

Sheet Music Innovation Grant

Final Report

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Final Report Submitted by Faedra Wills and Mark Cook

Summary

Sheet music reveals much about public opinion and the social and political issues of pre-1923 America. By making this collection available digitally, scholars worldwide will have the ability to study the history of the United States from a unique perspective. Digitizing the sheet music will also help preserve this material since much of the music is in poor and fragile condition. Funding was requested for a pilot project to digitize 40 items of sheet music from a large collection of pre-1923 sheet music. The three components of this project were:

- 1.) Scanning 40 items of sheet music to create TIFF, JPEG and PDF derivatives. The sheet music was first to be scanned and saved as TIFF files. These files would then be added to the Digital Creation shared drive to serve as the preservation copy. JPEGs would then be derived from the TIFFs and uploaded into Omeka. After the items had been added to Omeka, metadata associated with each item was to be entered. Lastly, a PDF copy was to be generated and added into the institutional repository (ResearchCommons) with associated descriptive information.
- 2.) Software would be explored and identified that would allow the sheet music to be converted into MIDI files.
- 3.) A set of written, standardized procedures would be developed and tools identified that would allow the project to move from the pilot phase and into production.

This grant will also fulfill the goal of Strategic Imperative One to create and enhance collections for (re)use in transformative scholarship.

Project Team

Digital Creation staff: Faedra Wills, Mark Cook and Ramona Holmes
Digital Creation students: Frankesha Jones and Sana Al-Shalal

Results

Scanning

A work-study student was hired for this project and another work-study student already working in the department was re-tasked to work on this grant. The two students worked exceptionally well both as a team and individually. As a result, we were able to far surpass the expectations of the grant requiring 40 pieces of sheet music to be scanned. In total, **246** pieces of sheet music were scanned with a TIFF, JPEG and PDF derivative created for each page of each score. The final step in the scanning process was to create a single PDF from the individual page files.

236 items were then uploaded into the institutional repository with the appropriate metadata. Also, an Omeka prototype website was designed and developed. **144** JPEG files were uploaded into Omeka including descriptive information. The remaining JPEG files will be added to Omeka in the near future. Eight scanned scores were removed from the project when it was discovered that their copyright date was after 1923. Another two scores were omitted when no copyright date could be found on the pieces.¹

With assistance from Cathy Spitzenberger, Photo Collections Specialist in the Library's Special Collection Department, procedures were successfully developed for scanning the sheet music, adding the files into the ResearchCommons and uploading the JPEGs into Omeka. Additionally, input rules detailing the required metadata fields to be populated when adding the files into the ResearchCommons and Omeka was created. The scanning procedures developed for this project will be transferable to other, future, print scanning projects.

Software

A secondary aspect of this grant was to explore and identify software that would allow the sheet music to be converted into MIDI files. In the process of researching appropriate software, it was discovered that future versions of Omeka will not support MIDI files. The grant team's focus then shifted to identifying software that would allow the sheet music to be scanned and stored as either .mp3 or .mp4 files. Three software packages were identified and tested: SmartScore X2 Pro, MuseScore (open source), and PDFtoMusic (open source).

MuseScore and PDFtoMusic were eventually rejected for a number of reasons. In both of these products, PDF files embed only as a single picture for the whole score and not individual pages. Also, MuseScore and PDFtoMusic cannot extract and process elementary graphical items resulting in documents that could not be processed.

SmartScore X2 Pro software is only available at cost. For this reason, only the free demo version was tested for the purpose of this grant. SmartScore X2 Pro has the ability to scan sheet music directly into the platform. This feature, however, was not tested since the sheet music had already been scanned by the students. Of the three software products tested, only SmartScore X2 Pro had the option of importing a scanned PDF then extracting both editable music and lyrics.

The quality of the conversion from PDF to an editable score using SmartScore X2 Pro varies drastically depending on the condition of the original sheet music and the scan clarity. The interpretation of the scans were about 75% correct and required additional editing to correct misspellings of words/lyrics and incorrect music notation. Generally, text editing was

¹ The sheet music had previously been sorted by copyright date by a student in a project unrelated to this grant.

straightforward most of the time. The editing of the music notation was more problematic, complex, and cumbersome. SmartScore X2 Pro's interface has a learning curve and will require time to learn all the functions and features. The sound quality of the instruments in SmartScore X2 Pro vary in quality and realism.

For purposes of hearing a complete score, a free audio editor called Audacity was utilized to connect multiple pages of music. This was a workaround since a sound export was not available with the SmartScore X2 Pro trial demo. Audio files were created by playing the music in SmartScore X2 Pro while recording sound in Audacity at the same time. The individual pages were rendered and then manually connected together. Audacity can be used for editing and processing (EQ, reverb, etc.) the final version of an audio file. Also the export function can create .wav or .mp3 files.

The demo version prohibits users from accessing several features of the software, including multiple page conversion and exporting .wav files. Despite the learning curve and limitations associated with the SmartScore X2 Pro trial version, the grant team has submitted a recommendation to purchase this software.

Outputs

ResearchCommons: <https://uta-ir.tdl.org/uta-ir/handle/10106/25847>

Omeka: <http://library.uta.edu/sheetmusic/>

The seven pieces of sheet music with a corresponding audio file are:

Gen. Worth's Quick Step
I'm Going Over the Hills to Virginia
Dearie
Major Ringold's Funeral March
Meet Me in Bubble Land
Grand Triumphant March in the Battle of Palo Alto
When A Feller Needs A Friend!!
ME-OW

The audio files are available in both the ResearchCommons and Omeka.

Budget

Proposed Grant Expenses: 2 work study students – 15 hours/week for 11 weeks @ \$1.90/hour
= \$627

Grant Amount: \$627

Total spent: \$711

Sustainability

Due to the fragile nature of the sheet music, it is recommended that the remaining sheet music be scanned and .mp3 or .mp4 files created using SmartScore X2 Pro. To aid in the creation of the music files, a student should be hired that has fundamental sight reading skills and experience with notation and/or OPR software. Students not proficient with sight reading could still use the software, but there will be a greater learning curb when correcting the converted music in SmartScore X2 Pro. Once the software is purchased, retroactively create audio files for all sheet music scanned as part of this grant. It would also be useful to experiment with scanning directly into SmartScore X2 Pro.