

A Study of the Deployment of Institutional Repositories in Colleges and Universities in Connecticut

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Abstract

In the past several years, many colleges and universities have developed institutional repositories as a means of highlighting the research and scholarship conducted at their institution as well as a means of combating the current publication model. Past studies have concentrated on growth in the total number of repositories, but none has looked at how the number of repositories in a particular region compares to those institutions without a repository. The primary purposes of this study were to find out how many colleges and universities in Connecticut have developed institutional repositories and how they have used these institutional repositories. Overall, this study revealed that less than a third of the academic institutions in Connecticut have institutional repositories. These repositories are most frequently found in the state-sponsored universities and the independent, nonprofit schools. On the other hand, none of the community colleges, which constitute one of the largest proportions of schools in the state behind independent nonprofits, has a repository. A vast majority of the repositories are registered with OpenDOAR. Nearly all of them use Digital Commons as their platform. The two most popular types of content found in Connecticut institutional repositories are journal articles and theses and dissertations.

Keywords: institutional repositories, academic libraries, scholarly communication, open educational resources (OER)

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Introduction

In the past several years, the institutional repository has become a favored means for many colleges and universities to assemble the scholarship and research work of its staff and students in one place. These repositories serve as a means to collect and provide access to scholarship and research in a digital format. As of April 2022, a total of 920 different repositories had been established in the United States (OpenDOAR, n.d.-c). While many academic institutions have created repositories, there are still many colleges and universities that have not established one. Additionally, the contents of repositories often vary and depend upon what the host institution decides is important for preservation.

Currently, there are few studies that have examined the deployment of institutional repositories (Swain, 2010; van Westrienen & Lynch, 2005). These studies, however, are over a decade old and do not reflect the current situation regarding the deployment of institutional repositories. Additionally, these studies only consider the number of repositories that have been established and do not offer any comparison to those institutions that lack an online repository. Consequently, if a college does not have a repository, these studies ignore it. This situation presents a gap in current research regarding institutional repositories. By examining all the libraries in one area (those with and without repositories), researchers can gain a better understanding of how widespread institutional repositories are in that area.

This study intends to examine the colleges and universities in the state of Connecticut and determine how many of them have established an institutional repository. This investigation also seeks to determine if the establishment of a repository is more common based on the type of institution (for instance, a premier research institution). Furthermore, it examines the contents of what is collected and who authors that content (faculty or student). The state of Connecticut was selected for this study because it provides a reasonable size sample without being too expansive, and it is the state in which the authors currently reside. This study seeks to answer the following research questions:

1. How prevalent are institutional repositories in Connecticut colleges and universities?
2. Does there appear to be a connection between the type of institution (i.e., research, teaching, etc.) and whether it has a repository?
3. For those institutions with a repository, what type of content does it contain?
4. For those institutions with a repository, who is the author of that content (i.e., faculty, student, or staff)?

Literature Review

In the past several decades numerous articles have been written about institutional repositories, particularly those associated with academic institutions. Currently, there are few studies that examine the deployment of institutional depositories or the distribution of authorship of a repository's content on a regional level. Most of the current literature focuses upon the rationale behind the establishment of institutional archives at many institutions, the content contained within the repository, and the challenges associated with their creation and continued maintenance. The literature that does exist, however, provides some useful insights for this study as it discusses situations and experiences familiar to most institutional repositories.

Institutional Repositories – Definition and Content

It is important to understand what is meant by the term institutional repository. Currently, several definitions have been proposed, but several common features can be identified from these definitions. Crow (2002) defines institutional repositories as “digital collections that preserve and provide access to the intellectual output of an institutional community” (p. 5). Bicknese (2003) offers an alternative definition that describes institutional repositories as “a way for an institution or consortia to bring together and preserve the intellectual products of a laboratory, a department, a university, or even an entire discipline of study in an online environment” (pp. 81-82). Lynch (2003) offers a more detailed explanation:

[A] university-based repository is a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members. It is most essentially an organizational commitment to the stewardship of these digital materials, including long-term preservation where appropriate, as well as organization and access or distribution. (p. 328)

While these three definitions contain some noticeable differences, they identify the common aspects that connect all institutional repositories. First, all three definitions make it clear that institutional repositories collect the intellectual work of the sponsoring institution. Second, the collection consists of digital materials. Third, the repository works to ensure the maintenance and preservation of the materials in the collection and guarantees access to those

materials.

An important aspect of all institutional repositories is the content they contain. There really is no set list of content for repositories as it can vary from place to place based upon the type of institution and the material that the institution wishes to promote (Shreeves & Cragin, 2008). While the contents of institutional repositories vary, Gibbons (2004b) identifies several types of materials that make good candidates for inclusion in the repository. These materials include preprints of work published by the faculty, working papers, and conference proceedings. Gibbons also believes that materials that do not normally get published in articles, such as datasets and supplementary materials (images and charts not included in the original publication), make good candidates for inclusion. Additionally, repositories offer a means to highlight student work, such as theses and dissertations.

Rationale for Institutional Repositories

One of the major concerns addressed in the literature regarding institutional repositories is the rationale for their creation. Crow (2002) identifies two reasons behind the desire for many institutions to create their own repositories. First, it challenges the current scholarly publishing model, where the publishers of scholarly materials have undue influence. Second, it allows a college or university to highlight the research being conducted there. The host institution gains prestige and increases their visibility by promoting the work of its community members. Other writers identify an additional motivating factor behind the formation of institutional repositories: the desire to improve access to research and other scholarly literature (Bicknese, 2003; Gibbons, 2004a). Of course, all three of these rationales are closely connected, and it is difficult to talk about one without involving aspects of the other reasons for creating a repository. The desire to increase access to research illustrates the intertwined nature of these topics. Currently, publishers control access to a lot of research by limiting it to those who can afford their prices and subscription fees. On the other hand, an institution's desire to improve its visibility by promoting the research conducted by its members increases access to that research.

Challenge Current Publication Model

The current stranglehold that academic publishers hold on the publication of research often acts as a motivating factor for many institutions to create repositories. For several decades, the subscription price to many academic journals has increased faster than inflation (Björk,

2021). The rate of these increases means that many academic libraries are not able to keep up with the price increase in their limited budgets (Cronk, 2020). Bashir et al. (2022) note that the high cost of scholarly material “creates an *academic divide* between those who [can] afford access to the scholarly content and the ones who cannot” (p. 3). This divide leads to a situation where the visibility of important research is diminished because of access limitations. Another difficulty with the current publication model identified by Bashir et al. (2022) is the long review process that many scholarly articles undergo before publication. This process has the effect of delaying access to research that could be needed by other scholars. Institutional repositories are often viewed as solutions to these two problems. Repositories can greatly speed up the time it takes for research to be distributed and increase its accessibility.

Although many feel that institutional repositories serve as an effective means to counter the current publication model, there are several issues with this assumption. One concern deals with intellectual property issues. Many authors worry that they will lose control of their work and how it is used, as well as whether their research will be cited properly (van Westrienen & Lynch, 2005). Another issue relates to the perception that that material found in repositories represents lower quality material (Abrizah et al., 2015; van Westrienen & Lynch, 2005). This impression derives from the notion that material found in repositories has not been as thoroughly evaluated as articles published in academic journals (Abrizah et al., 2015).

Highlight the Institution's Work

Another reason behind the implementation of repositories derives from a college's or university's desire to highlight the scholarship, teaching and research conducted at that institution. The repository serves as a way for the institution to demonstrate to prospective students and others the type of scholarship conducted there (Gibbons, 2004a). This exposure can prove important as the contents of repositories can vary from institution to institution. Each institution wants to highlight the material that makes it unique (Shreeves & Cragin, 2008). Bicknese (2003) indicates that repositories offer an opportunity to feature documents (such as theses, technical reports, and white papers) that rarely get published, but may prove interesting to outside researchers. Gibbons (2004a) also notes that placing content in a repository increases its visibility to internet search engines and can improve an author's citation count.

When it comes to the research work associated with academic institutions, the focus is often on the faculty belonging to that institution, while the students who study and conduct

research there are not given as much attention (Nolan & Costanza, 2006). Fortunately, this trend appears to be reversing and many academic repositories are now preserving student written theses and dissertations in a digital format within their repositories (Ahmed et al., 2014). This process has the advantage of making these materials more widely available. Previously, print copies of a student's thesis or dissertation were kept in the library and often were not loaned out, which restricted their accessibility (Yiotis, 2008). In addition to making their works more accessible, placing student's theses and dissertation in the repository enables an academic institution to point to their quality as a sign of the education students receive there (Nolan & Costanza, 2006). Stone and Lowe (2014) believe that it is important to include student work in a repository as it involves them in the scholarly community and the conversation about information literacy. Additionally, they found that student work does contribute to the scholarly conversation and is "cited in authoritative, peer-reviewed journals, although not at the rate that scholarly material is cited" (p. 356).

Challenges Associated with Institutional Repositories

While there are several benefits to hosting an institutional repository, there are also several challenges with the repository's establishment and continued operation. These issues cover a variety of different areas and can include challenges related to budgets, technology, infrastructure, and other areas. Demetres et al. (2020) point out that the cost of storage and staff, issues involving low usage, and the difficulty encouraging faculty to deposit items are problems frequently encountered by repositories. Institutional repositories require staff with expertise in several different fields, such as computer science, information technologies, and library science (Gibbons, 2004c). These institutions need to create budgets that will not only cover the cost of the technology, but also cover the cost of the staff. Gibbons (2004a) notes that recruiting content for the repository can be one of the most difficult challenges. Faculty fear that archiving their work in a repository threatens their ability to control their own work, could affect their relationship with publishers, and may lead to a loss of status in their academic community (Salo, 2008). Another barrier to faculty submission derives from the often difficult and time-consuming process needed to submit material to the repository (van Westrienen & Lynch, 2005).

Methodology

This study involved two distinct stages. The first stage involved identifying the colleges and universities to include in the study as well as general information about each institution. This list of colleges and universities formed the basis for the institutions that would be studied in the second part of this study. This second stage consisted of a content analysis of the websites associated with the selected colleges and universities. Once information regarding each institution and any associated repository were collected, an analysis was conducted of the accumulated data.

As mentioned above, the first part of this study involved generating a list of institutions to be included in this study. The Connecticut Office of Higher Education monitors each accredited higher education institution licensed to teach in Connecticut. The complete list of all licensed institutions appears on the *Colleges and Universities* website prepared by the Connecticut Office of Higher Education (n.d.). This list includes institutions based in Connecticut as well as those based in another state that have some presence in the state (i.e., branch campus or online school). The institutions included in this study comprise all those institutions listed by the Office of Higher Education as being based in Connecticut. Those institutions that are based in a different state but have a branch campus in Connecticut (i.e., Brown University, University of Vermont, etc.) were not included in this study. Additionally, out-of-state institutions that are licensed to offer online instruction in Connecticut were also excluded.

Besides institution selection, this stage also involved collecting additional information regarding each institution included in the study. This information covered the institution's location (town or city), the type of institution (whether it was independent or government-sponsored), the highest degree offered, and the total student enrollment. This information relates to the first five questions seen in the survey instrument found in Appendix A. Details about the institution's location and type were gathered from the website maintained by the Connecticut Office of Higher Education (n.d.). Information regarding the highest degree offered derived from *The Carnegie Classification of Institutions of Higher Education* website published by the American Council of Education (<https://carnegieclassifications.acenet.edu/>). Statistics concerning student enrollment originated from the *IPEDS: Integrated Postsecondary Education Data System* found on the website for the National Center for Education Statistics (<https://nces.ed.gov/ipeds/use-the-data>). Overall, this information provided useful background regarding each of the institutions of higher education located in Connecticut. Additionally, this

information furnished another set of data points that could be used when determining if there is any connection between those schools that had institutional repositories versus those that did not.

The next stage of this project consisted of an examination of the list of colleges and universities generated in the first part of this study. This examination involved two distinct parts. The first part focused on a search of the website associated with each academic institution. This search sought to find any information about an institutional repository or digital archive belonging to that institution. At this point, information regarding whether the institution had (or did not have) a repository was noted. The second part of this examination entailed a search on the Directory of Open Access Repositories (OpenDOAR) website (<https://v2.sherpa.ac.uk/opensoar/>) for each academic institution. OpenDOAR functions as a list of open access repositories throughout the world (OpenDOAR, n.d.-a). Each repository included as part of this directory holds content that is freely available without any access restrictions. Additionally, OpenDOAR provides useful information about each directory such as the type of content contained in each repository as well as the software platform used for the repository. Although this search of both the institution's website and OpenDOAR might seem redundant, it served as a means of verifying the information from each source. Additionally, a more complete picture of each institutional repository could be gained through a content analysis of each source.

After identifying those academic institutions with an institutional repository, the analysis focused on collecting details on how each institution set up and used its repository. The information gathered focused on answering a set of seven questions (see Appendix A for a complete list of questions and corresponding variables). These questions were selected because they address several important areas related to institutional repositories and would provide a useful means to evaluate those deployed throughout Connecticut. The questions are as follows:

1. Does the institution have a repository?
2. Is the repository registered with OpenDOAR?
3. What platform does the repository use?
4. What type of content does the repository contain?
5. Who can contribute to the repository?
6. Does the repository have a posted collection policy?
7. Who can access items in the repository?

Once this information was completely collected for each question, it was analyzed for potential patterns.

Results

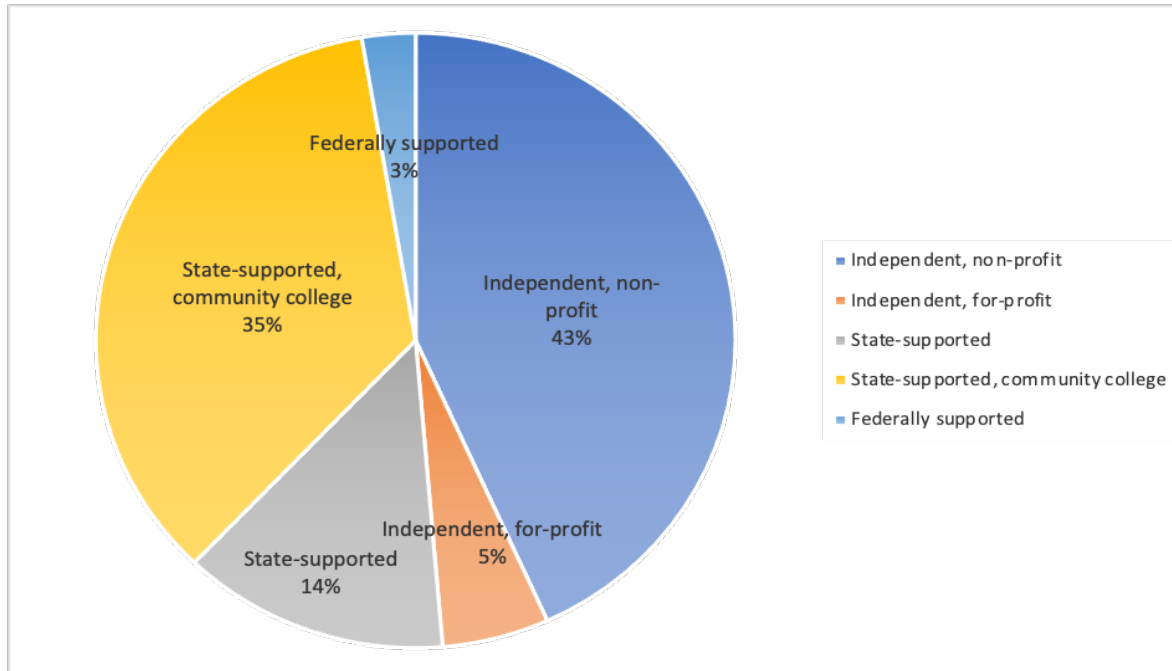
After examining the list of schools presented on the Connecticut Office of Higher Education's website, a total of 37 institutions were identified that matched the predetermined criteria set out in the methodology. These 37 colleges and universities represent academic institutions that are based in Connecticut. The complete list of these 37 academic institutions can be seen in the table in Appendix B.

While this study focused on colleges and universities based within the state of Connecticut, there are features that distinguish these institutions from one another. Each school has its own identity and associated areas of specialty. Despite this individuality, there are several ways to arrange them into groups that make them easier to study. This study focused on two methods of classifying the institutions in Connecticut. These classifications included the type of institution and by the highest degree offered.

The type of institution refers to whether the institution receives sponsorship from a government body or some other source (i.e., independent). According to the Connecticut Office of Higher Education (n.d.), there are five distinct types of institutions in Connecticut. These types are independent, nonprofit; independent, for-profit; state-supported; state-supported, community college; and federally supported. The distribution of these types of institutions among the 37 colleges and universities in Connecticut can be seen in the chart in Figure 1.

Figure 1

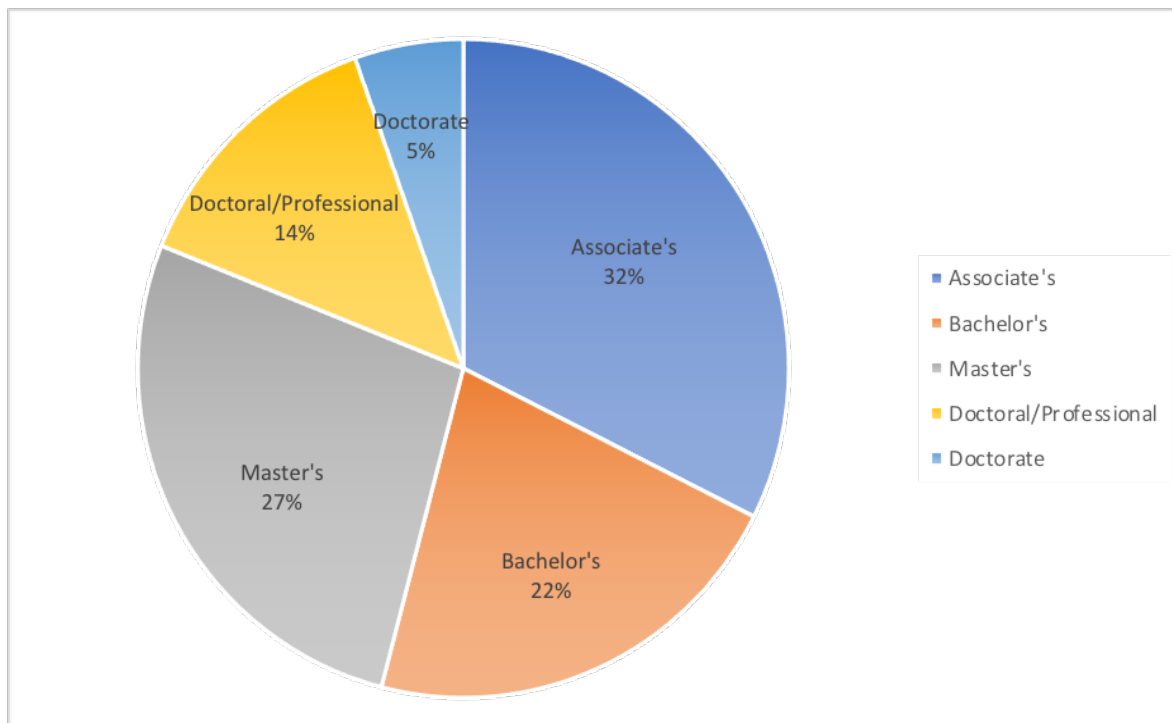
Connecticut Colleges and Universities by Type



As can be seen from this chart, independent, nonprofit schools comprise the most abundant type of institution at 43% (16 institutions). The next most abundant type are the state-supported, community colleges at 35% with a total of 13 schools. Together these two groups make up a majority (78%) of the higher education institutions in Connecticut. After these two groups, the next most abundant type would be the state-supported institutions, which consists of five schools or 14% of the total. Only two independent, for-profit colleges (5%) are based in Connecticut. There is only one federally supported institution (3%) in Connecticut. The second approach used to gain more insight into the variety of colleges and universities in Connecticut examined the highest degree each institution offered. This information was collected from information published by the American Council of Education (n.d.-b), which keeps track of the highest degree offered at colleges and universities across the nation. The breakdown of the highest degrees awarded by institutions in Connecticut can be seen in Figure 2.

Figure 2

Connecticut Colleges and Universities – Highest Degree Offered



For approximately one third (32%) of the colleges and universities in the state, an associate’s is the highest degree that they offer. This percentage represents 12 of the 37 schools based in Connecticut. The second largest percentage is for the number of schools granting a master’s as their highest degree. For 10 schools, or 27%, the master’s represent the highest degree awarded. The next largest percentage belongs to those schools where the highest degree offered is the bachelor’s. A total of eight schools, or 22%, offered a bachelor’s as their highest degree. The smallest two groups are taken up by the two types of doctoral degrees offered in the state. The first type of doctoral degree is the one associated with professional practice (American Council of Education [ACE], n.d.-a). The doctoral degree associated with professional practice is awarded at five schools, which represents 14% of the higher education institutions in Connecticut. The second type of doctoral degree is the one associated with programs involving research (ACE, n.d.-a). Currently, two institutions (5% of the total) in Connecticut offer this type of degree.

The state of Connecticut contains 37 different colleges and universities. The most popular types of institutions are community colleges and independent, nonprofit schools. The

state's institutions also offer a good mix in terms of the highest degree offered. As expected, the most specialized degrees (the doctorate and its professional equivalent) are offered at the least number of institutions. The other degrees, the associate's, bachelor's, and master's degrees, appear as the highest degree offered in a similar number of institutions (12, eight, and 10, respectively). This distribution ultimately provides a good baseline for this study.

Number of Connecticut Institutions with a Repository

The question concerning whether a higher education institution in Connecticut hosted an institutional repository formed a core part of the research for this study. Determining whether a college or university had a repository involved a search of both registrations in OpenDOAR and the website associated with each academic institution. During this search, several institutions were discovered that maintained platforms for hosting digital content similar to an institutional repository. The question arose whether these platforms could also be considered institutional repositories and therefore included in this study or classified as something else, such as a digital archive, and thereby excluded.

After looking at the content of these platforms, it became apparent that not all of them fit the definition of an institutional repository. One of the key aspects of institutional repositories as defined by Crow (2002) is that they "provide access to the intellectual output of an institutional community" (p. 5). Bicknese (2003) raises a similar point and defines institutional repositories as being responsible for collecting and preserving "the intellectual products of a laboratory, a department, a university, or even an entire discipline of study" (pp. 81-82). The key aspects of these definitions indicate that institutional repositories focus on storing, preserving, and providing access to the product of an institution's labor. For a college or university, this would be associated with the institution's scholarship and research. Consequently, only digital platforms that contained products related to a school's research and scholarship were included as part of this study.

Once the criterion that the repository must contain work related to the school's research and scholarship is considered, it turns out that 11 of the colleges and universities in Connecticut host institutional repositories. The complete list of institutions appears in Table 1.

Table 1

Connecticut Colleges and Universities with Institutional Repositories

Institution	Repository Name	Repository Website
Albertus Magnus College	Rosary Hall Digital Archives	https://archive.org/details/@rosayry_hall_digital_archives
Connecticut College	Digital Commons @ Connecticut College	https://digitalcommons.conncoll.edu/
Fairfield University	DigitalCommons@ Fairfield	https://digitalcommons.fairfield.edu/communities.html
Sacred Heart University	DigitalCommons@ SHU	https://digitalcommons.sacredheart.edu/
Trinity College	Trinity College Digital Repository	https://digitalrepository.trincoll.edu/
University of Bridgeport	UB ScholarWorks	https://scholarworks.bridgeport.edu/xmlui/
University of New Haven	Digital Commons @ New Haven	https://digitalcommons.newhaven.edu/
Wesleyan University	WesScholar	https://digitalcollections.wesleyan.edu/
Yale University	EliScholar	https://elischolar.library.yale.edu/
University of Connecticut	OpenCommons@ UConn	https://opencommons.uconn.edu/
Western Connecticut State University	WestCollections	https://westcollections.wcsu.edu/

In addition to identifying the schools with institutional repositories, Table 1 also provides the name of each repository and its associated website.

Once the institutions with schools in Connecticut have been identified, it becomes possible to correlate this list with the type of institution. The number of repositories arranged by type of institution appears in Table 2.

Table 2

Repositories in Connecticut by Type of Institution

Type of Institution	Number of Institutions	Number of Repositories
Independent, nonprofit	16	9
Independent, for-profit	2	0
State-sponsored	5	2
State-sponsored, community college	13	0
Federally supported	1	0
Total	37	11

As this table illustrates, there are only two types of institutions in Connecticut that have repositories. At the moment, only independent, nonprofit, and state-sponsored institutions have identifiable institutional repositories. In fact, slightly more than half of the independent, nonprofit institutions in the state hosted a digital repository. When it comes to state-sponsored institutions, two out of the five schools (40%) support a repository. None of the other types of institutions in the state presently host a repository. This complete absence appears shocking in the case of the state-sponsored community colleges, which represent a significant proportion of the schools within the state.

This absence could be related to their focus on teaching rather than research, a trend common at many community colleges (Walsh, 2020). This emphasis on teaching, however, also suggests one of the biggest ways in which a community college can benefit from establishing an institutional repository. To support their teaching efforts, many community colleges are exploring initiatives involving open educational resources (OER), as demonstrated by the recent articles by Walsh (2020), Thomas (2021), and Snoek-Brown et al. (2021). Additionally, community colleges represented the largest percentage (62%) of institutions exploring OER initiatives in 2018 (Pattillo, 2020). These OER programs serve as a means of reducing the cost of educational materials (e.g., textbooks) needed for students to succeed in their classes.

In many ways OER programs and institutional repositories share many of the same objectives. First, they share a common goal in that they both seek to provide access to scholarship on a more equitable basis without the high cost associated with academic publishing. Second, they both serve as a means of highlighting the work conducted by the academic institution, whether it be research or teaching. Finally, institutional repositories serve

as the natural platform for community colleges and other institutions to host OERs. In this way, a community college can highlight the work done at their institution, which focuses primarily on teaching. Therefore, the fact that none of the community colleges in Connecticut has an institutional repository is even more shocking.

A similar analysis can be conducted based upon the highest level of degrees offered by the colleges and universities in Connecticut. The results of this examination are illustrated in Table 3.

Table 3

Repositories in Connecticut by Highest Degree Awarded at Institution

Highest Degree Awarded	Number of Institutions	Number of Repositories
Associate's	12	0
Bachelor's	8	3
Master's	10	3
Doctoral/Professional Program	5	3
Doctorate	2	2
Total	37	11

The associate's degree is the highest degree awarded by most of the state-sponsored community colleges in Connecticut and none of these institutions has a repository. On the other hand, both institutions granting doctorates in the state maintain an institutional repository. This fact is not surprising considering that these doctoral institutions would want to promote their research and scholarship widely. A similar trend appears in the schools offering doctoral/professional degrees; three out of five of the institutions (60%) host an institutional repository. Regarding the institutions offering bachelor's or master's as their highest degree, there are three schools in each category with an institutional repository. This indicates that repositories are present at the schools awarding these degrees and indicates an interest in promoting scholarship among the schools of these groups.

Repositories Registered with OpenDOAR

A vast majority of the repositories belonging to Connecticut institutions of higher

education are registered with OpenDOAR. The repository that does not appear in the OpenDOAR directory is the Rosary Hall Digital Archives from Albertus Magnus College. The other 10 repositories associated with Connecticut schools, however, do appear in the directory.

An interesting pattern appears when the initial dates of registration with OpenDOAR are examined. Half of the institutions (five) appearing in directory were registered in 2019. These institutions include Fairfield University (OpenDOAR, 2022c), Trinity College (OpenDOAR, 2022i), the University of New Haven (OpenDOAR, 2022d), Yale University (OpenDOAR, 2022g), and Western Connecticut State University (OpenDOAR, 2022l). It should also be noted that the current repository used at the University of Connecticut, OpenCommons@UConn, was first registered in 2019 as well (OpenDOAR, 2022h). The remaining four repositories appearing in the directory turn out to be much older. The oldest of these repositories would be the one belonging to Connecticut College, which was first registered in 2006 (OpenDOAR, 2022b). The next oldest repository belongs to Wesleyan University with an original registration in 2009 (OpenDOAR, 2022k). The repository for Sacred Heart University first appeared in the directory in 2012 (OpenDOAR, 2022e). Rounding out the last of the 10 repositories appearing in the directory would be the one for the University of Bridgeport, which was registered in 2016 (OpenDOAR, 2022j).

Based upon these registration dates, it appears that most of the institutional repositories existing at Connecticut colleges and universities did not exist prior to 2019. In addition to marking the biggest expansion of repositories in Connecticut, 2019 also seems to be the last time that a Connecticut repository was registered with OpenDOAR. Since 2019 was the final year before the COVID-19 pandemic, it is possible that the disruption caused by the pandemic prevented or hindered the deployment of repositories by other institutions.

Most Common Platforms for Connecticut Repositories

This study revealed that most of the colleges and universities with repositories in Connecticut use the same platform. Digital Commons appears to be the preferred platform for hosting repositories. Eight out of the 11 schools with repositories use Digital Commons as their platform. The remaining three schools each use a different service. Albertus Magnus College (n.d.) uses the Internet Archive to host several master's theses recently written by students at the college. The University of Bridgeport employs DSpace as the platform for its repository

(OpenDOAR, 2022j). The final institution, Wesleyan College appears to utilize its own platform.

Common Content in Connecticut Repositories

Institutional repositories focus on collecting and providing access to content related to the scholarship and research conducted at its host institution. This study demonstrated that not every institution keeps the same sort of content within its repository. This material can vary depending upon what type of content the school seeks to promote. One aspect of this study examined the types of content presently found in Connecticut repositories and sought to discover if there was a common type of content found in these repositories.

As Figure 3 demonstrates, the two most popular types of content found in Connecticut institutional repositories are journal articles and theses and dissertations. Both types of content can be found in 10 out of the 11 repositories in the state. In the case of journal articles, the Rosary Hall Digital Archives of Albertus Magnus College is the only repository not to include any of this type of publication among its content. When it comes to theses and dissertations, Fairfield University does not currently contain any of this type of content.

The remaining types of content do not appear in as many repositories as journal articles and theses and dissertations, and they appear less frequently. The next most popular type of content appears as a three-way tie between conference and workshop papers; reports and working papers; and books, chapters, and sections. Each of these three types of content is found in five repositories.

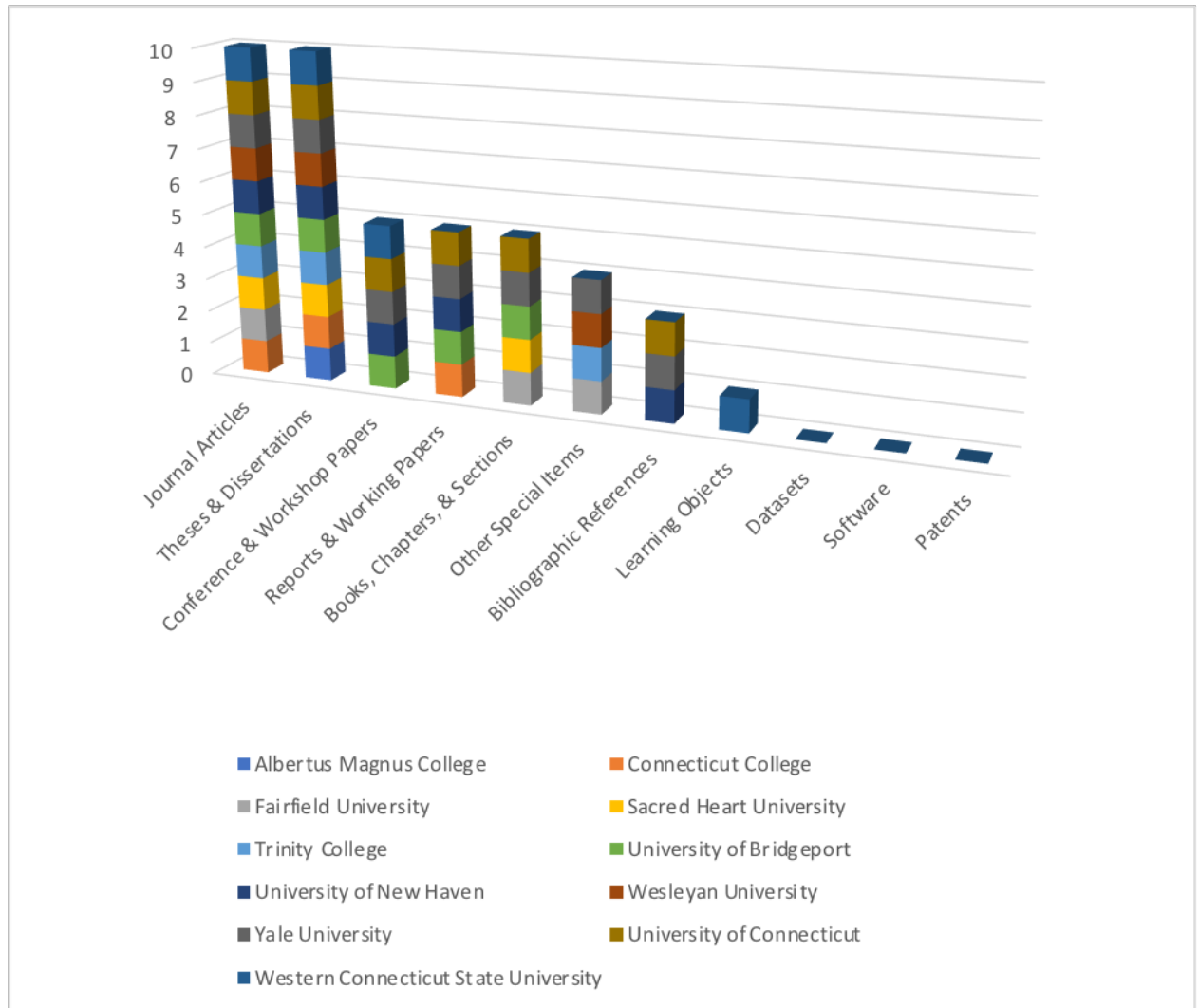
A total of four repositories contain material classified as other items, which makes it the next most popular type of content. This classification is designed for material that does not fit into any of the other categories. As such it contains many items that are not normally associated with a school's research and scholarship, but instead would fit better in the school's archives. For example, EliScholar contains examples of past Yale publications, such as several issues of the *Yale Record* (a student humor magazine from 1872) and past course catalogs (Yale University, n.d.). Another example can be seen in WesScholar, which includes photographs among its collections (Wesleyan University, n.d.).

The remaining types of content rarely appear or are absent from the institutional repositories in Connecticut. Currently, WestCollections from Western Connecticut State

University is the only repository to include learning objects among its collections. The remaining three types of content (datasets, software, and patents) do not currently appear in any repositories in Connecticut.

Figure 3

Types of Content in Connecticut Repositories



Authorship of Content in Connecticut Repositories

This question sought to address whether the repository accepted submissions from students as well as faculty and staff. In most cases it was difficult to judge from the repository whether a person held a faculty or staff position at the school based upon the information provided on the repository's website. Due to this difficulty, faculty and staff were considered as one group. The situation is different for student authors. Student authors were clearly identified in all the repositories containing their work. In many cases, all student work was placed in its own category under theses and dissertations.

A total of nine out of the 11 institutional repositories belonging to colleges and universities in Connecticut contained work from both students and faculty and/or staff. The two schools that did not contain material from both types of authors were Albertus Magnus College and Fairfield University. The repository for Albertus Magnus College only contains material from students. Fairfield University's repository currently only contains material authored by faculty and staff. In the case of Fairfield University, they have a collection policy that states student work is eligible for inclusion in the repository, but it must be approved prior to submission (Fairfield University, n.d.). Despite this policy, however, the repository does not currently contain any student work.

Posted Collections Policies

A majority of the repositories in Connecticut post some sort of collections policy on their website. A total of seven institutions have policies published on their website. The list of schools with published policies can be seen in Table 4.

Table 4

Collection Policies for Institutional Repositories in Connecticut

College	Repository	Collection Policy Website
Fairfield University	DigitalCommons@Fairfield	https://digitalcommons.fairfield.edu/content_policy.pdf
Sacred Heart University	DigitalCommons@SHU	https://library.sacredheart.edu/DigitalCommons_OpenAccess/DC
Trinity College	Trinity College Digital Repository	https://digitalrepository.trincoll.edu/about.html
University of New Haven	Digital Commons @ New Haven	https://digitalcommons.newhaven.edu/about.html
Wesleyan University	WesScholar	https://digitalcollections.wesleyan.edu/about/what-we-collect
Yale University	EliScholar	https://elischolar.library.yale.edu/terms.html
University of Connecticut	OpenCommons@UConn	https://opencommons.uconn.edu/about.html

A quick look at the institutions with collection policies provide a general sense that the focus of each repository is upon highlighting the research and scholarship of their host institution. This emphasis also appears in the guidance regarding who can submit work to the repository. All the posted policies indicate that the repository accepts submissions from both students and faculty. In some cases, such as with Trinity College, work submitted by students must have a faculty sponsor to be included in the repository (Trinity College, n.d). This requirement ensures that the submitted work meets a certain standard for inclusion.

The remaining four institutions do not really have a full collection policy posted on their websites. Two of the institutions, Albertus Magnus College and Western Connecticut State University, do not list a full collection policy, but their websites do display a collection statement (Albertus Magnus College, n.d.; Western Connecticut State University, n.d.). These statements are simply acknowledgements that the repositories are designed to promote the institution's scholarship. The final two institutions, Connecticut College and the University of Bridgeport, do not have any identifiable collection policy or statement on their repositories' websites.

Content Accessibility

As demonstrated by the literature review, one of the main reasons for starting an institutional repository is to combat the current publication model. Presently, this publication model restricts access to current scholarship and research to those that can afford it. Repositories enable institutions to combat this model by providing access to materials without the high cost. They counter this situation by making the content open and accessible to everyone. This is the pattern with most repositories. In fact, to register your repository with OpenDOAR, the content must be available to anyone without any restrictions (OpenDOAR, n.d.-a). The institutional repositories in Connecticut follow this trend. Their content is openly available to anyone. Additionally, except for Albertus Magnus College, all of them are registered with OpenDOAR. There are some instances where some content in a few repositories is restricted (e.g., EliScholar and WestCollections), but overall, a vast majority of the content is freely available to anyone.

Conclusions

In recent years, there has been a major push by academic institutions for the creation of institutional repositories. These repositories enable the institution to highlight the research and scholarship conducted by its host institution as well as challenge the traditional publishing model. While repositories offer the host institution many advantages, there are staffing and technological issues that present barriers to their deployment. Consequently, not every academic institution possesses a repository showcasing the school's work. To better understand how many colleges and universities have deployed institutional repositories, this study focused upon determining the number of repositories in the state of Connecticut. This study examined how many institutions had repositories versus those that did not have one.

When it comes to the deployment of institutional repositories in Connecticut, a little less than a third of the colleges and universities in the state host one. This study found that, of the 37 institutions in Connecticut, a total of 11 have an institutional repository. A surprising number of these repositories represent recent deployments as six of them were first registered with OpenDOAR in 2019. Currently, repositories can be found in only two types of institutions in the state. At the present time, only independent, nonprofit schools and state-sponsored

universities in Connecticut host a repository. None of the community colleges, federally supported institutions, or for-profit schools currently host an institutional repository. In particular, that none of the community colleges has an institutional repository stands out as they constitute one of the largest proportion of schools in the state behind independent, nonprofit colleges and universities.

This study also uncovered several other interesting points regarding the institutional repositories located in Connecticut. First, a significant majority use the same platform, Digital Commons, for their repository. Digital Commons appears as the platform in eight of the 11 schools with repositories. The remaining three repositories each use a different platform. Second, the most common content contained in the state's repositories are journal articles and theses and dissertations. Both types of content appear in 10 out of the 11 repositories. Third, a vast majority of the repositories contain content from both faculty and students. Only Albertus Magnus College's repository does not currently contain any content from faculty, and Fairfield University's repository lacks works written by students. On an interesting note, the one school that does not currently have any student content lists students as potential contributors to the repository in their collections policy. Finally, all the repositories in Connecticut provide unrestricted access for a vast majority of their content. This last point is not surprising as the purpose of a repository is to provide unrestricted access to its contents.

Overall, the number of repositories in Connecticut appears to be gradually expanding. It will be interesting to run this study again in a few years to see how much has changed in the interim.

Limitations and Ideas for Further Study

The major limitation of the present study is that it relied on information that was publicly available on the internet. While this information proved useful in determining how many repositories existed within Connecticut, it could not provide information concerning why some schools may not have deployed an institutional repository. It was only able to work with the material available online. This limitation, however, suggests an area for further study. If this study were to be redone, it should also include a survey to be sent to the various academic institutions in the state. This survey could address if there are any issues that presently prevent

the school form hosting a repository. Additionally, the survey could also explore the motivations behind an institution's decision to create a repository.

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Appendix A

Survey Questions for Connecticut Institutional Repositories

Background Information:

Name of Institution:

Location (town):

Type of Institution:

Carnegie Classification:

Total Student Enrollment:

Survey Questions:

- 1) Does the institution have a repository? (Select One)
 Yes No
 - a) If yes, what is the name of the repository?
 - b) What is the repository's website?
- 2) Is the repository registered with OpenDOAR?
 - a) When was the repository established (date registered with OpenDOAR)?
- 3) What platform does the repository use?
- 4) What type of content does the repository contain? (Select all that apply)
 Journal Articles
 Bibliographic References
 Conference and Workshop Papers
 Theses and Dissertations
 Reports and Working Papers
 Books, Chapters, and Sections

- Datasets
- Learning Objects
- Software
- Patents
- Other Special Items

- a) If the “Other Special Items” is checked, please specify.
- 5) Who can contribute to the repository? (Select all that apply)
 - Faculty & Staff
 - Students
- 6) Does the repository have a posted collection policy?
- 7) Who can access items in the repository?

Appendix B

Table 5: Connecticut Colleges and Universities

	Institution	Location	Type	Carnegie Classification	Total Student Enrollment
1	Albertus Magnus College	New Haven	Independent, non-profit	Master's – M2	1,384
2	Connecticut College	New London	Independent, non-profit	Bachelor's	1,737
3	Fairfield University	Fairfield	Independent, non-profit	Doctoral/ Professional	5,513
4	Goodwin University	East Hartford	Independent, non-profit	Bachelor's	3,312
5	Hartford International University for Religion and Peace	Hartford	Independent, non-profit	Master's – M3	120
6	Holy Apostles College and Seminary	Cromwell	Independent, non-profit	Master's – M2	648
7	Mitchell College	New London	Independent, non-profit	Bachelor's	599
8	Quinnipiac University	Hamden	Independent, non-profit	Doctoral/ Professional	9,746
9	Sacred Heart University	Fairfield	Independent, non-profit	Doctoral/ Professional	9,313
10	Trinity College	Hartford	Independent, non-profit	Bachelor's	2,241
11	University of Bridgeport	Bridgeport	Independent, non-profit	Doctoral/ Professional	4,155
12	University of Hartford	West Hartford	Independent, non-profit	Doctoral/ Professional	6,493

	Institution	Location	Type	Carnegie Classification	Total Student Enrollment
13	University of New Haven	West Haven	Independent, non-profit	Master's – M1	6,961
14	University of Saint Joseph	West Hartford	Independent, non-profit	Master's – M1	2,305
15	Wesleyan University	Middletown	Independent, non-profit	Bachelor's	3,053
16	Yale University	New Haven	Independent, non-profit	Doctorate – R1	12,060
17	Post University	Waterbury	Independent, non-profit	Master's – M1	13,844
18	Paier College	Bridgeport	Independent, non-profit	Bachelor's	128
19	University of Connecticut	Storrs	State-supported	Doctorate – R1	27,215
20	Central Connecticut State University	New Britain	State-supported	Master's – M1	10,652
21	Eastern Connecticut State University	Willimantic	State-supported	Master's – M3	4,644
22	Southern Connecticut State University	New Haven	State-supported	Master's – M1	9,331
23	Western Connecticut State University	Danbury	State-supported	Master's – M1	5,246
24	Asnuntuck Community College	Enfield	State-supported community college	Associate's	1,304

	Institution	Location	Type	Carnegie Classification	Total Student Enrollment
25	Capital Community College	Hartford	State-supported community college	Associate's	2,715
26	Gateway Community College	New Haven	State-supported community college	Associate's	6,003
27	Housatonic Community College	Bridgeport	State-supported community college	Associate's	3,821
28	Manchester Community College	Manchester	State-supported community college	Associate's	4,448
29	Middlesex Community College	Middletown	State-supported community college	Associate's	2,106
30	Naugatuck Valley Community College	Waterbury	State-supported community college	Associate's	5,083
31	Northwestern Connecticut Community College	Winsted	State-supported community college	Associate's	1,228
32	Norwalk Community College	Norwalk	State-supported community college	Associate's	4,420
33	Quinebaug Valley Community College	Danielson	State-supported community college	Associate's	1,161

	Institution	Location	Type	Carnegie Classification	Total Student Enrollment
34	Three Rivers Community College	Norwich	State-supported community college	Associate's	3,160
35	Tunxis Community College	Farmington	State-supported community college	Associate's	3,365
36	Charter Oak State College	New Britain	State-supported community college	Bachelor's	1,634
37	United States Coast Guard Academy	New London	Federally supported	Bachelor's	1,056

- List of institutions, their location, and type generated from information posted on the Connecticut Office of Higher Education's website (<https://www.ctohe.org/heweb/CollegesList.asp>)
- Information regarding each institution's Carnegie Rating derives from the website for The Carnegie Classification of Institutions of Higher Education (<https://carnegieclassifications.acenet.edu/>)
- Statistics regarding student enrollment retrieved from the website for IPEDS: Integrated Postsecondary Education Data System (<https://nces.ed.gov/ipeds/use-the-data>)