

Music Archives In Higher Education: A Case Study

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Introduction

The University of Victoria's School of Music has been creating an audio archive of school performances in a variety of formats since the inception of the school in 1969. The physical collection consisting of reel-to-reel tapes, cassettes, DATs and CDRs is held in the Music and Media Commons in the UVic Library. In September 2013 a new digital archive was launched in order to handle all contemporary born-digital audio recordings and eventually the digital copies of the existing physical collection.

The archive has been a tremendous success with regards to improving the infrastructure and workflow associated to concert recording. A somewhat unexpected result of instituting the archive is a new dialogue within the school around copyright, file sharing, and questions of access to the concert recordings. The interesting point, and in fact, the catalyst for this case study was that the new archive represented only a change in format, a move to a digital archive versus a physical archive, and not a new way of "doing business".

It became clear that there was an opportunity to study this archive and explore, not only the users attitudes towards this resource, but also understand how users are actually interacting and using the archive. This case study is designed to be exploratory in nature. It describes the archive design and software used in addition to tracking and reporting usage data in order to provide insight, comparison and/or validate what users reported through an online survey.

Archive Infrastructure

Prior to the launch of the digital archive, recordings were held in the Music and Media Commons in the UVic Library. Beginning in the late 1990's, the practice was to create a CD-R copy of concert recordings that could then be used for listening within the library. Anti-copying signage at listening stations was the only measure in place to prevent the duplication of the recordings. Students and faculty could request CD-R copies of performances and duplicates on which they played, or of another performer's recording when a signed release from that performer was obtained. Commercial and institutional models of digital archives led to the decision to create a similar resource for the school (Strauss & Gregg: 2008). This in addition to concerns over the long-term reliability of the CD-R format used by the library, and the desire to eliminate the practice of dubbing copies for students and faculty.

The Omeka Platform

Omeka, is a free, open-source web-publishing platform that is similar in look and feel to the perhaps more familiar web-publishing platform WordPress^[1]. The features of Omeka that made it appropriate for this project was the ability to interface with the standards and software of the UVic Library, principally, the adherence to the Dublin Core metadata standard and the PDF text plugin^[2]. The Dublin Core metadata terms used by the library to describe the CD-R physical resources (Title, Date, Creator, Contributor) were used in the digital archive providing continuity and transferability with the libraries existing collection.

The Omeka software package has a low-overhead with regards to installation and start-up, attractive theming possibilities and an approachable user interface for item creation and editing. Collections can be easily made in order to organize items by ensemble or type ie. class recitals, orchestra, etc. The featuring of collections or individual items is a trivial task allowing the frontpage to be dynamic and current with the activities of the school, see Figure One.

Fig_1 Fig_1

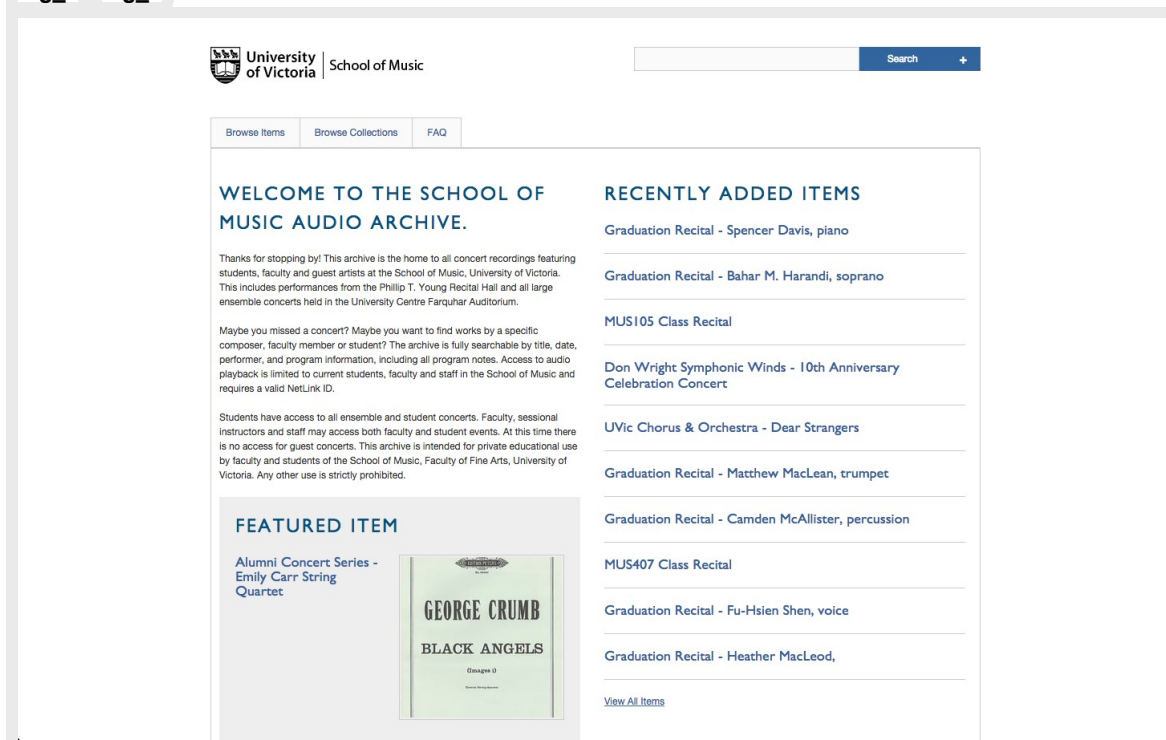


Figure One: Archive Homepage.

Item Acquisition

At the conclusion of a concert recording, the recording student creates a single folder containing a .mp3 export of the edited tracks for the given concert. At the same time, a PDF of the concert program is placed in the folder and the entire folder is uploaded to the server space used for the archive. The Pro-Tools file with the original full resolution audio files is archived separately allowing for any future post-production to be done at full resolution.

Following the uploading of the files, the archive administration page is used to create an individual item for the given concert. At this time Dublin Core metadata is entered and the item is assigned to the appropriate collection. Individual hyperlinks are created for each track and the PDF program file is linked to the item. Figure Two illustrate the Omeka user interface for item acquisition.

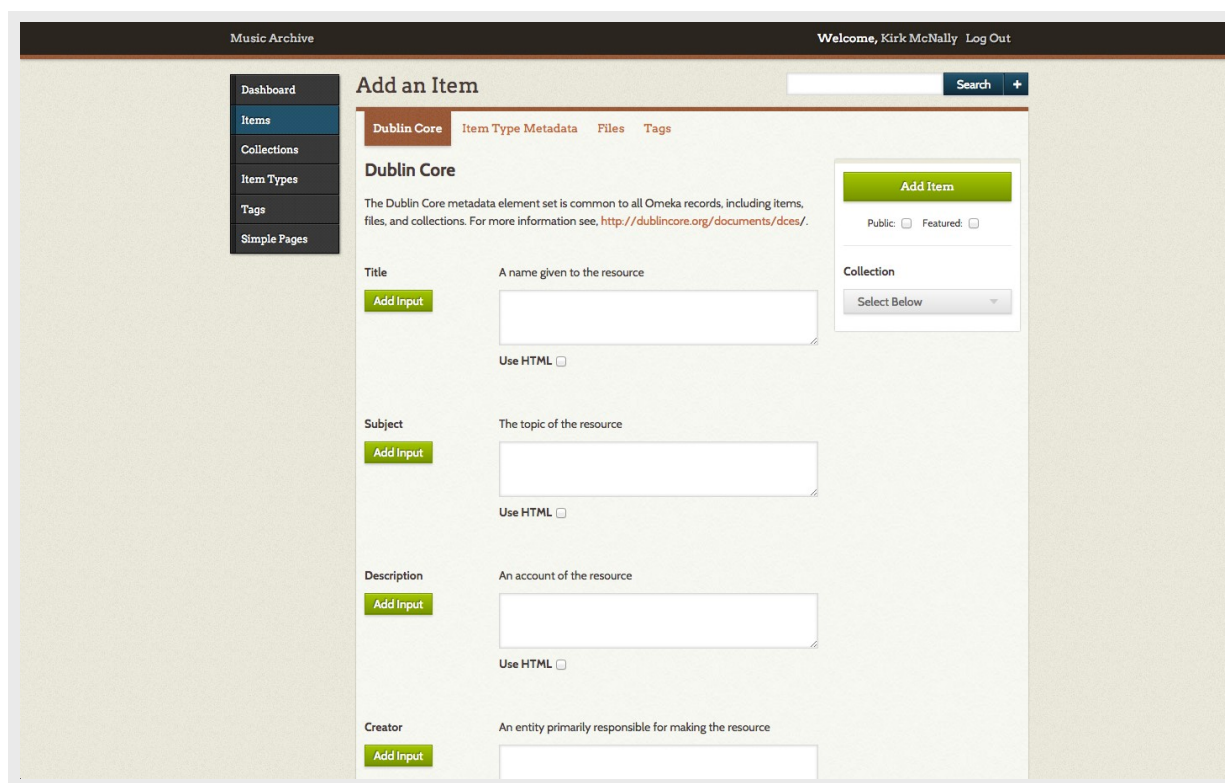


Figure Two: Item creation using Omeka.

Archive Access

The method for controlling access to the archive is through the use of the lightweight directory access protocol (LDAP). All faculty, student and staff at UVic are assigned a NetLink ID and corresponding levels of access can be created using their individual profile. Figure Three illustrates the site design and access levels for each category of user.

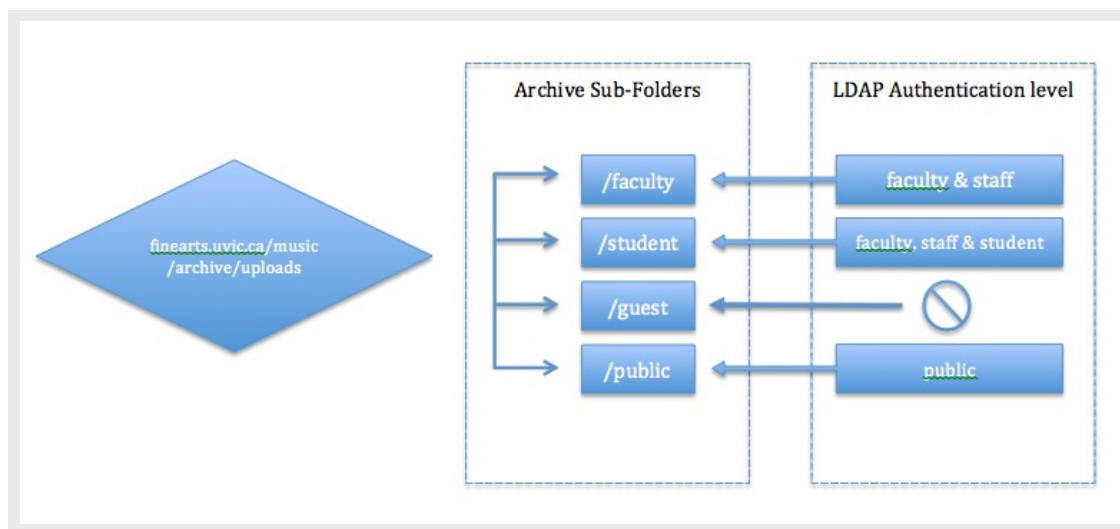


Figure Three: Flowchart of archive access.

Archive Plug-Ins

As an open source platform, plug-in offerings for Omeka are many and varied. There are a host of plug-ins that institutions or organizations have developed for their home projects, subsequently releasing them for use by other users of the software. The PDF text plug-in is one such plug-in allowing users to search digital born PDF text files, reporting the search results and item with which the PDF file is associated. In this way, the UVic archive is completely searchable without the need for a more involved metadata set. This removes a level of oversight and minimizes the potential for metadata entry errors without compromising search functions.

Case Description

The University of Victoria was established as a degree granting institution in 1963 with music degrees first granted in 1969. Degrees offered at the School of Music include: BMus. (comprehensive, composition and theory, history and literature, performance, music education), MA (historical musicology, musicology with performance), MMus. (performance, composition), and PhD (historical musicology). In 2005 the School of Music began offering a combined program in music and computer science, degrees granted for this program are either a BSc or BA. from the Faculty of Fine Arts. For the purpose of this study, three target populations were identified: Faculty, Staff and Students.

Participant Group One: Faculty

The School of Music has twenty four fulltime faculty positions, with an additional four visiting, adjunct and cross-listed appointments. Further divisions within the faculty include: Performance (Woodwinds, Brass, Strings, Piano, Voice, Guitar and Percussion), Theory, Musicology (History), Music Education and Composition.

Performance faculty and composition faculty regularly present concerts that form a major component of the archive. This activity is reported in two distinct ways. If the faculty member is the conductor or ensemble director, the activity is reported as teaching. If it is a solo or chamber music concert in which the faculty member performs, or has their compositions performed the activity is reported as research/creative work on the faculty members academic curriculum vitae.

Participant Group Two: Staff

Staff members for the school include twenty four sessional lecturers or music performance instructors and six administrative or academic professionals. With the obvious exception of administrative personnel, the sessional lecturers or music performance instructors are often affiliated with professional ensembles and in many cases are members of the unionized Victoria Symphony Orchestra. As with faculty, these staff members are regular performers in school concerts, with the recordings again becoming part of the archive.

Participant Group Three: Students

The student population can be further divided into two groups, undergraduate and graduate (Masters and PhD). Current enrollment at the school is 218 undergraduate and 25 graduate students. All students applying to the school, with the exception of the combined major program in music and computer science, must audition as part of their application. Graduate students are also required to audition, with the exception of students applying to the Musicology program. Composition graduate students submit a portfolio of their work in place of an audition, but it is a requirement of the program that their compositions be performed.

A further component of all undergraduate programs is the requirement of both an ensemble credit and a chamber music credit, the exception being voice students. Any graduate students other than those in Musicology also have a performance requirement as part of their degree. It is appropriate to state that the majority of students at the school will have performed in some capacity, and the recording of that performance is held on the archive.

Copyright

In order to ensure adherence to Canadian copyright law, the UVic Copyright Office was consulted in the design phase of the archive project. Of particular interest to this case study is the archive users copyright knowledge and if this correlates with their

attitudes towards access to the archive.

Canadian Copyright Law

The UVic copyright office, a probable first resource for the participants of this study, answers the question, “what is copyright?” with the following:

The Canadian Copyright Act provides legal protection to original works of authorship, which includes literary, dramatic, musical and artistic works, as well as, performer’s performance, communication signals and sound recordings. Copyright protection exists as soon as a work is expressed in a fixed format e.g. a book. The author of the work is usually the owner of copyright. As the copyright holder, the author has the “right to copy.” That is, they have the right to produce, reproduce, perform or publish any translation of the work and to authorize anyone else these rights (UVic Copyright Office: 2014).

In the case of music performance, the principle activity with which the archive deals, a further layer of complexity exists. SOCAN (the Society of Composers, Authors and Music Publishers of Canada)^[3] acts as the representative on behalf of Canadian and international music creators and publishers and is responsible for the administration of licences for the use of music in Canada. In order for the school to adhere to copyright law, tariffs must be paid and programs submitted to SOCAN for all musical works performed that are not in the public domain^[4] and for which admission is paid. Student performances that are given as a degree requirement are deemed educational and tariffs do not apply.

The remaining component within the Act then is the performer’s performance, for which all performers hold copyright. Their performance becomes “fixed” by way of the recordings done at the school and the performer has rights over the subsequent usage of that recording. This aspect of the Act is dealt with differently for each of this studies participant groups.

Student Waivers And Consent Forms

A waiver of consent was introduced in order to deal with the copyright implications outlined above, Figure Four is the current UVic waiver and consent form that is signed by all students at the school.

Several other student activities are covered in the consent form (photographic materials, web-cast/broadcast rights). But, with regards to their recordings, by signing the form, students grant UVic the right to use the recordings of their performances as desired, to hold the recordings in the library collection, to maintain ie. change formats, and to duplicate them.

Consent to the Release of Photos and Recordings
 (*Please return to the School of Music office no later than Friday, September 30*)

I, _____, am a Student at the University of Victoria. For good and valuable consideration, the receipt and adequacy of which is acknowledged:

1. I hereby grant to the University of Victoria ("UVic") and the University of Victoria Student Radio Society - CFUV 101.9 FM ("CFUV") the right and license to record (audio and video), broadcast, and reproduce my performances at UVic School of Music events ("Events"), make duplicate copies of such recordings, and the right to use my name in connection with the events for educational, promotional or other university purposes. I understand that some Events may be broadcast live to the radio and the Internet (including webcasts and podcasts by CFUV). The broadcast will be audio only and available as a podcast from CFUV for a maximum of 30 days following the date of the Event.
2. I hereby grant to UVic the perpetual right and license to maintain in its library collection and use as it may desire recordings of my performances at Events, make duplicate copies of such recordings, and to use my name in connection with maintenance and use of recordings in UVic's library collection. I hereby waive in favour of UVic and CFUV all my moral rights established under the Copyright Act, as amended from time to time, in the recording, reproduction and broadcast of my performances at Events.
3. I agree that I will not assert or maintain against UVic, CFUV, or their successors or assigns, any claim, action, suit or demand of any kind or nature whatsoever arising from the recording, broadcast or reproduction of my performances at UVic.
4. I authorize units of the University of Victoria to reproduce photos taken of me with regards to UVic events or activities in print or electronic media for educational, promotional or other university purposes. I understand that UVic units will contact me and obtain permission before agreeing to allow non-UVic publishers to reproduce any of these photographs with the exception of journalistic media.

I declare that I have read the above, fully understand its meaning and agree to be bound by it.
 (If Student is under 19 years of age, the Student's guardian must sign on the Student's behalf)

Signed: _____ Date: _____
 (Student or Guardian)

Name (print): _____

Contact information (mail, phone or email): _____

Witness Signature: _____

Print Witness Name: _____
 (Witness to be 19 or older)

Respecting your privacy
 The University of Victoria is committed to respecting your privacy and will abide by the restrictions indicated above in using your recordings, photographs and accompanying personal information. The personal contact information you provide above will not be published without your permission. It may be used to contact you to discuss matters pertaining to the use and reproduction of your recordings/photos and it may be shared with UVic employees for this purpose. Any personal information you provide is managed according to the British Columbia Freedom of Information and Protection of Privacy Act (FOIPPA). If you have questions regarding FOIPPA, please contact the Office of the University Secretary (250) 721-8100, which coordinates all formal FOI requests for the University.

July 2012

Figure Four: Student waiver and consent form.

Faculty: Policy On Intellectual Property

Policy at the university is very clear with regards to copyright for Faculty members. The *Policy on Intellectual Property* defines intellectual property as, "The result of intellectual or artistic activity, created by a member of the University in a scholarly, professional or student capacity, that can be owned by a person. Specifically, this includes inventions, publications (with the exception of scholarly publications, regardless of the media used for their communication), educational materials, computer software, works of art, industrial and artistic designs, as well as other intellectual property rights (creations) that can be protected under legislation including patent, copyright or trademark laws, or through a trade secret agreement." (UVic Policy GV0215: 2000)

The statement of principles contained within this policy covers: Communication and Dissemination, Contributions, Ownership, Disclosure^[5], and Commercialization. Should the individual faculty member or the University wish to use the recording of the members performance the procedure for doing so is clearly identified within this policy.

Staff

Music performance instructors and sessional instructors who perform at UVic do not currently have a policy in place to deal with copyright, unless they have created and agreed upon one at the time of their hiring. Likewise, staff members do not have a waiver and consent form as is used for students at the school. There are instances where staff are contracted to perform alongside students or as part of student ensembles and this leads to ambiguity over the subsequent archive holding and the appropriate access level for the recording.

Case Study Data

Data for this study was collected over the period of October 7, 2014 to November 17, 2014. This mid-semester period was chosen in order to allow for incoming students to become acquainted with the archive as well as being a period of concert activity that was representative of the school. Two sources of evidence (Yin: 2013), a web-survey and Google Analytics and Urchin

reports were collected in order to ensure validity of the findings and a database was created in order to evaluate all survey responses. Survey design, collection and storage was approved by the Human Research Ethics Board at UVic. The three participant groups (student, faculty & staff) were recruited for the survey by e-mail via third-party and all responses were voluntary, each group was contacted twice over the period of the study. Additionally, the archive homepage had a copy of the recruitment script and link to the survey as a secondary means of recruiting survey participants.

Archive Web-Survey

A short, fourteen question web-survey was developed in order to better characterize the archive user groups. The survey also included an “other comments” section allowing respondents to comment freely about their views and experience with the archive.

The survey can be divided into five categories of questions: identification of participant group, reported frequency and purpose of archive use, file sharing habits, and questions pertaining to archive access and copyright.

A total of thirty survey responses were collected, if the responses are viewed as a percentage of the total possible respondents from each participant group, the response rates are as shown in Table One.

Table One: Survey Response Rates.

Participant Group	Responses	Group Size	Percentage
Faculty	7	24	29.16%
Staff	4	24	16.67%
Student	19	243	7.82%

Archive Use

Two questions were asked with regards to archive usage, the first asked the users to report the frequency of use, Figure Five Shows the reported frequency of archive usage.

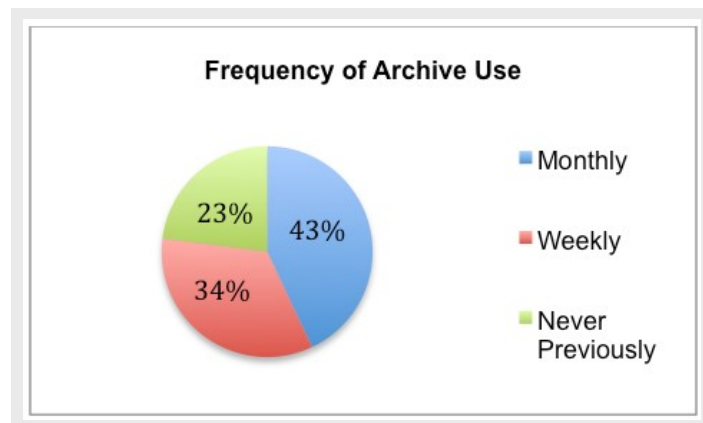


Figure Five: Frequency of archive use.

The second question asked about the nature of the interaction having users check as many activities as were relative from the following list: listening to my performances, listening to other performances, sharing performances with family and friends, audition/application excerpts, and other. In the scoring of this question, the “other” responses were not counted, information entered here is used as anecdotal information only. Figure Six shows the reported nature of archive interaction by all users.

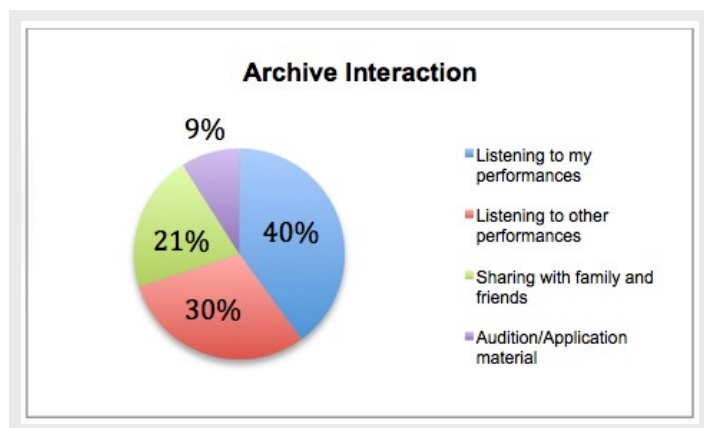


Figure Six: Archive use/interaction.

File Sharing Habits

Five questions in total were asked about users file sharing habits with three being used for analysis in the final study. The three questions asked users if they purchased commercial music (Question 5), downloaded commercial music for which they haven't purchased (Question 6), and if they shared their personal music collection using the Internet (Question 7). The responses for these questions are divided into participant group and are shown in Table Two.

Table Two: File Sharing Habits.

Participant Group	Question 5	Question 6	Question 7
Faculty	86%	14%	14%
Staff	100%	25%	0%
Student	79%	68%	16%

User Attitudes Towards Archive Access

To evaluate users attitudes towards archive access, respondents were asked to rank three statements. The first stated the archive should be open to the public (question 10), the second, that the archive should be restricted to members of UVic (question 11), and the third being that only members of the school of music should have access to the archive (question 12). As in the previous section, responses were grouped by participant group and are shown in Table Three.

Table Three: Archive Access.

Participant Group	Question 10	Question 11	Question 12
Faculty	71%	40%	46%
Staff	65%	60%	60%
Student	71%	47%	55%

Copyright

A single, open-ended question was asked in order to obtain the level of copyright knowledge for survey respondents; "Who holds copyright for all the recordings done by the School of Music?" This question was used as an analytic method, it asked respondents to cite relevant knowledge which was dependent upon their position within the school. Could students identify and recall the information from the student waiver detailed previously? Would faculty cite the Policy on Intellectual Property? Would music performance instructors and sessional lecturers, for which there is no agreement, cite Canadian Copyright Law?

Keywords were logged and counted in order to score this question, Table Four shows the top four keywords and percentage of appearance for each participant group.

Table 4: Copyright Knowledge.

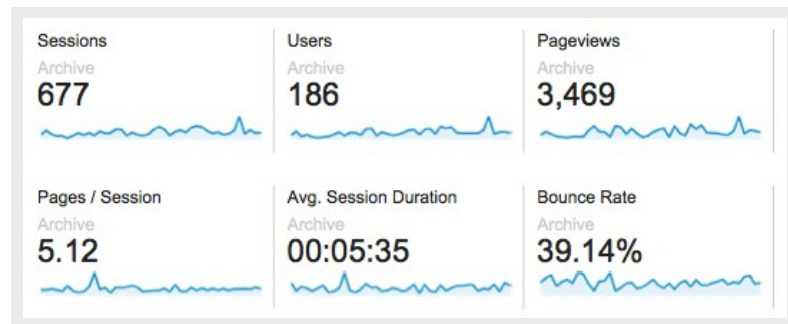
Participant Group	School of Music	UVic	Performer -Composer	Don't know
Faculty	29%	14%	14%	43%
Staff	75%	25%	–	–
Student	32%	26%	32%	10%

Google Analytics/Urchin Reports

The second method of obtaining data for analysis was the use of Google Analytics^[6] and Urchin^[7]. Using these tools it was possible to evaluate web-site activity over the period of the study and create a series of reports in order to characterize the users and their behaviour on the web-site.

Google Analytics: Audience

The “audience” section of this software allows for the determination of several features or characteristics about web-site users. User demographics, operating system, browser, and language are but a few of the features which can be determined. Of interest and use to this study was a record of the number of sessions occurring over the period of the study. This raw number can then be broken down into new and returning user statistic. A user must have at least one visit during the selected period, but can of course have multiple sessions. The final statistic that is of value is the average session duration when viewed against the average page per session. This provides some insight into how users were using the archive. Were they listening via the web-site or downloading the selected files? An excerpt of the report is shown in Figure Seven.

**Figure Seven:** Excerpt from Google Analytics audience report.

Google Analytics: Behaviour

The second section of the software used in this study was the “behaviour” section, which focuses on the specifics of user interaction within the web-page. The design of the archive utilizes several sub-folders and “item” pages, so this data provides a better picture of how the web-site is used: how many pages are viewed per visit, the average time spent on pages, and the most viewed pages on the archive. Using the “content drilldown” tab within the behaviour section it is possible to look at the total archive pageviews for the study period and then break that down into each specific page. Figure Eight shows the first five pages using this metric.

Page	Pageviews	Unique Pageviews	Avg. Time on Page
Archive	3,141 % of Total: 14.50% (21,666)	1,703 % of Total: 14.12% (12,064)	00:01:03 Site Avg: 00:02:38 (-60.45%)
1. /music/archive/	624 (19.87%)	416 (24.43%)	00:00:37
2. /music/archive/items/browse	166 (5.28%)	112 (6.58%)	00:00:39
3. /music/archive/items/show/153	160 (5.09%)	54 (3.17%)	00:02:58
4. /music/archive/items/show/165	103 (3.28%)	41 (2.41%)	00:03:19
5. /music/archive/collections/browse	100 (3.18%)	67 (3.93%)	00:00:08

Figure Eight: Exerpt from Google Analytics behaviour report.

Urchin

The final data collected was the web server log files created using the Urchin software. This software, was used to supplement the Google Analytics software in order to report both the number of valid hits and record of data transferred from the archive web-site for the study period. The tool is unable to report if the user streamed the file via the web-site or simply downloaded it, only a raw file transfer in Bytes is reported. This in conjunction with the Google Analytics reports provides insight into the nature of the users interactions. The Urchin report for the archive is shown in Table Five.

Table 5: Urchin Report

Directory and Files	Valid Hits	Bytes Transferred
Files/	6949	282791690
Items/	2876	11262974
Uploads/	2274	40113597313
Themes/	1702	24384842
Application/	1033	8201534
Admin/	761	4197352
Collections	277	732363
Search	244	558286
FAQ	28	56445

Analysis Of Case Study Data

The small sample obtained via the web-survey gave a high margin of error for this component of the study. If used alone it would be of little use and thus, the web-site data was used to support and validate, or disprove the web-survey results. The survey responses were also disproportionately weighted towards the faculty participant group, with just under a quarter of the survey responses coming from faculty members. Again, when analyzing the survey responses, it was necessary to use data from the web-site to better understand the self-reported information.

Archive Use

The frequency of use by archive users was roughly split between those reporting weekly usage and those reporting monthly usage. This survey data doesn't correlate to that from the Google Analytics software where the logged number of sessions was 677 with 186 unique users identified. For the period of the study this averages to 16 sessions per day. The reported access rate by the student participant group indicated more frequent use of the archive by students and had there been a larger percentage of student respondents, it is suspected that this trend would have continued and explains this discrepancy. As stated,

the survey responses are weighted towards the faculty and they as a whole reported less frequent use, which is likely accurate for their group, but not the archive as a whole.

Another indication of archive usage is the number of pageviews. There is some discrepancy between the reported number of pageviews when using different methods to generate reports within Google Analytics, but the range reported was between 3,141 and 3,469. This is somewhat misleading because a user who browses back to the home page will log two pageviews, with each subsequent repetition of this action adding to the total pageview count, but it is another indication of activity. This pageview number equates to 93% of all web-site activity for directories below the /music level, and 17% for the entire www.finearts.uvic.ca web-site.

The final metric evaluated in this section is the average session duration, as it provides further insight into how users are utilizing the archive. At the highest level, which provides a comprehensive overview, the average session length was 5:35 minutes. Looking into the subsequent pageviews and the average length of stay per page the number is much lower at 1:02 minutes. Looking at the entire data set for this category the majority of pageviews were very short, in the order of 10-30 seconds. This would indicate that the majority of archive users are browsing to several desired "items" or concerts and then downloading the material, and not using the archive to stream content.

File Sharing Habits

Upon analysis of the survey data it became apparent that the second question regarding archive use, "What is your main purpose for using it [the archive]?", was a better indicator of file sharing habits than anticipated and is therefore discussed here.

21% of users indicated that they used the archive as a means of sharing performances with family and friends. As indicated in the previous section users also appeared to be using the archive to download vs. stream content, so a connection can be drawn here and used as evidence that this reported file sharing activity is accurate. Further support for this is shown in the Urchin reports, which indicate that approximately 40 Gigabytes of material was transferred from the site over the course of the study.

Turning now to the questions that asked users specifically about their file sharing habits, we see that a high percentage of users from all participant groups indicated they purchased commercial music, the average for all participant groups being 83%.

The percentage of users reporting that they illegally download commercial music is best viewed by participant group, as the results varied significantly between the groups. The Faculty group average was 14%, staff 25%, and the average for students was 68%. This result correlates to a much larger study on music piracy amongst university students (Chiang & Assane: 2007), which reported approximately 62% of males and 54% of females on campus admitting to illegal downloading. Given the similarities in participant demographics the 68% reported by student in this study, despite the small sample size, can be seen is reasonably accurate.

The final question in this section asked users if they participated in the sharing of their personal music library over the internet. The reported percentage for each group was: 14% for Faculty, 0% for staff and 16% for students. This result is lower than the previously reported activity of sharing content from the archive with family and friends, where 21% of the respondents indicated they used the archive for this purpose.

Anecdotal evidence accumulated over the course of the study and from prior interactions with users of the archive point to a possible reason for this discrepancy. Being, that users simply view the sharing of the material from this archive as not falling into the same realm as commercial music.

Archive Access

The results regarding archive access show a trend towards the attitude that the archive should be open to the public. The average of all users when asked directly, "should the archive be open to the public", was 70%.

However, this finding becomes ambiguous when considering the follow-up questions. The average for the statement supporting limiting the archive to only the UVic community was 47%. Support for limiting the archive access even further, whereby only members of the school of music would have access, was reported at a higher level than the previous question. The average amongst all users for this question was 53%.

It appears that the archive users are conflicted about archive access and this specific question needs to be examined further.

Copyright

This aspect of the study was the most ambiguous, with no clear indication of copyright knowledge amongst the participant groups. Possible sources of error include confusion in delineating between the school of music and UVic and the testing procedure for this section. Student responses in particular are distributed evenly between assigning copyright to the school of music and to UVic. It is possible that the school of music, as their home faculty, is seen as representative of the university and was thus entered as the response to this question. The assumption was that all students, having signed the waiver giving rights to UVic for the recordings of their performances, would have indicated UVic in their responses to this question.

What is clear is that a percentage of all participant groups indicated they used the archive to share performances with friends and family as well as listening to performances other than their own. When combined, the reported usage for these two purposes was 51% for all participant groups. While this is in keeping with the spirit of the archive and historically how it has been run, there is opportunity for misunderstanding in light of the low level of copyright knowledge reported.

Conclusions

The direct finding of this case study is that the UVic audio archive is very active, with a significant number of users making use of the resource, and it now accounting for the majority of web-traffic on the school of music web-site. These archive users were shown to have a preference towards downloading material versus streaming it from the web-site and generally showed a low-level of copyright knowledge.

This study should be viewed as a building block in the larger discussion of institutional archives as a resource for both music technology and popular musicology programs. The high level of engagement and usage by participant groups is promising and points to the potential of a digital archive as a place to engage students with materials that support a program and its learning goals. There are obvious concerns with regards to copyright knowledge and file sharing practices, but with the right content and site design, a very vibrant resource is possible.

Notes

[1] For more information and examples of omeka web pages see: <http://omeka.org/>.

[2] For more information about available Omeka plugins see: <https://omeka.org/add-ons/plugins/pdf-text/>.

[3] See: <https://www.socan.ca/>.

[4] In Canada, a musical work enters the public domain fifty years after the year of the death of the last surviving composer/author of the work.

[5] For scholarly publications and much of the creative activity by faculty, disclosure shall be through the annual updated curriculum vitae.

[6] See: <http://www.google.ca/analytics>.

[7] See: <http://www.acutualmetrics.com/urchin-software/>.

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