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ORCID @ University of Nevada, Las Vegas Libraries Pre-Pilot Report

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ORCID @ University of Nevada, Las Vegas Libraries Pre-Pilot Report

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Executive Summary

As part of the UNLV Libraries’ goal to determine an appropriate level of engagement with ORCID, we investigated if we could easily add publication and employment data to ORCID profiles using their API.

We researched ORCID and how other institutions use it, had Libraries faculty create dummy profiles in the ORCID testing environment, and updated these profiles with real publication and employment data.

From this pre-pilot, we determined that updating ORCID profiles is a resource intensive process that would not scale easily to a full and sustainable service. Below are some of the findings that led us to this determination:

- Data available to us from Digital Measures and other sources was messy, inconsistent, and time-consuming to transform into a format we could use with ORCID.
- Creating an efficient automation process for updating ORCID profiles is beyond our current capabilities.
- ORCID does not currently fully integrate with our Institutional Repository or Digital Measures.

Moving forward, we make the following recommendations for the UNLV Libraries’ use of our ORCID membership:

- Halt plans to expand a pilot to update campus researcher ORCID profiles.
- Put on hold plans to provide a signup process that would authenticate iDs.
- Promote adoption and use of ORCID among campus researchers (faculty and students) within the research workflow.
- Create educational and outreach resources about ORCID for Libraries faculty and staff.
- Encourage faculty and students to link their ORCID iD with other entities (such as Crossref and Scopus) to enable seamless update of ORCID user profiles.
- Educate faculty about the benefits of using ORCID as part of reputation management.
- Work with ORCID and other partners to improve ORCID functionality; this includes pursuing an institutional login as well as institutional connect features.
- Encourage and provide instruction for Digital Measures users to use their ORCID iDs to update their profiles with PubMed, Crossref, and Scopus integrations.
- Stay abreast of ORCID updates, monitoring new services or tools available as part of our membership.
- Determine useful reports to be gained from our ORCID membership.
- Create a cohort of campus users to contact periodically about ORCID.
Background

ORCID (Open Researcher and Contributor ID) iDs are the standard unique identifiers for researchers in academia. In 2016, UNLV Libraries acquired an institutional membership with ORCID, and have been strategically testing ways to implement ORCID to benefit UNLV. For more information on the Libraries’ project as a whole please see the Libraries’ ORCID Project Plan.

The Libraries’ ORCID pre-pilot investigated the feasibility of a Libraries-led service to populate faculty ORCID profiles with citations for scholarly works allowing UNLV to better track and promote their research. To do this we undertook the following steps:

- Created a UNLV Libraries ORCID integration which would allow us to gain “Trusted Party” status from ORCID account holders
- On the ORCID sandbox testing environment, gained “Trusted Party” status from Libraries faculty for whom we have publication data from Digital Measures.
- Used access tokens secured through the sandbox “Trusted Party” integration to access and update two sections of faculty ORCID profiles (“Employment” and “Publications”) through the ORCID API
- Used this limited dataset to determine: necessary steps for cleaning and reformatting data prior to interacting with the API; the mechanics of working with the API; how logs of access events are structured; what in the workflow can be automated and how; work versus value added in using the API for account access events

What are “authentication” and “integration”?

Authentications and integrations use ORCID’s API (Application Program Interface) to create a process that “supports data exchange and enables automated updating of items [in] linked researcher ORCID records”¹. An authentication system allows a third party to collect valid ORCID iDs from researchers. An integration allows content (data about publications, etc.) from ORCID to be used in other systems and vice-versa. Functional authentications and integrations requires ORCID users to actively authorize a third party (see image to the right).

An integration that established UNLV Libraries as a “Trusted Party” to ORCID users would allow us to access and update ORCID accounts as well as help us track and promote grant funding, publications, and presentations by faculty and students at UNLV.

¹ https://orcid.org/organizations/integrators
What We Did

Research

Survey of the field

Most academic libraries with data-sharing ORCID integrations use Elsevier Pure, Symplectic Elements, or another university-wide Research Information Management Systems to manage their integration\(^2\). Several libraries have authentication integrations, but are not yet using account information gathered this way to update or populate accounts with library-acquired data, instead using it as a system of tracking who among the faculty had ORCID accounts.

ORCID recommended practices for integrations

In order to have a functional ORCID integration, we had to meet requirements set out by ORCID. These are outlined in Section 5 of “Getting Started With Your ORCID Integration”.

We outlined the functional components of an automated integration using a python script to streamline the processes. This integration script would use previously prepared data and upload files and required a person to run the script in order to execute and log the access event. Data cleaning and preparing the upload files was not envisioned as part of the API script workflow, but a separate set of processes.

Engagement With Libraries Staff

For information regarding our partnership with Web and Application Development Services and Library Systems please see Appendix B.

Pre-pilot volunteers

We selected a group of 22 Libraries Faculty for whom we had publications data from Digital Measures and the UNLV Bibliography. We sent an email asking them to participate in the pre-pilot by using our Permissions Page to sign up for a new account on the ORCID sandbox site and provide us with an email address. See Appendix C for Permissions Page and invitation emails. We successfully acquired permission tokens from 15 faculty members (68%).

Problems encountered with the participation phase:

- Two people signed up for accounts twice as our invitation had been somewhat ambiguous as to how they were to “give” Trusted Party status to us. They felt they had

\(^2\) This video shows how ORCID would integrate with Pure.
missed doing something when they hadn’t, so created second accounts before contacting us and asking if they’d done something wrong. In response to this we sent an additional email to all participants providing clarification (see Appendix C).

- Three accounts did not provide us with email addresses. However two of these were the above people who created two accounts and they had provided us their email associated with the other account. This means that we received email addresses from 14/15 (93.3%) of those who participated.

While we achieved success in getting information from our pre-pilot participants, further communication from them was limited. Emails sent updating them about the project and asking for feedback received limited or no response.

What Happened

The pre-pilot allowed us to walk through each manual step of the profile update process—acquiring data, getting permissions, creating and tracking access events, updating information with PUT codes—to better understand what compliance with these practices would mean and the technical requirements for building a script-driven workflow. For more on the technical processes involved in the pre-pilot, see Appendix A: Development and Testing.

Having created and tested our data-formating process for the sandbox, we concluded that the difficulties involved in reformatting the data, as well as the resource commitment required to develop a full integration, were difficult to justify given that the reliability of the data we were pushing to ORCID was unpredictable.

After surveying the field, we concluded that few academic libraries were approaching ORCID integration the way we sought to use it\(^3\), leaving little to borrow or adapt. We developed a set of use scenarios, and iterated over workflows and practices necessary to test them. As we did so, we identified and documented obstacles to both short-term and long-term goals, as well as possible avenues of future work. Our incremental successes provided insight into what a more robust, script-based integration would require in order to function, and what the ideal method of functioning would be.

Since the current state of third-party integrations with systems used by UNLV (Bepress and Digital Measures) are promising but still nebulous, the value added by a full push/pull integration between ORCID and UNLV Libraries is limited. There remains, however, the possibility for an authentication-scope integration, which would record UNLV-affiliated ORCID signups and provide us with more information about how many UNLV-affiliated researchers have ORCID iDs.

\(^3\) For a list of ORCID integrators in academia and the scope of their integration as described to ORCID, see this spreadsheet.
Updating

Publication information

Adding publication data to ORCID profiles required that we first acquire that data. We considered the following ways to gather this data:

- Asking faculty directly
- Asking departments
- Using data from UNLV announcements regarding publications
- Using data from Digital Measures

After discussion with the Head of Scholarly Communication Initiatives, the first three options were determined to be both too inconsistent in regards to gathering complete data and too time-consuming in regards to converting and formatting data. Thus, we decided that the best source of data that we could use for the Pre-Pilot were the spreadsheets created for the UNLV Bibliography using publication data from Digital Measures\(^4\). The Digital Scholarship Librarian had already separated Libraries staff publications into a separate spreadsheet, which we used as our “authoritative” source for upload data.

Understanding that this data would need to be manipulated somewhat, for a limited-scale proof of concept, we considered it “good enough”. However, this data required far more clean-up than we anticipated to get it into the format that ORCID’s API required, and was often incomplete in addition to being formatted differently (e.g. names broken into three columns in the spreadsheet required concatenation to another column). We realized that without verifying each citation, we were unable to tell how accurate the data was.

We also made some mistakes inputting the information\(^5\), which allowed us to test the PUT and DELETE protocols and understand access event requirements for those two protocols.

Another issue we encountered was duplication. When you attempt to update an ORCID profile through the API, ORCID will reject any item with a duplicate external identifier (such as a DOI). However, if the item does not have the same external identifier, ORCID will duplicate the information. This could be an issue as we had to create external identifiers for items that did not come with them. If a faculty member had updated their ORCID account with data and did not include external identifiers (either because the item did not have one or due to oversight) any attempt to update through the API would duplicate the content. This would mean an additional

\(^4\) This approach may not have been scalable campus-wide as we did not have permission from faculty to use this data for projects other than the Bibliography.

\(^5\) Among more mundane things (duplicate employment entries), the ORCID sandbox accounts updated said “University Libraries” in the Employment section, but nobody noticed the mistake.
step, checking to see if the content was duplicated, would be required for each account being updated.

Employment (job title)

Employment information was taken from the UNLV Employee Locator. This appeared to be the most comprehensive and up to date place to find information about staff from across the campus. Information in the Locator is “extracted from the Human Resources Management System on a daily basis at the end of business each day”⁶. Despite this, the information contained within is not necessarily accurate. The department listed for all Libraries employees is given as “Library” instead of “University Libraries” and at least one employee’s name of record did not match their preferred name. We believe that the job titles we used were accurate, though this assumption is based upon a lack of complaints from participants once we had contacted them to let them know their accounts had been updated.

Data from the Locator was hand-gathered and pasted into XML files. A “List Export” link can be found on the Locator website, but attempting to use this led to a “You are not authorized to use this feature” error message. We did not further investigate this aspect of gathering data, as it was deemed to be a minor part of the project.

Email address

The final part of the Permissions Page was an optional form to provide an email address. This was required because otherwise there was no way to ensure matching the tokens with data we had. We received email addresses from 14/15 (93.3%) of those who participated in the pre-pilot, but the lack of 100% participating indicated a potential problem.

However, even if an email address is provided, it did not mean that it was necessarily useful information for us, as seen in the example below. (In this example we have left out the token information.)

| 41 | 0000-0001-6453-8713 | Test Test | HappyElf@mailinator.com | /read-limited /activities/update /person/update |

As can be seen in this example, someone could provide us with an ambiguous name and an ambiguous email address; we would then not know what information to update their account with without further contact with them. While it is unlikely that a participant would give us a name such as “Test Test”, there is the potential for someone to provide ambiguous information such as “F. LastName” or for two faculty members/students to share the same name. It would be possible to restrict this form to @unlv.edu email addresses, but there is the concern that this would decrease the number of participants who provide email addresses.

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⁶ “How to Make Changes to Employee Locator Data” - https://webapps.oit.unlv.edu/eel/About.aspx
Theoretically⁷, a Permissions Page that pulled information (such as name and email address) from ACE accounts could have been created: conversations with OIT, however, revealed that this functionality could not currently be implemented for this project.

Other

Initially, the page where users signed up and provided us with Trusted Party status stated “ORCID Record Creation” was asking for permission. This was the result of miscommunication and was something that only ORCID could change; upon bringing this to their attention it was updated to UNLV (which was still incorrect, but at least better).

Recommendations

Unless and until (1) a source of clean, valid data (publications, names, and email addresses) can be located and utilized, (2) the process of working with the API is better documented, and (3) specific data contained within ORCID is more easily accessed by other programs (such as Digital Measures), the complexity of this enterprise militates against using the integration as a means of populating faculty ORCID profiles using Digital Measures data.

If UNLV is interested in using ORCID to track and promote publications and grants, our information management infrastructure needs to be reviewed, and a more integrated approach to managing faculty information considered. A recurring issue we encountered both in the research and experimentation phases is that UNLV’s infrastructure does not optimally support ORCID or its institutional integrations. UNLV faces two major issues in this area:

1. ORCID allows users to sign in using their institutional username and password. UNLV’s implementation of Shibboleth, used for sign in with ACE accounts, does not work with ORCID. This is an issue that will be revisited with OIT at a later date.
2. UNLV’s institutional account system does not provide employment and publication information or allow for ORCID ID authentication or token storage. Certain Research Information Management Systems can provide integrations which update ORCID profiles with this information. For information on how Digital Measures works with ORCID please see Appendix D: Engagement With Vendor Systems.

Future Work

The Libraries will now concentrate on promotion of ORCID IDs to faculty and graduate students. Promotional/educational material, workshops, and so forth will focus on:

- Why to get an ORCID ID
- How to use your ORCID ID
- How to update your ORCID profile

⁷ A similar system works for DMPTool.
How to link your ORCID iD to other services
How to use your ORCID iD to import data from Crossref into Digital Measures

We will also perform outreach to other GWLA libraries to see what, if any, integrations they use and how they work.

We are re-examining our institutional membership with ORCID. This involves weighing the pros and cons of continuing our membership without a large scale integration and looking into involvement with ORCID boards.

We will continue to monitor and assess ORCID and the programs, services, and organizations which offer integration. At some point in the future it may become viable for the Libraries’ to offer integration or authentication services.

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8 For more on Authenticate as a scope/integration component, and what it allows:
https://members.orcid.org/api/tutorial/get-orcid-id
Additional Materials

Appendix A: Development and Testing

ORCID provides a “sandbox” site to partners to test out integrations. The sandbox site is blocked from search engines and does not duplicate or effect data from the actual site. All testing for the pre-pilot was performed on the sandbox site so as prevent updating of accounts with incorrect data or inadvertently deleting content from live profiles. Before starting the pre-pilot we ran tests using our own data. This involved using the Permissions Page to create accounts and then using the tokens generated to update profiles through the Google OAuth Playground. While we ran into various problems along the way (including some related to the switch from v1.2 to v2.0 of ORCID’s API), we were successful in updating profiles this way. After reaching what we felt was the end of the OAuth Playground’s usefulness, we installed cURL, began testing script builds, and attempted GET and POST calls.

Roadmapping scripts

After reading ORCID’s recommendations for partner integrations and testing the basics of the API calls using the Google OAuth Playground, we began roadmapping what the actual scripts would need to accomplish, trying to anticipate how much human intervention would be needed and where, and how to support batch processing. After laying out the intellectual foundations, they installed cURL and began building commands to call the API. This involved not just updating local values but also reworking examples from the ORCID documentation, much of which was inconsistent and nonfunctional as written (due in part to simple copyng or formatting errors on their part, but also possibly due to the differences between previous versions of the API and v2.0). After much testing and reworking, the Fellows had a laundry list of things that the eventual integration script (or scripts) should do, and pseudocode for running GET, POST, PUT, and DELETE cURL calls to the API, displaying progress in the terminal window, and writing the results to uniquely named output files. Testing each step allowed us to understand what information we would need in order to fill in the variables, and where we would get it from (file names, ORCID iDs and tokens, etc) in order to build functioning scripts.

Data

There were three types of data that were needed for this project:

- Publication information
  - The core goal of the pre-pilot was to use the API to update ORCID profiles with publication data.

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9 We have documented the incorrect sections and have every intention of emailing ORCID support to let them know so that they can fix the errors.
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- Email address
  - To contact faculty members and confirm identity.
- Employment (job title)
  - Not a core goal of the project, but an “extra”.
  - Also a way of asserting an active affiliation with UNLV even if no publications were available

XML Containers
Formatting our data (both employment and works information) into the XML containers provided on ORCID’s Github required us to understand the ORCID data schema. While ORCID’s schema documentation is spotty, we were able to read their XSD files (one of the major difference between the 1.x and 2.0 versions of the API is the multiple configuration files and separate XSDs for profile elements) in order to understand what values were required and how those values should be expressed.

Prior to attempting to add works to profiles, we examined the “simple” and “full” versions of the work XML structure provided by ORCID. The “simple” version was too simple, asking only for title, identifier, and type. The full version contained many fields we couldn’t fill with the information available. Faced with this Goldilocks problem, we attempted to strike a balance which allowed us to provide the information we had in a more useful record, creating a homebrew “enriched” version of the works-simple XML structure that was just right.

Understanding the data we had to work with, and how it needed to fit into the XML containers, we turned to the process of moving from the spreadsheet format into XML. After attempting a rough and ready formatting automation scheme using Excel’s XML templating (which didn’t work\(^\text{10}\)), and while awaiting a copy of the Oxygen editor (to see if we could make an XSLT which would work), we manually reformatted data from the spreadsheets into XML container files for upload. We documented some of this process in an attempt to understand the steps necessary so that further automation, both in the data formatting and the upload process, could be attempted later in the project.

External Identifiers
At this stage, we confirmed that Works uploaded to ORCID through the API required unique External Identifiers. Some of the items we were attempting to add had associated DOIs, ISBNs, and other identifiers in the data, though even those cases were not trouble free. For instance, ISBNs and ISSNs are carried in the same field in the Digital Measures export spreadsheet, and there is no immediate way to differentiate between them in order to assign the correct

\(^{10}\) As far as we could tell, there were problems with the way the data was formatted in the spreadsheet itself, as certain fields caused breaking errors when attempting to export despite numerous attempts at de-formattting and otherwise altering the data. It is difficult to adequately express how frustrating this was, even for Excel.
“external-id-type” value in the XML file. More research (to build a complete set of if:then rules in an XSLT) or human remediation would be required in order to make this data meaningful in the upload file. Many Works, however had no External Identifier at all, meaning that we would not be able to add them using the API. Since this would result in a serious loss of data, we came up with a workaround: we created a unique ID for each item using the numeric code from the field INTELLCONT_CITATION_1_ID in the Digital Measures spreadsheets, combined with a text prefix (UNLVDM), and used the external_identifier_type “other-id”. This code had the virtue of being unique against other identifiers of the type “other-id” and unique against other items in Digital Measures, but consistent for the same work if listed by different authors (so in the case that Paper A was co-authored by Author One and Author Two, both of whom put it into Digital Measures, Paper A would have the same value listed in INTELLCONT_CITATION_1_ID both times it appeared in the spreadsheet).

Figure A: Works entry uploaded to ORCID sandbox using API that included a DOI.

Figure B: Works entry uploaded to ORCID sandbox using API that did not contain an external identifier and had one created for it.
Appendix B: Engagement With Libraries Staff

WADS and Library Systems

The Senior Application Developer in Web and Application Development Services created the original “Permissions Page” which allowed faculty to provide us with access tokens and email addresses. Requested changes (such as removing the “sign in” link and only having a “new signup” link) were made quickly and helped this aspect of the project flow smoothly. The only issue was that, in the course of streamlining the user experience, the link accidentally directed to the ORCID “Sign In” page instead of the “Register Now” page.

The Head of Library Systems and the Senior Systems Administrator established a backend database to store the tokens. They provided the Fellows with access to the database, allowing us to access and use the tokens, as well as create a record of access events. They also created a new table in which to document access events, based on our specifications; while we did not have occasion to use this table (during the testing phase, when we were likely to get three or four errors for every success, we decided against filling the table with failure data and merely recorded the event logs instead), we appreciate their efforts on our behalf.
Appendix C: Permissions Page and Email Invitations

Permissions Page

Email invitation

Subject: Join the Libraries ORCID pre-pilot!

Body:
Colleagues! We need your help!

We (your friendly neighborhood library fellows) are working on an ORCID integration pilot for UNLV Libraries and we need help from library staff with publications listed in Digital Measures.

What we’re asking you to do:

- Sign up for an account through this page (by June 9th)
- Give us “Trusted Party” status
- Provide us with your email address

This should only take two minutes. Once you’ve done that, we’ll be able to update your profile in the ORCID Sandbox with employment and publication info. And that’s it!

“I already have an ORCID iD. Why do you want me to sign up for a new one?”

For this pre-pilot we’re using the ORCID Sandbox so we don’t mess up anyone’s actual profile. This means you’ll have to create a new account that won’t be used outside of this project.

"Can I use my ORCID Sandbox iD after the pre-pilot?"

Unfortunately, no. You will have to create a new ORCID iD to use on grants, publications, etc.
“So why are you asking me to help?”

We’ve been using the ORCID Sandbox to try out our tools, and we’re ready to test our workflows with more users and more data. This is an invite-only alpha test, running on the Sandbox (it won’t affect your actual ORCID profile). You’ll help us find bottlenecks, workarounds, and ways forward, and once we move to the real site, your accounts will be the first to get updated.

“What sort of information are you going to put there? You better not update my bio so that it mentions the “incident” from the Christmas party.”

For the pre-pilot, we’ll be updating profiles with publications and your work affiliation. ORCID does not allow “Trusted Parties” to update researcher biographies.

“Where are you getting this information, anyway?”

We will use the information from Digital Measures that you’ve agreed to share with Digital Scholarship@UNLV, our university institutional repository, and information from the UNLV Libraries Staff Directory.

“I want to know more about ORCID.”

Great! We will be sending out more information, infiltrating your staff meetings, hanging out in break rooms, and holding structured info sessions for our fellow library workers over the next few weeks. Please come by, talk to us, and get involved with the ORCID pilot!

For more information about the UNLV Libraries ORCID pilot, you can read our project plan; some questions you have may be answered in these meeting notes; information about ORCID generally can be found on their website. We’re working on a LibGuide to bring this all together for the campus community, but it’s not quite ready for prime time—we’ll let you know as soon as it goes live.

Matthew Murray & A.L. Carson
Library Fellows
Email followup

After getting some feedback, we've realized that there's some confusion over how to grant us "Trusted Party" status.

The good news: By using the sign-up link in the email, you are simultaneously creating a sandbox account and giving us access to it. You don't have to do anything else!

The bad news: We need to get better at writing instructions.

So, if you are worried that you missed a step, don't be—that's on us. Using the link creates the sandbox account and grants us the permissions we need to add data to it.

-Matthew & Carson
Appendix D: Engagement With Vendor Systems

During the project we had the opportunity to participate in meetings with bepress and Digital Measures concerning their planned integrations with ORCID. We have also reached out to ProQuest to learn more about their plans for ORCID.

Bepress

UNLV’s institutional repository is hosted on the bepress Digital Commons platform. At this time Digital Commons has no integration with ORCID but Bepress is in pre-alpha information gathering mode to assess customer interest and requirements.

In our meeting with them we discussed the need for an ORCID iD metadata field in Digital Commons. For this field to be effective, it will require authentication with ORCID to ensure validation, i.e. that the ORCID iD entered into the field is real. Additionally in our discussion we shared thoughts on what a “good” versus “good enough” integration would look like in a Digital Commons repository.

Digital Measures

We participated in a web meeting with the Digital Measures developers, facilitated by the Office of Faculty Affairs; they are at the testing and comment phase for their ORCID integration, which is not yet live. The developers demonstrated how the integration pulls in scholarly works information from an ORCID profile into a Digital Measures user record. There are several limitations on the data that can be pulled, for example, volume and issue number of a journal article is not pulled. This is because this data is not stored in unique fields in the ORCID record. ORCID’s philosophy is the preservation and sharing of the persistent identifier information that represents a work such as an ISBN, DOI (Digital Object Identifier), etc. Their thinking is that when one exists, the persistent identifier can be used to identify, discover and access the scholarly work, i.e. why do you need page numbers if you have a DOI?

Digital Measures is aware that their integration as currently built may not meet customer needs. They are investigating potential options for functionality that will use data from other sources (such as Crossref) to “fill in” bibliographic information in Digital Measures, after the ORCID information is pulled in. This is a more complex functionality and will delay the release of an ORCID integration by 12-18 months. The developers solicited feedback as to whether the current integration would meet our needs. In this meeting the Division Director of Collections, Acquisitions and Discovery stated that we would need more complete data import to make this feature a benefit for UNLV faculty.
Digital Measures is still gathering feedback from its customers on their needs and expectations regarding ORCID integration and as yet we have no information on when an integration will be released and what level of functionality it will have.

ProQuest

UNLV Libraries place copies of student theses and dissertations into Digital Scholarship@UNLV, our institutional repository. We get copies of these files through ProQuest's ETD (Electronic Thesis and Dissertation) submission process that students are required to use.

ProQuest's ETD submission process collects ORCID iDs through an optional field of the contact information page and this information is passed along to us. Currently students can fill in any valid ORCID iD they want as this field is not authenticated. ProQuest are currently planning an ORCID authentication process which will be available in late 2018 at earliest. ProQuest are also looking into creating an integration system that would allow them to update student ORCID accounts with ETD information.