

TORONTO 2000

ABSTRACTS

Session 2-40 (ATMI), 4:00-5:00 Electronic Poster Sessions

Design, Construction, and Implementation of an On-Line Music Technology Course Utilizing the WebCT Programming Shell Thomas Hughes and Donald Tanner (Texas Tech University)

The purpose of this project was to convert an existing course, Introduction to Technology for Musicians (MUSI 3341) for World Wide Web distribution and tuition. This popular course seems to be well suited for this type of distribution, i.e. distance education. Most students enrolled already have computers and internet access, and many have the ability to perform the projects for the course with their own equipment. Software is provided with the text for the course. This assures consistency at the project level, with all students using the same software. The recent acquisition of the WebCT server software by the university provides a user-friendly and powerful tool for the conversion process. The combination of facilitating subject matter and this authoring environment can be successfully united to produce a functional prototype project.

Integration of Technology into the K-12 Curriculum: A National Status Report Jack A. Taylor and John J. Deal (Florida State University)

We will present the results of our national survey on the status of technology integration into both private and public schools, grades K-12. In March we sent the survey to a scientifically selected sample of 5,000 teachers in the fifty United States, and the results will be analyzed in April and consequently reported in our presentation. Support for the survey is provided through joint association of the Center for Music Research and the Music Educators National Conference (MENC). This project is based upon our pilot study performed last year (see "Pilot Study Abstract," below), that involved the field testing of our survey with three states (New York, Kansas, and Utah). As a result of this pilot study, we have slightly modified and expanded the survey, and we believe that we have a valid instrument—one that will accurately reflect responses from the music teachers.

School Musicians' Attitudes toward Hypermedia-Enhanced Rehearsals: A Pilot Study Kimberly C. Walls (Auburn University)

Preservice music teachers need skills in addressing all aspects of music and incorporating technology into rehearsals in ways that increase musical understanding and appreciation. Thirteen undergraduates who were enrolled in a music education practicum developed hypermedia materials that were presented during school music rehearsals. The feasibility of presenting hypermedia during rehearsals and the changes in ensemble members' attitudes toward compositions presented in this manner and toward rehearsals which incorporated hypermedia were examined. Every undergraduate successfully completed a hypermedia product addressing aspects of the comprehensive musicianship approach to a composition. Five of them presented their projects to their school focus ensemble. Survey responses from seventeen members of a middle school chorus and twenty-four members of a high school band showed increases in mean levels of interest in rehearsal activities (t = 2.76 and t = 2.75, respectively, p < .01). The middle school choir members also reported a significant increase in levels of interest in a composition (t = n1.87, p < .05). Mean levels of liking compositions or liking rehearsals did not significantly improve. Future studies should allow more time for hypermedia and lesson plan development prior to beginning practicum teaching and also investigate whether student interest in hypermedia enhanced rehearsal remains heightened after the novelty phase. University students also need adequate access to portable multi-media equipment.

A Survey of Prospective Employers Concerning Music Technology Needs Richard Repp and Lynette Sullivan (Terra Community College)

During the 1999–2000 school year, a survey was sent to 222 prospective employers in the music technology field. The purpose of the survey was to collect data to influence the development of a degree program in music technology. The survey provided data on the employers opinions of the relative importance of both technical and non-technical skills such as traditional music theory/aural skills, performance skills, MIDI sequencing, digital audio, music notation, multimedia production, web design, sales and marketing, teaching skills, computer hardware/networking, and other areas. The survey also asked questions about preferred platform, software use, and storage media. The respondents were queried on their preference for items in a personal portfolio for inclusion with a resume, the types and number of employment opportunities available, and benefits for employees.

Richard Repp, Assistant Professor of Music, Terra Community College Lynette Sullivan, Associate Vice-President Institutional Research, Terra Community College

Abstract

During the 1999-2000 school year, a survey was sent to 222 prospective employers in the music technology field. The purpose of the survey was to collect data to influence the development of a degree program in music technology. The survey provided data on the employers' opinions of the relative importance of both technical and non-technical skills such as Traditional music theory/aural skills, Performance skills, MIDI sequencing, Digital audio, Music notation, Multimedia production, Web design, Sales and marketing, Teaching skills, Computer hardware/networking, and other areas. The survey also asked questions about preferred platform, software use, and storage media. The respondent were queried on their preference for items in a personal portfolio for inclusion with a resume, the types and number of employment opportunities available, and benefits for employees. Because of the low return rate of the survey, the authors do not claim to prove any results scientifically. However, the survey mechanism and methodology did prove to be effective and could be used as a resource for further research. Trends from the survey indicate that: Potential employers feel that students should have sales and marketing skills. Traditional music skills such as theory, aural skills, history, and literature are of value to potential employers. Live sound reinforcement is not as important to potential employers. General computer skills scored surprisingly low, however specific skills such as digital audio, music notation, and MIDI scored higher. Musicians use both Macintosh and IBM computers. The most widely used music software package is Coda's Finale notation program. Preferred storage media included Zip/Jaz disks (Iomega) or CDs. Most potential Job openings will be in education, sales, and performance. Employers want proof of hands-on experience with technology. The data on possible salaries and benefits are inconclusive.

Introduction

This survey instrument designed to measure attitudes of potential employers came about in the development of a music technology degree program. The music technology degree includes a combination of courses in all aspects of technology and music along with a strong grounding in traditional theory, history, and performance. Students in the program gain proficiency in music technology such as MIDI sequencing, digital audio, music notation, recording techniques, and business skills. Once the program is fully articulated, students will be able to satisfy the first two years of the standard four-year curriculum. In order to provide a degree program that provides students with marketable skills, the researchers undertook a needs assessment process.

The first step in the needs assessment was to develop an outline for a degree structure and begin to formulate questions to send out to potential employers. The authors developed the first draft of the questionnaire during the Fall of 1999. Once the questionnaire had been developed, an advisory board of prospective employers analyzed the questions. The advisory board consisted of individuals who are not employed by the institution. Board members either earn their living using music technology, or would be the most likely employers of Terra's students. Full-time and adjunct faculty serve as exofficio members.

Once the advisory board had recommended changes to the document, the researchers mailed 222 surveys to prospective employers. Employers were chosen from an area including the five largest population centers closest to the institution (Toledo, Columbus, Cincinnati, Cleveland, and North Central Ohio). All employers were potential sources of employment for students including recording studios, educational institutions, music publishers, retail sales outlets, music printers, instrument manufacturers, agents and promoters.

Design of the Survey

The survey was designed both to give the institution goals for program development and to give students examples of what their future employment might entail. The first section of the document provides information on the relative importance of planned instructional elements. The instructional elements included not only technical areas, but also traditional musical skills. Specific elements include: Traditional music theory/aural skills, Traditional music history/literature, Knowledge of world music, Songwriting/Composition, Performance skills, MIDI sequencing, Digital audio, Music notation, Multimedia production, Studio recording techniques, Sound editing and synthesis, Live sound reinforcement/recording, Web design, Sales and marketing, Other business skills, Teaching skills, and Computer hardware/networking.

Prospective employers were asked the relative importance of each of these areas in a Likert-type response (from "Not important t all" to "Very important"). In addition, they were asked which of the above list was the most important now, and which might become most important in the future.

Next, the employers were asked their preferred computer platform (Macintosh, IBM, UNIX, or other) for their musical production. They were then asked which of a long list of software choices (Vision, Performer, C sound, Protools, Finale ...) they use and their

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options for storage medium (CD-ROM, Zip, Hard disk, ...). In order to determine what items might be included in a student portfolio, employers provided information on items the might want to see in a resume, including CDs, CD-ROMs, and printouts of projects.

In the final section of the survey, employers gave data on the types of jobs they might have available, first-year salaries, benefits, and number of anticipated openings. The specific job types queried included: Educators, Sales, Performers, Sound Engineers, Recording technician, Digital audio specialist/technician, Multi-track production specialist, Web designer, Administrative support, Multimedia developer, Piano Technician, Writers/editors/researchers, MIDI specialist, Composers/Songwriters, Software Developer.

The survey concluded with several open-ended questions concerning possible future for the industry, job descriptions, and a plea for any other information that the respondent might deem appropriate.

Results

The return rate of the survey was poor. Of the 222 surveys mailed, only 21 were completed and returned. In addition, 18 of the original addresses proved to be incorrect with no forwarding available. Because a 10% return rate would not satisfy the requirements for statistical validity, the authors do not feel that this data is adequate for any firm conclusions. However, the results of the survey are included here for the reader's intellectual curiosity.

In the first section, the relative importance of various educational areas showed the importance of exposing students to those skills. When asked directly which of these areas was the most important, the responses were as follows:

Sales and marketing	13%
Traditional music theory/aural	13%
skills	
Multimedia production	11%
Digital audio	11%
Other business skills	11%
Performance skills	7%
MIDI sequencing	7%
Teaching skills	7%
Songwriting/Composition	7%
Web design	4%
Traditional music	4%
history/literature	
Sound editing and synthesis	4%
Studio recording techniques	2%
Knowledge of world music	0%
Music notation	0%
Live sound	0%
reinforcement/recording	
Computer hardware/networking	0%
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The Likert-type responses for the same choices were given a weighted numerical equivalent. This measure gives more weight to those items not chosen first by most respondents, but near the top. The average scores are ranked as follows:

Traditional music theory/aural skills	5.4
Performance skills	4.6
Music notation	4.5
Other business skills	4.4
Sales and marketing	4.3
Traditional music history/literature	4.2
Digital audio	4.2
Multimedia production	4.2
MIDI sequencing	4.1
Teaching skills	4.1
Songwriting/Composition	4
Knowledge of world music	3.9
Studio recording techniques	3.9
Computer hardware/networking	3.8
Sound editing and synthesis	3.7
Live sound reinforcement/recording	3.5
Web design	3.3
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Traditional music skills ranked high on the list, while technical skills ranked in the middle of the ranking, followed by studio techniques.

When asked which skills would be important in the future, the survey generated the following data:

Sales and marketing	22%
Traditional music theory/aural	11%
skills	
Performance skills	11%
MIDI sequencing	11%
Multimedia production	11%
Teaching skills	11%
Songwriting/Composition	6%
Digital audio	6%
Web design	6%
Other business skills	6%
Traditional music	0%
history/literature	
Knowledge of world music	0%
Music notation	0%
Studio recording techniques	0%
Sound editing and synthesis	0%
Live sound	0%
reinforcement/recording	
Computer hardware/networking	0%

The respondents were split close to evenly on choice of platform, with only a few using other than Macintosh or PC.

IBM/IBM Compatible	48%
Macintosh	43%
UNIX or Linux	5%
None	5%

The respondents could choose from a long list of software choices. No title was used predominately throughout the industry, and only Coda's Finale garnered more than 10% or the responses. (note that only software packages which received a response of 5% or more are included.)

Finale	10%
Adobe Photoshop	8%
Adobe Premiere	7%
Pro Tools	7%
Cakewalk	7%
Performer	5%
Sound Designer II	5%
Cu-base	5%
Sound Edit	5%
Smart Music	5%
(26 titles with $< 5\%$)	

When asked for their preference for file storage, the following responses came about:

Zip or Jaz disk	20%
CD	20%
Internet	11%
Hard Disk recording	11%
DAT	11%
Other (disks, VHS and Digital)	5%
Analog _"	5%
Audio Cassette	5%
ADAT	5%
None	5%

Respondents were then asked what materials might help if included with a portfolio. Employers were most interested in traditional resumes and proof of hands-on use with equipment.

Resume	27%
Hands-on work w/ equipment	18%
CD-ROM multimedia	14%
development	
Sample projects	12%
CD of original composition	6%
Printed scores produced by	4%
students	
Academic papers	4%
Audition	2%
CD of student performances	0%

When queried about jobs available, most openings fell into traditional areas such as performance, education, and sales.

41%
17%
17%
5%
4%
2%
2%
2%
2%
2%
2%
1%
1%
0%
0%
0%

When asked about benefits, the respondents provided a bleak picture for future graduates:

Vacation Time	19%
Sick Leave	13%
Health insurance	17%
Life insurance	9%
Disability insurance	11%
Dental insurance	7%
Vision insurance	2%
Retirement fund	7%
Other	4%
None	11%

Data in this area is highly suspect because many respondents chose not to answer questions about salary and benefits.

Conclusions

No scientific conclusions can be made from this early sampling of the data. However, the survey mechanism and our methodology could still be of use to anyone preparing a music technology degree program. The academic community sorely needs this type of data so that we might prepare our students for the modern marketplace. The data also seem to suggest the following trends which could be proved with further study:

- Potential employers feel that students should have good sales and marketing skills.
- Traditional music skills such as theory, aural skills, history, and literature are of value to potential employers.
- Live sound reinforcement was not as important to potential employers
- General computer skills scored surprisingly low, however specific skills such as digital audio, music notation, and MIDI, which are usually produced on a computer, scored higher.
- Musicians use both Macintosh and IBM computers.
- The most widely used music software package is Coda's Finale music notation program.
- Preferred storage media included Zip or Jaz disks (Iomega) or CDs.
- Most potential job openings will be in education, sales. and performance.
- The data on possible salaries and benefits was inconclusive.

Addendum:

A student interest survey for the Music Technology Program was distributed during the months of January and February of 2000. Six hundred thirty-five high school and junior high school students responded to the survey. The purpose of the survey was to identify the need for a Music Technology program. If only the "very interested" students surveyed were projected to attend Music Technology classes, fifty students would be

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enrolling into the program next year. A total of one hundred forty-two students are interested in the program while one hundred and forty students are interested in a few courses. One hundred eighteen students responded that they would enroll in the program during fiscal year 2001; one hundred fifteen students responded that they would enroll in FY2002, five in FY2003, nine in FY2004, thirty-seven in FY2005 and 42 in FY2006. This means that Terra would easily exceed the minimum projected enrollments for new programs.

Dr. Richard Repp is an Assistant Professor of Music who teaches a wide variety of courses at Terra College, including the Music Technology sequence. He holds a Ph.D. in Technology-Based Music Instruction from the University of Illinois at Urbana-Champaign, a Master of Music in Performance (Voice) with an emphasis in Arts Technology from Illinois State University, and a BS in Music from Illinois State. He has published articles on educational technology for music in several leading journals and presented at international conferences. He is active in the Association for Technology in Music Instruction (ATMI), the Society for Electro-Acoustic Music int the United States (SEAMUS), the Audio Engineering Society (AES) and the Technology Institute for Music Educators (TI-ME).

Lynette Sullivan is Associate Vice President for Institutional Research at Terra State Community College. Besides conducting research and analytical studies in support of policy analysis, planning, and decision making for the College, Lynette also coordinates the Student Academic Assessment and Program Review processes for Terra. She is responsible for gathering data through focus groups, surveys, and key informant surveys with business and industry, the community, and within the college. Currently, she is a Pacesetter examiner and is a member of a CQIN team developing a benchmarking study in developmental education. Pacesetter is a national quality award modeled after the Malcolm Baldrige National Quality Award. Prior to her appointment in Institutional Research, she was the Teaching and Learning Chair for the Humanities and Human Services Division and was a faculty member in the Engineering Division.