

## **Access and impact barriers to academic publications: a global study of thesis and dissertation embargo policies**

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### **Abstract**

*Purpose:* Many Higher Education Institutions (HEIs) allow students or their advisors to restrict access to theses/dissertations (TDs) by applying embargoes. This study aims to identify why Higher Education Institutions (HEIs) allow embargoes.

*Design/methodology/approach:* One hundred HEIs were randomly selected, representing seven geographic regions. The authors imported policies/guidelines for embargoing TDs into MAXQDA software and coded the qualitative data.

*Findings:* Among the 100 studied HEIs, 43 HEIs (43%) have policies/guidelines on the web for embargoing TDs, most of which are from North America. For the majority of HEIs, embargoes are a voluntary option for students/advisors. Content analysis of the 32 embargo policies showed that embargo reasons (18 key reasons) can be categorized into six broad themes (commercialization, publication, ethical issues, funding contracts/agreements, security and safety, and miscellaneous).

*Research limitations/implications:* In this study, only those policies are reviewed that are available, discoverable and accessible on HEIs' websites.

*Practical implications:* Highlighting the detrimental effect of not managing stipulations towards embargoes clearly, the findings could be useful for national/institutional policymakers and administrators of research departments, academic libraries, institutional repositories and graduate offices.

*Originality/value:* This is the first study to investigate rationales for TDs embargo practices. It creates awareness of how embargoes are managed and reflected in policy. Ultimately, it recommends further interrogation on how embargoes influence the principle of openness to scholarship.

**Keywords:** Higher education institutions, Open access, Regulations, FAIR principles, Information policy

## 1. Introduction

Theses and dissertations (TDs) represent the primary outlet for graduate student scholarship at institutions of higher education across the globe and play a key role in establishing the intellectual legacies of these institutions (Wang *et al.*, 2014). Open access (OA) principles, as described in the Berlin Declaration on Open Access in 2003, promote free, unrestricted, and immediate online access to research and scientific information. To achieve this goal, authors and higher education institutions (HEIs) must collaborate to make the outputs of their research OA.

Before the 1930s, TDs were primarily available only to local users with access to the TDs of their university from the shelves of the academic library. The first systematic distribution channel for TDs was established in 1938 by Eugene B. Power, the founder of *University Microfilms International (UMI)*. UMI collected and distributed TDs using cutting-edge microfilming technology and sold them on demand, making them available to scholars in different countries and continents for the first time (Meckler, 1982). The distribution of TDs became far more efficient with the emergence of the compact disc (CD), the digital optical disc (DVD) and electronic databases, but commercial publishers like ProQuest published TDs on microfilm, CD, DVD and electronic database for subscriber use only (Wang *et al.*, 2014).

With the creation of the World Wide Web and the availability of the first public domain web browsers in 1993, the 1990s represent a massive leap in the accessibility of TDs and scholarly outputs in general. In this revolutionary decade, the internet brought TDs online and made them accessible to users across geographic borders. Soon thereafter, electronic theses and dissertations (ETD) programs in academic institutions began making TDs accessible online (Ramirez *et al.*, 2013). Through these programs, digital versions of TDs are collected, organized and disseminated online.

The emergence and implementation of institutional repositories (IRs) at HEIs in the early 2000s led to a rapid increase in ETD programs worldwide. IRs continue to be the most widely-used platform for the preservation and dissemination of TDs (Chiang *et al.*, 2014; Gould, 2016; Greenberg, 2014; Perrin *et al.*, 2015). As of May 2022, more than 60% of OA repositories listed in the OpenDOAR international directory contain TDs. More than 3400 IRs around the globe contain TDs as a content type. Aside from journal articles, TDs represent the most often found type of document in open repositories around the world.

ETD programs are useful and advantageous to prospective graduate students (Adetoro Salau *et al.*, 2020), as well as scholars (Ghosh, 2009), the general public (Sengupta, 2014), university

administrators (Allard, 2003), policymakers (Rasuli *et al.*, 2019), industry (Augustine, 2014) and practitioners (Adetoro Salau *et al.*, 2020). Empirical data shows that ETD programs positively impact the advancement of academic research (Rasuli *et al.*, 2018). They have many benefits: online, 24/7 access; searchability and keyword indexing; inclusion of multimedia; storage space savings; reduced processing costs; and simplification of cataloging processes (Boock and Kunda, 2009).

National and institutional OA policies and regulations sometimes require academic institutions to publish their TDs on the web (Swan, 2012). OA allows emerging scholars' original research to be visible, accessible and used by the wider research community. According to Bevan (2005), the more simply, widely and quickly scientific findings are made available, the more they can be built upon and used. TDs often contain cutting-edge research of immediate importance, capable of impacting the health of relevant communities. For example, TD findings on COVID-19 can allow populations and individuals to protect themselves as soon as the research is available. Publishing research results after two years is less useful to society.

Yet, HEIs provide mechanisms for students to restrict access to their work for durations of six months, one year, or more. Van Wyk (2016) notes that students must consider legal requirements before research is made available in OA repositories, often effectuated by what library and information science professionals and publishers call an "embargo". An embargo is "*a period between the date of publication and the date when the material may become available as open access*" (Pappalardo and Fitzgerald, 2007).

The length of embargoes is controversial. Many researchers argue that shorter or longer embargo periods are necessary for economically sustainable scientific communications (Eve, 2014). For research articles in the sciences, an embargo period of six to twelve months is normal due mostly to the lobbying efforts of for-profit publishers, even though this is not in the public interest (Chowdhury, 2014; Swan, 2012). Opponents believe that such delays are unwarranted in this era of rapid communication (Hartley, 2008).

Many HEIs allow students or advisors to make TDs open access only after an embargo period and others allow embargoes only under certain conditions. Furthermore, some countries have developed national policies on TD embargoes, which mandate academic institutes to disseminate TDs only after a period of time elapses. Many institutions publish their policies, regulations and criteria for embargoes online for the use of students, faculty advisors and administrators. The reasons HEIs permit or require TD embargoes and differences by geographical region and discipline have not been explored in previous research. This study analyzes institutional embargo policies at HEIs around the world to answer the following broad questions: (1) How many HEIs have a policy/guideline on embargoing TDs? (2) Who decides to embargo TDs? And (3) What is the rationale for embargoes in HEIs?

## **2. Literature review**

Authors agree that embargoes on TDs result in barriers to research access (Perrin *et al.*, 2015; Sengupta, 2014; Van Wyk, 2016). Ordinarily, for embargoed TDs the metadata remains publicly available while the full text is accessible to only credentialed users of the university

community (Sengupta, 2014). However, Perrin *et al.* (2015) postulate that poor administration and management of embargoed items leads to data discovery impediments and loss of access.

The rationale for TDs embargoes is poorly documented, as is their implementation. Most research on embargoes relates to journal articles and not to TDs. However, empirical evidence shows that even if TDs are generally more open and accessible in IRs than other documents (Prost and Schöpfel, 2014), a significant percentage of TDs are not freely accessible on these platforms, ranging from 5% to 60% (Schöpfel and Prost, 2013). Embargoes are the major reason for TD access restrictions - up to 46% of all TDs are restricted.

The main reason for embargoing research findings in for-profit journals is publisher profit concerns. From the early days of the internet, commercial publishers have refused to consider for publication those articles whose central findings have already been made known to the press or public (Lollar, 1990).

Many universities allow students to delay the public release of their TDs for a specified period for specific legal reasons, to

1. Protect intellectual property in the case of a patent application process;
2. Maintain confidentiality agreements protecting third-party proprietary information; and
3. Protect individuals at risk of identity exposure (Van Wyk, 2016).

Regarding TDs, access restrictions are explained in different ways, with arguments based on facts, experience and anecdotal evidence. According to Brown and Sadler (2010), in a UK survey on mandates for TDs, 88% of the universities indicated that they allow TD authors to impose restrictions on access to their works, i.e. the electronic file, for many different reasons. Students, with the agreement of their faculty advisors or supervisors, can request an embargo for the following reasons: commercial contracts (for instance, funding by an external organization), patents pending, ethical confidentiality and/or sensitive material (data protection), publications pending and third party copyright (Brown and Sadler, 2010). At Brunel University, “while every effort has been made to ensure that embargoing access to theses is not used as ‘a panacea against all ills’, students are offered the option of a 3-year embargo if they have a publication or patent pending” (Brown and Sadler, 2010). At the University of Maryland, future publication, protection of proprietary data and patent applications are reasons TD embargoes are approved (Owen *et al.*, 2009).

Other examples are provided by Schöpfel and Prost (2013) who describe a model with different variables (people, institutions, objectives, etc.) influencing the decision-making on dissemination and concealment of TDs on a spectrum of TD openness of TDs with a range of different embargo types. A recent study from the universities of Maryland and Minnesota indicates that embargoes are a significant impediment to obtaining TDs through interlibrary loans (ILL) and other lending services (Brown *et al.*, 2019). The same study reveals that between 2006–2007 and 2017–2018, the number of embargoed TDs rose from 29% to 51% at the University of Maryland. Most embargoes are for one year, but there is an increasing percentage of lengthier embargoes of up to 6 years (Brown *et al.*, 2019). The same paper

presents results from a survey with ILL supervisors from US doctoral universities (R1 institutions), which show that embargoes are a common barrier to sharing TDs at US research libraries.

Beyond the initiatives, guidance and work of the BOAI and the Berlin Declarations for OA, some countries' research councils engage in the complexities of embargoes on research information. Among other initiatives advocating universal access to publicly funded research, the World Health Organization is particularly interested in the findability of research data that could potentially alleviate public health challenges of the 21st century (World Health Organization, 2021). A case study on institutional digital repositories of 25 universities with Information Schools places the question of the embargo in a larger context of open access policies, providing recommendations for drafting and implementing OA policies that provide *“unfettered access to grey literature in repositories”* (Lipinski and Kritikos, 2018).

Regarding TDs, an assessment of the *“consequences of openness”* recognizes the need for embargoes but comes to the conclusion that even if in some cases, such as patent applications, embargo periods may be appropriate (for set time periods such as six months or one year), indefinite embargoes, however, *“while they may seem desirable to the student who is fearful of diminished publishing opportunities”*, seem rarely necessary; also, situations *“that might require an indefinite or permanent embargo, such as the inclusion of privileged corporate or government information, should be avoided”*. In fact, *“permanent or indefinite embargoes should be reserved for rare situations, such as a threat to the student author's personal safety, and should be considered by the graduate school carefully, on a case-by-case basis”* (Corbett, 2016).

In Europe, research funders collaborated with the European Commission to the European Research Council (ERC) to agree on the principles of availing research from public funds to be available in open access (Tofield, 2019). The result was the 10 principles of Plan S, launched in September 2018. The plan is supported by cOAlition S, an international consortium of research funding and performing organizations. Plan S requires that, from 2021, scientific publications that result from research funded by public grants must be published in compliant Open Access journals or platforms. The principles apply to all types of scholarly communication, including TDs. It excludes hybrid publishing models, which are considered to be non-compliant with the principles of cOAlition S. In the case that publishing in fully open access journals is unachievable; Plan S insists that an accepted manuscript version be made available in OA repositories under a Creative Commons Attribution license, with no publisher-imposed embargo restrictions (Kirkman and Haddow, 2021).

Ultimately, the praxis of ensuring unrestricted access to research lies with individual universities and the quality of their TD policies. It is time to survey the status of the relevant policies of global universities to gauge the progress made towards increasing OA compliance.

### **3. Methodology**

To answer the research questions, the study aims to capture tacit knowledge from written policies based on content analysis. Content analysis is an insightful and promising method for developing a schema that covers the main reasons for embargoes and for discovering answers

to questions about embargo processes and procedures. According to Schreier (2014), content analysis assigns successive chunks of the qualitative data to the categories of a coding frame at the heart of the content analysis.

HEIs are the key publishers of TDs, especially through their electronic TD (ETD) programs developed over the last two decades (Rasuli *et al.*, 2019). Therefore, to collect the required data, the authors randomly selected 100 HEIs from around the world with institutional repositories containing TDs. The authors randomly selected these institutes from among 1000 HEIs (from 63 countries around the world) that appeared in the 2021 Academic Ranking of World Universities (ARWU) [1]. ARWU is the primary source for sampling HEIs for two reasons: (1) it is one of the big three higher education ranking systems (Downing *et al.*, 2021) and (2) researchers needed a list of HEIs to select required samples.

After importing the ARWU 2021 final list to MS Excel, the authors randomly selected 100 institutions using the 'INDEX' formula [2]. The sample population is from 37 countries and 7 geographic regions, namely Europe & Central Asia ( $n = 37$ ), East Asia & Pacific ( $n = 28$ ), North America ( $n = 19$ ), South Asia ( $n = 6$ ), Latin America & Caribbean ( $n = 5$ ), Middle East & North Africa ( $n = 3$ ), and Sub-Saharan Africa ( $n = 2$ ) [3].

The authors employ two strategies to find relevant TD embargo policies and guidelines in selected institutions. First, four researchers familiar with several spoken languages (such as English, French, German, Mandarin, Arabic, Persian, Bulgarian, Spanish and Zulu) conducted Google searches with a specific search string [4] using the 'site:' search operator. A 'site:' query is an operation that allows users to request search results from a specified domain, URL, or URL prefix (Google Search Central, 2022). The authors conducted the Google searches in September and October 2021. Second, for those HEIs that did not have policies retrieved through Google searches, the authors examined their websites to find relevant policies and guidelines.

After locating the policies and guidelines, the authors completed an online checklist (created on Google Drive). The checklist includes several fields with different types of collected data (for example, yes/no answers [for example, does the institutes publish a specific embargo guideline on the web], numerical data [for example, the embargo period], the text of policies/guidelines, etc.). Finally, the authors gathered information regarding policy criteria for embargoes and why embargoes are approved or not approved.

Next, the authors imported the texts of the policies and guidelines into the qualitative analysis software 'MAXQDA 2020' for further investigation. Since there was not an already prepared codebook, one of the author used open coding to begin labeling the qualitative data and to assign representational and conceptual codes. The coder assigned a code (i.e. a label/concept) to a chunk/part of the text (for le, a paragraph, a line, or a phrase). After conducting an open coding step, the coder compared the constructed labels and created new codes. Finally, the coder grouped similar codes into broad categories to answer the research questions. The early version of coding schema (including texts, labels, codes and categories) was delivered to the other three authors (all were information scientists) to verify and revise the assigned labels, codes and categories. After concluding the comments and revisions, the final schema was developed.

## 4. Findings

### 4.1 How many HEIs have an embargo policy for TDs?

Among the 100 studied HEIs, 43 have a policy on the web about thesis and dissertation embargoes, and 57 do not. According to the findings, a higher percentage of HEIs in North America have embargo policies than HEIs in other regions. Table 1 shows the number of available embargo policies in academic HEIs in different geographical regions.

**Table 1. Availability of embargo policies in HEIs**

Region	Selected HEIs		HEIs without embargo policy		HEIs with embargo policy	
	Number	% of 100	Number	% of 100	Number	% of 100
East Asia & Pacific	28	28%	24	42%	4	9%
Europe & Central Asia	37	37%	21	37%	16	37%
Latin America & Caribbean	5	5%	4	7%	1	2%
Middle East & North Africa	3	3%	2	4%	1	2%
North America	19	19%	2	4%	17	40%
South Asia	6	6%	4	7%	2	5%
Sub-Saharan Africa	2	2%	0	0%	2	5%
Grand Total	100	100%	57	100%	43	100%

Thirty-six of the 43 policies are in English. Others are in English/Czech (2), English/Danish (2), English/Chinese (1), French (1) and Swedish (1). Of the 43 universities with a policy for embargoing TDs, only 12 (28%) have a standalone and dedicated policy for TD embargoes. In most cases, universities include embargo information in a broader policy; for example, guidelines for approving/submitting/depositing/publishing TDs (15), graduate studies regulations (9), copyright and authorship regulations (2), university rules (2), open access regulations (2) and e-publishing policies (1).

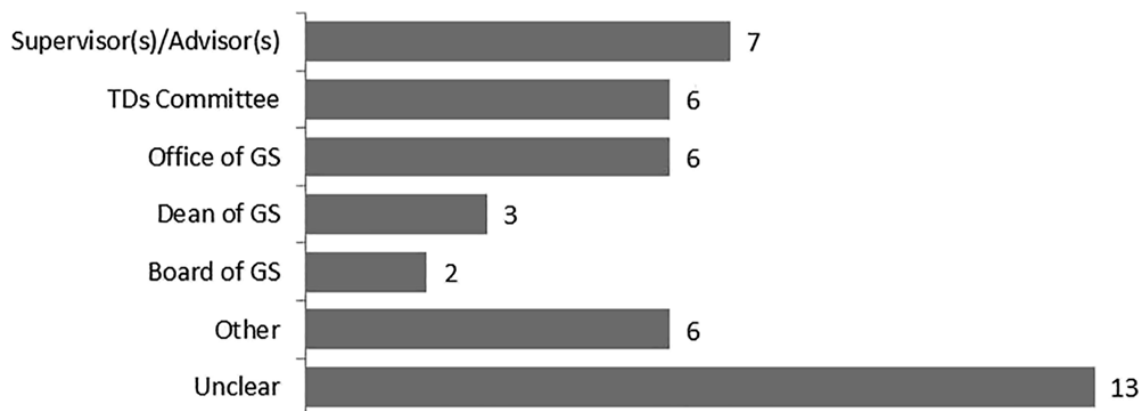
### 4.2 Who decides to embargo TDs?

Intellectual property (IP) and authorship regulations differ from one institute to another, and those responsible for making TD embargo decisions include a variety of individuals/units. The data analysis shows that embargoing TDs is a voluntary option in most HEIs. In 93% of HEIs with embargo policies (40 institutes), students or faculty advisors may request TD embargoes. Only one of the institutions mandates TD embargoes, and two institutions do not mention whether an embargo is a voluntary or mandatory option for students or their advisors.

Students and faculty advisors at four of the HEIs (9%) can embargo TD components. For example, at the RMIT University policy, “*candidates can request an embargo on any submitted component of their research whilst allowing other components to be published in the RMIT Research Repository*” (HDR Submission and Examination Procedure, Section 4 – Procedure, Research Embargo) [5]. Allowing students and advisors to embargo only a portion of their TD, and not the entire TD, provides some access to the work.

Although embargoing TDs in many HEIs is voluntary and students or faculty advisors may request them, the decision to embargo TDs requires the consent of other individuals/units. According to the findings, Supervisor(s)/Advisor(s), Offices of Graduate Studies (GS) and TD Committees make the final decisions to embargo or not embargo TDs. Figure 1 shows the responsible individuals/units for making final TD embargo decisions (the responsible individuals/units extracted from the text of policies/guidelines).

According to Figure 1, in many HEIs, the final decision on embargoing TDs is made in the office of GS, whether by the dean, the board, or a committee in this office. However, in seven institutes (16%), the student's supervisor or advisor decides if the TD should be embargoed or not. In some cases (6 HEIs, 14%), TD committees, including the supervisor, examiners, chair, dean of the GS, etc., have the right to determine the embargo situation of TDs. In six HEIs, other individuals or offices are responsible; for example, a study services office (1 HEI), faculties' examination office (1 HEI), course coordinator (1 HEI), thesis committee, "University Habilitation Committee and Doctoral Council" (1 HEI), advisor/supervisor, the head of the teaching unit, the Vice-dean for studies (1 HEI), and ADVC RTD and GRC Executive [6] (1 HEI). However, in many cases (13 HEIs, 30%), the party or parties responsible for making this decision are not specified.



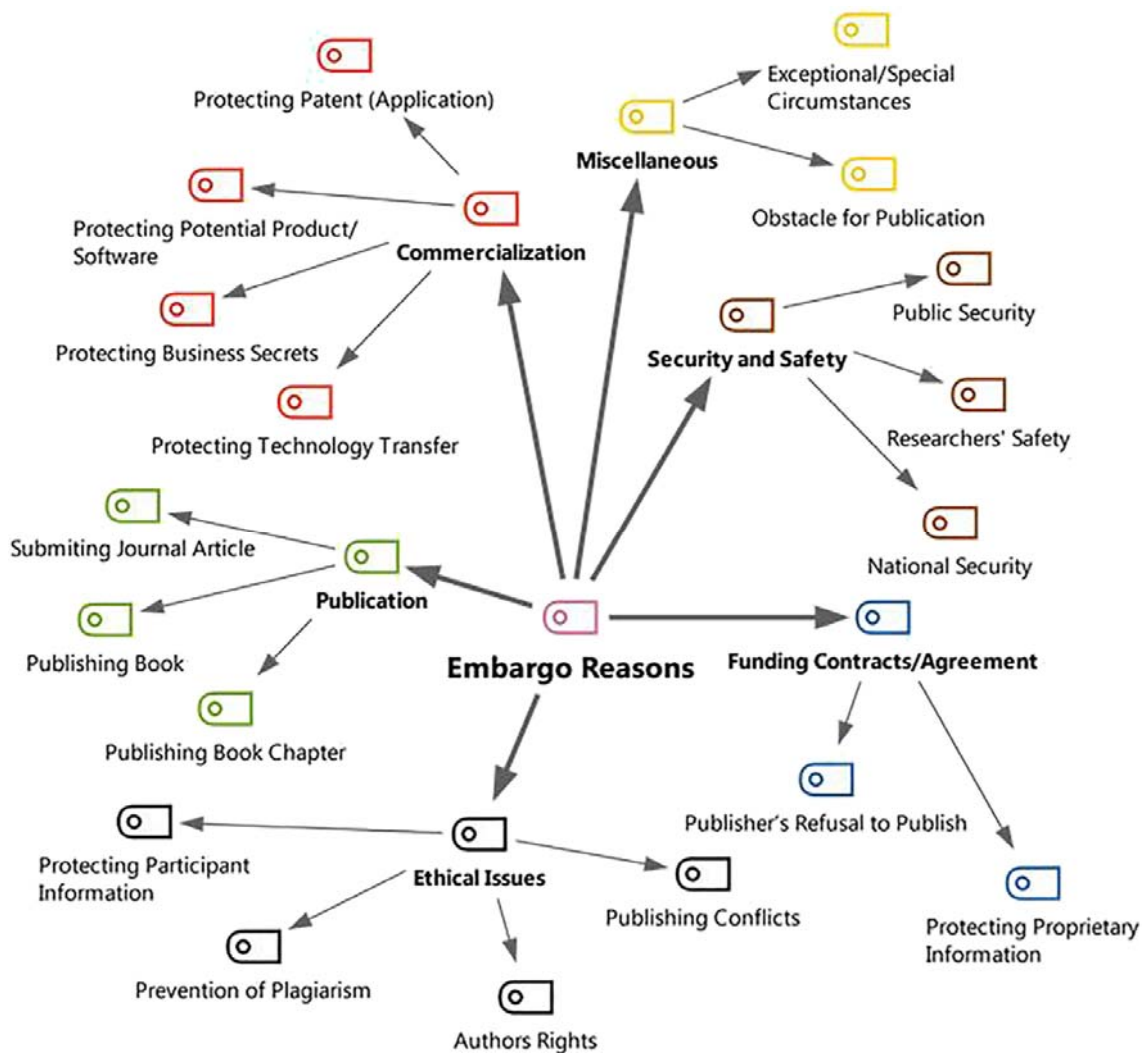
**Figure 1. Individuals/units responsible for making final TD embargo decisions**

#### ***4.3 What are the main reasons to embargo TDs in academic institutions?***

Although some HEIs, especially those with mandatory regulations, allow students to embargo TDs without supplying a reason, many institutes require students or faculty advisors to provide specific and acceptable reasons for embargoing TDs. Apart from exceptional justifications, there are several generic reasons for embargoing TDs, and many HEIs allow authors to embargo their work if such generic criteria are met.

Among 43 institutions with embargo policies, 32 (74%) mention reasons that a TD may be embargoed. For the other 11 (26%), no criteria are listed. Content analysis of the 32 embargo policies found that 18 primary reasons for embargoes can be categorized into these six broad themes: commercialization, security and safety, funder contracts and agreements, publications, ethical issues and miscellaneous (Figure 2).





**Figure 2. Concept map of reasons for embargoing TDs in HEIs**

#### 4.3.1 Commercialization

Commercialization is the process of making money from TDs. Some students have scientific information and findings in their TDs that are important for industries or business owners to bring to production. Since the economic interests of students/advisors are at risk in these cases, many HEIs allow them to protect their rights by embargoing TDs. For example, according to the University of Natural Resources and Life Sciences, Vienna, “A restricted access decision is only to be granted where it can be established that important legal or economic interests of the student are at risk through public access to the scientific work.”

However, students/advisors often restrict access to their findings to protect business secrets, patents (applications), potential products/software, or technology transfers. For example, according to the National University of Singapore policy, students may embargo their thesis if it “contains third party proprietary/confidential intellectual property (including without limitation to patent(s) and/or software) and has not obtained the relevant consent.” In

another case, Georgia Southern University allows students to embargo their work if it *“includes prospective trade secrets.”*

#### 4.3.2 Publication

Since many institutes consider TDs as grey literature, students often wish to publish their findings in a journal, book, or conference proceedings they believe are more visible and accessible to academic communities and the general public. Book, journal articles and conference paper publications serve a critical role in the tenure/promotion of faculty advisors, so they will often encourage their students to publish their work more formally. Many HEIs allow students/advisors to embargo their TDs so they can publish the research as a book, book chapter, journal article, or conference paper. Such embargoes are allowed even though research has found that 87% of scientific journals welcome article submissions based on an OA TD (McMillan *et al.*, 2012). Even OA TDs in the social sciences and humanities are welcome for submission or considered on a case-by-case basis for publication by 82.8% of journal editors and 53.7% of university press directors (Ramirez *et al.*, 2013).

Nevertheless, many HEIs allow students/supervisors to embargo their TDs for this reason. For example, the University of Michigan - Ann Arbor *“provides[s] sufficient time [for students] to publish their dissertation in book form.”* University of Bath allows embargoing TDs that are a *“part of a future publication –to support such a case, please provide details of your publishing plans: whether the paper is currently in draft form, under review or has been accepted; the typical lag time from acceptance to publication in your chosen journal and information about the journal's position on pre-publication within a thesis (usually included within a publisher's ‘information for authors’).”*

#### 4.3.3 Ethical issues

In many HEIs, TDs are embargoed for ethical reasons. For example, when students study human subjects, human dignity, privacy and autonomy must be respected. Protecting author rights and participant information, preventing plagiarism and publishing conflicts are reasons that embargoes are allowed in this category. For instance, the University of Delhi requires students to embargo their TDs for the *“prevention of plagiarism.”*

According to the University of California, Berkeley, *“occasionally, there are circumstances in which you prefer that your dissertation not be published immediately. Such circumstances may include the disclosure of patentable rights in the work before a patent can be granted, similar disclosures detrimental to the rights of the author, or disclosures of facts about persons, institutions, or locations before professional ethics would permit.”* In addition, common reasons for embargoes in University of Nevada - Las Vegas *“include but are not limited to publishing conflicts, patent applications, the potential to publish in the next 2 years and funding contracts.”*

#### 4.3.4 Funding contracts/agreements

Usually, universities and their faculty are encouraged to find a funding body to support their research projects. Often graduate students are hired to conduct these funded research

projects. In these cases, HEIs/faculties/students sign and abide by an agreement with the funding bodies, which might define some restrictions on publishing the final reports. Many HEIs allow students/advisors to embargo TDs to meet funding agreement/contract conditions. For example, at the University of Oslo, *“such postponement may be permitted when the research training has been partially or completely funded by an external party.”*

Protecting proprietary information and a publisher's refusal to publish TDs are the two main reasons for embargoes in this theme. At the University of Michigan - Ann Arbor, *“maintain[ing] confidentiality agreements protecting third-party proprietary information”* is a reason for embargoing TDs. Furthermore, according to RMIT University, TDs can be embargoed when *“the candidate provides evidence that they have permanently re-assigned copyright of their submission to a third party and this assignment explicitly disallows the publication of the submission in the research repository.”*

#### 4.3.5 Security and safety

Sometimes, TDs contain information or secrets about sensitive subjects that are critical to the security of a group, community, state, or society. For example, the publication of classified information in TDs about the military of a specific country can put that country at risk. Therefore, these TDs can be embargoed for a time or permanently.

Usually, TDs are embargoed for two reasons that fall within this theme: (1) national security and (2) public security. National security describes the state's ability to protect and defend its citizens from external threats posed by external forces [7]. Hence, publishing sensitive information about a nation's economy, health, environment and politics can influence national security. For instance, at the Budapest University of Technology and Economics *“a doctoral thesis and its abstracts containing qualified data pertaining to national security shall be disclosed publicly ensuing the lapse of the period relating to the qualification due to national security.”*

Furthermore, HEIs allow embargoing of those TDs that contain information harmful to public security. Public security deals with protecting all citizens and property in a state from threats such as physical aggression, criminal violence and terrorism [8]. For example, the University of Palermo allows embargoing TDs for *“public or national security reasons.”* Moreover, the safety of researchers is another reason for embargo. In some religious communities, for example, publishing findings against the principle of a certain religion can put researcher's life at risk.

#### 4.3.6 Miscellaneous

Most HEIs allow students/advisors to embargo TDs for other acceptable reasons not included in their embargo policy. For example, at the University of Toronto *“in exceptional cases, the author, in consultation with the thesis supervisor and with the approval of the chair of the graduate unit, shall have the right to postpone distribution and publication for a period up to two years from the date of acceptance of the thesis.”* At the Czech Technical University in Prague, the *“existence of an obstacle for publication”* is a reason that students may embargo TDs.

## 5. Discussion

It seems clear that HEIs and authors must embargo TDs under certain conditions: e.g. when the TD contains sensitive information. IRs provide effective mechanisms for enacting embargoes; however, clear TD embargo policies and procedures are often lacking. This study sheds light on the amount of attention HEIs pay to these policies and their contents.

Making embargo policies available on HEI websites is important for two groups: 1) the students who are required to publish their final reports for graduation and 2) the readers and researchers who wish to access TDs for use in research or practice. Yet, the findings show that most HEIs (57%) do not have a TD embargo policy, at least not one that is available on the web. Even those HEIs that have embargo policies do not include necessary information. For example, the maximum duration of the embargo period is unclear in 40% of HEIs with an embargo policy. According to the findings, most HEIs in North America have available embargo policies. In contrast, most HEIs in the East Asia & Pacific, Middle East & North Africa, and South Asia regions do not. Several countries, for example, India, Pakistan and Iran, have national regulations for embargoing TDs and other academic works. It may be that some HEIs without embargo policies are following national regulations and do not require a standalone policy. However, national regulations, which contain general rules for all HEIs of a country, do not consider the specific needs of individual HEIs. For example, HEIs that specialize in engineering may need different TD embargo policies than those HEIs that specialize in social sciences due to citation differences in those disciplines.

Although most of the policies are written in the English language, some policies are written in local languages (such as French, Swedish, etc.). Because global access to the academic literature, including TDs, is important, especially in the digital age of electronic publishing, the availability of embargo policies in an international language (such as English) is important for informing online readers/researchers about access regulations.

Surprisingly, none of the studied HEIs' have different embargo policies for different subject areas. The authors expected to find that policies would allow for lengthier or even permanent embargoes for TDs in the humanities and social sciences. At least in the US, programs in the humanities argue very strenuously for permanent embargoes on creative works like fiction, plays and poetry. The main argument is that these works are intended to be sold to publishers by students after graduation. Students and humanities departments argue that making them available restricts their commercial value and the ability of writers to earn a future livelihood. Many Master of Fine Arts in Creative Writing programs like those at the University of Iowa and Oregon State University have successfully implemented different, lengthier embargoes for TDs in this discipline. Only one of the studied institutes has a different embargo policy for TDs at different degree levels. Embargoing TDs is voluntary at the majority of HEIs with embargo policies (93%).

The majority of HEIs have made embargo a voluntary option for students or their advisors. After receiving an embargo request, usually a committee reviews the request of students/advisors and will make the final decision on embargoing TDs. Although students/advisors (probably) are the most appropriate persons to identify the need for embargoing TDs, they are not the relevant persons to judge some embargo reasons. For

example, making decisions on publishing or embargoing TDs containing sensitive information about national security is a challenging and complicated job for most students and their advisors. Therefore, it is possible that a student/supervisor does not request embargoing a thesis/dissertation containing sensitive information that puts national security at risk.

There are good and bad reasons for embargoes. An embargo may not solve all potential problems with TDs, such as violating third-party rights or plagiarism. After all, those problems will still be there when the TD does become available after the embargo expires. Because policies vary so greatly, it's recommended the creation of an international standard or guidelines for embargo policies and developing a glossary of embargo-related terms. Furthermore, in an OA paradigm, publishers should not require students to restrict access to TDs, not only because students, universities and taxpayers fund the work. TDs are almost always revised significantly before more formal publication (especially in the sciences but also in the creative arts) through peer and editorial review.

We support the expansion of policies to include procedural details such as specific embargo lengths allowed and under what conditions, how to request an embargo and who is responsible for reviewing and approving it, and the timing of such consideration and approvals. It is also recommended strong advocacy about the benefits of OA to students in thesis workshops and to universities to realize the benefits of the most immediate access to this research with no restrictions. Eventually, it is worth noting that *“permanent or indefinite embargoes should be reserved for rare situations [ ...] and should be considered by the graduate school carefully, on a case-by-case basis”* (Corbett, 2016).

## **6. Limitations and further research**

This study has several limitations. First, in this study, only those policies are reviewed that are available, discoverable and accessible on HEIs' websites. Many institutions might have such policies relevant to TDs embargoes that are not available on their website or public web; these policies are not included in this study. Therefore, the quantitative findings should be interpreted very carefully. The data analysis in this study, however, was mostly based on a qualitative approach and perhaps the surveyed policies/guidelines were suitable to answer research questions in this approach. In future research, conducting a survey to ask HEIs about their policies to embargo TDs can overcome this limitation. Through a survey, it is easier to answer different questions by quantitative approach.

On the other hand, institutional embargo policies were considered in the current study; further research can focus on studying embargo policies/guidelines at a national level in different countries, in particular those for whom HEIs do not have relevant policies/guidelines. As well, comparing institutional and national policies can be studied in future research.

Although 100 HEIs were sampled in the current research, undoubtedly more could have been added to this sample. However, given the reasonable number of collected policies/guidelines, it is fair to argue that adding more policies/guidelines would not necessarily change the structure of the concept map of reasons for embargoing TDs. Also, the concept map is, to some extent, relying on the authors' interpretation and understanding; however, perhaps this

is a generic limitation in all qualitative studies. Through iterative email discussions among themselves to reach a consensus view on the concept map of embargo reasons, the authors tried to improve the internal validity of the study. Further research can collect more policies/guidelines and expand the proposed concept map.

The findings show that there is no agreement on the procedure for embargoing TDs and each HEI has its own way. Future research can study an effective procedure for embargoing TDs. This procedure should make HEIs sure that their decision to embargo or publish a thesis/dissertation is correct.

Although embargoes appear to be increasing over time (Schöpfel and Prost, 2013; Brown *et al.*, 2019), it is not clear whether the reasons for embargoing TDs are justifiable. Then, future studies can analyze the justification of embargo reasons through a qualitative approach. Studying the impact of embargoing TDs on the academic and broader impact of these publications is another topic that needs further investigation. Doing a scientometrics research to compare embargoed and non-embargoed TDs in terms of their scores in altmetrics and traditional indicators (such as citations) can pave the way for higher education policy-makers to make more informed decisions on embargoing academic publications.

## **7. Conclusion**

Among different topics in the OA domain, the embargo has received very little attention in academic literature. However, the embargo is a serious obstacle to OA publishing, especially green OA, which is the prominent OA model in institutional repositories. This study shed light on this topic and found several reasons in different HEIs to embargo TDs.

According to the embargo reasons identified in this study, it can be argued that the embargo seeks to protect the interests of researchers/authors and HEIs/funding bodies, while ignoring the interests of readers and societies. However, OA publishing puts the interests of readers and societies in the first place. Therefore, with obstacles like embargoes, the OA movement cannot be as effective as it should be.

Currently, a small number of institutions that allow their students to embargo TDs have detailed policies/guidelines in this area, and students and faculties embargo their works according to the general rules. If institutions want to allow embargoes, it is better that these policies be detailed and allow to embargo the most sensitive part(s) of a work, rather than allowing the entire work. This can be an interim policy to protect the interests of researchers/authors and societies, simultaneously.

Eventually, it seems academic mechanisms have not provided effective solutions to remove embargoes on TDs, but it is necessary that scientists and professionals think about the possible answers to a key question that whether embargo is the only available solution to protect the interests of researchers/authors and HEIs/funding bodies. Obviously, removing or restricting embargoes can help societies to benefit from all research findings, as well as increase the impact of research and researchers.

## Notes

1. <https://www.shanghairanking.com/rankings/arwu/2021>
2. =INDEX(\$B\$2:\$B\$1001;RANDBETWEEN(1;ROWS(\$B\$2:\$B\$1001));1)
3. Countries are categorized into different regions based on the World Bank schema at [data.worldbank.org/country](http://data.worldbank.org/country)
4. (restriction OR disclose OR “restricted access” OR withhold OR stay OR embargo) (theses OR thesis OR dissertation) site:[HEI's URLs (for example:rmit.edu.au)]
5. <https://policies.rmit.edu.au/document/view.php?id=18#major19>
6. Associate Deputy Vice-Chancellor Research Training and Development (ADVC RTD) and GRC Executive (The Executive group of the Graduate Research Committee, comprising College GRC representatives and the Associate Deputy Vice-Chancellor Research Training and Development.)
7. [https://pdba.georgetown.edu/Security/security\\_e.html](https://pdba.georgetown.edu/Security/security_e.html)
8. [https://pdba.georgetown.edu/Security/security\\_e.html](https://pdba.georgetown.edu/Security/security_e.html)

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