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Worldwide ETD Activities in 2021

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Worldwide ETD Activities in 2021

Cover Page Footnote

Thank you to the NDLTD directors mentioned who prepared their Global Reports for the Board of Directors' meetings and to all who participated in and took notes during the 2021 ETD symposium break-out sessions, especially Iryna Kuchma.

2021 International ETD Survey


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Abstract

While electronic theses and dissertations (ETDs) have been an integral part of academia for over 20 years, the year 2021 marked only the third survey collecting data on the general practices of higher education institutions around the world regarding ETDs. Each survey, sponsored by the Networked Library of Theses and Dissertations (NDLTD), very broadly defined an ETD as a born-digital work that represents a student's research and writing completed at the culmination of a degree program, such as a master's or doctorate. The third international survey of ETDs was distributed broadly through listservs and Google groups, as well as targeted audiences, such as ETD conference attendees, the Association of Research Libraries' graduate studies and library representatives, and the International Federation of Library Associations and Institutions. The survey, administered via Qualtrics, covered institutional practices, support systems, submission, dissemination, preservation, final review procedures, hosting, availability, budgetary considerations, and survey respondents' familiarity with the NDLTD. General trends identified by the survey include widespread institutional acceptance of ETDs, students' preference for PDF submissions, library-run repositories, public availability of ETDs, often after a restricted or embargoed period, and opportunities for increasing NDLTD awareness.

Keywords: Worldwide ETD practices, Networked Digital Library of Theses and Dissertations, NDLTD, institutional repositories, embargo, open access, accessibility, digitization.

2021 INTERNATIONAL ETD SURVEY

In 2021, the third survey of electronic theses and dissertations practices at higher education institutions sought to chart the longitudinal progress of ETD initiatives worldwide. Building on the 2013 and 2015 international ETD surveys, all defined an ETD as a born-digital work that represents a student's research and writing completed at the culmination of a degree program, such as a master's or doctorate. All three surveys were sponsored by the Networked Library of Theses and Dissertations (NDLTD) and gathered baseline data about ETDs. The 2013 survey garnered 161 responses to 30 questions, and the 2015 survey returned 298 responses to 47 questions. The earlier surveys are described in the article draft *2013 NDLTD Survey of ETD Practices* (McMillan et al., 2014) and the ETD symposia presentation *The Status of ETDs: Current Practices and Challenges from the 2015 NDLTD Survey* (McMillan, 2015).

Participants targeted for the 2021 ETD survey included library and graduate studies representatives at the 117 members of the Association of Research Libraries, repository managers at 101 Indian higher education institutions, and 10 Council of Graduate School regional representatives. Three-fourths of the survey participants learned about the survey through various online groups we sent the survey link to, including the International Federation of Library Associations and Institutions, Association of College and Research Libraries' sections for University Libraries and Digital Scholarship, the public ETD Forum (ETD Forum, 2021), as well as conference participants in recent NDLTD symposia and US ETD Association conferences, among others.

RESPONDENT DEMOGRAPHICS

The 2021 survey garnered 234 responses to 59 questions through the survey software Qualtrics from August 31 through October 16, 2021. Like the previous surveys, responses

from the United States also dominated the 2021 survey. However, there was a broader international response to the 2021 survey, with 41% coming from 40 other countries. This was a distinct improvement over the 2013 survey, where 18% of the survey responses came from outside the US.

Each of the surveys had a good spectrum of participants, though library workers predominated. About two-thirds of the 2021 survey respondents worked in libraries—librarians, staff, administrators, and repository managers. Respondents from graduate colleges—students, staff, and administrators, made up 12% of the 2021 respondents, while one-fifth fell into the “other” category—information technologists (IT), instructors, professional staff, registrars, researchers, and various other situations.

INSTITUTIONAL ETD PRACTICES

The survey responses showed a trend towards worldwide acceptance of ETDs, with 95% of respondents reporting that their institutions accepted ETDs. Some of the institutions have been accepting ETDs for over 20 years, since about the same time that the Open Access movement began, when several declarations were issued during the early 2000s.¹ There was a surge in institutions requiring ETDs from 2008 to 2016, when 64% of the responding institutions made ETDs mandatory.

Factors influencing decisions to accept ETDs have changed over time, though every survey heavily pointed to the improved availability of ETDs. In 2021, the major factors selected for moving from print or adding ETDs were providing open access through the institutional repository (IR) and increasing the visibility of the institutional and student research. Survey respondents also commented on the need to conserve paper, save space, and changes in national educational policies. One comment mentioned plagiarism detection, and

¹ Budapest Open Access Initiative, 2002, <https://www.budapestopenaccessinitiative.org/read/> ; Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, 2003, <https://openaccess.mpg.de/Berlin-Declaration> ; Bethesda Statement on Open Access Publishing, 2003, <https://dash.harvard.edu/handle/1/4725199> .

we know that these tools are not well developed for non-English languages. The 2015 survey revealed that the top influencers were having an IR (41%), growth in the number of theses and dissertations (27%), and user demand (18%), while in 2013 providing access was the top influencer, with 50% reporting open access and 36% reporting just “access.”

At the time of the 2021 survey, ETDs were mandatory throughout the institution according to 38% of the respondents, with 24% reporting that only doctoral degrees required ETDs and 16% reporting that only master’s degrees required ETDs. Bachelor’s degree programs rarely required ETDs.

Less than 9% of the institutions required ETD authors to have ORCIDs (Open Researcher and Contributor Identifier), while another 22% were considering making them a requirement and 11% were not sure. Nearly half reported that they were not considering an ORCID requirement for ETD authors at the time of the survey. Forty-four percent of the comments mentioned that ORCIDs were encouraged but not required at their institutions. ORCIDs were optional for authors in Greece, Serbia, Taiwan, the UK, and the US.

FUTURE ETD PROGRAM PLANNING CONSIDERATIONS

When respondents without ETD programs were asked about the institution’s timeline for accepting electronic theses and dissertations, only thirteen responses were recorded. The low response rate for this question relative to the total number of returned surveys could indicate that most respondents’ institutions were already accepting or requiring ETDs, and therefore the question did not apply to them. The responses may also reflect a gap between the respondents’ positions at their institutions and the level of the position that would make these types of decisions. Six out of nine respondents reported that their institutions were either planning to act within the next one to three years or were currently implementing ETD submissions. The other three reported not accepting ETDs for the foreseeable future. Four comments indicated no plans or idea of a timeline (50%), the existence of an institutional

repository (25%), and a response from a UK institution that expressed surprise at the question, as e-theses have been around for years and are very rarely still in print form.

A more robust response was generated when respondents answered the question of “What would help your institution move to accepting and/or requiring ETDs?” Respondents could select all options that applied, and 42 responses were recorded. Options ranged from education and information on the benefits of ETDs to joining a consortial repository. Almost 22% selected “support from a library or academic organization,” followed closely by “implementing an institutional repository” and “information or education about the benefits of ETDs.” These three selections comprised over 52% of total selections made. This would seem to indicate that in order to implement a program at the institutional level, the support must also come from an organization or structure that already exists in other institutions, and that has already successfully implemented a similar program. The information or education on the benefits of ETDs would come from existing programs. The management of theses and dissertations can fall to individual faculty or departments, to the library or graduate school, and even to the registrar’s office. Identifying a program that successfully manages this process and follows best practices is key to supporting this type of change at the institutional level.

The other possible selections were aimed at individual assistance, or assistance to the nascent program, such as meeting with others who work with ETDs, or getting questions answered via on-demand chat. It is noteworthy that “accreditation requirements” was selected by nearly 12% of the respondents, yet typically accreditation is not about providing a blueprint or robust support in implementing any of the accreditation standards. We could infer from this answer that institutions will respond more readily to a proposal or demand when possible probation or sanctions for non-compliance would be the result of not making

the change. Accrediting bodies are often formed at the governmental level and hold much power.

SUPPORT SYSTEMS

When asked “what types of ETD-related instruction and training sessions are or will be offered to students and/or faculty,” there was a remarkable consistency among the selected responses. Instruction and training most likely to be available included copyright and fair use, citation management, publication and author rights, open access, formatting, plagiarism, restrictions and embargoes, and data management.

The most common comment had to do with instructions or training for ETD submission, uploading, depositing, and review and approval. Formatting and accessibility were also offered. One respondent pointed out that education and training were “not given as part of ETD[s] but as capacity building for academic staff.” Another observed the need for training in scientific integrity and ethics, researcher profile tools, scientific writing, and self-archiving.

The most common methods for delivering ETD-related instruction were workshops and written guidelines, followed closely by online tutorials. Meetings with individuals and downloadable templates were also frequently chosen methods for instruction. One comment mentioned videos.

Nearly half of the survey responses identified remote opportunities (e.g., written guidelines, online tutorials, and downloadable templates). Prior to the Covid-19 pandemic, many instructional modalities would most likely have been in-person workshops and individual meetings. But during the pandemic, many modalities moved to remote opportunities, making the modality less distinctive.

When survey respondents were asked which unit(s) would offer the instruction, the library was selected slightly more often than the graduate studies unit (39% and 32%,

respectively). About one-fifth selected academic departments, and the comments frequently mentioned writing centers and research offices.

SUBMISSION, DISSEMINATION, PRESERVATION

It was a common practice for authors to submit their final ETDs as a single file according to nearly 92% of survey respondents. Nearly half of the institutions (47.8%) received supplemental files from ETD authors, including 3D, VR (virtual reality) and videos. Supplemental files often provided the raw data on which the research work was based. Comments revealed a general lack of awareness of the possibility of including additional file formats with the basic ETD.

Institutions accept ETDs in a variety of formats, but most institutions (31.4%) accept contemporary text formats, including .doc, .pdf., and .txt, with embedded files such as spreadsheets, VR, and AR (augmented reality). About one-fourth of the respondents mentioned PowerPoint and posters, plus HTML with text and video embedded. Some of the respondents mentioned accepting the file format depended on file size. PDF continues to be the most widely accepted file format for ETDs.

Inclusion of published articles and conference papers is on the rise. Fifty-seven percent of the respondents confirmed ETD authors included these with the final ETD submission, but 18% of the respondents were not sure. The present research found some interesting facts and concerns raised by the participating institutions, like submission of articles separately to repository collections, which increases the emphasis on research on a nationwide basis and facilitates showcasing undergraduate research. ETDs by PhD candidates that include publications were increasingly common in the United Kingdom, and students sometimes use a previously published article as a thesis chapter. Including a previously published article or paper in an ETD may cause last-minute complications if authors have not cleared the use of this work in their ETD before deposit.

Copyright ownership of ETDs has been a topic of debate across the globe, with most people advocating for the thesis or dissertation author to be the copyright owner. In the 2021 ETD survey, 65% of the respondents reported that the ETD author owned the copyright to the final approved ETD, down nearly 25% from the 2015 survey. Both the author and the institution owned the copyright according to 21% of the 2021 survey, while only 4% reported shared copyright in 2015. The number of institutions that owned the ETD's copyright nearly doubled in 2021—7% vs. 4% in 2015. One respondent commented that although the author owns the copyright, the institution reserved the right to digitally archive and distribute the ETD (under the terms of agreement with the student). This is most often the practice even without an explicit agreement.

ETD FINAL REVIEW

The 2021 survey showed that a student's ETD committee was just as likely to note their approval online as through a paper form. Several commented that the Covid-19 pandemic had brought about the change to or addition of an option for online approval. DocuSign's electronic signatures were mentioned several times.

Final approval rested with the graduate studies unit at nearly half of the institutions reporting, while about one-fourth said final approval rested with the author's academic unit.

Nearly three-fourths reported that reviewing ETDs was centralized. Among the top hurdles in the final approval of an ETD were faculty certification (e.g., a successful defense) and proper formatting. Many institutions included plagiarism and copyright checks. The comments also mentioned fees paid and accessibility checking as part of the final review.

HOSTING ETDs

Nearly half (48%) of those reporting agreed that ETDs were hosted in their library's IR, and DSpace was the most used IR software, though the percentage of users declined from 43% in

2013 to 35% in 2021. The library-run ETD repositories were overseen by various units. About one-third were overseen by repository services, followed by scholarly communication and then IT services. The library was overwhelmingly responsible for preservation of ETDs also.

This predominance of library-run repositories may explain why nearly all the ETD repositories currently support or were planning to support metadata harvesting. This is an important operation that promotes the broad availability of ETDs through search engines, including the NDLTD's Global Search (NDLTD).

About one-fifth of the survey respondents reported using an external, vendor-hosted system for their ETDs. Digital Commons from bepress was the most selected vendor option (by 18%) followed by ProQuest's ETD Administrator (10%).

More than one-third of the survey respondents said their ETDs were not available through ProQuest. Nearly one-fifth indicated that it was an option while more than one-third said it was the default. Several commented that ProQuest was the default for PhD authors, but not master's theses authors. Several also commented that their ETDs had been but were no longer submitted to ProQuest dating from 2008.

Slightly more than one-fifth of the 2021 survey respondents said they did not monitor ETD collection usage statistics, about the same as in 2013. When they did monitor individual ETD usage, the measurement most often used was downloads from the IR across all the surveys (38%). In 2021, Google Analytics was a distant second (16%) and was mentioned in only a few comments in 2013. According to the 2021 comments, consortia like OhioLINK and Texas Digital Libraries reported usage statistics to their members.

In 2021, just over one-fourth reported assigning DOIs (Digital Object Identifier) to ETDs, and another 23% were considering it. However, 35% were not considering assigning DOIs. Comments revealed that ETDs already had unique identifiers. Forty percent noted that

their repositories used handles instead of DOIs. This practice was most common among US respondents (26% of comments) and South Africa (12% of comments).

ACCESS TO ETDs

As mentioned earlier, the open access movement is gaining momentum. About one-fifth of the survey respondents reported that after formal approval, the ETDs submitted at their institutions were immediately publicly available. Two-thirds made all their ETDs publicly available after a period of restricted access (13%) or an embargo period (53%). Public access to ETDs was not available at 11% of the institutions and 2% required payment of a fee before the ETD was made available publicly.

When asked if students were required to pay fees associated with ETDs, 11% of the respondents reported that their institutions required students' ETD fees. Those fees reportedly covered preservation, physical copies, processing, and local access. While 80% of the institutions do not require students to pay any ETD fees, the comments frequently mentioned the optional ProQuest fee for open access.

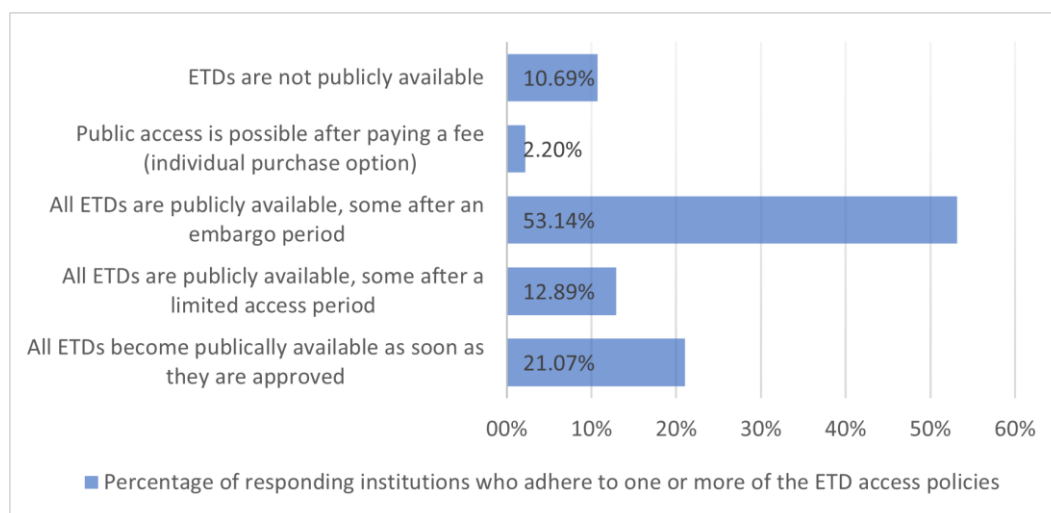
Authors have a wide range of access options for their ETDs, with publicly available reported the most (36%), followed by "not available to anybody (i.e., embargoed or withheld) for a limited time" (28%). One to three years was the typical embargo or restricted-access period. About 10% allowed an indefinite period of restricted access and, more specifically, 10% allowed indefinite embargoes. Many comments described reasons for restricting access, such as creative writing (22%) and confidentiality (e.g., patents) concerns (19%). One-fourth (25%) of the comments made a point of saying how rare indefinite embargo periods were. This trend appeared even among government-supported ETD repositories. We hypothesized that there could be a correlation between government support and a preference for indefinite embargoes for ETDs at these institutions, but within this subset of the survey population, only 11% offered permanent or indefinite embargoes. Furthermore, 100% of respondents with

government-funded repositories indicated that metadata for embargoed ETDs was available in the library catalog, IR, or ETD database. This is an encouraging result, although it is difficult to generalize given the small sample size (8 respondents). However, it is noteworthy that 78% of respondents overall made their metadata available for embargoed ETDs.

When asked why institutions supported restricted access to ETDs, half of the respondents pointed to student/author requests, with 29% due to pending publications and 20% due to pending patent applications. Sixteen percent had an institutional policy, while 15% followed faculty preferences. About 9% had honored sponsor requests.

Figure 1

What is your institution's policy on access to its ETDs?



Note: Total percentage = 100%. Total count = [318]. 10.69% [34] ETDs not publicly available; 2.20% [7] Public access is possible after fee; 53.14% All ETDs available, some after embargo period [169]; 12.89% [41] All ETDs available, some after limited access; 21.07% [67] All ETDs publicly available upon approval.

SOME BUDGETARY CONSIDERATIONS

Given that the shift towards ETDs only gained momentum in the early 2000s, the number of theses and dissertations that remain in print is vast. When asked whether (and why) the institution was digitizing print theses and dissertations, 332 respondents provided feedback. Given that nearly 23% replied that they do not digitize due to lack of resources, and nearly 42% digitize only when resources allow, it is surprising to see that just over 17% report that digitization has been completed. In addition to lack of resources, which include funding and staffing, many commenters referenced issues surrounding vetting the print theses and dissertations, obtaining author consent, and copyright. Among the 61 comments there was valuable information on how they managed retrospective digitization of large collections, including switching from opt-in to opt-out and utilizing a policy that permits retrospective digitization in their IR.

The survey also asked what types of financial support respondents received for developing and maintaining their IRs. Seventy-nine percent indicated that their institutions provided support, while 9% reported that the government provided support. Several comments pointed out that while there was initial support from the institution at-large, the IR later became the sole responsibility of the library. Some described joint responsibility between the library and the graduate school or the library and the IT unit. A few mentioned that their consortia and student fees contributed to maintaining the IR.

Three-fourths of the institutions that received government support were in France and India. Several French government agencies were named, including ABES (*Agence bibliographique de l'enseignement supérieur* -- Higher Education Bibliographic Agency) and CINES (*Centre Informatique National de l'Enseignement Supérieur* -- National Computing Center for Higher Education). In India, supporting agencies included the Ministry of Human Resource Development, INFLIBNET (Information and Library Network), and the Ministry of Education.

Significantly, respondents from Western nations or nations with large English-speaking populations, such as the US, the UK, Australia, and Canada, received no government support. This result may be partially explained by the low response rate from the latter three regions; however, 130 American respondents chose to provide information about financial support for their IRs. Decreased public funding for higher education has been a popular topic in American magazines and academic publications in recent years. Perhaps this pattern of repository funding is indicative of a larger trend in the US.

When government support was provided to IRs with ETDs, it was slightly more likely to take the form of a one-time grant, whereas institutional support usually consisted of continuous funding. Among respondents who received government support, one-fourth received one-time grants, while three-fourths received continuous funding. For respondents

who received institutional support, the vast majority (91%) were given continuous funding, while only 9% were awarded one-time funding.

Figure 2

Government financial support for the ETD repository

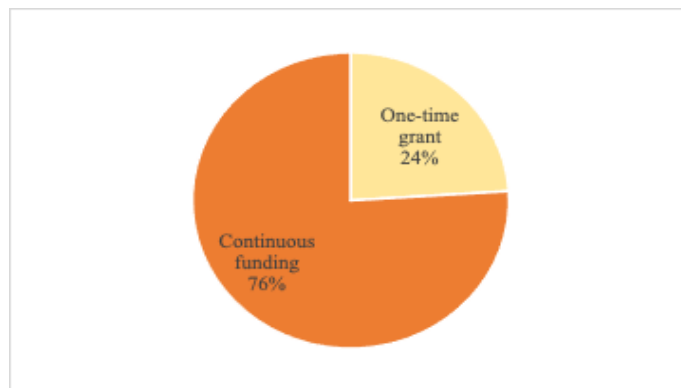
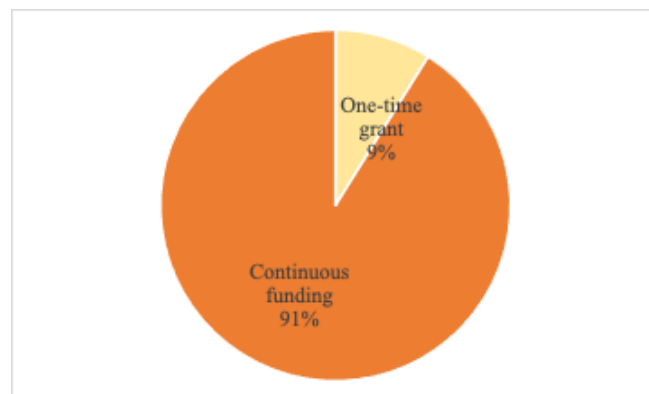


Figure 3

Institutional financial support for the ETD repository



On closer analysis of one-time grants, a pattern emerged: respondents with medium-sized collections (2,000 – 8,299 items) were the most likely to receive one-time grants, while large collections (>8,300 items) were, by far, the least likely to receive them. Among respondents who were awarded one-time funding, 5% had large collections, 33% had small

collections (<2,000 items), and 61% had medium-sized collections. It is possible that large collections received more institutional support and therefore had less need for grants. Initially, it was also surprising that small collections received less grant funding than medium-sized collections, but perhaps small collections needed more continuous support and relied on institutional funding. However, given the small sample size for this subset of responses (18), it is problematic to generalize.

Table 1

Comparison of support type and collection size

<i>Support is provided by</i>	<i>Collection size</i>		
	<i>Small</i>	<i>Medium</i>	<i>Large</i>
<i>One-time grant</i>	6	11	1
<i>Continuous funding for maintenance and future development</i>	63	57	62

Note: Small collection (<2,000 items); medium collection (2,001 – 8,299 items); large collections (>8,300 items)

NDLTD AWARENESS

A key topic in the survey was awareness of the Networked Digital Library of Theses and Dissertations. Just under one quarter of the respondents reported that their institutions were NDLTD members, whereas in 2013, one-third were. A slight majority of the 2021 respondents noted that their institutions were not members, while nearly one-third were unsure. A majority of NDLTD members (59%) originated from the United States, but a

significant minority (41%) came from a broad international constituency, including Canada, France, and South Africa.

The survey asked about familiarity and engagement with NDLTD resources available to scholars and the public, namely the NDLTD Global ETD Search (NDLTD). Thirty-five percent of the survey respondents used the database to look for ETDs, suggesting that this resource is recognized and valued by members and non-members alike. However, nearly two-thirds of the respondents had not used it, and a further 12% were unsure if they had.

The predominance of library-run repositories may explain why nearly all the ETD repositories currently support or are planning to support metadata harvesting. This is an important operation that promotes the broad availability of ETDs through Internet search engines, including the NDLTD's Global Search.

Only 30% of the respondents reported that their ETDs were harvested by the Global Search, while the vast majority (70%) did not participate. This result could be explained, in part, by the fact that ETDs must be in an IR to participate. Thus, the number of institutions that did not make ETDs publicly available or relied on commercial vendors to archive their ETDs would be unable to participate. General lack of awareness could also play a role.

An identical pattern of responses emerged regarding awareness of the NDLTD awards. Thirty percent of respondents were familiar with the awards, while 70% were not. It stands to reason those respondents who have interacted with the NDLTD, either as members or through the ETD search, would be more likely to know about the awards and that the inverse would also be true.

When asked if they would be interested in nominating someone for an NDLTD award, 35% of respondents expressed interest, while 64% were not interested. Given the answers to previous questions, respondents who were not familiar with the awards would not be very likely to have someone in mind to nominate. This is especially likely in the case of

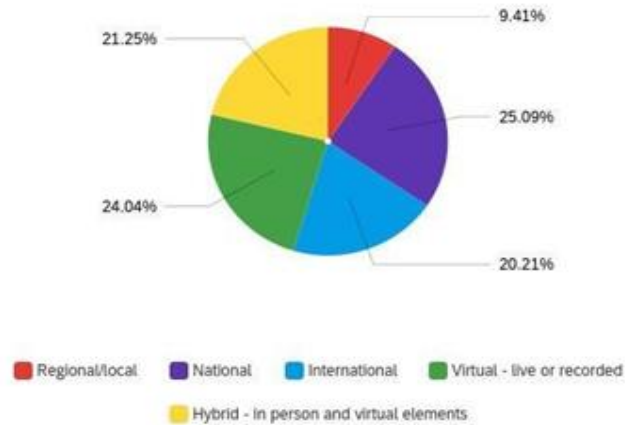
the innovative ETD awards, because some academic professionals represented in the survey who do not work closely with graduate students would not, therefore, be sufficiently familiar with their work to nominate them.

Respondents displayed the highest degree of familiarity, engagement, and enthusiasm when asked about their participation in ETD conferences. Nearly half of the respondents had attended a conference. A further 36% reported that they would be interested in attending an ETD conference in the future, though they had not to date. Only 16% were not interested. The large positive response is encouraging for future outreach, but not unexpected, since a considerable portion of the survey pool came from mailing lists from past ETD conferences.

The survey also asked respondents about locations and modalities for the conferences they attended. There was a relatively even distribution of responses (20%-25%) among the choices for national, international, virtual, and hybrid conferences, with some overlap. For example, a respondent could hypothetically attend a national conference using a virtual platform. A much smaller number (9%) of respondents attended regional or local conferences. ETD-related conferences are commonly held in major cities, often around the world, on a rotating basis. Consequently, many – if not most – attendees would probably not have local access to a conference.

Figure 4

Q: I've attended an ETD conference that is (select all that apply)

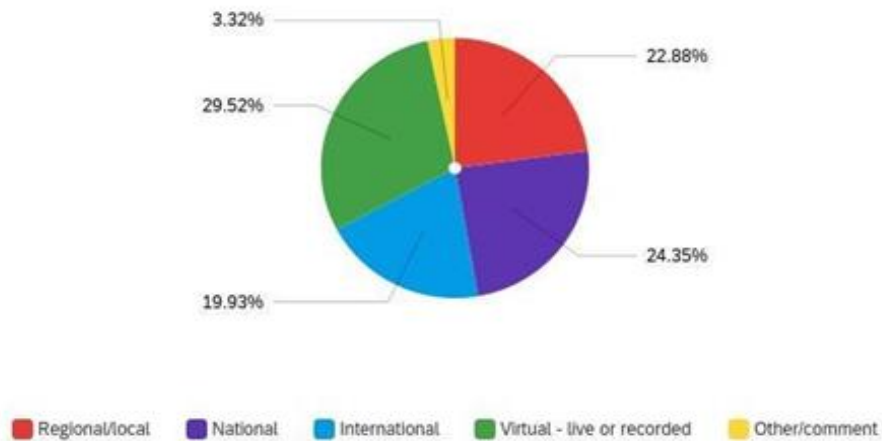


Percentages of attendance at types of ETD conferences: National: 25.09%; Virtual-live or recorded: 24.04%; Hybrid-in person and virtual elements: 21.25%; International: 20.21%; Regional/local: 9.41%.

When asked what type of ETD conference they preferred, approximately one-third of the respondents chose virtual events, either live or recorded. Virtual events, which have become more common since the onset of the COVID-19 pandemic, offer several benefits for attendees, including safety, convenience, and negligible travel expenses. National conferences came in a close second, with about one-fourth of the respondents preferring this option. One-fourth of the respondents also expressed an interest in regional or local conferences, suggesting that people who work with ETDs desire greater opportunities to network with nearby professionals in their area of specialization. One-fourth of the respondents were interested in international conferences. Since respondents could select multiple options, there could be overlapping preferences in terms of locations and modalities.

Figure 5

Q: I would be interested in attending an ETD conference that is (select all that apply)



Interest in attending a conference based on conference type: Virtual-live or recorded: 29.52%; National: 24.35%; Regional/local: 22.88%; International: 19.93%; Other/comment: 3.32%.

Seventy-five percent of the comments expressed a preference for in-person meetings, perhaps having missed the personal interaction at conferences during the COVID-19 pandemic. Only a few respondents stated that they either had no preference or were also open to webinars, so there is some flexibility for conference organizers when choosing modalities. One respondent also offered examples of conferences they had attended, including a state conference, TxETDA, and a national USETDA conference. In general, the comments expressed a familiarity with and interest in a wide range of locations and modalities for ETD conferences.

The results for this section of the survey suggests that there are opportunities to raise awareness of the NDLTD and the benefits of membership to higher education institutions around the world. For example, if more institutions contribute records to the Global ETD Search, the institutions themselves would benefit as their scholarship would be more

discoverable. Targeting audiences like the academic professionals who participated in this survey is likely to be successful based on high levels of interest in future conferences.

CONCLUSION

The 2021 International ETD Survey brought together a diverse group of academic professionals from across the globe who had a wide range of experiences with ETDs. As this third survey sought to chart the longitudinal progress of ETDs worldwide, it is important to note that the percentage of responses from outside the U.S. increased significantly since the first survey in 2013, rising from 18% of total responses to 41%, providing us with a higher degree of accuracy in assessing trends in ETD practices. The broader international participation in this survey compared to previous ETD surveys may indicate a growing awareness of and interest in ETDs worldwide. Approximately two-thirds of the respondents were affiliated with libraries, with the balance comprising graduate colleges and others like registrars, instructors, and information technologists.

Although ETD initiatives are widespread, there are still factors that influence a move from print to fully digital that include providing open access through an IR and increasing the visibility of institutional and student research. Accomplishing these goals requires that support and systems be in place, which can require funding, policy changes, tools, and technology updates. The latter can pose additional challenges to non-English ETDs, which suffer from the lack of support of various software used in preparing and reviewing ETDs (e.g., plagiarism detection). Other challenges that are not limited to non-English ETDs are hosting ETDs, supporting IRs, utilizing tools such as ORCID and assigning DOIs, and developing and disseminating analytics.

The low response to the question of the institution's timeline for accepting ETDs could be interpreted as most institutions already accepting ETDs, or that a respondent's position within their institution was not one that was involved in this level of decision

making. Despite this, a robust array of responses was generated with the question of “What would help your institution move to accepting and/or requiring ETDs?” Three areas comprised over 52% of the total selections: support from a library or academic organization; implementing an institutional repository; and information or education about the benefits of ETDs. These responses may be more reflective of improving processes and gaining buy-in from stakeholders than they are of introducing ETDs to an institution. Supporting change at the institutional level requires identifying a program that is successful and following best practices.

ETD initiatives are gaining momentum and are now a requirement at an overwhelming majority of the institutions represented in the survey. There is also a trend towards increasing open access, with many institutions making ETDs available to the public immediately upon final institutional approval or after a one to three year restricted or embargo period. If more institutions choose to contribute to the ND LTD Global ETD search, particularly non-English language ETDs, this will further enhance the discoverability of ETDs overall. In addition to greater availability, we envision a shift from predominantly one-dimensional theses and dissertations to include more dynamic formats such as 3D, VR, and videos. We hope that these emerging trends and future developments will continue to pave the way for increasing availability, accessibility, and innovation.

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