

**M.E. Kanyika\*** , **R.O. Sadykova** 

Al-Farabi Kazakh National University, Kazakhstan, Almaty

\*e-mail: kanyikam87@gmail.com

## INSTITUTIONAL REPOSITORY OF ACADEMIC INSTITUTIONS IN KAZAKHSTAN: ITS HISTORY AND DEVELOPMENT

This study aimed at analyzing the institutional repository of academic institutions in Kazakhstan in promoting open access with the focus in its history and development. Specific objectives of the study were to analyze the registration year of the institutional repository, the type of contents, and the subjects found in an institutional repository of each academic institution in Open Directory of Open Access Repository. Both quantitative and qualitative approaches were employed. Webometrics and content analysis were methods used in data collection and analysis. Data was collected directly from the Directory of Open Access Repository. Microsoft Office Excel 2010 was used to analyze quantitative data. The findings of the study reveal the inconsistency of the registrations of the academic institutional repositories to the Open Directory of Open Access Repository in terms of the year. On the other hand, findings reveal the registration of only eight institutional repositories into the Open Directory of Open Access Repository among hundreds of academic institutions in Kazakhstan in which only one institutional repository among the top five rated universities was observed. Furthermore, findings indicate the dominance of journal articles as the main type of content that almost all institutional repositories added to the Open Directory of Open Access Repository. Additionally, findings show the dominance of arts, science, technology, humanities, social science, and health and medicine as the main subjects added by the majority of institutional repositories added to the Open Directory of Open Access Repository. The study concludes that when comparing with finding of the similar studies from foreign countries, the registration of institutional repositories of academic institutions in Kazakhstan to the Open Directory of Open Access Repository is not encouraging and therefore limits open access. The study therefore, recommends more registration of institutional repositories of academic institutions to the Open Directory of Open Access Repository particularly the top-ranked universities in order to increase the visibility of scholarly works globally and therefore increase the reputations and prestige of the universities of Kazakhstan but more importantly to promote open access. Also, priority should be given to theses and dissertations to be added to the institutional repositories as they also contribute to increasing the reputations of the academic institutions.

**Key words:** Institutional repository, digitization, Kazakhstan, open access, Directory of Open Access Repository.

М.Е. Каньика\*, Р.О. Садықова

Әл-Фараби атындағы Қазақ ұлттық университеті, Қазақстан, Алматы қ.

e-mail: kanyikam87@gmail.com

### Қазақстандағы академиялық институттардың институттық репозиторийі: оның тарихы мен дамуы

Бұл зерттеу жұмысының мақсаты – Қазақстандағы академиялық институттардың институционалдық репозиторийлерінің ашық қолжетімділікті қамтамасыз етудегі рөлі: оның тарихы мен дамуын талдауға бағытталған. Мақалада қойылған міндеттер: институционалдық репозиторийдің тіркелу жылын талдау, Open Directory of Open Access Repository базасындағы әрбір академиялық институттың институционалдық репозиторийінің мазмұны түрлері, салаларын талдау. Сандық және сапалық әдістер де пайдаланылды. Вебометрих және контент анализ әдістері мәліметті жинақтауда және талдауда қолданылды. Мәліметтер тікелей Directory of Open Access Repository базасынан алынды. Жиналған деректерді талдау Microsoft Office Excel 2010 бағдарламасының көмегімен жасалды. Зерттеу нәтижелері академиялық институттық репозиторийлердің Open Directory of Open Access Repository базасына жыл бойынша тіркеулерінің сәйкессіздігін көрсетеді. Екіншіден, зерттеу қорытындысы Қазақстанның жүздеген академиялық мекемелерінің арасында Open Directory of Open Access Repository базасына репозиторийінің ашық анықтамалығына тек сегіз институционалдық репозиторийдің тіркелгенін көрсетеді, онда рейтингісі жоғары бес университеттің ішінде бір ғана институционалдық репозиторий байқалды. Бұдан басқа, ғылыми

мақаладағы ұсынылған мәселені талдау журнал мақалаларының басымдылығын көрсетеді, олар барлық дерлік институттық репозитарийлер. Сонымен қатар нәтижелер Open Directory of Open Access Repository анықтамалығына қосылған институционалдық репозитарийлердің қатарында негізгі пәндер ретінде өнер, ғылым, технология, гуманитарлық ғылымдар, әлеуметтік ғылымдар, денсаулық сақтау және медицина басымдығын көрсетеді. Зерттеу нәтижесінде академиялық институттардың институционалдық репозитарийлерін тіркелуі қанағаттандырылғы деңгейде емес екендігі анықталды, бұл өз кезегінде ашық қолжетімділікті шектейді деген қорытындыға келдік. Сондықтан зерттеу нәтижесінде ғылыми еңбектердің жаһандық деңгейде көрініс табуын арттыру, сондықтан Қазақстан университеттерінің беделі мен беделін арттыру, бірақ, ең бастысы, ілгерілету Open Directory of Open Access Repository базасына көбірек академиялық институттарды тіркеуді ұсынылады. Әсіресе рейтингі жоғары университеттердің ашық қолжетімділігін арттыруға ұмтылу қажет. Сондай-ақ институттық репозитарийлерге қосылатын тезистер мен диссертацияларға басымдық берілуі керек, өйткені олар университеттердің беделін арттыруға ықпал етеді.

**Түйін сөздер:** институционалдық репозитарий, цифрландыру, Қазақстан, ашық қолжетімділік, Open Access Repository каталогы.

М.Э. Каньика\*, Р.О. Садыкова

Казахский национальный университет имени аль-Фараби, Казахстан, г. Алматы

\*e-mail: kanyikam87@gmail.com

### **Институциональный репозитарий академических учреждений Казахстана: его история и развитие**

Целью данного исследования является анализ институционального репозитария академических институтов Казахстана в продвижении открытого доступа с акцентом на его историю и развитие. Конкретными целями исследования были анализ года регистрации институционального репозитария, типа содержимого и предметов, найденных в институциональном репозитарии каждого академического учреждения в Open Directory репозитария открытого доступа. Были использованы как количественный, так и качественные методы анализа. Вебометрия и контент-анализ использовались в качестве методов для сбора и анализа данных. Данные были собраны непосредственно из Open Directory of Open Access Repository. Для анализа количественных данных использовался Microsoft Office Excel 2010. Результаты исследования выявляют несоответствие регистраций академических институциональных репозитариев в Open Directory of Open Access Repository по годам. С другой стороны, результаты показывают регистрацию только восьми институциональных репозитариев в Open Directory of Open Access Repository среди сотен академических учреждений Казахстана, в которых наблюдалось только одно институциональный репозитарий из пяти лучших университетов рейтинга. Кроме того, результаты указывают на преобладание журнальных статей в качестве основного типа контента, который почти все институциональные репозитарии добавили в Open Directory of Open Access Repository. Кроме того, результаты показывают доминирование искусства, науки, техники, гуманитарных и социальных наук, а также здравоохранения и медицины в качестве основных предметов, добавленных большинством институциональных репозитариев, добавленных в Open Directory of Open Access Repository. В исследовании делается вывод о том, что при сравнении с результатами аналогичных исследований в зарубежных странах регистрация институциональных хранилищ академических институтов в Open Directory of Open Access Repository не является обнадеживающей и, следовательно, ограничивает открытый доступ. Таким образом, исследование рекомендует чаще регистрировать институциональные репозитарии академических институтов в Open Directory of Open Access Repository, особенно университеты с самым высоким рейтингом, чтобы повысить узнаваемость научных работ во всем мире и, следовательно, повысить репутацию и престиж университетов Казахстана, но, что более важно, продвигать открытый доступ. Кроме того, приоритет следует отдавать диссертациям, которые будут добавлены в институциональные хранилища, поскольку они также способствуют повышению репутации академических институтов.

**Ключевые слова:** институциональный репозитарий, оцифровка, Казахстан, открытый доступ, Directory of Open Access Repository.

## Introduction

Historically, the open access movement began in the 1970s, although it was not officially implemented until the 1990s. The goal of instituting open access was to provide free access to any intellectual work. The fourth industrial revolution, to a large extent, stimulated the implementation of open access through the advent of digital platforms. In general, knowledge developed in academic institutions should be carefully preserved and freely accessible (Nnenna & Emenike, 2015: 35). As a result, nearly all academic institutions throughout the world began digitizing their library resources. By definition, digitization of library resources means the process of converting information resources from printed/analog format into electronic/digital format (Toyo, 2017: 33; Feather & Sturges, 2003: 138). In today's world, all knowledge created needs to be easily visible to both domestic and international scholars. However, there are some resources such as rare and historical materials which are normally created by students, lecturers, and other institutional staff that needs to be properly preserved and easily visible due to their enduring values (Joo et al., 2019: 1). The usefulness of these materials and rarities such as dissertations, theses, journal articles, workshop papers, conference papers, etc., results in the creation of an institutional repository. Institutional repositories allow domestic and global visibility of the academic works of any academic institution.

The term institutional repository (IR) can be defined as a comprehensive suite of services provided by a university to its members, enabling the organization, preservation, and distribution of digital content produced by both the institution and its community constituents (Kuri & Singh, 2020: 2). Crow (Crow, 2002: 4) viewed IR as the "digital collections capturing and preserving the intellectual output of a single or multi-university community which provide a compelling response to two strategic issues facing academic institutions." According to Adewumi & Ikhu-Omoregbe (Adewumi & Ikhu-Omoregbe, 2010: 1), institutional repositories can be considered as the digital library specialization. In any academic institution, an institutional repository helps to properly make decisions (Wirba Singeh, et al., 2013: 190). On the other hand, institutional repository enables the increase in the reputation and gain the prestige of academic institutions as a result of the global visibility of the researched works of a particular institution (Ezema, 2011: 480-481). In other words, an institutional repository is a new way

of making the scientific works of a particular institution visible to other scholars around the world. Institutional repositories have been merely used as the main component within academic institutions around the world to facilitate open access to their research findings. The concept behind the creation of institutional repositories is to break barriers that limit access to information like copyright issues and therefore encourage free and easy access.

For easy visibility of library collections both nationally and internationally, it is expected institutional repositories of all academic institutions to be registered at the Open Directory of Open Access Repository (Open DOAR). According to Nayak et al. (Nayak 2021: 2), Open DOAR is a global Directory of Open Access Repositories which is free access and promotes open access. Open DOAR was officially launched in 2005 and maintained by the collaboration of two universities namely the University of Lund (Sweden) and the Nottingham University (UK). Through Open DOAR, users can be able to freely search and access any registered institutional repositories by using the name of a country or region and more importantly can be able to obtain statistics concerning each institutional repository (Kuri & Singh, 2020: 2). Open DOAR has been purposely designed to play a great role in preserving and disseminating research findings of different institutions and allowing open access. Thus, it is expected that each record in an institutional repository is deeply reviewed by the team of experts of a particular institution (Kuri & Singh, 2020: 2). Open DOAR provides an equal chance for any country and its institutions to register their institutional repositories to increase the global visibility of their scientific works.

Similar to other countries around the world, digitization of library resources in Kazakhstan is gaining pace and now becoming a national agenda (European Research Institute, 2018: 1). The same applied to academic institutions, digitization takes place in both teaching and information dissemination. Almost all academic institutions in Kazakhstan have created their own institutional repositories. These institutional repositories are the main tools in academic institutions to promote open access since knowledge needs to be shared freely (Almagambetova, 2019: 110). However, there is scarcity of studies concerning the status of the institutional repository of the academic institutions in Kazakhstan as a way of promoting open access. Therefore, this study examined the institutional repository of academic institutions in Kazakhstan, focusing on its history and development. Specifically, the study analyzed

the registration year of the institutional repository of each academic institution in Open DOAR, examined the type of contents found in an institutional repository of each academic institution in Open DOAR, and examined the subjects found in an institutional repository of each academic institution in Open DOAR.

### Materials and methods

In this study, both quantitative and qualitative approaches were used. Webometrics and content analysis were methods used in the data collection. The two methods were used to examine the registration year of the institutional repository in Open DOAR, the content type found in an institutional repository in Open DOAR, and the subjects found in an institutional repository in Open DOAR. Eight institutional repositories of academic institutions out of 13 total institutional repositories from Kazakhstan registered in Open DOAR ([https://v2.sherpa.ac.uk/view/repository\\_by\\_country/Kazakhstan.html](https://v2.sherpa.ac.uk/view/repository_by_country/Kazakhstan.html)) were extensively reviewed. The reviewed eight institutional repositories of academic institutions were; digital repositories of KAZGUU University (<http://repository.kazguu.kz/>), E.A. Buketov Karaganda University repository (<https://rep.ksu.kz/>), Karaganda State Medical University repository (<http://repoz.kgmu.kz/>), Nazarbayev University repository (<https://nur.nu.edu.kz/>), Almaty Management University repository (<http://repository.almu.edu.kz/xmlui/>), Kostanay State Pedagogical University repository (<http://repo.kspi.kz/>), L.N. Gumilyov Eurasian National University repository (<http://repository.enu.kz/>), and repository of the West Kazakhstan Marat Ospanov State Medical University (<http://elib.zkgmu.kz/xmlui/>).

The Webometrics method was used to collect and analyze quantitative data. This method was used to analyze all the websites of institutional repositories of academic institutions registered in Open DOAR. Content analysis was used to collect qualitative data by tracing the year registered, content type, and subjects found in the institutional repositories. Moreover, content analysis was used to compare the current study with other similar studies conducted in Central Asia and other Asian countries to trace the originality of the study. The studies of Wani, Gul & Rah (Wani, Gul & Rah, 2009: 1-13), Abrizah et al. (Abrizah et., 2010: 53-73), Singh et al. (Singh et., 2020: 1-18) and Nayak et al. (Nayak, 2021: 1-12) all differ with the current study in terms of methodology as they rely solely on webometrics,

while the current study uses both webometrics and content analysis in the data collection and analysis. Additionally, all the above mentioned studies analyzed the contribution of institutional repositories to open access looking at zonal or regional countries, whereas the current study analyzed the contribution of institutional repositories to open access specifically in Kazakhstan focusing on the registration years of IRs in to Open DOAR, subjects and contents found in an Open DOAR. Microsoft Office Excel 2010 was used to analyze the collected data and the results were presented using graphs.

### Literature Review

There are various studies that have been conducted in different parts of the world concerning how digitization resulted in creation of the institutional repositories as a way of promoting open access. Few studies among many have been reviewed in support of the present study.

Nayak et al. (Nayak, 2021: 4) conducted a study on promoting educational research through an open-access institutional repository of Shanghai Cooperation Organization (SCO) countries and found that there is a constant registration of the countries' institutional repositories in terms of years. Similar findings were observed in the study of Singh et al. (Singh, Kuri, Kumar etc., 2020: 7) who conducted a study on the global visibility of open-access institutional repositories of SAARC countries. At least each year there was a registration of the institutional repository on Open DOAR. The main objective of creating institutional repositories is to increase the visibility of the institutional works to the stakeholders. However, the study of Abrizah et al. (Abrizah, Noordawati et., 2010: 65) who researched on global visibility of Asian universities' open-access institutional repositories found that institutional repositories of the highly ranked universities in Asia are missing in the Open DOAR, which translates as the limits to the scientific works created by the scholars of respective trusted universities to other scholars in the world.

The decision of what type of content to be added to the institutional repositories has great impacts on the readability and citation aspects. The more content related to scientific works is added to the institutional repositories, the more it increases the readability and citation of those contents hence increasing the reputation of the institution (Cullen & Chawner, 2011: 469). Studies conducted by Nayak et al. (Nayak, 2021: 7), Singh et al. (Singh, 2020: 11), Abrizah et al. (Abrizah,

2010: 61), Das & Singh (Das & Singh, 2017: 68), Matsuura (Matsuura, 2008: 23), Wani et al. (Wani, Gul, 2009: 10), Singh (Singh, 2017: 403) and Singh & Verma (Singh & Verma, 2017: 267) both found journal articles as the main content to be added into all institutional repositories. Journal articles normally encompass ideas of the elites which have been thoroughly researched. This shows that each institution needs to put its day-to-day scientific and research works visible to the world to increase the reputation of the institution. In addition to that, these studies also show theses and dissertations together with books, chapters, and sections to take a top list as among the main contents to be added to the institutional repositories.

Users of the institutional repositories differ based on the areas of specialization. In this case, to make repositories more usable it is advised to add various subjects to the institutional repositories. Singh et al. (Singh, Kuri, Kumar etc., 2020: 12) in their studies found general science as the major subject to be added into almost all institutional repositories registered into Open DOAR. On the other hand, studies by Nayak et al. (Nayak, 2021: 8) and Abrizah et al. (Abrizah, Noorhidawati, 2010: 62) both found multidisciplinary as the main subject that was observed to be added in all institutional repositories registered in Open DOAR. The addition of multidisciplinary subjects gives a wider chance for every user to get the needed information since this is a cross-cutting

subject. Variations of the subject may increase visibility and accessibility as users with different interests will be able to have access to the institutional repositories and fulfill their needs.

## Results and Discussion

### *Registration Pattern of the Institutional Repositories Year-wise*

According to the information from Open DOAR ([https://v2.sherpa.ac.uk/view/repository\\_by\\_country/Kazakhstan.html](https://v2.sherpa.ac.uk/view/repository_by_country/Kazakhstan.html)), it was found that the repository of L.N. Gumilyov Eurasian National University was the first among others to be registered in 2013. This was followed by the Nazarbayev University repository in 2015, then the repository of Almaty Management University in 2016, and the E.A. Buketov Karaganda University repository in 2017. In 2018, two academic institutional repositories namely the digital repository of KAZGUU University and the Karaganda State Medical University repository were registered. Again, in the year 2019, two academic institutional repositories namely the repository of the West Kazakhstan Marat Ospanov State Medical University and the repository of Kostanay State Pedagogical University were registered. There was not a single institutional repository observed to be registered in the remaining years. Figure 1 below illustrates;

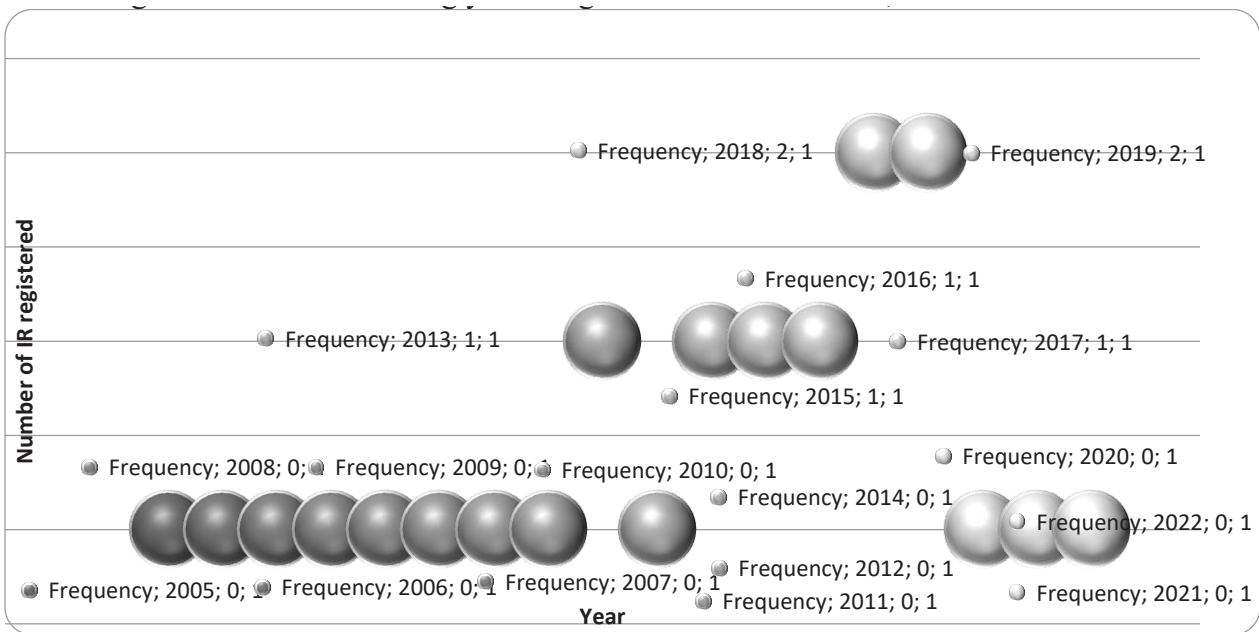


Figure 1 – Registration of academic institutional repositories year-wise

As the findings in Figure 1 indicate, there was inconsistency in the registration of institutional repositories as in other years there was no institutional repository registered. This inconsistency of registration of institutional repositories to Open DOAR could be attributed to the lack of awareness about Open DOAR among academic institutions or maybe most of the academic institutions in Kazakhstan are not willing to expose their academic works to the public (Abrizah et al., 2010: 65-66). However, it was surprisingly found that only one institutional repository of the academic institution (repository of L.N. Gumilyov Eurasian National University) among the top five rated universities in Kazakhstan (according to QS World University Rankings 2022) registered in Open DOAR. The lack of institutional repositories of the high-rated universities in Kazakhstan indicates that the visibility of the research findings is below the expectations of their academic and research ranks and therefore limits the open access to the research results and other scholarly works. In addition, this will lead to low citations of the quality research works of scholars from highly ranked universities both within and outside the country (Ezema, 2011: 481). Indeed, when compared to the U.S., Europe, and other Asian countries the registration

of institutional repositories of Kazakhstan academic institutions year-wise is not impressive (Singh et al., 2020: 7; Nayak et al., 2021: 4). These findings corroborate with that of Abrizah et al. (Abrizah, Noorhidawati, 2010: 65), who also found the missing of institutional repositories of the highly-ranked universities in the Open DOAR, and therefore cause low impacts on the published research works from the top-rated universities.

**Distribution of the Institutional Repositories Content-wise**

The study sought to examine the type of content added to the registered institutional repositories. The findings of the study reveal that journal articles were the content added by the majority (7) of the institutional repositories among all registered eight repositories. This was followed by conference and workshop papers and books, chapters and sections as they were added by six (6) institutional repositories respectively. Then, theses and dissertations and reports and working papers were followed as the most added contents as they were added by three institutional repositories respectively. Only two (2) institutional repositories were observed to add learning objects as one of their content types. Figure 2 below illustrates;

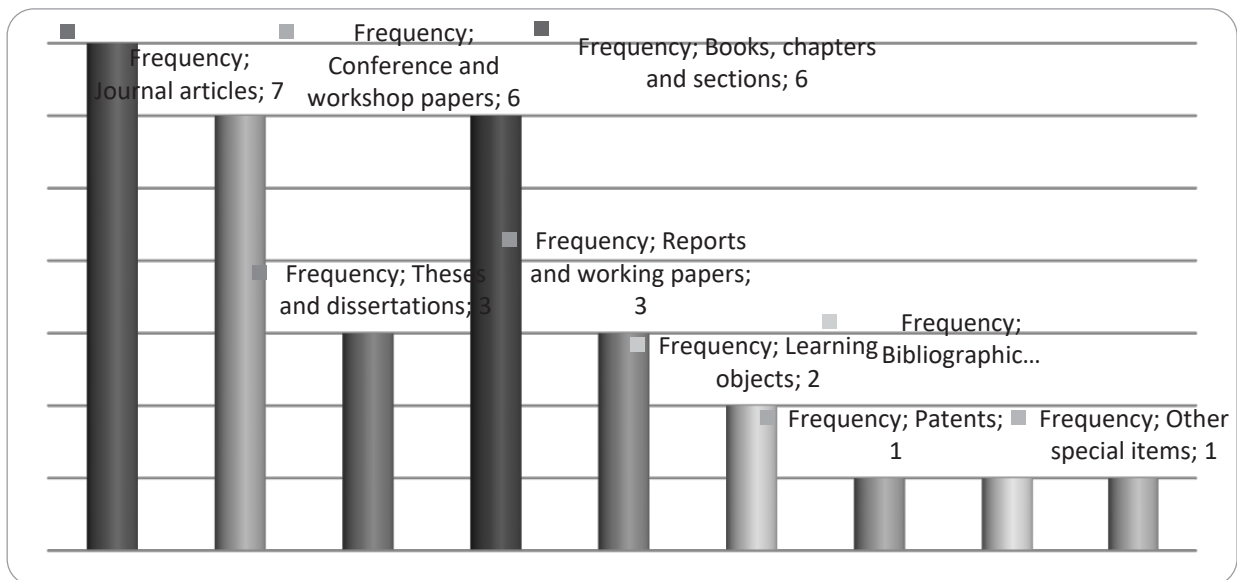


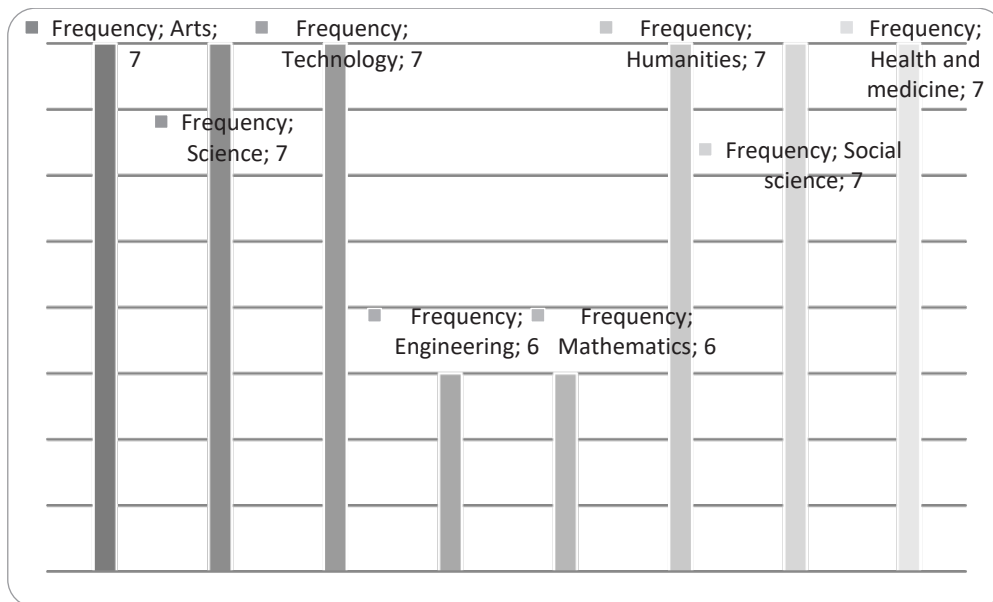
Figure 2 – Distribution of the institutional repositories by content type

As the findings of the study depicted in Figure 2, almost all the institutional repositories (7) consider journal articles as their best content that needs to be visible and accessed by their users. Perhaps, this is due to the fact that the more academic and research findings become visible to the users the more such institutions become well known and therefore increase their reputations. However, it was expected theses and dissertations to be the leading content to be added to each institutional repository since they present current and well-researched topics. Similarly, Nayak et al. (Nayak, Patel etc., 2021: 7), Singh et al. (Singh, Kuri etc., 2020: 11), Abrizah et al. (Abrizah, Noorhidawati, 2010: 61), Das & Singh (Das & Singh, 2017: 68), Matsuura (Matsuura, 2008: 23), Wani et al. (Wani, Gul etc., 2009: 10), Singh (Singh, 2017: 403) and Singh & Verma

(Singh & Verma, 2017: 267), both in their studies found journal articles as the dominant content to be added in the institutional repositories while the few were observed to be patents, learning objects, other special items, bibliographic references, and datasets.

***Distribution of the Institutional Repositories Subject-wise***

The study also sought to examine the subjects added to the registered institutional repositories. The findings of the study indicate that almost all institutional repositories (7) added arts, science, technology, humanities, social science and health and medicine as the subjects into the Open DOAR respectively. On the other hand, six (6) institutional repositories added engineering and mathematics as the subjects into Open DOAR. Figure 3 below illustrates;



**Figure 3 – Distribution of the institutional repositories subject-wise**

As indicated in the findings of the study in Figure 3, subjects that are dominant in the Open DOAR are arts, science, technology, humanities, social science, and health and medicine. This shows that almost all institutions consider their users in every aspect by making sure that contents in each discipline are added to the repositories. The presence of diversity in subjects added to the Open DOAR could increase the performance of the webometrics ranking of a particular institution which in turn leads to the increasing of reputations in the world of scholars. These findings contradict those of Nayak

et al. (Nayak, Patel etc., 2021: 8) and Abrizah et al. (Abrizah, Noorhidawati, 2010: 62), who both found multidisciplinary to dominate as the major subject to be added in almost every institutional repository registered into Open DOAR.

**Conclusion**

In today’s world, knowledge is an asset that needs to be shared freely. Academic institutions create institutional repositories in order to freely and easily share scientific works they create with the

world of scholars with the aim of promoting open access. The study concludes that registration of institutional repositories of academic institutions in Kazakhstan is low when compared to findings of the related studies from other foreign countries which limit open access. Findings show the inconsistency of the registrations of the academic institutional repositories to the Open DOAR in terms of the year. However, the findings of the study reveal among hundreds of academic institutions in Kazakhstan there are only eight institutional repositories registered while there is only one institutional repository among the top five rated universities which might limit the visibility of the academic works from the reputable universities. Additionally, the study indicates the dominance of journal articles as the main type of content that almost all institutional repositories added to the Open DOAR and thus shows their commitment to sharing researched and updated

works. On the other hand, the study also shows the dominance of arts, science, technology, humanities, social science, and health and medicine as the main subjects added by the majority of institutional repositories added to the Open DOAR which gives more options to every user to have access of information need to the institutional repositories.

The study, therefore, recommends registration of more academic institutions to the Open DOAR, particularly the top-ranked universities. This will help to increase the visibility of the academic works to the national and international scholars and therefore increase the reputations and prestige of the universities of Kazakhstan but more important will promote open access. Moreover, the addition of theses and dissertations to the institutional repositories should be given priority as these present comprehensive results of issues researched every year by students on different topics.

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