfied with the way this study is performed, you may discuss your complaints with John Rametta at (401) 732-1880 if you choose. In addition, if you have questions about your rights as a research participant, you may contact the office of the Vice-President for Research, 70 Lower College Road, Suite 2, University of Rhode Island, Kingston, Rhode Island, telephone: (401) 874-4328.

You have read the Consent Form. Your questions have been answered. Your signature on this form means that you understand the information and you agree to participate in this study.

Signature of Participant

Signature of Researcher

Printed name

John Rametta

Date

Date

Please sign both consent forms, keeping one for your records.

Appendix B

4th Year Undergraduate Music Major Questionnaire

College or university: _____ Degree program: _____

Primary musical instrument: _____ Age: _____ Sex: _____

Please answer the following questions by placing an 'x' in the most appropriate selection box

	strongly disagree	disagree	not sure	agree	strongly agree
My course of study includes a comprehensive program in music composition software and music notation software.	☐	☐	☐	☐	☐
My course of study includes a comprehensive program in MIDI techniques and electronic music.	☐	☐	☐	☐	☐
My course of study includes a comprehensive program in audio recording and mixing techniques.	☐	☐	☐	☐	☐
My course of study includes extensive, hands-on training in audio recording labs.	☐	☐	☐	☐	☐
My course of study includes a comprehensive program in creating music for video, multimedia and web usage.	☐	☐	☐	☐	☐
My course of study includes an internship.	☐	☐	☐	☐	☐
My course of study has fully prepared me for employment in my primary area of concentration.	☐	☐	☐	☐	☐
My course of study has prepared me for employment in various music-related occupations beyond my primary area of concentration.	☐	☐	☐	☐	☐
There are a significant number of job opportunities available in my area of concentration.	☐	☐	☐	☐	☐
I have received positive feedback regarding employment opportunities in my area of concentration from peers that have graduated.	☐	☐	☐	☐	☐
I have received positive feedback regarding employment opportunities in my area of concentration from faculty members in my program.	☐	☐	☐	☐	☐
I have found positive information regarding employment opportunities in my area of concentration from personal research.	☐	☐	☐	☐	☐
I have received positive feedback regarding employment opportunities in my area of concentration directly from potential employers.	☐	☐	☐	☐	☐
I will definitely be able to obtain employment in a music-related field within 3 months of graduation.	☐	☐	☐	☐	☐
I will definitely be able to obtain employment in a music-related field within 1 year of graduation.	☐	☐	☐	☐	☐