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Design and Development of an Open Access Institutional Repository: Paradigm Shift for National University Library in Bangladesh

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ABSTRACT

This paper discusses the concept of Institutional Repository (IR), it needs, importance, software requirements and benefits with special reference to the proposed best Institutional Repository (IR) for National University Library (NUL). The purpose of this paper is to describe the procedure of setting up an IR for the NUL using suitable software. DSpace is preferred as IR software for NUL. This paper provides the procedure to set up the IR along with content submission and workflow processes. This paper also investigated the existing automation and IR status of public university libraries in Bangladesh. The development of a repository is one of the most complex projects that librarians may undertake which will be cost effective and centrally managed. This study no doubt will foster more research on IR for the improvement of digital content management for NUL. It would improve visibility of the National University and its research output to the wider audiences home and abroad. These practical steps would work as a template for others who would be interested to develop digital repository in their own settings.

Keywords: Design and Development, Institutional Repository, Digital Storage, National University Library, Bangladesh.

Background of the Study

Nowadays, Open Access (OA) approach has become one of the important research areas of Open Science (OS). Open data, source, educational resources and open education diffuse different subject and interdisciplinary knowledge for the researchers and community people. Different systems, technologies and digital platform make this process even faster than any other times of human civilization. Institutional repository (IR) is one of the digital systems for any organizations that collect/capture, process, manage, disseminate, and preserve scholarly work created by the organizational members. Due to the Open Access Institutional Repository (OAIR) system, the scholarly communication process has been changed. The pace of scholarly communication would be highly accelerated if the IR holds research papers, research reports and offer access to public. In academic settings, IR is formally assigned to organize and manage collections of digital content produced by faculty, staff and students in respective universities or organization. Lynch (2003) noted that IR is “a university based institutional 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”. IR brings together and preserves the intellectual output of a laboratory,
department, university or any other entity, the incentives and commitments to change the process of scholarly communication have also begun serving as strong motivators (Ashikuzzaman, 2018). A noticeable departure from the traditional systems here is that the printing is delinked from the publishing process. These days, wide variety of content is included in the institutional repositories for the multiplicity of purposes and users (Jones et al., 2006).

Due to increasing demand and importance of IR, it has been widely developed and utilized by most of the universities, organization and other institution in developed world. The use of IR in these countries has created positive impact in aspect of their branding, global visibility and helps to get connected with research community e.g., researchers, academicians, faculty members and students. However, the entire scenario and status of IR in developing countries are not satisfactory compare to the develop world. Due to lack of awareness, unwillingness and limitations of ICT infrastructure make these country’s position far behind. As per the Directory of Open Access Repositories (Open DOAR), there are 4336 repositories by region (OpenDOAR, 2019).

<table>
<thead>
<tr>
<th>Table 1: OAIR by Region (a): by Country (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classified by region (4336)</td>
</tr>
<tr>
<td>Africa</td>
</tr>
<tr>
<td>Americas</td>
</tr>
<tr>
<td>Asia</td>
</tr>
<tr>
<td>Central Asia</td>
</tr>
<tr>
<td>Eastern Asia</td>
</tr>
<tr>
<td>South Eastern Asia</td>
</tr>
<tr>
<td>Southern Asia</td>
</tr>
<tr>
<td>Western Asia</td>
</tr>
<tr>
<td>Europe</td>
</tr>
<tr>
<td>Oceania</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classified by country (137)</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>14</td>
</tr>
<tr>
<td>India</td>
<td>86</td>
</tr>
<tr>
<td>Iran</td>
<td>17</td>
</tr>
<tr>
<td>Nepal</td>
<td>1</td>
</tr>
<tr>
<td>Pakistan</td>
<td>4</td>
</tr>
<tr>
<td>Srilanka</td>
<td>15</td>
</tr>
</tbody>
</table>

From Table 1, it was found that 846 institutional repositories are in Asia where Southern Asia has 137 repositories. Considering the geographical position, Bangladesh comes under the Southern Asia part and this country stood in the fourth position. India has the highest number of repositories (86) which is followed by Iran (17), Srilanka (15), Bangladesh (14), Pakistan (4) and Nepal (1). Comparing to other countries and region, Bangladesh is not in a good position in aspect of establishing IR.

Where there have been many studies on the LIS education, digital library, knowledge management and use of ICTs in library and information studies areas, very few of these studies have focused on the establishing IRs in Bangladesh. Some of the notable universities e.g., Dhaka University, North South University, East-West University, BRAC University and Independent Universities have their own repository. Some leading institutions in Bangladesh have been implemented IR individually (Rahman, 2017). While there have been many studies home and abroad on IR for scholarly communication, very few has been focused on aspect of developing countries. The present study focused how to develop an IR template so that other universities in Bangladesh and abroad could follow this and develop IR in their own setting.
Considering that this paper focuses on the design and development of an Institutional Repository (IR) for National University library in Bangladesh.

**University libraries in Bangladesh: National University Library**

At present there are 45 public and 103 private universities in Bangladesh (UGC, 2019). However, the library facilities of these universities are not satisfactory. Table 2 shows the existing ICT and IR status of public university libraries in Bangladesh.

### Table 2: Automation and IR status of Public University Libraries in Bangladesh

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of University</th>
<th>Year of Est.</th>
<th>Library automation</th>
<th>IR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>University of Dhaka</td>
<td>1921</td>
<td>Automated, Koha and In-house</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>University of Rajshahi</td>
<td>1953</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Bangladesh Agricultural University</td>
<td>1961</td>
<td>Automated, In-house</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Bangladesh University of Engineering and Technology</td>
<td>1962</td>
<td>Automated, In-house</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>University of Chittagong</td>
<td>1966</td>
<td>Automated, In-house</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Jahangirnagar University</td>
<td>1970</td>
<td>Partially Automated, CDS/ISIS</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Islamic University</td>
<td>1979</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>Shahjalal University of Science and Technology</td>
<td>1986</td>
<td>Automated, Koha</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Khulna University</td>
<td>1991</td>
<td>Partially Automated, In-house</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>National University</td>
<td>1992</td>
<td>Partially Automated, CDS/ISIS</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>Bangladesh Open University</td>
<td>1992</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>12</td>
<td>Bangabandhu Sheikh Mujib Medical University</td>
<td>1998</td>
<td>Automated, Koha</td>
<td>Yes</td>
</tr>
<tr>
<td>13</td>
<td>Bangabandhu Sheikh Mujibur Rahman Agricultural University</td>
<td>1998</td>
<td>Automated, Koha</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>Hajee Mohammad Danesh Science and Technology University</td>
<td>1999</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>15</td>
<td>Mawlanah Bhashani Science and Technology University</td>
<td>1999</td>
<td>Partially Automated, In-house</td>
<td>No</td>
</tr>
<tr>
<td>16</td>
<td>Patuakhali Science and Technology University</td>
<td>2000</td>
<td>Automated, Koha</td>
<td>Yes</td>
</tr>
<tr>
<td>17</td>
<td>Sher-e-Bangla Agricultural University</td>
<td>2001</td>
<td>Automated, In-house</td>
<td>Yes</td>
</tr>
<tr>
<td>18</td>
<td>Chittagong University of Engineering and Technology</td>
<td>2003</td>
<td>Automated, Koha</td>
<td>Yes</td>
</tr>
<tr>
<td>No.</td>
<td>Name of University</td>
<td>Year of Est.</td>
<td>Library automation</td>
<td>IR</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------------------------------------------</td>
<td>--------------</td>
<td>------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>19</td>
<td>Rajshahi University of Engineering and Technology</td>
<td>2003</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>20</td>
<td>Khulna University of Engineering and Technology</td>
<td>2003</td>
<td>Automated, Koha</td>
<td>Yes</td>
</tr>
<tr>
<td>21</td>
<td>Dhaka University of Engineering and Technology</td>
<td>2003</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>22</td>
<td>Noakhali Science and Technology University</td>
<td>2003</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>23</td>
<td>Jagannath University</td>
<td>2005</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>24</td>
<td>Jatiya Kabi Kazi Nazrul Islam University</td>
<td>2005</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>25</td>
<td>Comilla University</td>
<td>2006</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>26</td>
<td>Chittagong Veterinary and Animal Sciences University</td>
<td>2006</td>
<td>Automated, Koha</td>
<td>Yes</td>
</tr>
<tr>
<td>27</td>
<td>Sylhet Agricultural University</td>
<td>2006</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>28</td>
<td>Jessore University of Science and Technology</td>
<td>2008</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>29</td>
<td>Pabna University of Science and Technology</td>
<td>2008</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>30</td>
<td>Begum Rokeya University</td>
<td>2008</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>31</td>
<td>Bangladesh University of Professionals</td>
<td>2008</td>
<td>Partially Automated, In-house</td>
<td>No</td>
</tr>
<tr>
<td>32</td>
<td>Bangabandhu Sheikh Mujibur Rahman Science and Technology University</td>
<td>2011</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>33</td>
<td>Bangladesh University of Textiles</td>
<td>2011</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>34</td>
<td>Barisal University</td>
<td>2011</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>35</td>
<td>Rangamati Science and Technology University</td>
<td>2011</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>36</td>
<td>Bangabandhu Sheikh Mujibur Rahman Maritime University</td>
<td>2013</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>37</td>
<td>Islamic Arabic University</td>
<td>2013</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>38</td>
<td>Chittagong Medical University</td>
<td>2016</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>39</td>
<td>Rajshahi Medical University</td>
<td>2016</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>40</td>
<td>Rabindra University, Bangladesh</td>
<td>2017</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>41</td>
<td>Bangabandhu Sheikh Mujibur Rahman Digital University</td>
<td>2018</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>42</td>
<td>Sheikh Hasina University</td>
<td>2018</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>43</td>
<td>Khulna Agricultural University</td>
<td>2019</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>44</td>
<td>Bangamata Sheikh Fojilatunnesa Mujib Science and Technology University</td>
<td>2019</td>
<td>Not Automated</td>
<td>No</td>
</tr>
<tr>
<td>45</td>
<td>Sylhet Medical University</td>
<td>2019</td>
<td>Not Automated</td>
<td>No</td>
</tr>
</tbody>
</table>

From Table 2, it was found that very few of the public university libraries are automated and most of these university libraries are semi-automated or not automated.
Only eight university libraries have their informational repository. Bangladesh has 14 institutional repositories and among these 8 comes under public university library and 6 are under private university library and other research organizations.

National University (NU) is one of the oldest public universities in Bangladesh and this university mainly an autonomous affiliating University which was established in 1992. The University has about 2300 affiliated colleges and institutions and offers various academic programs for graduate and post-graduate degrees. In terms of the enrolment of students, NU is one of the largest universities in the world and enrolment of 2 million students (NU Website, 2019). The University has 30 departments under the five faculties such as Arts, Social Sciences, Natural Science, Life and Earth Sciences and Business Studies (NU Prospectus, 2019).

The National University Library (NUL) started functioning in 1997, five years after the establishment of National University. There are about 38126 books, 227 journals in the library covering the subject areas corresponding to the academic programmes and activities of different disciplines. Besides NUL have huge information and its publications such as e-journals, journals, research reports, thesis papers, conference proceedings, handbooks, annual reports, syllabus and other general publications etc. for regular use of the users (NU Website, 2019).

NUL cannot ensure access to all types of information for its user community. Moreover, budget shortage and long-term preservation of documentary collections are also important factor for collecting information resources. To overcome those shortages and to find out suitable solution for providing maximum access to information resources, NUL authority should initiated new process and system like Digital Repository (DR) for the National university students, faculty members and researchers. The establishment of IR in the NUL ensures that their all research becomes mainstream and contributes on an equal footing to the global knowledge pool. At present there is no digital repository in NUL. Organizing, disseminating, preserving this information and publications is now very difficult. That is why NUL needs to have its own IR. As a result, the present study has been conducted to design and development of an IR for National University Library.
Literature Review

Nowadays, repositories are not a new process or system to researcher communities. For many years, there have been institutions and systems that have been providing free access to users. Initially IR was emerged as subject-based repository allowing researchers from different institutions to preserve pre-prints of articles in advance of publication. Crow (2002) discussed that an institutional repository is a digital achievement of the intellectual product created by the faculty, research staff, and students of an institution and accessible for end-users both within and outside of the institution with few if any barriers to access. Armbruster & Romary (2009) mentioned four types of digital repository namely: i) subject-based repositories; ii) research repositories; iii) institutional repositories; and iv) national repository. Institutional Repository (IR) is the most common form of DR. IR is digital assets generated by academics or other patrons in the form of datasets, administrative documents, course notes, learning objects or conference proceedings (Rahman, 2017). In this regards the implementation and maintenance of an IR require technical support. Some argue that the free open source software upon which most IRs run is too restrictive in its functionality and its future is too uncertain (Heery & Anderson, 2005).

Bailey (2005) noted that some IRs are also being used as electronic presses, publishing e-books and e-journals. IR is very useful information product which helps in compiling the institutional intellectual resources in one place and makes it available for common use. Several software such as DSpace, EPrints, Fedora or Greenstone provides a web-based Open Archive Initiative (OAI) complaint institutional repository for free (Shoeb, 2009). Barton and Walker (2003) of MIT Libraries “Institutional Repositories designed to manage, host, preserve and enable distribution of the scholarly output of an institution”. The objectives for having IR is to provide open access to institutional research output by self-archiving it, to create global visibility for an institution's scholarly research and to store and preserve institutional digital assets, including unpublished literature such as theses, monograph, internship report, working papers for convenient use and preservation.

The first IR service was initiated in Bangladesh in 2006 by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) and BRAC University is the first university who implemented IR in Bangladesh with the DSpace software. Islam & Alam (2010) pointed out various issues of designing and developing IR in public universities in Bangladesh. Islam and Akter (2013) discuss the open access and scholarly communications in Bangladesh. Shoeb (2010) described different stages of developing digital institutional repository system for a private university library in Bangladesh. For developing IR, DSpace is the suitable open source software for academic institution like university library. This software offers easy and fast access as well as preserves all types of scholarly and digital content including text, images, and data sets etc (DSpace Home, 2019).

Aim and Objective of the Study

The objective of this study is to explore the existing status of NUL and to suggest practical steps for building IR for National University Library. However, the objectives of this study are:

1) to develop and design IR for NUL;
2) to discuss the steps of creating IR from the practical point of view and
3) to put some recommendations.
Methodology
We have reviewed substantial number of IR related papers and visited different IR websites home and abroad. This paper is a kind of theoretical paper with deep practical understanding to develop an IR. We put focus the software, tools and others required instruments to develop IR. There are a number of IR software packages available in the world. Most popular IR open source software are DSpace, Fedora, EPrints, Omeca, Goobi etc. in the world. In Bangladesh most popular and most usages IR is DSpace software (Shoeb, 2010). For the present study, we choose DSpace software for design and development of IR for National University in Bangladesh. For building ‘National University Institutional Repository’, we put focus the practical implication and template.

Design and Development of OAIR for National University Library
Considering the number of students, affiliated colleges, faculty members and researchers in National University, it is now demand to develop a digital repository for the wider communities. Initially, the IR proposal for NUL may be started like other university libraries in Bangladesh. Based on review of the literature, review of IR feasibility studies, personal experience and a pilot setting of the IR, we prefer to use DSpace software for developing the digital repository. The DSpace software is an open source platform developed by HP and MIT libraries. It is completely customizable with its configurable database and its local authentication mechanism anyone can be downloaded from the source and use it.

Hardware and Software Requirements
Hardware and software are interconnected they are essential to set up any kind of system. DSpace is compatible with platforms like Windows, Linux (Debian, Ubuntu, RedHat, Fedora, CentOS), Unix and Mac. To develop an IRS using DSpace software the following software and hardware should be required:

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. 2 dedicated server (one for production and another for backup)</td>
<td>i. DSpace software (latest stable version preferred, i.e. DSpace 6.3)</td>
</tr>
<tr>
<td>ii. Intel Core i3 2.50 GHz processor</td>
<td>ii. Java JDK 7 or 8 (OpenJDK or Oracle JDK)</td>
</tr>
<tr>
<td>iii. 2 GB RAM</td>
<td>iii. Apache maven 3.0.5 or above (3.3.9+)* (Java build tool)</td>
</tr>
<tr>
<td>iv. 500GB, 2 hard drives</td>
<td>iv. Apache ant 1.8 or later (Java build tool)</td>
</tr>
<tr>
<td>v. DVD +/- RW drive</td>
<td>v. Relational database: (Postgresql or Oracle) a) PostgreSQL 9.4 b) 5.2 Oracle 10g or later</td>
</tr>
<tr>
<td>vi. 18” or larger LCD/LED monitor,</td>
<td>vi. Servlet Engine (Apache Tomcat 7 or later, Jetty, Caucho resin or equivalent)</td>
</tr>
<tr>
<td>viii. UPS Uninterrupted Power Supply</td>
<td></td>
</tr>
</tbody>
</table>
Installation and Development Processes of DSpace Software

There are many guidelines available for installing and developing process of DSpace software. We chose Windows 10 server (x64) for the simple reason that the Windows system is largely used in the world and researchers are more familiar with this platform than the Linax, Unix and Mac. DSpace software system installation and development processes are shown below:

Installation Processes of DSpace Software

The following pre-requisite software were downloaded from the internet and installed in the directory shown in the bracket.

- apache-ant-1.10.6 (C:\apache-ant-1.10.6)
- Apache-maven-3.6.1 (C:\apache-maven-3.6.1)
- Apache-tomcat-9.0.22 (C:\apache-tomcat-9.0.22)
- Jdk-8u221-windows-x64 (C:\Program Files\Java\jdk1.8.0_221)
- Postgresql-11.4-3-windows-x64 (C:\Program Files\PostgreSQL\11)

i) Configuration

The following basic steps are needed to be followed for configuration of DSpace software. Build the installation package from the DSpace source directory by executing the command `mvn package` as shown in figure 2, and finally, Installation the DSpace software form DSpace source directory by executing the command `ant fresh_install` as shown in figure 3.

![Figure 2. Installation of mvn package from DSpace source directory](image-url)
Installation and Development Processes of DSpace Software

There are many guidelines available for installing and developing processes of DSpace software. We chose Windows 10 server (x64) for the simple reason that the Windows system is largely used in the world and researchers are more familiar with this platform than Linux, Unix, and Mac. DSpace software system installation and development processes are shown below:

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- Apache-maven-3.6.1 (C:\apache-maven-3.6.1)
- Apache-tomcat-9.0.22 (C:\apache-tomcat-9.0.22)
- Jdk-8u221-windows-x64 (C:\Program Files\Java\jdk1.8.0_221)
- Postgresql-11.4-3-windows-x64 (C:\Program Files\PostgreSQL\11)

i) Configuration

The following basic steps are needed to be followed for configuration of DSpace software. Build the installation package from the DSpace source directory by executing the command

```bash
mvn package
```

as shown in figure 2, and finally, installation of DSpace software from DSpace source directory by executing the command

```bash
ant fresh_install
```

as shown in figure 3.

Figure 2. Installation of mvn package from DSpace source directory

Figure 3. Successful DSpace Installation Output

In this step creation of an initial administrator account by executing

```
[dspace]/bin/dspace create-administrator
```

command from the command line shown in figure 4, then actual installation has been carried out in figure 5 that we access the default DSpace home by pointing http://localhost:8080/xmlui at the browser.

Figure 4. Creation of an Initial Administrator Account
ii) Development Processes of DSpace Software
Up to this default installation of DSpace is carried out, but more detailed customization was left for the final repository development, for the purpose of this study, the DSpace header title was modified from message.xml file, similarly header logo from images and CSS file and footer texts from page-structure.xsl file from the web apps and theme folder. The DSpace header title was replaced by naming “National University Institutional Repository” in figures 6 & 7 are show in the below:
Figure 7. Successfully Developed DSpace Home Page

**iii) Collection Development Processes of DSpace Software**

After installation and customization of DSpace, now it is necessary to have uploaded some items and documents with their meta-data to the “National University Institutional Repository”. Administrator can create community under ‘context’ (Figure-8). No collection can be created without having relation to a community or sub-community, therefore while creating collection select the community home page for the community in which the collection is to appear and click 'Create Collection' (Figure-9). In figure 10 shows the Different Communities under Collection in DSpace.

Figure 8. Create Community in DSpace
Figure 9. Create Collection in DSpace

Figure 10. Different Collections under Social Sciences Community in DSpace
The following are the basic steps, which need to be followed for the submission of content in DSpace. The seven-step chain shows the submission process. The chain appears at the top of all the screens, with the current screen highlighted. Figure 11 shows the submission process by providing related information. Shows the final and seventh step that an item submission was successfully completed is in figure 12.

Figure 11. Repository Items Submission Process in DSpace

Figure 12. Final Stage of an Item Submission in DSpace
Conclusion and Recommendations

Institutional repositories are not a new concept for managing digital content, although in Bangladesh the growth of this technology has yet to be implemented. This paper may be a primary solution for building an IR for NUL as well as for any other institution. This paper may be a fundamental solution for building an IR for NUL. Researchers need to find out the best possible solution to get maximum benefit from IRS at NUL. The primary focus of this paper was to design and development of an IRS at NUL, and to identify suitable IRS tools that show best practices in the administrative, technical infrastructure and access to repository collections. Therefore, this study aims to focus on design and development an IRS to establish a proper IRS for NUL. Though a prototype of an IRS was built locally to inform this investigation, it is expected that the real life repository with the proposal should be a way to enhance the NUL digital collection.

Academic organizations need to train dedicated technical staff of LIS professionals for the development and maintenance of digital repositories. Library authority should monitor user activities and keep up-to-date information about copyright acts also keep up-to-date knowledge. There is also need to develop a written standard policy for IRS. As a developing country like Bangladesh to conduct any development project funding is the main barriers. Government bodies like Education ministry and University Grants Commission should allot sufficient budget for this purpose. Though the software is free and open source, but the other logistics, hardware components and computers need to buy. To provide proper digital library service at NU, sufficient financial facilities must be allotted. The university authority should give more attention on this issue. Above suggestions and recommendations were proposed for establishing NUL IRS and also describe all installation and development process. It is expected that university authority would be start to develop the repository. There can also be no doubt that if the NU authority as well as library authority slowly but surely takes the immediate steps, they will be able to create IRS.

Expected Outcome of this Study

NUL has various publications which are not digitized and hence not accessible anywhere easily. The present study is important because of its practical necessity. The goal of this IR is to increase the visibility to the library, use and impact of the university's research publications by offering them to use through the university's own digital archive. The archive consists of full text material produced in the university, such as theses, internship reports, journal articles, conference proceedings and research materials produced by the Departments/Institutes/Research centres of the University.

We do believe that if the National University in Bangladesh establishes a digital repository, it would become a milestone for the National University. If it is developed, then 2300 affiliated colleges and 2 million students across the country, faculty and other advanced level researchers could access and download their needed articles, reports, journal articles and other documents that they need. It would become a hub for the whole National University community and show their output to the wider audiences nationally and globally. Managing and measuring research and teaching activities would be very convenient. It would support student endeavors, providing access to theses and dissertations and a location for the development of e-portfolios. This system can include materials such as working papers, pre-prints, white papers.
and conference presentations. Overall, the proposed institutional repository would accelerate the research and academic activities, showcase of intellectual ability and make this university’s position up in Bangladesh.
REFERENCES


Jones, R., Andrew, T. and MacColl, J. (2006), The Institutional Repository, Chandos, Oxford


Planning and designing of learning spaces for next generation users are far more complex process, as it needs identification of variety of users’ needs and behavioural patterns. Today, library users are socially and culturally more diverse than previous generations. They prefer to work with peers and technological devices and to always keep connection with different communities. Disregarding traditional learning methods they seek technologically rich, novel methods and expect modern learning environment from academic libraries, which suit them. The library of the Faculty of Science, University of Colombo is hosted in an old building of the faculty which was not originally designed for a library. Storing and maintaining of library materials was the main purpose of the faculty library but there was no room to expand learning spaces according to user demands. To overcome the obstacles of the existing building, a new library building project (named as Information and Learning Centre- IL Centre) for the Faculty of Science, University of Colombo was emerged in the year 2015. The main aim of this project is to design learning spaces of the IL Centre to cater diverse user communities in the university. To accomplish this aim, two objectives are set where the first one is to identify the types of learning activities that are expected from the IL Centre and the second one is to plan and design the learning spaces of the proposed building with furniture and technological adaptations to facilitate the expected learning activities. Different university communities involved in accomplishing this task are librarians, members of the library committee and the building committee of the Faculty of Science. Main data collection was done via qualitative methods and three focus group discussions were held between June to October in 2015 in different levels to identify the expected learning activities from the proposed IL Centre. The first focus group comprised of 08 librarians, the second one had the members of the library committee including faculty and students, while and the third one was made up of the members of the building committee of the Faculty of Science, University of Colombo. After identifying learning activities, a series of discussions were held with architects, and planning and designing of the learning spaces, with furniture and technical adaptations, were accomplished.

As the results of the focus group discussions, ten learning activities expected by users were identified and the most prominent ones are collaborative learning (100%), student individual learning (100%), discovery learning (learning by searching and reading) (100%), library classroom learning – information literacy learning (93.33%), and focused learning – research studies (93.33%). Apart from that after hour studying, auditorium facilities, learning by video conferencing, non-library classrooms- taught by the faculty and faculty learning are discovered. Ten learning spaces are planned in accordance with the identified learning activities, considering three aspects; space, furniture arrangement...
and technology. Creating space for collaborative learning was satisfied by introducing learning carrels and discussion areas for 130 students. The self-study area comprises of 75 study spots ensuring silent environment. Two aspects of discovery learning: ‘learning by searching’ and ‘learning by reading’ are facilitated by introducing traditional shelving areas and an E-resource centre with state-of-the-art computers. The librarian’s classroom is specially designed to conduct library sessions blended with the ‘smart class’ concept furnished with movable group study tables. ‘Research studio’ for the focus learning is designed to conduct small group discussions and its seating capacity is fifty. The ground floor of the IL Centre is designed as an open space for ‘after hour studying’ that is open for students without time barriers. This area accommodates 80 students and includes ten eight-seater study tables. Both non-library classroom and the library auditorium facilitate 300 students each with comfortable chairs along with writing pads. Video conferencing room and the faculty reading room are designed to accommodate thirty and fifteen individuals, respectively. Flexible and comfortable furniture, compatible with the space and learning activities are incorporated in all the learning spaces. The entire building is covered by Wi-Fi facilities, power sockets and other technical requirements, which promote ‘BYOD’ (Bring Your Own Device) concept among the users. Prioritizing user needs according to the specific environment and the culture of the institution is essential, as it will yield user-friendly, unique and useful library spaces. Continuous observations and assessments of users’ behavior are recommended, as it is considerably important to plan and design learning spaces in libraries for the next generation users.

**Keywords:** academic libraries, planning, designing, learning spaces
The Global University Publications Licence: digital transformations in libraries and the challenges of new information environment

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ABSTRACT

Universities are committed to producing and disseminating high quality research outputs to global audiences. Libraries support the principle that research outputs should be free and accessible to the public. University libraries support the idea that research publications and data should be open for scholarship. The problem: universities do not retain rights to the research publications created at the university; libraries cannot make all publications open to a global audience through the university; and, almost every day, authors at universities assign copyright to external organisations. The opportunity: a non-exclusive, bilingual Global University Publications Licence for rights retention; authors agree to support the licence on a voluntary basis before rights are assigned to external organisations. This paper examines the problem and the opportunity, focusing on the information environment in the People’s Republic of China.

This paper investigates the emergence of university licencing in Europe, particularly the United Kingdom. The challenges for librarians include understanding and communicating research funder and government mandates for openness, while applying publisher policies for different types of research outputs (Johnson & Copyright Clearance Center, 2015). The development of a United Kingdom scholarly communication licence started at Imperial College London (Banks, 2016; Reimer, 2017). The UK Scholarly Communications Licence policy and related resources are available online (UK-SCL). Some have argued the licence policy is “inappropriate, unworkable and undesirable” to certain stakeholders (Wulf & Newman, 2017). Research has also highlighted the circumstances within the UK which gave rise to the initiative and the difficulties in delivering disruptive change in a complex environment (Baldwin & Pinfield, 2018).
The paper examines the further complexity of aligning with multiple, overlapping national and international policy initiatives at global university campus. Copyright law in the People’s Republic of China gives universities a priority right to exploit works within the scope of its professional activities (World Intellectual Property Organization). Moreover, some have argued that contract and intellectual property laws must be balanced to ensure economic benefits are shared (Peters & Jandrić, 2018).

The Global University Publications Licence was introduced in China on 1 August 2019. The Licence (1.0 August 2019) is available online in English and Chinese (University of Nottingham Ningbo China, 2019). It is based on the Harvard Model Licence (Shieber, 2015). The licence policy ensures the university retains rights to research works created at the university. Authors retain copyrights to their own works and have the autonomy to licence non-exclusive rights in works to the University for the University Version of Record, and to assign rights to external organisations, such as in journals publications.

Where you publish is more important than what you publish because what you cite is more important that what you read. The Declaration on Research Assessment (DORA, 2012) states there is an urgent need to assess research on its own merits rather than on the basis of the place of publication. In DORA, the Leiden Manifesto (Hicks, Wouters, Waltman, de Rijcke, & Rafols, 2015), and the more recent Hong Kong Manifesto (Moher, Bouter, Kleinert, Glasziou, & Sham, 2019), there is a growing recognition of the need to focus on the content of research publications when assessing researchers. The University Version of Record, like the Publisher Version of Record, develops from the Accepted Manuscript. In the new and emerging information environment, where universities are signing declarations and statements as a signal, research content will become ever more important. The current convention is to cite the Publisher Version of Record but the University Version of Record will have the same value in its scholarship.

Libraries have a role in advocating change. University authors need to be encouraged to retain copyright and make non-exclusive agreements. Libraries need to advocate the adoption of the University Version of Record. Universities and publishers will have versions of record with equal value in terms of scholarship. The National Information Standards Organization (NISO) definitions need to be reviewed and revised. Authors will eventually cite what they read based on the value of scholarship, rather than the place of publication. There are key challenges for libraries, including: understanding legal frameworks across national boundaries; developing communication strategies; and, positioning the library to influence change.
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**Keywords:** Open Access, Open Scholarship, Licencing, Copyright, University Version of Record.

**References**


Public Libraries Health Information Provision in Cordillera Administrative Region

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ABSTRACT
Public libraries play an important role to address national health concerns by helping consumers overcome the obstacles of health literacy and find meaningful health information. Recognizing that health is a global concern, there is an emerging need for proactive health information provision to help researchers, medical practitioners, students and common individuals by way of public libraries: They have been community partners with the mission of providing health information. Hence, the role of Cordillera Administrative Region Public libraries as health information providers should be seen in their public services such as Reference services, Circulation Services, and Promotions and Marketing Services.

Keywords: Health Information, Public libraries, Cordillera Administrative Region, Reference Services, Circulation Services, Promotions and Marketing Services.

1. Introduction

Health has always been part of a man’s life, from a simple expression of wishing their mates good life that pertains to a person’s well-being, to a person’s working habit or even lifestyle. Health affects a person’s productivity, in terms of their quantitative and qualitative outputs, and the mere presence of an individual in his/her work field. In order for a person to perform both quantitatively and qualitatively, minimize individual unrest and indiscipline, and to further improve morale and motivation, one must be in good health condition (Chand, 2016). Good health means that an individual is at a state of being well, vigor of body, mind and spirit, and most definitely free from disease or pain due to the person’s normal body function. To become healthy and stay in-balance with the body’s normal function is a challenge in this present environment. Exposure to radiation, continuous harmful experiments, exposure to biohazard environment, and excess or less of everything a person does contributes to the imbalance of a healthy life.

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People need to be healthy to execute ideas, act according to their purpose and work for their daily living. When a person is healthy, there are more chances for their work output to be more efficient and progressive, which brings a better work environment and a better society. The society needs a place where one can find information to help answer health questions. People need information to go about our daily lives successfully \cite{Harris2005}. Nowadays, people are already taking responsibility for their own health care as the health care system increasingly involves patients and families in treatment decisions. People need not just access to information, but also time to process and evaluate the information they receive. They need a reliable, accurate Health information which enables individuals to understand their health and make health related decisions for themselves or their family \cite{Patrick1994}. In order for a person to access health information, there are different agencies that serves as accurate and reliable sources of health information, and at the same time offers programs and activities to help people further understand the health situation of their community or even themselves. Research Centers in Hospitals or Pharmaceutical Companies, Health Agencies, Special Libraries, such as Health Resource Centers, Hospital Libraries, Academic libraries, and Public libraries, are usually seen serving the public. Libraries, for the most part help by filtering the flow of information to a more specific topic of interest to a group or an individual in need \cite{Kale1994}. Libraries are seen as providers of accurate and reliable health information \cite{Harris2005}.

1.1 Health Information Provision of Public Libraries

Public libraries are information centers, making all kinds of knowledge accessible to its community, with a goal of promoting literacy, current awareness, and preserving cultural heritage. As information centers, their provision of information are expected to be timely, accurate, reliable, and sufficient in order to make a sound decision, may it be on policy, planning, promoting wellness, preventing illness, and curing diseases. \cite{IFLAManifesto}. As information centers, their programs are also expected to be in line with the community’s need since Public library programs evolve from the geographic, ethnic, cultural, economic, and other interests of the community, in order for their services to become more intimate and effective \cite{Prentice2011}. Studies show that Public libraries emerged to be one of the places that people go to for general public inquiries concerning health \cite{Arding2013}. It is seen as one of the community’s most trusted sources of health information \cite{Harris2010}. It serves as an important bridge to credible health information \cite{Engeszner2016}. A good percentage of health consumers end up in public libraries in their quest for health information. \cite{Kouame2020}. 


Public Libraries are already extending their services through medical missions and social awareness. They fill in the community’s cloud of queries on health issues, in order to promote wellness, prevent illness, and stay healthy as possible.

Public libraries have been change agents who cultivate and maintain a web of relationships and resources needed to be advocates for health information (Lyon, 2001). Libraries play an important role to address national health concerns by helping consumers overcome the obstacles of health literacy, and find meaningful health information. Libraries have long been community partners with their mission of providing health information. A mission driven and service oriented libraries will be able to meet consumers’ evolving health and medical information needs in creative and significant ways (Spatz, 2014).

This can be seen in Public libraries in Delaware, USA where they form strategic partnerships with community organizations and health agencies to offer more current, reliable, and accurate information, initiating programs in partnership with health professionals for a more inward discussion on a particular health concern, and providing lists of different databases, and indexes of health information resources (Spang & Baker, 2000). In the study of Gillapsy, (2005) public libraries provide internet connectivity and access. They have computers with fast, reliable internet access for people who do not have personal computers or online access in their homes, preferring anonymity, or who needs professional guidance in using computer or accessing quality information into a world wide web search for health information.

In Iowa City Library, an instruction for users regarding the use of the database was launched as part of their health information provision. They provide print and audiovisual health information collections, encourage regional and inter-jurisdictional collaboration, and outreach programs. They also integrated a database of resources designed to meet the consumer health information needs of Iowans called Iowa Consumer Health Information Project I-CHIP (Smith, Logsdon, & Clark 2005). In Canada, consumers see Ontario Public libraries as a preferred source of health information, and libraries of all kinds receive consumer health questions (Borman, & McKenzie, 2005). Public libraries offer health information via Reference Service and collaboration. Surveys reported that between 6-20% of total reference requests in public libraries were health related. (Wood, 2000).

Public libraries in Nigeria provides information and related initiatives on health
information for users’ utilization which facilitates in reducing HIV/AIDS and Malaria fever, they provide resources in different formats on topics covering social diseases, and help its users on their causes, symptoms, prevention, and control (Omotosho, & Okiki, 2012). The libraries give access to information that curtails health imperilment spurtng from some beliefs and practices in the community. They also offer public awareness through the influence of information through media. Further, they were able to help with Nigeria’s nursing mother’s concern on breast feeding. Public library services also includes provision of current awareness service for the elderly, creation of social support environment, and acquisition of health information resources (Ezema & Ugwuanyi, 2014). On the other hand, one of the Australian Public Libraries coordinated with ePortugese and launched the VHL (Virtual Health Library) model that provided in a particular station of the public libraries, eHealth training center for local health personnel. This project is supported by the World Health Organization to improve resources in strengthening services towards health care for the community and made to improve access to information at the same time eliminate inequalities when it comes to health issues and concerns (Rao, 2009).

In Asia, health information provision is also evident. It is common among Public libraries in Singapore to encounter health information in their everyday reference services. This is the reason why public libraries gives high priority to self training, gaining knowledge on how to retrieve health information sources, and applying the skills they learned (Mokhtar, Majid, & Foo, 2006). Most of the Public Libraries are more focused on staff training in order to provide efficient heath information as part of their reference service (Chang, Adiputra, & Lim, 2013). Furthermore, public Libraries in South Korea accumulate online health information to establish useful health information resources. They also initiated partnerships with local hospitals, medical centers, and medical institutions in order to provide an in depth health information from a more accurate and reliable source. They also educate users on how to determine high quality and reliable websites, how to find the latest research on disease or disability, and how to find the certification information of other medical providers including doctors (YoungHee, 2013).

1.2 Health Information Provision of Public Libraries in the Philippines

In the Philippines, The National Library of the Philippines created links to health information resources and databases such as: ACT Malaria Information Resource Center, Cogprints (Cognitive Sciences ePrint Archive), and US NLM eBooks which are freely available online (Carungi, 2015). On the other hand, the Department of Health (DOH) vision of attaining better health outcomes, by “guaranteeing equitable,
sustainable and quality health for all Filipinos, especially the poor, and to lead the quest for excellence in health”, collaborated with health professionals and medical institutions and other health agencies. They supported hospital libraries and health research centers as health agencies in providing online database on health resources, such as the DOH integrated eLibrary System (Department of Health, 2016). Another is the Medical and Health Library Association of the Philippines (MAHLAP) that promotes the development of medical and health libraries. They have programs on medical resource sharing, medical and health research, health and fitness, and community outreach programs (Medical and Health Library Association of the Philippines, 2016). Moreover, a number of local research centers and libraries such as the Philippine Council for Health Research and Development Library, University Of The Philippines Manila Library, CHD Libraries, Health Promotion Resource Center, and Hospital Libraries, provides health information through links on online medical issues, and health sciences and medical research databases, and local medical research repositories. In the municipality of Benguet, Baguio City universities and institutions that offers medical and health science courses. Libraries acts as the local research centers for university students, faculty, and researchers. The University of the Cordilleras Library – Health Science Section, Saint Louis University Libraries, University of Baguio Library, University of the Philippines Library—Baguio, Pines City Colleges Library, Benguet State University Library, and Easter College Library and the Hospital libraries under the DOH in Baguio (Baguio General Hospital—Library) provides health information.

Philippine society seem to value health status of the members of the community. However, there are no concrete studies that addresses the collaboration of Public libraries for a more efficient and effective Health Information Provision. It is recognized that health is a global concern, thus there is a need for a proactive health information provision to help researchers, medical practitioners, students and common individuals promote health awareness and welfare through the public libraries. The study can create awareness that public libraries are not just places for book storage, but are also places for community to seek help regarding health-related information, and be able to guide the people to a quality search of information. This study will be of help to libraries in improving their health information services specifically in extending circulation services, reference services, promotions and marketing, staff training, and collaboration. And lastly, for students of Library and Information Science, to widen their perspective on the aspect of Health Librarianship and Public Librarianship, gearing towards every librarian’s responsibility in promoting lifelong learning.

1.3 Conceptual and Theoretical Framework
This study is anchored on the International Federation of Library Associations and Institutions (IFLA) / UNESCO Public Library Manifesto, Library Bill of Rights, and the World Health Organization Mandate and Function.

1.3.1 IFLA/UNESCO Public Library Manifesto
This Manifesto represents the stand of IFLA on Health Information Provision specifically the following statements:

- “The public library is the local center of information, making all kinds of knowledge and information readily available to its users.” Public libraries are gateway to knowledge, which therefore are expected to be providers of information in order to respond to the need of the community. Public libraries have been for centuries an integral part of the society offering free places and equal access to resources for leisure and educational purposes. They support both organized and self-conducted learning in all education forms, i.e. formal, non-formal and informal learning for all age groups. Since health is part of a community’s emerging need, public libraries should also take the opportunity to provide health information to its community.

- Medical Researches are considered to be scientific achievements and innovation, where public libraries should be seen as space for these manuscripts to share and express the wonder of health, science, and technology. To “promote awareness of cultural heritage, appreciation of the arts, scientific achievements and innovations.” This is what public libraries are called for, promotion of these works and their services never ends, so that there will be a continuous reminder for the community that public libraries have these too.

- “Ensuring access for citizens to all sorts of community information.” One of the emerging needs of the communities nowadays are concerning on health, therefore Public libraries should be able to ensure access to online health databases, and creating collaboration with health agencies in order to bring forth greater specific service to the community in need. “The library services must be adapted to the different needs of communities in rural and urban areas, and should provide Outreach and user education programs aided to help users benefit from all the resources.”

1.3.2 Nicholas’ Concept of Marketing and Promotions and of Library Services

Nicholas (1998) in her Marketing and Promotions of Library Services, points out that librarians need to embrace the total marketing function involving marketing
research and analysis, service planning and promotion.

Market research involves the systematic gathering recording and analyzing of data relating to the demand for a service or product. In a library contribution to the mission of the parent organization, resources available to the needs of the users are to be analyzed. From the information gathered from the market research, a market plan is drawn. The market plan is the actual process which establishes the library’s business goals and objectives and figures out how to achieve them. It is the tool which ensures that the library services and products are viewed in a focus and clear way.

Once user needs and resources available have been established the librarian is in a position to plan the marketing objectives and the strategies required to achieve them. From the market plan, the promotional plan emerges. Essentially promotion is the means of informing users what the library does and what it can do. Benefits in doing promotion include: increased usage, increased value in the organization, education of users and changed perceptions.

Promotions to be successful need a clear set of promotional activities that include medium. There is a need to consider how to convey the message the library wants to convey. The wording and layout of the advertisement are critical. These must attract attention, arouse interest, create desire and stimulate action known as the AIDA sequence.

1.3.3 World Health Organization Mission Statement

The World Health Organization (WHO) came into force on April 7, 1948. It is the directing and coordinating authority on international health within the United Nations’ system.

The objective of WHO is the attainment by all peoples of the highest possible level of health. Thus working with 194 Member states across six regions and from more than 150 offices WHO staff are united in a shared commitment to achieve better health for everyone, everywhere. They strive to combat diseases-- communicable diseases like influenza and HIV, and non communicable disease like cancer and heart disease.

The WHO staff further states that they help mothers and children survive and thrive so they can look forward to a healthy old age. Ensure the safety of the air the people breathe, the food they eat, the water they drink – and the medicines and vaccines they need (World Health Organization, 2017).

1.4 Statement of the Problem
This study aims to determine how important the health information provision role of public libraries in CAR. It intends to answer the following specific questions:

- How important are the attributes of CAR public libraries as health information providers?
- To what extent are the activities in the following library services important in carrying out the health information provision role of the CAR public libraries?
  - Reference Service
  - Circulation Service
  - Library Promotions and Marketing
- How do the activities in the mentioned library services measure up to:
  - Public Library Service: IFLA/UNESCO Guidelines for Development
  - Nicholas’ Concept of Library Promotions and Marketing
  - WHO Mission Statement
- What program can be drawn to assist the CAR public libraries fulfill their role in health information provision?

2. Materials and Methods

The present study needed quantitative data for the level of importance of the attributes of public libraries as health information providers, and the extent of importance of the activities in the library services of reference, circulation, and library promotions and marketing. Inasmuch as the study would like to find out how the CAR public libraries’ health information provision role is being carried out, description of activities connected with it is necessary. The descriptive survey design augmented the qualitative data gathered. Results of the analysis of data showed that the health information provision role of the CAR public libraries is somewhat being carried out. This is because it is seen as moderately important. These conditions warranted the crafting of a health information provision program that if implemented can help improve and alleviate the CAR public libraries’ role as health information providers. The study was conducted in the public libraries of CAR composed of the provinces of Benguet, Ifugao, Bontoc, Apayao, and Kalinga.

The questions were derived from the established principles found in library and information science sources. The descriptive survey-method was used to describes what currently exists, thereby giving some points for improving the reference service and collection development of the Public libraries. This gave the study, information needed to determine the role of public libraries in health information provision. As the main tool used in gathering the needed data, It consisted of two parts. Part I dealt with the respondent’s profile and Part II consisted of statements which required the respondents
to rank the attributes of the public libraries as health information providers and the activities in the different library services in providing health information. All the questions were ranked according to importance. Finding the questionnaire reliable, the researcher then prepared letters addressed to the governors of the provinces in CAR, once the letters were approved by the governors, the questionnaire was distributed among the library personnel of the different public libraries in CAR. All data gathered were derived from the questionnaire. These data were tallied, classified and tabulated for analysis and interpretation. The weighted mean rank was used based on a three-point Likert Scale (Wade, 2006).

3. Results and Discussion

3.1. Level of Importance of the Attributes of the CAR Public Libraries as Health Information Providers

The public library can be many things to many people. Be that as it may, the public library is firm in its basic responsibility to bring information and people together (Prince, 2011). Hence, in carrying out this responsibility the public library is given varied description to spell out the role it plays i.e. community information center, preserver of information, promoter of intellectual freedom, and many more. The importance of these descriptions is dependent on many factors like the type of task performed, the degree of effort exerted in carrying out roles, and the belief on such library roles.

This implies that the CAR public libraries are not considered as centers where health values are promoted to combat community health problems and issues. Very clearly, the basic reason for the inception of the public library in a community is overlooked. Basically, the public library is conceived to be the local center of and access to information and ultimately knowledge. Disregarding this is tantamount to forgetting why and what the public library is designed for. The fact that health is an important aspect of human civilization, not giving much value to health information is akin to “killing civilization”. Another implication of the finding is the lack of skill and training of the human resources of the CAR public libraries. May be the library personnel of the respondent public libraries have forgotten that the public library service nowadays has become more complex as the user needs of the twenty first century has also become more complex. Gone are the days when library service is driven by following rules and regulations and re-shelving borrowed materials. Clubb (2010) emphasizes that the library services now require confident, outgoing individuals that all levels of the organization, who can communicate effectively with patrons, community groups, and even fellow workers. Individuals who understand and interpret user needs. Increasingly,
library staff are required to be innovative, flexible, imaginative, and visionary, work as part of a team and able to respond to rapid change in both methods of service and professional practice. All in all, the library personnel must have vision and resourcefulness to persist in providing leadership, to foster the long-term advancement of health information role of public libraries.

3.2 Extent of Importance of the Activities of the Reference, Circulation, and Promotions and Marketing Services of the CAR Public Libraries

Fulfilling the role of being a health information provider requires certain library services. Central to these library services are specific activities that spell out the quality of these aforesaid library services. The present study surveys three core public library services that directly affect the health of the community where the CAR public libraries are located. The specific activities in these library services are scrutinized to determine their extent of importance in the health information provision role of the CAR public libraries. The public library services include the reference service, circulation service, and promotions and marketing service.

3.2.1. Reference Service

Reference service according to Ascher (2001) can be best understood in terms of the reference transaction which is defined as information consultations in which library staff recommend, interpret, evaluate and/or use information resources to help others to meet particular information needs. Noticeably, this definition implies a process that entails several steps and activities. These libraries have not moved from the practice of the old of just waiting for users to ask questions. Such practice according to Karpuk (1984) is not supported by many users. The result is expressive of the skills of the library staff in the respondent libraries. They seem to fail the requirements set by the IFLA/UNESCO Guidelines (2001) where “public library staff requires a wide range of skills and qualities, including interpersonal skills, social awareness, teamwork and leadership and competence in the practices and procedures of the public library”.

The CAR public libraries are still very traditional in their concept of reference service. The general reference materials like encyclopedias and dictionaries are still looked up to as the most important reference sources that would bring out the meaning of reference service. Indeed, the basic information core of the library is the encyclopedia. As a matter of fact, to provide succinct, user friendly information on all areas of consultative human activity would be impossible if this does not exist in the form of encyclopedias. However, there are other forms and formats that health information maybe presented. Once again the IFLA/UNESCO Guidelines (2001)
stipulate that the public library should provide a wide range of materials in variety of formats and in sufficient quantity to meet the needs and interests of the community. All information should be as readily available as possible, irrespective of format.

Wood (2014) states that the essential work of today’s health information providers involves information discovery, organization and management of information resources and the support and services deemed necessary to bring user and information together to meet the user’s specific and general information needs. Quality of human resource determines the quality of reference service that is provided in public libraries. Carrying out the role of health information provides demand that the CAR public libraries should be manned by qualified and equally skilled library personnel. The forgoing statements demand that search skills are necessary to successfully carry out the dissemination of health information to the community. Included in the search skill is the ability to identify answers that solve a user’s health information problem. Therefore, CAR public libraries human resources’ skills and capabilities are wanting. Dissecting information from health reference sources is very vital, as the health field itself is prone to changes and advancement. Many libraries still prepare bibliographies but this time with annotations and critical evaluations. And only duly trained library personnel can do these. A closer scrutiny of the library personnel of the CAR public libraries reveal that not all of them are librarians. Many are in the public libraries either by accident or because they have nowhere else to go.

3.2.2. Circulation Service

Library resources no matter how excellent they are would be meaningless if these are not used by target users, access services are needed to ensure that the library resources, print or non-print are easily accessible at the point of need. Circulation service is the commonest mode of enabling library materials to be accessed vigorously. Charging and discharging are the two basic processes in the circulation service. The importance of the circulation service can be seen in the practice of libraries to have an access department that is tasked to handle circulation. Brown, Lin, and Wolff (2014) point out the duties of the access department to include lending and receiving materials, registering patrons, working with the library’s integrated library system (ILS), answering directional and ready reference questions, opening and closing the library, handling fines and notices, shelving and shelf-reading, collecting statistics, processing electronic reserve requests, and enforcing library policies and procedures.

The library personnel of CAR public libraries have in mind the traditional concept of the library as a structure. So it is important to have shelves and other furniture to
keep health materials. The result can also be justified by the CAR public libraries’ still in their physical structure. This refers to the existence of physical buildings housing public libraries. The result is for, space and shelves to be required. At any rate, despite the move away from using print collection, patrons continue to use health resources in both traditional way and in new ones. The rating is also indicative of the format of health materials the CAR public libraries have. Since these need more shelves for storage and display, there is no denying that their health materials are all in print form. Circulating health information materials used by the community is ranked second higher in extent of importance of the activities of the circulation service. CAR public libraries believe that they too should give out health materials to the community. These health materials maybe in the form of pamphlets or newsletters that contain the needed health information by the local community. If the community is afflicted by dengue, the materials circulated are those on dengue. Similarly, if the language of the community is Ilokano, it is best that the health materials should be in Ilokano. This then would be in keeping with the IFLA/UNESCO Guidelines (2001) regarding range demand that culture of local community and society must be reflected in the resource collection. And that the development of local information sources and resources is vital. This activity of the circulation service may become more meaningful if the materials circulated are government publications. It is a given, that governments are excellent sources of information about many important issues. If one looks at the way of subjects covered by government departments and agencies, it becomes apparent that the government deals with nearly every part of a citizen’s life.

The CAR public libraries’ gives high importance in lending health information resources to users to help them understand their query, this is a positive sign that the CAR public libraries and the library users can build a strong relationship. And if this happens the public and other stakeholders in the community where the CAR public libraries are located can consider the librarians as indispensable partners in the health experience. Most of all, the libraries can be further promoted as a source of trustworthy information.

3.2.3. Promotions and Marketing Service

Nicholas (1998) in her article Marketing and Promotion of Library Services says that marketing is the management process which identifies, anticipates and supplies customer requirements efficiently. Thus the essence of marketing involves finding out what the users want, then setting out to meet those needs. Very clearly for marketing to be effective in libraries, librarians need to embrace the total marketing function
involving market research and analysis, planning and promotion.

The CAR public libraries’ rating of promotions and marketing as not that important is worrisome. Unless all health stakeholders (public libraries included) give a higher value to the promotion of health societies aiming to improve the health of their citizens will not succeed. When health information is promoted and marketed in an active way, people would undertake whatever is necessary to enhance health: participating in preventive action and seeking treatment would become a normal behavior. (Sartorious, 2006).

3.3. Activities in the Reference, Circulation, Promotion and Marketing Services of the CAR Public Libraries’ Measuring up to the IFLA/UNESCO Guidelines, Nicholas’ Concept of Promotions and Marketing and The WHO Mission Statement

All three services are viewed as moderately important by the survey respondents. This result is tale telling of the kind of librarians the CAR public libraries have. They still belong to the old school of rendering service. They do not realize that the main characteristic of health information provider is that they often work outside the confines of the physical library. Shedlock (2014) expounds this further when he said, today’s and tomorrow’s library work involves librarians working with users in the user’s own setting. This is to say that health science providers (librarians) strive to meet users at the point of need. They do not wait for the users to come to the physical library to present an information problem for solving. Today’s health information providers (librarians) investigate user needs in their local institution or within their community, anticipating what services will be most responsive to support these users. Health information providers (librarians) look for the information problems, study and analyze them, and examine what services they can provide toward solutions to the problems.

Promotions and marketing service has the higher extent of importance among the three services. At least there is a semblance of desire on the part of the surveyed respondents to know and understand users in order that the library is able to satisfy those needs in an effective way. The surveyed respondents realize that promotions and marketing play an important role in determining whom the librarians serve and how these libraries make the community aware of services available (Princeton, 2011). But to make this happen, a marketing plan is needed. A marketing plan is an essential tool which will enable librarians doing health information provision to focus their efforts. The market plan assesses where the health information providers (librarian) is (market
research), where one is going (objectives) and how one is going to get there (strategies) \textit{(Nicholas, 1998)}.

All the activities of the three cited services of the CAR public libraries are vital to the realization of the goals of these library services. However, the rated ranks provided by the surveyed respondents in terms of the extent of importance of these services do not meet the statements of the IFLA/UNESCO Guidelines, Nicholas’ Concept of Promotions and Marketing and the WHO Mission Statement. That is, all activities in the reference, circulation, promotions and marketing services are considered moderately important to the surveyed respondents, but are indicated as necessary in the cited body and concept. To illustrate customer care, is the trend to meet the needs of the user according to the IFLA/UNESCO Guidelines; so is material or resource reservation as imperative in the circulation service; moreover, with the need for a collection development. Nicholas’ Concept of Promotions and Marketing demands for a marketing plan so as to know what the users need and for librarians to know how to respond to their health information queries. The WHO Mission Statement likewise demands that all the activities of the three identified services are geared toward the achievement of better health for everyone.

To reiterate, the moderate important rating of these services are not in keeping with the provision of IFLA/UNESCO Guidelines, Nicholas’ Concept of Promotions and Marketing and the WHO Mission Statement. It could be safely stated then that the CAR Public Libraries Health Information Provision in CAR public libraries are limited in their carrying out of their role as health information providers. They seem to lack commitment and seriousness in their handling of this health information provision role; forgetting that health deals with people and people means life.

\textbf{3.4. Health Information Provision Program for the CAR Public Libraries}

Shedlock’s (2014) discussion on the health sciences librarians work implies that the provision of health information demands search for and identification of answers that solves a user’s information problem. This demand is influenced by information overflow; there is so much information that to answer questions, one has to swim in an ocean of information. The skill to find answers is highly desired and valuable.

The value of a skillful librarian knowing where and how to find an answer is compounded by the issue of access. David Beninghausen, a longtime leader in the continuing effort to protect intellectual freedom said that “a democracy cannot succeed unless citizens have access to varying views on issues that influence their lives and governance.”
To be able to provide the needed answers to health questions, the Car public libraries ought to have a plan—a program to follow to ensure they succeed in this undertaking. The Health Information Provision Program should have the following: (taken from the Health Sciences Librarianship)

- **Collection Development Policy.** This is the art of understanding and meeting user health information needs through careful assessment of the population served, evaluation and acquisition of resources in a variety of formats to serve those needs and on-going maintenance and care of the collection including deselection.

- **User Services Plan.** The success and quality of a library are dependent not only on its collections but also on the quality of its services.
  - **Reference Service** on information service primarily refers to the professional public service activities librarians carry out in order to unite the user with the right information. It is now bent understood in terms of the bare unit of service, the “reference transaction”. This is defined as the information consultations in which library staff recommend, interpret, evaluate, and/or use information resources to help others to meet particular needs. Reference transactions do not include formal instruction.
  - **Circulation** in its basic concept is seeing to it that health materials are rotated among all the health users.
  - **Promotions and Marketing.** The goals of marketing and promotion of any service are to develop long-term relationships and repeat business. Marketing the health information services necessitates creativity as well as opportunism (strike while the iron is hot), developing a marketing plan is a sure step to make the health information service succeed. Suggested activities include:
    - Assessing the environment for introducing the service. This may involve a SWOT analysis.
    - Stipulating the goals for the marketing campaign. These should naturally be related to the overall goals for the library.
    - Spelling out campaign objectives. These should be SMART objectives (Specific, Measurable, Attainable, and Time-bound).
    - Identifying the primary audience(s) for the service and marketing campaign, and prioritizing them.
    - Developing key messages for the campaign. This is the point at which the most important aspect of the service—those features of the library health information service that should be
highlighted the most, and most often—are identified and key phrases to describe them are produced.

- **Outlets/strategies for presenting the messages.** This is the pint at which any and all media outlets or presentation formats are identified for broadcasting the messages about the service.
- **Consider collaborating with other organizations to extend the promotions reach in the target audience.**
- **Develop means to measure the success or failure of promotional efforts.** Include process evaluation measures—such as numbers of presentations, articles, health affairs, and other campaign efforts—as well as outcome measures—such as numbers of questions received, follow-up surveys, or website analytics.

### 4. Conclusion

The public library is many things. An explanation of this is the myriad of roles the public library plays as it carries its responsibility to bring information and people together. One role the public library plays is in providing health information to people. The relevance of this role today can be measured by the incessant appearance of diseases and viruses never seen before. As a result, ordinary citizens face increasing pressure to be health “consumers”, and to play a more active role in providing their own care. (Harris, Henwood, Marshall and Bundett, 2010).

The CAR public libraries, sad to say are uncertain of this role. Their reference, circulation, and promotions and marketing services have not advanced a bit. Newer activities needed to fulfill their health information provision role are considered not that important. Their health collection is at a stand still. Government publications like those of the Department of Health are non existent unless these are commercially published and sold. Health researches are not even looked forward to as enriching their library collection. They don’t go beyond lending of health books, forgetting that as public libraries, they can expand their service to link people to the information needed, or to practical assistance that users need whenever the source exists in or out of the library.

#### 4.1 Recommendations

Based on the findings and conclusion of the study, the following are strongly recommended:

- The CAR public library personnel are to take health issues by heart and to seriously reconsider the manner by which they respond to health information queries.
o Reference transaction be observed.
o Circulation to include reservation of health sources.
o User needs assessment and segmentation are to be done continuously.
o Health collection to be augmented by original health researches and government publications.
• Collaboration and partnership with other health stakeholders are to be observed.
• Training of CAR library personnel in appropriate level of health service.
• Drafting of a Health Information Program containing all the parts as suggested in the study.
• A follow through of the drafted Health Information Program.

References:


Gliem, J.A. (2003, October 8) Calculating, interpreting, and reporting Cronbach’s alpha reliability coefficient for Likert-type scales. Paper presented at the Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education, Columbus, OH.


IFLA (2001) The Public Library Service: IFLA/UNESCO guidelines for development. [international federation of library associations and institutions]. Ed. for the


iLEARN, You Learned: Information Literacy Instruction

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ABSTRACT

The De La Salle Araneta University - Learning Resource Center has developed new Information Literacy Instruction (ILI) program - iLEARN or Information and Library Electronic Access/Resources Navigation. The Learning Resource Center recognized the importance of ILI in helping the Senior High School students to acquire skills in assessing all the information that has been available locally and globally whether in print or online resources. In the Final report of the ALA Presidential Committee on Information Literacy (2019), information literacy is defined as “to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information”. Combination of approaches in information literacy program has been integrated by libraries (Kasowitz-Scheer and Pasqualoni, 2002) which became part of the library services or programs. Information literacy instruction has evolved from merely a simple orientation to an interactive instruction or session. According to Lokse et al. (2017), teaching of information literacy has been established in most of the higher education institutions and teaching it has been placed in the hands of the library staff. In another context in academic librarianship, information literacy is centered on the two aspects, “effective access and operationalization of information by the individual” (Lloyd, 2010). This paper focused on analyzing what area of the DLSAU LRC iLEARN needs to be improved or enhanced. The findings of this study provide valuable results in the enhancement of the ILI design and implementation through integration of creative, engaging and fun-learning activities.

Keywords: Information Literacy, Library Instruction, Information Literacy Instruction

Introduction

iLEARN or Information and Library Electronic Access/Resources Navigation is the newly developed information literacy instruction (ILI) program of the De La Salle Araneta University-Learning Resource Center (DLSAU-LRC). It was created last November 2018. It is responsible in teaching the students for effective searching and finding the right information at the right resources and reliable sources. Nowadays, information is easily and readily available whether locally or globally, and this ILI program will prepare the students for higher education, career, and lifelong learning. The students will learn to evaluate the information and use it effectively.

In Doyle’s Outcome Measures for Information Literacy within the National Education Goals of 1990, Final Report to National Forum on Information Literacy states that

Information literacy is the ability to access, evaluate, and use information from a variety of sources this represents the basic components of group consensus. This concise statement is expanded by
a listing of the discrete attributes of an information literate person. An information literate person is one who:

- Recognizes the need for information
- Recognizes that accurate and complete information is the basis for intelligent decision-making
- Formulates questions based on information needs
- Identifies potential sources of information
- Develops successful search strategies
- Accesses sources of information including computer-based and other technologies
- Evaluates information
- Organizes information for practical application
- Integrates new information into an existing body of knowledge
- Uses information in critical thinking and problem solving

In the article about Information Literacy found on the Common Sense Education’s website (n.d.), the same concept was mentioned that “from effective search strategies to evaluation techniques, students learn how to evaluate, credibility, and validity of websites and give proper credit.”

Information literacy (IL) has been understood as a key skill of the Information Age. Information literacy was first viewed as “systematic research skills or more specifically, a library based research” which is commonly used in connection with bibliographic instruction. Information literacy then became as “techniques and skills needed for identifying, locating and accessing information resources by using information tools and the ability to use the Internet” (eds Lloyd & Talja, 2010).

According to the study of Karimi, Ashrafi-rizi, Papi, Shahrzadi, & Hassanzadeh (2015), information literacy is a way to keep pace with development and empowerment of students and that the education centers and universities play an important role in the improvement of the educational programs and to include information literacy courses in the students’ program. Furthermore, information literacy training that was based on standards are very useful and applied by or taught by librarians will lead to better results, due to the proficiency of the librarians in the field of information.

This study is an action research which “is a disciplined process of inquiry conducted by and for those taking the action.” The primary reason for engaging in action research is to assist the “actor in improving and/or refining his or her actions.” (Sagor, 2019). Numerous libraries developed ways to assess the implementation of information literacy and many librarians have developed their own tools to assess the different facets of information literacy (Walsh, 2009).

This study aims to answer the following research questions:

1. What are the general perceptions of grade 12 senior high school students about iLEARN?
2. What are the tools and strategies used by the librarians in conducting the iLEARN session?
3. What are the areas for improvement or refinement of iLEARN based on the ranking result?
The reported results from this study provide an important insight into the current state of newly created ILI program of DLSAU LRC as perceived by the Grade 12 senior high school students. In the study of Kovalik, Yutzey & Piazza (2013), the researchers selected the senior high school students wherein the perception of the students on what information literacy means and how one engages in finding and using information may be enhanced.

As Fenske and Roselle (1998) mentioned that “evaluation surveys do have an integral role to play in improving library instruction.” While Noe (2013) stated in her book that to determine the efficacy of the information literacy, “an honest assessment from a number of the stakeholder is required.”

Methodology

A quantitative research method was done in the form of an online survey, which was administered right after the iLEARN session. An online mechanism or a web form via Office 365 was used to gather data. A five-point Likert scale survey was used in this study to collect responses and to understand respondent ratings and agreement levels from the six-item questionnaire.

To collect relevant data, there were 195 Grade 12 senior high school student-respondents (see Figure 1). Out of the total 195 respondents, 126 or 64 percent were from the STEM track, 52 or 27 percent were from the HUMMS track and the remaining 17 or 9 percent were from the ABM track. The students were brought in the library by their professor on the scheduled iLEARN session.

FIGURE 1
Distribution of Respondents by Track

Results and Discussion

Based on the evaluation results as presented on Table 1, the grade 12 senior high school students’ scores showed that all the items were rated “strongly agree.” The findings also revealed that the general perception of the grade 12 senior high school students on iLEARN session were “strongly agree” indicating high level of agreement with an overall average weighted mean of 4.62. In 2011, Chen noted that “evaluation is an
essential part of any information literacy program.” He also pointed out that evaluation and assessment are two necessary components of the IL program.

**TABLE 1**
Perception of the Grade 12 Senior High School Students on the iLEARN

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>WEIGHTED MEAN</th>
<th>V.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. iLEARN provides valuable information about the LRC.</td>
<td>137</td>
<td>53</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>4.68</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>2. iLEARN was very useful.</td>
<td>133</td>
<td>54</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>4.64</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>3. iLEARN presentation was well-organized and easily understood.</td>
<td>131</td>
<td>55</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>4.62</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>4. iLEARKN covered enough information at the allotted time.</td>
<td>125</td>
<td>61</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>4.59</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>5. The librarians have effective communication and presentation skills.</td>
<td>120</td>
<td>61</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>4.54</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>6. The librarians presented in clear and understandable manner.</td>
<td>131</td>
<td>53</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>4.62</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

**AVERAGE WEIGHTED MEAN 4.62 Strongly Agree**

SA- STRONGLY AGREE A- AGREE N- NEUTRAL D- DISAGREE SD- STRONGLY DISAGREE

The iLEARN session was done by the librarians and used an interactive presentation utilizing technology tools like Free Conference Call for screen sharing, YouTube videos, and web forms via Office 365 for answering the research worksheets and survey. In the study of Sawetrattanasatian (2014), he pointed out that information literacy session should be incorporated and reinforced with Web 2.0 technology “as a fascinating tool for Information Literacy Instruction (ILI), especially in academic libraries.”

According to the book Information and Libraries, it also mentioned the same concept that “modern librarians have adopted new technologies to meet the needs of their users” (Balice, 2017). In 2007, Riedling pointed out that implementing an IL “is a practical guide about what seniors actually need to know before leaving high school; that they are information literate from A to Z.”

Some strategies were utilized and incorporated to engage the students in the iLEARN through post activities such as Q&A games and research worksheet. In 2007, Riedling conducted a study that presents the use of IL lesson, checklist and other evaluation kits to engage the students in IL. In 2017, Balice stated that as the role of the libraries has evolved and changed, so as the role of the librarian. She also stated that “increasingly librarians have assumed the role of educator to teach their users how to find information both in the library and over electronic networks.”
In the study of Chen (2011), he mentioned that “the role of academic libraries and librarians continues to evolve, with libraries increasingly approaching the digital library, and librarians forced to become increasingly multi-skilled.”

**TABLE 2**
Ranking of Items Based on Weighted Mean

<table>
<thead>
<tr>
<th>ITEMS</th>
<th>WEIGHTED MEAN</th>
<th>RANK</th>
<th>VERBAL INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>iLEARN provides valuable information about the LRC.</td>
<td>4.68</td>
<td>1</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>iLEARN was very useful.</td>
<td>4.64</td>
<td>2</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>iLEARN presentation was well-organized and easily understood.</td>
<td>4.62</td>
<td>3</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>The librarians presented in clear and understandable manner.</td>
<td>4.62</td>
<td>3</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>iLEARN covered enough information at the allotted time.</td>
<td>4.59</td>
<td>4</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>The librarians have effective communication and presentation skills.</td>
<td>4.54</td>
<td>5</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

Glancing closely at Table 2, it was indicated that the “iLEARN provides valuable information about the LRC” has the highest average weighted mean of 4.68 among the six items and ranked first with verbal interpretation of “strongly agree.”

The item “iLEARN was very useful” ranked second with an average weighted mean of 4.64 and interpreted as “strongly agree.” This shows that students perceived a positive attitude towards the value of libraries (Islam & Murno, 2016).

The two items, “iLEARN presentation was well-organized and easily understood” and “The librarians presented in clear and understandable manner” were both ranked third and interpreted as “strongly agree.”

While items “iLEARN covered enough information at the allotted time” and “The librarians have effective communication and presentation skills” interpreted as “strongly agree” with weighted mean of 4.59 and 4.54 respectively ranking at fourth and fifth position. In 2013, Noe remarked that one of the presentation skills of an instruction librarian is to present “instructional content in diverse ways (written, oral, visual, online or using presentation software) and selects appropriate delivery methods to class needs.” Providing multimodal learning opportunities is a good instructional strategy which make a huge impact on student learning and it also cater to the diversity of students. (Eshleman, Moniz, & Eshleman, 2016).

**Conclusion and Recommendations**

Based on the findings of the study, it is concluded that the grade 12 senior high school students perceived this new information literacy instruction program of the DLSAU-
LRC highly positive with high level of agreement. This results align with Erlinger’s (2018) findings that the feedback from “ILI sessions was largely positive, and some unexpected findings were uncovered.” According to him, the students found out that ILI is useful and that “they had expressed a desire for more ILI.”

With the developing technology, the librarians used various technology tools and strategies in delivering the ILI like screen sharing application, videos and web forms. In 2013, Noe stated that an effective instruction librarian must experiment in trying to take new approaches and technologies in implementing IL.

The results from this study also concluded that the ILI content needs refinement to cover important topics. Likewise, the communication and presentation skills of the librarians should be improved.

Based on the findings, training on the use of Web 2.0 tools and presentation skills can be done. These trainings will give the librarians a better opportunity to know the various application tools that can be applied and integrated in iLEARN. Likewise, the training on communication skills will improve the librarians’ presentation skills.

ILI module can be developed to enhance the coverage of the topics in information access, navigation, and use. This module will better assist the librarians in implementing iLEARN.

Although this study is limited in breadth in terms of target population and area, the complexity of the data and analysis being provided was not found in any previous reviews on the topic of ILI for senior high school.

A similar study or further research can be done that expands the scope in terms of target population, or area to validate the results of the study.

REFERENCES


Books on the Red List in Japanese Public Libraries

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ABSTRACT

By using (1) search records in Calil.JP (i.e., a free online service that enables federated searching in online public access catalogs [OPACs] in Japan), (2) OPACs of Japanese public libraries, (3) the OPAC of the National Diet Library ([NDL] i.e., a legal deposit library), and (4) CiNii Books, etc., we found 21 Japanese books that are held by only a small number of public libraries. These are likely the “last copies,” as they are not held by the NDL or university libraries too. They may be regarded as books on the Red List. However, most of them were published after 1990 by popular publishers and are not historical rare books. Therefore, it is highly probable that their rarity or scarcity are not properly recognized by the librarians and thus are not under special protection. The search records in Calil.JP indicated that they were searched in many public libraries and, in that sense, there is a strong need or demand for them. Public libraries should find such Red Listed books in the collection and pay special attention to them. When they have to weed such books, they should donate them to the NDL.

Keywords: Weeding, public libraries, National Diet Library, legal deposit, Calil.JP

1. Introduction

In this paper, we examine Japanese books that are only held by a small number of Japanese public libraries, which are likely the “last copies,” as neither the NDL nor Japanese university libraries have copies. They may be regarded as books on the Red List.

We assume that every book is part of a precious cultural heritage and therefore, all kinds of libraries should cooperate to provide them. According to this position, if a book is held by only one public library, but not by any other libraries in the country,1 it should not be weeded from the collection. If the library must weed it (e.g., space limitation), it should donate the book to a legal deposit library, which holds all the books published in that country. In Japan, some books are not held by the NDL or university libraries,  

1 We restrict “all the libraries” to those in one country. We leave it for future research to deal with all the libraries in multiple countries or all on earth.
but rather, they are held in public libraries. This paper contributes to the literature by presenting the results of concrete quantitative research concerning books that are solely held by Japanese public libraries.

2. Related Studies

There is only a small number of studies that have conducted quantitative research on the “last copies” of books. Furthermore, we have not found any literature that recommends donating these books to a legal deposit library. Kisling et al. (2000) pointed out that there was a lack of “last copy policies” among academic libraries and proposed “a regional cooperative depository for the last copy of English language titles held at the region’s academic/research libraries.” However, no quantitative data was presented.

A taskforce on the Council on Library and Information Resources (CLIR) proposed the establishment of archival repositories that would retain a “last, best copy” of American imprints (Nichols and Smith 2001). They recommended the cooperative collection, storage, and management of information resources by utilizing multiple libraries. To implement these recommendations by the CLIR taskforce, Reilly and DesRosiers (2003) examined shared repositories: the Northern Regional Library Facility (NRLF; one of California’s two state-funded regional repositories), the Southern Regional Library Facility (SRLF; the second of California’s two regional repositories), the Five-College Library Depository (a repository that served four liberal arts colleges and Amherst’s University of Massachusetts. Please note that we use ‘repositories’ interchangeably with ‘depositories’), CONStor (a repository that was formed under the aegis of the Five Colleges of Ohio, Inc.), Washington Research Libraries Consortium (WRLC; a repository for eight institutions), Research Collections Access and Preservation Consortium (ReCAP; a repository for Columbia University, the New York Public Library, and Princeton University), as well as Southwest Ohio Regional Depository (SWORD; a repository for the University of Miami, Wright State University, the University of Cincinnati, and Central State University). Reilly and DesRosiers (2003) stated the importance of collecting and preserving these “last copy” imprints, or “items that are rare and possibly unique.”

Connaway et al. (2006) showed that the WorldCat contained 24 million records for items held by only a single Online Computer Library Center (OCLC) member library. More precisely, as of January 1, 2005, WorldCat found 54 million bibliographic records, indicating holdings at more than 953 million library locations. 24 million (i.e., 44%) of these bibliographic records represent items that are held by a single library. Connaway et al. (2006) examined the materials held exclusively by Vanderbilt University Libraries. Among those materials, Connaway et al. (2006) pointed out that manuscripts were
readily identifiable and most libraries are very aware of the uniqueness of their manuscripts. In that sense, manuscripts are “only copies” rather than the “last copies.”

Connaway et al. (2006) distinguished work, expression, and manifestation based on the Functional Requirements for Bibliographic Records (FRBR) model. In this model, a work is considered an abstract concept that the creator wants to convey. When the work becomes realized, it becomes an expression. Then, after this expression is published, it becomes a manifestation of the work. Using FRBR concepts, Connaway et al. (2006) extended the “last copy” concept to define a “last expression,” which represents the last known manifestation of the expression (i.e., the only remaining copy of specific intellectual or artistic content).

O’Connor and Jilovskey (2009) outlined some issues and approaches regarding the preservation of last copy materials in academic libraries. Soma and Sjoberg (2011) reported a weeding project in Concordia College’s Carl B. Ylvisaker Library. The weeding criteria was primarily based on circulation data as well as the usefulness and uniqueness of the books. The rare titles, which fewer than five libraries owned worldwide, were retained unless they were no longer useful. Gillies and Stephenson (2012) reported the collaborative weeding projects among the University of Waterloo, Wilfrid Laurier University, and the University of Guelph (Tri-University Group of Libraries [TUG]). They described how the “TUG Preservation of Last Copy Agreement” was developed and how specific weeding projects (e.g., monographs deduplication, the weeding of STM journals, and a JSTOR journal’s last copy project) were conducted. Lynd (2015) introduced how to carry out weeding in academic libraries and emphasized donating (rather than discarding) books to organizations, such as Better World Books, Books for Africa, and Book Aid. However, a legal depository was not included in her list of organizations. Also, there was no quantitative data presented. Busch et al. (2019) reported the weeding of the engineering collection at the University of Tennessee’s Martin’s Paul Meek Library. In this process, the student workers used WorldCat FirstSearch to see how many other libraries owned the books that were candidates for removal. They adopted weeding criteria, which included keeping titles that were held by fewer than ten libraries worldwide or fewer than four libraries within the state of Tennessee.

Regarding Japanese libraries, Hori (2015) reported on the current cooperative preservation efforts by Japanese public libraries, especially Tama Deposit Library. Yoshimoto (2015) also mentioned this endeavor, and Saito (2015) reported that public libraries in the Tama area held approximately 320,000 books that were “last one or two copies.” Yoshii (2019) clarified the characteristics of the books weeded by the Edogawa City Library and their weeding procedure.
3. Method

As of April 1, 2019, there are 1,380 local governments (in prefectures, cities, special wards, towns, and villages) with public libraries in Japan (Japan Library Association 2019). Some local governments have multiple public libraries, so there are a total of 3,277 libraries. Most of these local governments provide OPACs that can search the entire collections of their public libraries (i.e., library systems).

Calil.JP is a free online service that enables the federated searching, marshaling, and integration of the abovementioned OPACs (Yoshimoto 2012, 2015). They are recording which books in which libraries were when searched by ISBN. In this study, the search results are formally represented as $R_{ilt}$, where $i$, $l$, and $t$ represent ISBN, library system, and the time of the search, respectively. $R_{ilt}$ can have two values: “1” when the book was held by that library system, and “0” when it was not held. It is important to note that Calil.JP does not have $R$ for all the combinations of ISBNs and library systems, but only for those that were searched by the Calil.JP users. For example, it does not have $R$ for books that have never been searched.

We purchased the abovementioned search results, which were recorded from December 1, 2014, to September 24, 2019. However, due to a limited budget, only the most recent data for each combination of ISBNs and library systems were purchased. For example, if a book with ISBN $X$ was searched in library system $Y$ on January 1, 2015, 2017, and 2019, only the search result $R_{XY}$ for January 1, 2019, was purchased. The total number of records purchased for this study was 561,574,537.

In the data from Calil.JP, we identified 8,513 books that were searched in 1,000 or more library systems (i.e., popular books or books that were in high demand) and only one library system held. By submitting the ISBNs of these books into the NDL’s OpenSearch (from October 13–14, 2019), we identified 1,654 books that were not held by the NDL. Among these, there were 52 books with ISBNs that began with “4” (meaning that they are in Japanese). Then, we manually searched these books by title in the NDL’s OPAC to ensure that they were not held. Next, we manually searched them by their ISBNs and titles in CiNii Books, which was able to search the entire collection of the Japanese university libraries.

4. Results and Discussion

Among the abovementioned 52 books, 27 were held by the NDL (i.e., ISBNs were not

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2 As we previously mentioned, there are 1,380 public library systems in Japan, as of April 1, 2019. We identified books that were searched in 1,000 or more library systems and that were held by only one library. Therefore, the books we identified may also be held in other library systems than the abovementioned 1,000 or more systems. In the worst case, 380 library systems may also hold them, which is why we avoided calling them “last copies” (as other studies had). Instead, we called them “books that were held only by a small number of public libraries.” We leave it for future researchers to search each book in the OPACs of the remaining library systems.
included in their bibliographies and thus were not found by the ISBN search). Among the remaining 25 (=52–27) books, 21 were not found in CiNii Books, which means that they were not held by Japanese university libraries.

Table 1 shows the abovementioned 21 books that were held by public libraries, but not by the NDL or university libraries. In Table 1, “NDC” represents Nippon Decimal Classification. Among these 21 books, about 43% (nine books) had NDC class “7” which represents “Arts.” We can see in “Note” column that four books are musical scores. Similarly, two books include CDs or cassette tapes (“Audio”). These music or audio related books may tend to be Red Listed books. Another two are “mooks” (which are physically similar to magazines but are intended to be dealt with as books) and comics.

We can see in “Year” column that 18 books out of 21 were published in and after 1990. Many of their publishers are popular in Japan. They are not historical rare books. Therefore, it is highly probable that these books’ rarity or scarcity are not properly recognized by the librarians and thus are not under special protection. As we previously mentioned, these books were searched via Calil.JP in 1,000 or more library systems. In that sense, there is a strong need or demand for them although they are not held by many libraries. Public libraries should find these books in the collection and pay special attention to them. Because NDL should hold all the books published in Japan, public libraries should donate the abovementioned Red Listed books to the NDL when they have to weed the books.

Table 1. Books held by public libraries that were not held by the NDL or university libraries

<table>
<thead>
<tr>
<th>ISBN</th>
<th>Local Government Name</th>
<th>Type of L. G.</th>
<th>NDC</th>
<th>Note</th>
<th>Title</th>
<th>Publisher</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>4636819917</td>
<td>Aichi_Toyota</td>
<td>City</td>
<td>763</td>
<td>Score</td>
<td>まほろば 幸上著 薫なるヒルアル・ステージを醒る才女ブーム・フラッシュサクション</td>
<td>YMM</td>
<td>2007</td>
</tr>
<tr>
<td>4844753003</td>
<td>Hiroshima,Kure</td>
<td>City</td>
<td>748</td>
<td></td>
<td>ひと שתי ひと ひと 石真真</td>
<td>つく房</td>
<td>1994</td>
</tr>
<tr>
<td>4040171325</td>
<td>Hiroshima,Hamamachi</td>
<td>City</td>
<td>911</td>
<td></td>
<td>女織者…青江久美子訪談</td>
<td>角川書房</td>
<td>1992</td>
</tr>
<tr>
<td>4860679112</td>
<td>Hakusada,Kamikawa</td>
<td>Town</td>
<td>498</td>
<td>Mosk</td>
<td>ハプスブ活性 2019 spring (SHIRU-MARU MOOK 恐竜音楽の本)</td>
<td>地球丸</td>
<td>2019</td>
</tr>
<tr>
<td>4046026278</td>
<td>Kumamoto,Yama City</td>
<td>City</td>
<td>810</td>
<td></td>
<td>センター試験昭和文・薫の音楽の面白いかどうか本 改訂版</td>
<td>KADOKAWA</td>
<td>2014</td>
</tr>
<tr>
<td>4117002015</td>
<td>Miyagi Prefecture</td>
<td>Score</td>
<td>481</td>
<td></td>
<td>三声書房シンチュクコースへの必須</td>
<td>金善業出版</td>
<td>1998</td>
</tr>
<tr>
<td>426901010X</td>
<td>Miyazaki Prefecture</td>
<td>Preference</td>
<td>933</td>
<td></td>
<td>アリスの地下の冒険</td>
<td>武田社</td>
<td>1988</td>
</tr>
<tr>
<td>4257000308</td>
<td>Nippara,Sanjo</td>
<td>City</td>
<td>620</td>
<td>Audio</td>
<td>レバレオシュタインの対決ー縁着者ロジカル・音楽的カセット板 30</td>
<td>朝日ソノラマ</td>
<td>1989</td>
</tr>
<tr>
<td>4871898262</td>
<td>Oita,Kotanomori</td>
<td>City</td>
<td>112</td>
<td></td>
<td>CO スーパーマリオ RPG オリジナル・サウンド・ヴァージョン</td>
<td>エスティディ出版</td>
<td>1995</td>
</tr>
<tr>
<td>4040059292</td>
<td>Osaka,Higashihama</td>
<td>City</td>
<td>188</td>
<td></td>
<td>小説魔・小江の命を大切にする気づきの手帳2015</td>
<td>KADOKAWA</td>
<td>2014</td>
</tr>
<tr>
<td>4240137282</td>
<td>Shiga,Higashino</td>
<td>City</td>
<td>526</td>
<td>Comic</td>
<td>はなれたねBoogie (ジャンプスーパーマガジン)</td>
<td>新潮社</td>
<td>1990</td>
</tr>
<tr>
<td>4901250207</td>
<td>Shiga,Osuka City</td>
<td>City</td>
<td>913</td>
<td></td>
<td>浮世 私がいないても、あなたがいれば</td>
<td>青梅書房</td>
<td>2016</td>
</tr>
<tr>
<td>4636859847</td>
<td>Shiga,Osuka City</td>
<td>Mook</td>
<td>503</td>
<td></td>
<td>昭和のピアノ 2010 版号 (参考演拡CD付) (マヤマムックシリーズ20)</td>
<td>ヤマハミュージックメディア</td>
<td>2010</td>
</tr>
<tr>
<td>4991042402</td>
<td>Tokyo,Bunkyo Special</td>
<td>Special ward</td>
<td>673</td>
<td></td>
<td>選ばれる楽章…こうばれは、笑み返される</td>
<td>DMM PUBLISHING</td>
<td>2018</td>
</tr>
<tr>
<td>463674248X</td>
<td>Tokyo,Katsushika</td>
<td>Special ward</td>
<td>583</td>
<td>Score</td>
<td>エレクショングレード3級 STAGEA パーソナルシリーク愛華典子参戦2</td>
<td>ヤマハミュージックメディア</td>
<td>2018</td>
</tr>
<tr>
<td>4636830199</td>
<td>Tokyo,Meguro Special</td>
<td>Special ward</td>
<td>767</td>
<td>Score</td>
<td>ヴァーコルピアノ カフェオレ!) Love a Piano</td>
<td>YMM</td>
<td>2008</td>
</tr>
<tr>
<td>4031388933</td>
<td>Tokyo,Meguro Special</td>
<td>Special ward</td>
<td>705</td>
<td></td>
<td>フリースタイル40 『ホッコホッコ』 かつての平成×大阪の</td>
<td>フリースタイル</td>
<td>2018</td>
</tr>
<tr>
<td>4007391913</td>
<td>Tokyo,Nerima Special</td>
<td>Special ward</td>
<td>494</td>
<td></td>
<td>歩き方が人生を変える！ 一日出先からの生活     声の時間</td>
<td>グロービック出版</td>
<td>2013</td>
</tr>
<tr>
<td>4860521750</td>
<td>Tokyo,Shinjuku Special</td>
<td>Special ward</td>
<td>728</td>
<td></td>
<td>かいて誰かさん</td>
<td>センチュリー オンライン</td>
<td>2015</td>
</tr>
<tr>
<td>4924727059</td>
<td>Toyama,Kurobe City</td>
<td>City</td>
<td>376</td>
<td>Comic</td>
<td>試験前にいかにすばやい本—標準40でも東大に入れる定番の和式受験法88</td>
<td>株式会社ヒラマラックラコック</td>
<td>1988</td>
</tr>
<tr>
<td>4612451108</td>
<td>Wakayama,Ariake City</td>
<td>Town</td>
<td>726</td>
<td>Comic</td>
<td>黄治吉郎の「マダム花子」ハンプー・コックス</td>
<td>竹書房</td>
<td>1995</td>
</tr>
</tbody>
</table>
5. Conclusion

By using (1) the records from Calil.JP, (2) OPACs of Japanese public libraries, (3) OPAC of NDL, and (4) CiNii Books, etc., we found 21 Japanese books that are held by only a small number of public libraries. These are likely the “last copies,” as they are not held by the NDL or university libraries too. They may be regarded as books on the Red List. Public libraries should pay special attention to them. At least, when public libraries weed a book, they should search NDL’s OPAC to verify that the book is held there, and if it is not, then they should donate it to the NDL.

In this paper, we investigated only books that were searched in 1,000 or more library systems via Calil.JP. In the future, we will randomly extract books from the abovementioned 561,574,537 search records of Calil.JP and examine whether they are the last copies or not. Through such researches, the total number of last copies held by Japanese public libraries will be estimated.

REFERENCES


Levenson, H. N. 2015. Michigan Shared Print Initiative and GreenGlass for Groups for Data Analysis in Developing a Collaborative Collective Collection, Journal of
RESOURCES DESCRIPTION AND ACCESS: A NEW CATALOGUING RULES FOR LIBRARIANS.

BY

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ABSTRACT

Resources description and access is a new cataloguing standard code that replaces the Anglo American cataloguing rules 2nd edition (AACR2) though it has strong link to AACR2, RDA is quite different because it based on a theoretical framework, designed for digital environment and it has a broad scope than AACR2. RDA consists of a set of practical instruction. RDA will be the end result of effort that have been underway for time to simplify, clarify and update the Anglo American Cataloguing rules, or AACR2. This paper discussed what is RDA, the impact of RDA, Relationship/different between RDA and AACR2 and furthered recommended that, in order to achieve the set objectives of a new standard code there is need for librarians and other information personal to embrace and understand the new standard code for adoption in their respective libraries.

Key words: -Resources description and access, the impact of RDA and Relationship/different between AACR2 and RDA.
ABSTRACT

Resources description and access is a new cataloguing standard code that replaces the Anglo American cataloguing rules 2nd edition (AACR2) though it has strong link to AACR2, RDA is quite different because it based on a theoretical framework, designed for digital environment and it has a broad scope than AACR2. RDA consists of a set of practical instruction. RDA will be the end result of effort that have been underway for time to simplify, clarify and update the Anglo American Cataloguing rules, or AACR2. This paper discussed what is RDA, the impact of RDA, Relationship/different between RDA and AACR2 and furthered recommended that, in order to achieve the set objectives of a new standard code there is need for librarians and other information personal to embrace and understand the new standard code for adoption in their respective libraries.

Key words: - Resources description and access, the impact of RDA and Relationship/different between AACR2 and RDA.

INTRODUCTION

The organization and retrieval information start with decision on what to acquire for use, how much is available for acquisition for such information resources and sources. The systematic process of collecting any information and cataloging data so that they can be located and displayed on request.

A library catalogue is a retrieval system introduced in a library all over the world, it main primary objective is to facilitate effective navigation of the collection of information materials, possession of a library in order to locate the needed information resources.

According to Ranganathan (1931) a library is a growing organism, which he means that a library notwithstanding its size or area of location is not a static entity or setting. It is dynamic, as dynamic as the human organization for which is established. Correspondingly, a library catalogue must be organic, dynamic and co-extensive with occurring growth and development in library parse.

A cataloger is a professional librarian whose work is to create and maintain a retrieval device without any hindrance or
difficulty. His main task of describing and facilitating access to each and every document in a library collection according to some pre-determined and generally accepted guide lines, which refers as codes of cataloging. These changes in cataloging rules/codes would continue as long as the exist, for which a catalogue is created, and would continue to grow and develop.

Oliver (2011) described RDA as a set of guide and instructions for formulating data to support resources discovery.

Wikipedia (2012) is a standard for descriptive cataloging initially released in June, 2010. Providing instruction and guidelines on formulating bibliographic data intended for use by libraries and other cultural organization such as museums and archives, RDA is the successor of Anglo-American Cataloging Rules second editions.

Salam (2011) RDA stands for resources description and access; it is now cataloging standard replacing AACR2. RDA is based on the FRBR (Functional Requirement for Bibliographic Records) and FRAD (Functional Requirement for Authority Data) concept model. FRBR and FRAD are models which are
international recognize as viable and valuable ways to conceptually structure and retrieve information.

**BRIEF HISTORY OF CATALOGING CODES**

The first American and British Cataloging rules were established back to nineteenth century. These included Sir Anthony Panizi ninety-one rules for compilation of the British Museum printed catalog (1841) and Charles Ammi Cutter’s for a dictionary catalog (1876).

An early international code was developed by the American library association and the library association (Britain) in 1908. The revision of this work were published in 1941 and 1949. The 1949 revision was a collection of cases, many of them very specialized, because they were not based on organization theory, they were not helpful when catalogers had to deal with new situations and as a result they were largely ignored outside North America. In the 1950s ScymourLubertzky of the library of congress analyzed the 1949 revision and recommended that further edition be based on guiding principles rather than consist of a number of cases. In 1961, the international conference on
cataloging principles was held in Paris, where a statement of twelve principles, known as Paris Principles was agreed upon.

The first Anglo American Cataloging Rules (AACR) was published in 1967. In two different version one for the United States and another for United Kingdom and Commonwealth nations.

**RESOURCES DESCRIPTION AND ACCESS**

Resources Description and Access, is the new cataloging standard that replaces the Anglo American Cataloging Rules, 2nd edition (AACR2), though it has strong link to AACR2, RDA is quite different because, it is based on a theoretical framework, it is designed for digital environment, and it has a broader scope than AACR2.

**Based on a theoretical framework**

Like AACR, RDA consists of set practical instructions. RDA is based on a theoretical framework that defined the shape, structure, and content of a new standard. The key to understand RDA is its alignment with two conceptual models, Functional Requirement for Bibliographic Records (FRBR) and Functional
Requirement for Authority Data (FRAD). FRAD is an extension of the FRBR model; the models are a way of understanding the bibliographic universe. They identify the tasks that users need to accomplish during the process of resource discovery and demonstrate how different types of bibliographic and authority data support the successful accomplishment of these tasks. FRBR and FRAD provide a theoretical and logically contingent basis on which to build an improved resource-discovery experience for the user.

The opening word of RDA state the overall purpose and scope as guidelines and instruction on formulating data to support resource discovery (O.O) the phrase to support resource discovery.

RDA is introduced in June, of 2010 but its conception began as far back as 1990 when the need to revise AACR2 was raised by some cataloguers. 1990 also marked the year when the work on functional requirements for bibliographic record was completed. The initial idea was to see how FRBR model could be incorporated into AACR2 in order to come out with AACR3. Due to the structural rigidity of AACR2, the proposal made by Tom Desley
(2007) for a completely new code was accepted by cataloging and classification section of the international federation of library association instead of AACR3, RDA was born.

**The main primary objectives of Resources Description and Access (RDA) among others are:-**

- To shed the Anglo-American bias and to internationalize the standard, the standard, making it easy to implement and use in countries around the world.
- To broaden the scope of the code so that it has archives, museums, publishers, etc. one of the advantages of this objective is to enable the growth of metadata (free-indexing or tagging) in other words sharing a common metadata but also ignite effort into adding more data elements.

RDA is not a new metadata standard as observed by Sherbini (2013) it is based on the foundations established by AACR2, which up till this moment is the most frequent used standard for building bibliographic records in the world.

RDA, according to Jagboro (2015) is built upon the conceptual frame work expressed in the model known as
functional requirement for bibliographical records (FRBR) and its counterpart Functional Requirement for Authority Data (FRAD), the FRBR conceptual model is based on a detailed analysis of bibliographic data. The model (FRBR) exposes the bibliographic universe, it looks at bibliographic data from the perspective of the users, thereby changing the focus of the cataloging. RDA has been designed to describe different resources and make them accessible.

It is based on Anglo-American Rules and all of libraries, archives, museums and publishers and other related organization can use it. Chapman (2006) believes that RDA has been designed by JSC in order to have better coordination and relationship with new technologies of databases with the goal of establishing new standard and will be improved.

**AVAILABILITY AND USAGE OF RDA**

RDA has been widely disseminated in various drafts for a few years. Most catalogers are familiar with some of concept in RDA, although few are expert at the new rules yet, this is partly because in the United State RDA was not universally accepted.
upon release in June of 2010. Instead the library of congress and 25 other libraries will test the new rules during a nine months period. This test began this summer and continue until April of 2011. At that time the library of congress will make a recommendation as to whether they feel it is worth it to adopt RDA or not. Until the library of congress commits to the new rules, most other U.S. Libraries are continuing to catalog using AACR2 rules. However there are 25 libraries assisting with the national test are, of course cataloging using RDA as of early November, 2010. There was approximately 3000 RDA in OCLC.

**IMPACT OF RDA**

RDA is a key step in the improvement of resources discovery because it guides the recording of data. The production of well-formed data is vital piece of the infrastructure to support search engines and data displays. RDA data alone will not improve navigation and display because of data must be used appropriately by well-designed search engines and search interfaces. Nevertheless, the recording of clear, unambiguous
data is a required step in the improvement of resources discovery.

RDA is designed to produce data that can be stored, searched, and retrieved in traditional catalogs. RDA data is also designed for use in the web environment and with newly emerging database technologies. It positions the library community to take advantage of the networked online environment and to make library data widely visible, discoverable and usable.

**BENEFITS OF RDA**

RDA build on the strength of AACR2 but has some new features that make it more useful as cataloging code for the digital environment in which libraries now operate.

**RDA:**

- Is better at catering for digital resources and for resources with multiple characteristics, and provide more guidance on the creation of authority headings.
- Is compatible with range of encoding schemes, such as MODS, Dublin Core, ONIX and MARC, allowing library catalogue records to be integrated with those produced by other metadata communities.

- Facilitates the clustering of bibliographic records for different edition, translation or formats of work, and more meaningful presentation of data to users.

- Is a web-based product, enabling cataloguers to view different level of completeness of the code, move between related instruction using hyperlinks, and integrate their own institutional policies.

- Is a transitional stepping stone that requires only small changes to catalogue records but moves the metadata in catalogue much closer to full utilization of FRBR models.

Australian committee on cataloging (ACOC).

**RELATIONSHIP/DIFFERENT BETWEEN AACR2 AND RDA**

There are significant different between RDA and AACR2, but important links between the two standards remain. RDA builds on the foundation of AACR. Many RDA instructions are derive from
AACR2. There was also a conscious effort to maintain compatibility with the legacy data of AACR2 records. RDA data can be encoded with the same MARC21 standard used for AACR2 records. In the early years of RDA implementation, RDA records will be stored and searched in databases and catalogs that are still predominantly composed of AACR2 records much of what make RDA new and different are parts that gear it to function effectively within the digital environment, but, at the same time, there is constant awareness that the standard must also function as a bridge between the past and future environments, and that not all libraries will progress at the same pace into new environments.

**CHANGES IN TERMINOLOGY**

Some RDA terminologies differ from that of AACR2, such changes in terminology are noted and presented as follows:-

**Table 1: Changes in Terminology**

<table>
<thead>
<tr>
<th>1. AACR2</th>
<th>2. RDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Area</td>
<td>4. Element</td>
</tr>
<tr>
<td>5. Main entry</td>
<td>6. Preferred access point</td>
</tr>
<tr>
<td>7. Added entry</td>
<td>8. Access Point</td>
</tr>
</tbody>
</table>
### RDA has a different structure from AACR2. The organization of the section in toolkit, displays a conceptual alignment with the FRBR and FRAD models.

According to Oliver (2009) FRBR model define three groups of entities as follows:

**Group 1 Entities:** defined products of intellectual or artistic endeavours, e.g. work, expression, manifestation, and item.

**Group 2 Entities:** indicate those responsible for the intellectual or artistic content, the physical production and dissemination of the group 1 entities (persons or corporate bodies).

**Group 3 Entities:** this is subject in its different dimension (e.g. concept, object, event, place) all the entities in group 1 & 2.

AACR2 rules referred to areas, and to elements that belonged to a specific area. RDA has an organization that corresponds to FRBR
entities and user tasks. RDA refers to “elements” and each RDA abandons the “class of material organization used in AACR2 and bases its organization structure on the FRBR conceptual model”. Thus, RDA cannot be considered as a revised version of AACR2. RDA represents a change in approach to cataloging process and practices.

<p>| 25. RDA | 26. AACR2 |
| 27. Recording attribute | 28. Part 1. Description |
| 29. Introduction | 30. Introduction |
| 31. Section 1: recording attributes of manifestation and items chapter 1-4 | 32. Chapter 1: general rules |
| 33. Section 2: recording attributes of work and expression chapter 5-7 | 34. Chapter 1: 2-12 special rules |
| 35. Section 3: recording attributes of person, family, and corporate body chapters 8-11 | 36. Chapter 13: analytical descriptions |
| 37. Section 4. Recording attributes of concept, object, event and place chapters 12-16 | 38. Part 2: headings, uniform titles, and references chapter 20-introduction |</p>
<table>
<thead>
<tr>
<th>39. Recording relationships</th>
<th>40. Chapter 21: choice of access point (main and added)</th>
</tr>
</thead>
<tbody>
<tr>
<td>41. Section 5: recording primary relationship between work, expression, manifestation and item chapter 17</td>
<td>42. Chapter 22 heading for persons</td>
</tr>
<tr>
<td>43. Section 6: recording relationships to persons, families, and corporate bodies chapter 18-22</td>
<td>44. Chapter 23: geographic names</td>
</tr>
<tr>
<td>45. Section 7: recording relationships to concept, objects, event and places associated with a work chapter 23</td>
<td>46. Chapter 24: heading for corporate bodies</td>
</tr>
<tr>
<td>47. Section 8: recording relationships between works, expression, manifestation and items chapter 24-28</td>
<td>48. Chapter 25. Uniform titles</td>
</tr>
<tr>
<td>49. Section 9: recording</td>
<td>50. Chapter 26: references</td>
</tr>
</tbody>
</table>
The data recorded when following RDA instructions is not very different from the data recorded according to AACR2. There are some areas that very different, such as the recording of content, media, and carrier types, or recording authors for works of shared responsibility. But instructions on recording a simple title or date of publication have not significantly changed. The words used are different, the relationship of the instructions to each other is different, the theoretical context is different, but one still records data that continues to be important to user. RDA has more minimal requirement for bibliographic records than AACR2.

**CONCLUSION**
RDA is a new standard for resource description and access, designed for the digital environment, aimed at all who need to find, identify, select, obtain, use, manage and organize information. It is a multinational content description standard covering all media, that is independent of technical communication formats. Since the date RDA was introduced no doubt the changes, as contained in RDA, are innovative, significant and highly persuasive. RDA will be the end result of effort that has been underway for time to simplify, clarify, and update the Anglo American Cataloging Rules, or AACR2.

RECOMMENDATIONS

It is apparently clear that RDA brought a number of changes in the bibliographic standard that need to study properly by cataloguers and other professional librarians.

Our academic libraries and our schools should endeavor to expose staff and students in the libraries at least, theoretically to this kind of development in our field. Any development in the field must be known to us (librarians) and other paraprofessional’s librarians before any other allied professionals. There is need for
workshops and seminar, and participants should be active at seminar or workshop. So that they can be able to relay the knowledge to other colleagues in the department or their respective libraries. It also necessary to draw the attention of cataloguers to decide, armed with information on the changes, whether to explicitly adopt the new cataloguing code (RDA) or not, in order to achieved the set goals of a new standard code, there is need for librarians and other information personnel in Nigeria and anywhere to embrace and understand the new cataloguing code for adoption in their respective libraries.
REFERENCES

Australian Committee on Cataloguing (2010), the Benefit of RDA. Retrieved 28 May, 2018 available at: www.n/a.gov.com/librariesaustralie/resourcedescriptionanda
ccerda


Jayboro, K.O. (2015), Implementing RDA in your Kg: Achieving user friendly access to information in: proceeding of seminar papers of cataloging classification and indexing section NLA:35-40

Libroros S (2011), What is RDA how will it impact cataloging available at: Librerossalam.wordpress.com


A Hybrid Learning Approach for Information Anomaly Detection

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ABSTRACT

With the rapid development of online social network (OSN), worldwide connections between each individual turn into much stronger. A huge number of information provided by some entities around the world are well dispersed in OSN every day. Most of those are useful but not all as anomalous entities utilize anomaly users to spread malicious content (like spam or rumors to achieve their pecuniary or political aims. In this paper, we propose a machine learning mechanism to detect such anomaly users according to the user profile and tweet content of each user. Besides the features considered in the past literature, we design several new features related to near-duplicate content (including lexical similarity, semantic similarity) to enhance the precision of detecting anomaly users. Utilizing the data by public honeypot dataset, the proposed approach deals with supervised learning approach to carry out the detection task.

Keywords: Online Social Network, Anomaly Detection, Near-Duplicate Computing, Supervised Learning Approach
Attitude towards knowledge sharing practices among postgraduate students of Rajshahi University in Bangladesh: A study

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Abstract
The main objective of the present study was to analyze the awareness and attitudes towards knowledge sharing practices among postgraduate students of University of Rajshahi. The study further aimed to investigate the methods, level of satisfaction and problems associated with knowledge sharing practice among the postgraduate students. A survey was conducted regarding knowledge sharing among the postgraduate students of the University of Rajshahi, Bangladesh employing a cross-sectional study design. This study used a structured questionnaire for collecting data from the 150 randomly selected postgraduate students of various departments under 9 faculties of the University of Rajshahi. The findings of this study indicated that all the respondents 150 (100%) have concept about knowledge sharing and a majority of them have a positive attitude towards knowledge sharing. The most frequently used methods of knowledge sharing is Face-to-face communication, Facebook and e-mail. However, blogs and twitter were rarely used by the students. Almost 54.7% of the respondents are satisfied in sharing knowledge. Most of the students (67.37%) share knowledge with their classmates. The findings regarding the reasons of knowledge sharing among the students revealed that they share knowledge because of creating new knowledge, getting ideas, learning from one another, for better decision making and for improving skills and competences. The study also found that lack of reciprocity in relationship, being afraid of other performance, feeling shy in sharing knowledge and lack of knowledge sharing culture are the four main problems that students encounter in case of sharing knowledge among themselves. 83.3% respondents mentioned that it is essential to increase the confidence level among students for improving knowledge sharing skills. The study used a cross-sectional, descriptive survey design and collected data from one public university of Bangladesh, and the sample size is very small. Therefore, the findings should not the generalized to the all universities of Bangladesh. The paper contains original work regarding knowledge sharing among the postgraduate students at the University of Rajshahi, Bangladesh and as such it will be useful for policy makers, library professionals, administrators and educators of all academic level in this regard.

Keywords – Knowledge sharing, Knowledge practice, Knowledge society, Postgraduate student, Rajshahi University
1. Introduction
Knowledge Sharing (KS) has become an increasingly important part of study in a digital world (Haq & Haque, 2018). It is considered as a social conduct (Cabrera & Cabrera, 2002), and many physical, technological, psychological, cultural, and personality factors either promote or forbidden this activity (Riege, 2005). It is the process where individuals mutually exchange their knowledge and jointly create new knowledge. Very often, people feel pleased by helping others through sharing their knowledge because for them it is a satisfying, fulfilling and meaningful activity. By sharing intelligence, students get opportunities for exchanging knowledge what they are critically thinking real time. Further, it also creates opportunities for students to discuss problems, engage and debate on those thoughts using different disciplines. Similarly universities can organize themselves to large knowledge sharing societies to produce real knowledge and solve real world problems. Today knowledge sharing plays a vital role in students learning. Therefore, the main challenge to academia today is to retain their students in knowledge sharing (Rafique & Anwar, 2017).

The knowledge sharing with idea provoking dialogue and discussion among existing and new students is essential to contribute to a better world. In this digital era, the adaptation power of students in education system to share knowledge within them is considered as an important contributing element for success. Today learning is now considered as a joint effort (Yuen & Majid, 2007). Not only it creates motivation and commitment, but also it builds relationships and identity that are essential for knowledge sharing and better performance (Georgiadou et al., 2006). The students should realize the situation that world is now gradually becoming learning organization. It can increase the capabilities of students through associating knowledge in their daily life to transform Bangladesh traditional to digital. Nowadays, knowledge sharing is also essential to keep a running and flourishing economy (Gremm et al., 2018). Knowledge sharing among students enhances the ability to seek education-based help from each other and facilitates achieving outcomes of collective learning. Learning and knowledge sharing are intimately connected. Knowledge sharing helps students to find out solution, learn new things and increase understanding. Students can learn from each other and benefit from new knowledge and development by one another. Students that are able to share knowledge more productive and more likely to survive on their jobs than students that do not (Yang, 2004).

In Bangladesh, the postgraduate students of education sector are the major part of evolution of the country. However, there has been seen less or no training or seminars on knowledge sharing to give the practical importance among students. In addition to, students are not interested to share knowledge due to lack of awareness and mistrust on others. Students’ positive attitude towards knowledge sharing can enhance the motivation for it (Mahmood et al., 2011). Therefore, the education authorities need to develop an environment that allows students to thought sharing and correspond with each other without any barriers. There are students who do want to share their thoughts and experience with others due to lack of understanding of the benefits of doing so (Agrawal & Snekkenes, 2017), while some others like sharing their knowledge to facilitate others (Wasko & Faraj, 2000). Therefore, this study investigates the vital factors attitude
towards knowledge sharing practices among postgraduate students, while execute the exact methods to insist students to share their knowledge.

However, several researches have been conducted by researchers on knowledge sharing practices throughout the world but research on the nature of knowledge-sharing practices among postgraduate students within the context of a developing country’s (Bangladesh) perspective is scarce. Until now studies have not been conducted on knowledge-sharing practices among postgraduate students in any other University/institution of Bangladesh . Therefore, the purpose of my study is to investigate knowledge sharing practices among post graduate students at the University of Rajshahi. It is anticipated that the outcome of this research will contribute to further understanding about the knowledge-sharing practices among postgraduate students, which will ultimately help academicians to select the best approaches to initiate a more collaborative and knowledge-sharing culture among these students in Bangladesh.

2. Objectives of the study
The main objective of this study is to explore and state the knowledge sharing practices among post graduate students of the University of Rajshahi in Bangladesh. In the light of the aim of the study and review of literature, the following specific research objectives were set:

1. To know the awareness and attitudes towards knowledge sharing among postgraduate students.
2. To identify the methods for knowledge sharing and the extent to which they are used by post graduate students.
3. To find out the level of satisfaction with knowledge sharing practices among post graduate students
4. To identify the problems faced by the students while sharing knowledge at the Rajshahi University.
5. To recommend for improving knowledge sharing among postgraduate students at the University of Rajshahi.

3. Methods

3.1 Study design
The study was descriptive in nature. A survey was conducted regarding attitudes and practice of knowledge sharing among the postgraduate students of the University of Rajshahi, Bangladesh employing a cross-sectional study design.

3.2 Participants
All postgraduate students currently studying at the University of Rajshahi were considered as the unit of population for this study. 2800 students enrolled in the postgraduate programs i.e. MSS, MA, MSc, MBA, LLM each academic year in various departments under 9 faculties. A total of 200 questionnaires were distributed randomly to postgraduate students of University of Rajshahi of which a total of 150 questionnaires were returned. Therefore, 150 post graduate students were considered as sample size for this study. Among them 97 (64.7%) and 53 (35.3%) were female respondents.
3.3 Data collection
The data of this study were collected by using a structured questionnaire. The questionnaire was a self-administered instrument with a set of questions to meet the objectives of the research. All students were informed about the purpose and procedure of the study before filling the questionnaire and their participation were voluntary and anonymous.

3.4 Data analysis
Descriptive statistics were used to analyze the data collect in this study. The findings were then presented in tabular and graphical forms indicating the variables frequency and percentage in occurrence. All the data were analyzed by IBM SPSS 23 and Microsoft Excel software.

4. Findings of the study
A total of 150 postgraduate students participated in the study and 64.7% of them were male while the remaining 35.3% were female respondents. It is also observed that 62.7% of respondents under this study were Resident and 37.3% of them were Non-resident. The respondents came from a wide variety of disciplines under nine faculties i.e., Social science; Arts; Science; Engineering; Life and Earth science; Agriculture; Business studies; Law and Fine Arts. The questionnaire comprised of five sections with a total of twenty six questions that were developed to ensure rigor and objectivity of data.

4.1 General attitudes towards ‘KS’
The respondents were given different statements to determine their overall attitude towards information and knowledge sharing. The respondents were provided five options “Strongly agree”, “Agree”, “No opinion”“Disagree” and “Strongly disagree” in which they were asked to comment. The results are presented in table-1.
Table-1: General attitudes towards ‘KS’

<table>
<thead>
<tr>
<th>Perception</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘KS’ is important to share knowledge with other students for the benefit of all.</td>
<td>51 (34.0%)</td>
<td>89 (59.3%)</td>
<td>7 (4.7%)</td>
<td>2 (1.3%)</td>
<td>1 (.7%)</td>
</tr>
<tr>
<td>Students should share knowledge with their friends only when approached</td>
<td>4 (2.7%)</td>
<td>59 (40%)</td>
<td>23 (20.7%)</td>
<td>51 (34.0%)</td>
<td>3 (2.0%)</td>
</tr>
<tr>
<td>Students should voluntarily share their knowledge with peers</td>
<td>24 (16.0%)</td>
<td>88 (58.7%)</td>
<td>25 (16.7%)</td>
<td>12 (8.0%)</td>
<td>1 (.7%)</td>
</tr>
<tr>
<td>Knowledge sharing takes place when students care about the needs of one another.</td>
<td>22 (14.7%)</td>
<td>66 (44.0%)</td>
<td>32 (21.3%)</td>
<td>26 (17.3%)</td>
<td>4 (2.7%)</td>
</tr>
<tr>
<td>‘Sharing is caring’</td>
<td>17 (11.3%)</td>
<td>69 (46.0%)</td>
<td>51 (34.0%)</td>
<td>8 (5.3%)</td>
<td>5 (3.3%)</td>
</tr>
<tr>
<td>Knowledge sharing solves your &amp; your classmate’s problems</td>
<td>19 (12.7%)</td>
<td>99 (66%)</td>
<td>22 (14.7%)</td>
<td>4 (2.7%)</td>
<td>2 (.3%)</td>
</tr>
<tr>
<td>Many students have the mindset that sharing knowledge is a type of plagiarism.</td>
<td>4 (2.7%)</td>
<td>12 (8.0%)</td>
<td>39 (26.0%)</td>
<td>81 (54.0%)</td>
<td>14 (9.3%)</td>
</tr>
<tr>
<td>IT makes Sharing of knowledge easier than before.</td>
<td>36 (24.0%)</td>
<td>87 (58.0%)</td>
<td>23 (15.3%)</td>
<td>3 (2.0%)</td>
<td>1 (.7%)</td>
</tr>
</tbody>
</table>

It is noted from table-1 that 34.0% of the respondents were strongly agreed with the statement that “knowledge sharing is important to share knowledge with other students for the benefit of all”. 59.3% of the respondents agreed and only 0.7% of the respondents strongly disagreed with this statement. It is clear that 40.0% of the respondents indicated their agreement with the statement “students should share knowledge with their friends only when approached”. It is also observed that only 2.0% of the respondents show their strongly disagreement to this statement. Table-1 showed that 58.7% of the respondents show their agreement with “students should voluntarily share their knowledge with peers”. It is also noted that 0.7% of the respondents show their strongly disagreement to this statement that. Table-1 reveals that that 44.0% of the respondents show their agreement to this statement “Knowledge sharing takes place when students care about the needs of one another”. It is noted that 21.3% of the respondents indicate that they have no opinion about this statement. According to the table 4.1 it is clear that 11.3% of the respondents are strongly agreement to the statement that “Sharing is caring”. 34.0% of the respondents indicate that they have no opinion about this statement. It is revealed that 66% of the respondents show their agreement to this statement “knowledge sharing solves their &their classmate’s problems” and only 2.7% of them show their disagreement with the statement. It is observed that 54.0% of the respondents show their disagreement to the statement “sharing knowledge is a type of plagiarism”. But a small portion i.e. 2.7% of the respondents is strongly agreement to the statement. According to the result from table-1 it is clear that 58.0% of the respondents show their agreement to
this statement “IT makes Sharing of knowledge easier than before”. 15.3% of the respondents indicate that they have no opinion about this statement.

4.2 Methods used by post graduate students to share knowledge

In view of the information gathered with regard to there being knowledge sharing at the university, the study sought to establish the methods, both technology supported and non-technology supported, used to share knowledge at the University. Results in Table-2 below reveal the frequency with which the various methods of knowledge sharing are used at the University of Rajshahi. The respondents were provided three options ‘Not used’, ‘Moderately used’ and ‘frequently used’ in which they were asked to comment. The results are presented in table-2.

<table>
<thead>
<tr>
<th>Methods</th>
<th>Not used</th>
<th>Moderately used</th>
<th>Frequently used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face</td>
<td>1(.7%)</td>
<td>51(34%)</td>
<td>98(65.3%)</td>
</tr>
<tr>
<td>Virtual discussions groups</td>
<td>65(43.3%)</td>
<td>60(40.0%)</td>
<td>5(16.7%)</td>
</tr>
<tr>
<td>Online chat</td>
<td>29(19.3%)</td>
<td>76(50.7%)</td>
<td>45(30.0%)</td>
</tr>
<tr>
<td>Training</td>
<td>137(92.7%)</td>
<td>7(4.7%)</td>
<td>4(2.7%)</td>
</tr>
<tr>
<td>Workshops and Seminars</td>
<td>130(86.7%)</td>
<td>17(11.3%)</td>
<td>3(2.0%)</td>
</tr>
<tr>
<td>Conferences</td>
<td>130(86.7%)</td>
<td>15(10.0%)</td>
<td>5(3.3%)</td>
</tr>
<tr>
<td>Email</td>
<td>26(17.3%)</td>
<td>81(54.0 %)</td>
<td>53(28.7%)</td>
</tr>
<tr>
<td>Department website</td>
<td>135(90.0%)</td>
<td>11(7.3%)</td>
<td>4(2.7%)</td>
</tr>
<tr>
<td>Facebook</td>
<td>2(1.3%)</td>
<td>52(34.7%)</td>
<td>96(64.0%)</td>
</tr>
<tr>
<td>Video conferencing</td>
<td>61(40.6%)</td>
<td>64(42.7%)</td>
<td>25(16.7%)</td>
</tr>
<tr>
<td>Short Messaging Service (SMS)</td>
<td>10(6.7%)</td>
<td>87(58.0%)</td>
<td>53(35.5%)</td>
</tr>
<tr>
<td>Blogs</td>
<td>147(98.0%)</td>
<td>2(1.3%)</td>
<td>1(.7%)</td>
</tr>
</tbody>
</table>

The percentage shows multiple responses

It is evident from table-2 that the responses given on the use of the Face-to face, 65.3% of the respondents indicated that they use it frequently to share knowledge, and only 0.7% of them indicated that they do not use it to share knowledge. Table-2 shows that 16.7% of the respondents use virtual discussion groups frequently, but 43.3% of respondents indicated that they do not use it to share knowledge. From the results in table: 50.7% of respondents showed that they use it moderately to share knowledge and only 19.3% of respondents do not use it to share knowledge. The responses given on the use of training as methods to share knowledge, 92.7% of respondents indicated that they do not use it to share knowledge. While only 2.7% of the respondents indicated that they use it frequently to share knowledge. The responses given on the use of workshops and seminars as methods to share knowledge, 86.7% of respondents indicate that they do not use it to share knowledge. Only 2.0% of the respondents indicate that they use it frequently.
frequently to share knowledge. It is clear that 3.3% of the respondents indicated that they share knowledge through conferences. However, 86.7% of the respondents do not use it to share knowledge. It is apparent that 54.0% of respondents indicate that they use email moderately and 17.3% of the respondents indicate that they do not use it to share knowledge. 90.0% of the respondents indicate that they do not use the departmental website to share knowledge. The responses given on the use of Facebook as a method to share knowledge, 64.0% of the respondents indicate that they use it frequently to share knowledge, Only 16.7% of the respondents indicate that they share knowledge through video conferencing. 98.0% of the respondents indicate that they do not use blogs as a means to share knowledge.

4.3 Frequency of knowledge sharing of postgraduate students with peers

The respondents were asked regarding how often they share knowledge with peers. The respondents were provided four options “Daily”, “Weekly”, “Monthly” and “Occasionally” in which they were asked to comment. The results are shown in figure-1.

![Figure-1: Frequency of knowledge sharing with peers](image)

It is observed the figure-1 that 52.7% of the respondents share knowledge daily with peers. 30.6% of the respondents share knowledge weekly. It is also noted that 12.7% of the respondents share knowledge monthly and 4% of the respondents share knowledge occasionally with peers.

4.4 With whom the postgraduate students mostly share knowledge

The respondents were asked regarding with whom they share knowledge most. The respondents were provided five options “Friends”, “Classmates”, “Teachers”, “Librarians” and “Expert in internet groups (i.e. Usenet Newsgroups, F&F friends, F&F specialized groups/platforms)” in which they were asked to comment.

<table>
<thead>
<tr>
<th>Options</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends</td>
<td>126</td>
<td>84.0%</td>
</tr>
<tr>
<td>Classmates</td>
<td>101</td>
<td>67.3%</td>
</tr>
<tr>
<td>Teachers</td>
<td>66</td>
<td>44.0%</td>
</tr>
<tr>
<td>Librarians</td>
<td>10</td>
<td>6.7%</td>
</tr>
<tr>
<td>Expert in internet groups (i.e. Usenet Newsgroups, F&amp;F friends, F&amp;F specialized groups/platforms)</td>
<td>27</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

Table-3: With whom the postgraduate students mostly share knowledge

It is evident from figure-2 that 51.7% of the respondents think that knowledge sharing culture exists at the University of Rajshahi, 51.7% of the respondents do not think that knowledge sharing culture exists at the University of Rajshahi. It is also noted that 33.3% of the respondents indicate they are not sure regarding whether knowledge sharing culture exists or not at the University of Rajshahi.
frequently to share knowledge. It is clear that 3.3% of the respondents indicated that they share knowledge through conference. However 86.7% of the respondents do not use it to share knowledge. It is appeared that 54.0% of respondents indicate that they use email moderately and 17.3% of the respondents indicate that they do not use it to share knowledge. 90.0% of the respondents indicate that they do not use the departmental website to share knowledge. The responses given on the use of Facebook as methods to share knowledge, 64.0% of the respondents indicate that they use it frequently to share knowledge, Only 16.7% of the respondents indicate that they share knowledge through video conferencing. 98.0% of the respondents indicate that they do not use blogs as a means to share knowledge.

4.3 Frequency of knowledge sharing of postgraduate students with peers

The respondents were asked regarding how often they share knowledge with peers. The respondents were provided four options “Daily”, “Weekly”, “Monthly” and “Occasionally” in which they were asked to comment. The results are shown in figure-1.

Figure-1: Frequency of knowledge sharing with peers

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>52.7%</td>
</tr>
<tr>
<td>Weekly</td>
<td>30.7%</td>
</tr>
<tr>
<td>Monthly</td>
<td>12.7%</td>
</tr>
<tr>
<td>Occasionally</td>
<td>4%</td>
</tr>
</tbody>
</table>

It is observed the figure-1 that 52.7% of the respondents share knowledge daily with peers. 30.6% of the respondents share knowledge weekly. It is also noted that 12.7% of the respondents share knowledge monthly and 4% of the respondents share knowledge occasionally with peers.

4.4 With whom the postgraduate students mostly share knowledge

The respondents were asked regarding with whom they share knowledge most. The respondents were provided five options “Friends”, “Classmates”, “Teachers”, “Librarians” and “Expert in internet groups (i.e. Usenet Newsgroups, F&F friends, F&F Specialized groups/ platforms)” in which they were asked to comment.

Table-3: With whom the postgraduate students mostly share knowledge

<table>
<thead>
<tr>
<th>Options</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friends</td>
<td>126</td>
<td>84.0%</td>
</tr>
<tr>
<td>Classmates</td>
<td>101</td>
<td>67.3%</td>
</tr>
<tr>
<td>Teachers</td>
<td>66</td>
<td>44.0%</td>
</tr>
<tr>
<td>Librarians</td>
<td>10</td>
<td>6.7%</td>
</tr>
<tr>
<td>Expert in internet groups (i.e. Usenet Newsgroups, F&amp;F friends, F&amp;F Specialized groups/ platforms)</td>
<td>27</td>
<td>18.0%</td>
</tr>
</tbody>
</table>

The percentage shows multiple responses

Table-3 reveals that 84.0% of the respondents share knowledge with friends most. It is also observed that 67.3% of the respondents share knowledge with classmates most. It is also observed that 44.0% of the respondents share knowledge with teachers most and 18.0% of the respondents indicate that they share knowledge with expert in internet groups (i.e. Usenet Newsgroups, F&F friends, F&F Specialized groups/ platforms).

4.5 Existing knowledge sharing culture

The respondents were asked regarding existing knowledge sharing culture at the University of Rajshahi. The respondents were provided three options “Yes”, “No” and “Not sure” in which they were asked to comment. The results are shown in figure-2.

Figure-2: Existing knowledge sharing culture

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>51.3%</td>
</tr>
<tr>
<td>No</td>
<td>15.3%</td>
</tr>
<tr>
<td>Not Sure</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

It is evident from figure-2 that 51.7% of the respondents think that knowledge sharing culture exists at the University of Rajshahi, 51.7% of the respondents do not think that knowledge sharing culture exists at the University of Rajshahi. It is also noted that 33.3% of the respondents indicate they are not sure regarding whether knowledge sharing culture exists or not at the University of Rajshahi.
4.6 Level of satisfaction of postgraduate students with sharing of knowledge
The respondents were asked regarding Level of satisfaction of them about sharing of knowledge. The respondents were provided four options “Highly satisfied”, “Satisfied” “Moderately satisfied” and “Poorly satisfied” in which they were asked to comment. The results are shown in figure-3.

![Figure-3: Level of satisfaction of postgraduate students about sharing of knowledge](image)

It is clear from the figure-3 that 4.0% of the respondents are highly satisfied in sharing knowledge. It is observed that 54.7% of the respondents are satisfied in sharing knowledge. 25.3% of the respondents are moderately satisfied and 16.0% of the respondents indicate that they are poorly satisfied in sharing of knowledge at the university of Rajshahi.

5.7 Reasons for sharing knowledge
The respondents were asked what motivate them to share knowledge with others. Their responses are presented in table-4.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating new knowledge &amp; Ideas</td>
<td>130</td>
<td>86.7%</td>
</tr>
<tr>
<td>Learning from each other.</td>
<td>115</td>
<td>76.7%</td>
</tr>
<tr>
<td>Helping others</td>
<td>86</td>
<td>57.3%</td>
</tr>
<tr>
<td>Being satisfied</td>
<td>54</td>
<td>36.0%</td>
</tr>
<tr>
<td>Cultivating image of expertise</td>
<td>39</td>
<td>26.0%</td>
</tr>
<tr>
<td>Exchange or feedback</td>
<td>60</td>
<td>40.0%</td>
</tr>
<tr>
<td>Improving Grade in Exams</td>
<td>78</td>
<td>52.0%</td>
</tr>
<tr>
<td>Reward or recognition</td>
<td>27</td>
<td>18.0%</td>
</tr>
<tr>
<td>Better decision making</td>
<td>127</td>
<td>84.7%</td>
</tr>
<tr>
<td>Improving skills and competences</td>
<td>118</td>
<td>78.7%</td>
</tr>
</tbody>
</table>

*The percentage shows multiple responses*
It is clear from table-4 that 86.7% of the respondents indicate that they share knowledge with others to create new knowledge and ideas. 76.7% of the respondents indicate that they share knowledge with others to learn from one another. 57.3% of the respondents say that they share knowledge to help others. 52.0% of the respondents indicate that they share knowledge with others to improve grade in exam. It is appeared that 84.7% of the respondents share knowledge with others for better decision making and 78.7% of the respondents share knowledge with others for improving skills and competences.

5.8 Problems that post graduate student encounter in sharing knowledge

The respondents were asked regarding problems and barriers that they reluctant in sharing of knowledge among themselves. The respondents were given some options of problems of sharing knowledge in which they were asked to comment their responses are presented in table-5.

<table>
<thead>
<tr>
<th>Problems and barriers</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being afraid of other performance</td>
<td>109</td>
<td>72.7%</td>
</tr>
<tr>
<td>Do not know about what to share</td>
<td>57</td>
<td>38.0%</td>
</tr>
<tr>
<td>Lack of knowledge sharing culture</td>
<td>89</td>
<td>59.3%</td>
</tr>
<tr>
<td>Feeling shy in sharing knowledge</td>
<td>92</td>
<td>61.3%</td>
</tr>
<tr>
<td>Lack of reciprocity in relationship</td>
<td>120</td>
<td>80.0%</td>
</tr>
<tr>
<td>Lack of time</td>
<td>87</td>
<td>58.0%</td>
</tr>
<tr>
<td>Lack of appreciation of knowledge sharing</td>
<td>85</td>
<td>56.7%</td>
</tr>
<tr>
<td>Lack of trust and belief</td>
<td>82</td>
<td>54.7</td>
</tr>
<tr>
<td>Lack of commitment or unwillingness to share</td>
<td>86</td>
<td>57.3%</td>
</tr>
<tr>
<td>Afraid to provide the wrong information</td>
<td>75</td>
<td>50.0%</td>
</tr>
<tr>
<td>Afraid that an opinion mismatch would offend</td>
<td>65</td>
<td>43.3%</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The percentage shows multiple responses

Table-5 shows that 72.7% of the respondents are afraid of other performance. 59.3% % of the respondents show that they feel lack of knowledge sharing culture in sharing of knowledge. It is appeared that 61.3% of the respondents indicate that feel shy in sharing of knowledge.80.0% of the respondents indicate that they feel lack of reciprocity in relationship in sharing of knowledge.58.0%of the respondents indicate lack of time as barrier in sharing of knowledge.56.7% of the respondents show lack of appreciation. 57.3% of the respondents show lack of commitment or unwillingness to share as barrier.

5.9 Suggestions for enhancing knowledge sharing among postgraduate students

The respondents were given some options of suggestions for enhancing knowledge sharing among postgraduate students in which they were asked to comment. The findings
in this regard are presented in following table-6.

**Table-6: Suggestions for enhancing knowledge sharing among postgraduate students**

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>No. of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing the confidence level to share knowledge among Postgraduate students.</td>
<td>125</td>
<td>83.3%</td>
</tr>
<tr>
<td>Instilling a sharing culture</td>
<td>119</td>
<td>79.3%</td>
</tr>
<tr>
<td>More incentives and rewards for knowledge sharing such as recognition, and awards</td>
<td>98</td>
<td>65.3%</td>
</tr>
<tr>
<td>Enhancing trust among students especially by addressing the challenges of piracy and plagiarism.</td>
<td>75</td>
<td>50.0%</td>
</tr>
<tr>
<td>Arranging regular seminar and workshops on ‘KS’ to improve interest in and skills for ‘KS’.</td>
<td>83</td>
<td>55.3%</td>
</tr>
<tr>
<td>Creating useful environment for knowledge sharing and interaction between Junior and senior students.</td>
<td>73</td>
<td>48.7%</td>
</tr>
<tr>
<td>Changing mind set and working as a team.</td>
<td>39</td>
<td>26.0%</td>
</tr>
<tr>
<td>Creating online forums, discussion / message boards</td>
<td>67</td>
<td>44.7%</td>
</tr>
<tr>
<td>Providing conducive environment (notice boards, study rooms)</td>
<td>58</td>
<td>38.7%</td>
</tr>
<tr>
<td>Including more interactive classes, discussion sessions and study groups</td>
<td>65</td>
<td>43.3%</td>
</tr>
<tr>
<td>Encouragement and guidance by lecturers and tutors</td>
<td>50</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

❖ The percentage shows multiple responses.

It is evident from table-6 that 83.3% of the respondents suggest the increasing of confidence level among students to share knowledge. 79.3% of the respondents show their suggestions for instilling a sharing culture. 65.3% of the respondents suggest the establishment of more incentives and rewards system to encourage students to share knowledge. It is appeared that 43.3% of the respondents suggest for including more interactive classes, discussion sessions and study groups. It is also observed that 33.3% of the respondents show their suggestions for Encouragement and guidance by lecturers and tutors to enhance knowledge sharing among postgraduate students at the University of Rajshahi.

6. Conclusion and recommendations

Based on the above findings, knowledge sharing practices among postgraduate students mentioned as good at the University of Rajshahi. All the respondents confirmed their understanding of the importance of knowledge sharing. They share knowledge with peers most. The most frequently used methods of information and knowledge sharing are Face-
Most frequently used methods of information and knowledge sharing are face-to-face, Facebook and Telephone conversation. Most of the postgraduate students share books and class lectures among themselves. It is noted that the respondents valued Internet as an important source of study related-tasks and, on the whole, showed a positive attitude towards information and knowledge sharing. They share knowledge with others mainly for creating new knowledge and ideas and learning from one another. Similarly, most of them share knowledge for better decision making and for improving skills and competences. However, a lack of reciprocity in relationship and being afraid of other performance, feeling shy in sharing knowledge and Lack of knowledge sharing culture in case of sharing knowledge are probably the four main inhibitors to information and knowledge. Thus, postgraduate students should increase their confidence level. It is needed to create knowledge sharing culture. It also is needed to provide incentives and reward for knowledge sharing such as recognition, and awards, enhance trust among students especially by addressing the challenges of piracy and plagiarism, change mind set and work as a team, Create online forums, discussion / message boards, provide conducive environment (notice boards, study rooms ), include more interactive classes, discussion sessions and study groups and so on for improving knowledge sharing among postgraduate students at the University of Rajshahi.

On the basis of perceived state of knowledge sharing practices among postgraduate students at the University of Rajshahi, the following recommendations may suggest for improving knowledge sharing among postgraduate students at the University of Rajshahi. The following are the suggestions for improving knowledge sharing among postgraduate students at the University of Rajshahi:

- It is needed to enhance the capability of postgraduate students for acquiring new knowledge and idea. It is observed that most of the students are afraid of other performance and they feel shy in case of sharing knowledge with other students. Therefore, to improve knowledge sharing postgraduate students should increase their confidence level of knowledge sharing. There is need to establish a knowledge management policy and a knowledge sharing strategy for R.U for improving knowledge sharing among postgraduate students. It is important to design formal or informal channels in case of knowledge sharing for postgraduate students. Computer mediated communication provides a more flexible means to share knowledge at a more interpersonal level therefore enhancing the exchange of ideas with regard to both new knowledge and old knowledge. An extrinsic reward system needs to be enhanced to motivate postgraduate students for sharing knowledge with one another at the University of Rajshahi. There is need to arrange regular seminar and workshops on ‘KS’ to improve interest among postgraduate students in case of knowledge sharing and increase skills for ‘KS’.

The present study had few limitations. It used a cross-sectional, descriptive survey design and collected data from one public university of Bangladesh and the sample size is very small. This research only focused on postgraduate students from Rajshahi University which limits the generalizability of the findings. However, to generalize the findings further studies should consider both public and private universities from various parts of Bangladesh.
References


Using Electroencephalograph (EEG) to Observe the Influence of Students Listening to Music on Learning Process—for Example to High School Student and the University’s Student

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ABSTRACT

Students today are immersed in more and more technology. They can listen to music, watch video clips, surf the Internet, and do online shopping, etc. at any time. Therefore, studying the impact of music on learners’ learning process is an important area for research. Reading comprehension, memory recitation and logical problem-solving are the necessary skills for young students in the learning process. This study mainly focuses on influences of current young students while listening to music; also, whether listening to music and whether the music type the participants choose will distract their concentration in their reading comprehension, memory recitation and logical problem-solving at different time phases, and on different subjects.

The researcher used laboratory experiment and Electroencephalograph (EEG) to collect the degree of concentration of the participants in reading comprehension, memory recitation and logical problem-solving, and to distinguish whether listening to the music when studying different subjects will distract the attention of the participants; moreover, whether the music type will distract the participants’ attention is explored. There were 49 participants in the experiment and 46 valid samples collected.

The initial research results show that under the subject characteristic factor, students had higher concentration on reading comprehension and logical problem-solving when listening to music, but the degree of difference is not significant. However, in the stage of memory recitation, the degree of concentration was not significantly affected by listening to music, and there is a even higher level of concentration when not listening to music. Under the music type factor, when listening to music in the reading comprehension stage, listening to classical music, soul music, rock music or foreign language pop songs had a higher degree of concentration, but the degree of influence was not significant. When listening to music in the logic problem-solving stage, it was more suitable to listen to music in foreign languages, and Chinese popular songs were the second best choice, but the degree of influence is not
significant. The level of concentration in the memory recitation phase will not be affected by the type of the music, but not listening to the music showed a higher level of concentration.

**Keyword:** Reading comprehension, Memory recitation, Logical problem-solving, Concentration, Electroencephalograph(EEG), Capacity theory

1. **Introduction**

1.1 **Background and Motivation**

Students today are immersed in more and more technology. They can not only watch TV, use a CD player and use an Internet-connected computer at home, but also possess a mobile phone, a portable MP3 player or an i-pod. They can listen to music, watch video clips, surf on the Internet, and do online shopping, etc. at any time (Azzam 2006; Chou 2010). Therefore, studying the impact of music on learners' learning performance is an important area for research, since it is a common trend for many young adults to have various types of music or sounds in the background while they are concentrating on tasks such as studying, doing homework, and solving logical problems.

In foreign studies, take the influence of music on learning concentration for example, there is a discussion of the effect of playing music on learning in the classroom (Dosseville et al. 2012). How music with lyrics and without lyrics affects attention (Shih et al. 2012), whether different types of music affect reading performance, and higher-intensity music is even more distracting on task performance (Chou 2010), the impact on language learning, and translation efficiency (Kang and Williamson 2014; Karimnia and Sadeghzadeh Lari 2012), etc.

The researcher is a high school teacher, who spends much time with young students and has observed that many phenomena are slowly submerging, for instance, mobile phones and 3C products have become indispensable items in people’s daily lives. In the self-study time before the exam, about 60% of the students wore headphones to listen to music and studied on their own. 40% of the students discussed mathematics, physics, chemistry, etc., which need to be calculated and understood, and the reasons were as follows: I am afraid that the external sound will affect my studying, I need music to accompany me when studying, and I want to relax myself through music, etc.

1.2 **Research question and research purpose**

The purpose of this study is to explore whether listening to music and whether different music types will distract or improve students' attention in reading
comprehension, memory recitation, and logical problem-solving tasks. The main purpose of this study is to compare whether there are variables in listening to music and different types of music to determine whether listening to music and what types of background music produces the most interference and the least interference. According to the goal of this research, there are two research questions: (1) Whether listening to music affects the attention of learners in completing reading comprehension, memory recitation and logical problem-solving; (2) What types of music are more distracting or less distracting in tasks such as reading comprehension, memory recitation and logical problem-solving?

If we can understand the true feelings of the learners when listening to music and the brainwave response from the physiological signal, we should be able to better understand the true reaction of the learners who listen to music while studying. The brainwave is a direct physiological signal with human learning, the operation process of the brain will produce cell potential information, and the potential information is recorded by a multiplication amplification, and the graph it produces is the Electroencephalogram (EEG) (Farwell et al. 2013). In order to understand the brainwave changes of learners while studying, this study is expected to be conducted by collecting brainwaves of learners during their studying. This study is expected to use a non-invasive dry single-channel electroencephalograph to record the learner's brainwave conditions when listening to music.

2. Literature Review

2.1 Capacity Theories

The concept of finite capacity theories, originally derived from psychologist Kahneman (1973) (Kahneman 1973), argues that attention is made up of a single and inseparable pool of cognitive resources that are assigned to one or more simultaneous information processing operations. Information processing operations require cognitive resources, which are limited, and the more complex the stimulus, the more resources they need. The more information processing operations performed at the same time, the greater the cognitive resources required. Since the cognitive resources pool has a limited amount of resources, once the cognitive resources required for information processing operations exceed the capacity limit of the cognitive resource pool, "cognitive overload" occurs, which makes the effectiveness of information processing operations worse. Even suspend the implementation of this information processing operation (Fox et al. 2007).

The basic idea of the Capacity Theories proposed by Kahneman (1973) was that attention can be deployed at any time. In addition, the attention required to perform multiple tasks depends on the needs of each individual execution activity. For
example, a simple task requires a small amount of effort, while a complex or difficult task requires the more effort. Therefore, according to the capacity model of attention, the activity may not be performed because the supply of attention does not satisfy the demand. In other words, the task or activity fails because the relevant information in the input process is not recognized because the person cannot have enough attention capacity to process the information (Chou 2010; Fox et al. 2007)

Attention capacity theory is widely discussed in various fields, and there are many studies in cognitive science, behavioral science, and neuroscience (Benoni and Tsal 2010; Most 2010; Tamber-Rosenau and Marois 2015). There are also many articles and studies in learning, such as reading comprehension and working memory (Cain et al. 2004; García-Madruga et al. 2013).

2.2 Reading Comprehension
Reading comprehension includes three levels of textual understanding, inferential understanding, and understanding monitoring (Gagné et al. 1993). Textual understanding is the meaning of written words through vocabulary contact or grammar analysis; inferential understanding is through the integration, refinement and summary process, so that readers have a deeper and broader understanding of the reading content; understanding monitoring is the highest level of reading Understand that individuals can monitor their own reading history, select appropriate strategies based on reading goals to achieve results, and can appreciate and evaluate content. Swaby (Swaby 1989) regards reading comprehension as a skill, and the reader achieves a level of reading comprehension that is critically understood in terms of meaning understanding, inferential understanding, and evaluation understanding based on the acquired skills. Learning to read is not only about the understanding of the meaning of words or literals, but only to achieve the level of understanding, especially to understand the level of monitoring, in order to maximize the purpose of reading.

There are many kinds of goals and processes of understanding, but they are characterized by the text message and its interpretation into memory. Its purpose is to form a coherent and usable article representation. This mental representation produces a network of nodes that describe the elements in the article and describe the connections between these elements (Trabasso et al. 1984).

2.3 Memory Recitation
Aristotle also said that memory is the mother of wisdom. Cicero believes that memory is the treasure and guardian of everything. Memory is an important process of learning. Without memory, learning cannot be preserved or performed, and a good memory is also the key to success. Memory refers to the psychological phenomenon
in which an individual receives an external stimulus through a sensory organ and saves the message. Some of these messages can only be remembered in the short term, while others can be kept in mind for a long time. The difference in storage time is closely related to the type of message and the memory system. According to the length of time, the message is saved, the memory can be divided into "sensory memory", "short-term memory" and "long-term memory" (Atkinson and Shiffrin 1968; Atkinson and Shiffrin 1971; McLaughlin et al. 1983).

Reciting and reading is an excellent strategy to enhance memory and is the first step in speaking. In the process of memorizing, the ear can listen, the eyes need to see, the tongue should make a sound, the brain wants to remember, it seems that only one thing is needed, but actually it uses the work of listening, speaking, reading, remembering, etc. The stimulation of the cerebral cortex is far more burdened than a single reading. However, mechanical mere repetitive memory will not increase the learning power; on the contrary, if you use the memory strategy, you will increase your learning power and save time.

2.4 Logical, Problem-solving

Multiple intelligences (Fodor 1985; Gardner 1983) trigger a wave of global learning, one of which is logical-mathematical intelligence, which refers to the ability to use numbers and reasoning, involving the use and understanding of abstract relationships. Core components include the ability to perceive logic or digital patterns, as well as the ability to perform extensive reasoning or subtly handle abstract analysis. In the theory of multiple intelligences, logical mathematics contains a variety of components: computation, logical thinking, problem solving, deductive and inductive reasoning, and discriminating between types (Houdé and Tzourio-Mazoyer 2003). Logical mathematical intelligence is very important in the process of individuals becoming whole people. It can also represent the two cores of training and development of logical concepts and mathematical ability: confirming problems and solving problems are closely related (Niroo et al. 2012).

How to solve the problem In mathematics education, George Pólya (1887-1985) contributed the most. Pólya (Pólya 1945) completed the book "How to solve the problem" and proposed a world-famous four-step mathematical problem-solving module: understanding the problem, devising a plan, carrying out the plan, and looking back, and suggesting to solve the problem for each problem-solving step. Heuristics strategy. Afterwards, many scholars also created various problem solving modes (Schoenfeld 1987). Although the focus of these problem-solving models varies, their ultimate goal is to improve students' mathematical thinking so that they can systematically solve problems.
2.5 Electroencephalogram (EEG) and Concentration

Electroencephalogram (EEG) was a direct physiological signal with human learning, the brain's operation process will produce cell potential information, and the potential information is recorded by a multiplication amplification. And this record was the Electroencephalogram (EEG) (Farwell et al. 2013). Brain waves are distinguished by frequency and can be divided into Delta waves, Theta waves, Alpha waves, Beta waves and Gamma waves (Noachtar et al. 1999).

Alpha wave refers to the state of personal relaxation and alertness. It will be subjectively comfortable, relaxed and focused, and can achieve extraordinary memory and high concentration. Especially the high amplitude high alpha wave can make the individual reach the extreme high learning effect (Herrmann 1996), the amplitude of the Beta wave can be used as an indirect measure of alertness. The higher the amplitude, the higher the alertness. It is the level of consciousness and the brain that will be presented when the logical thinking is racking its brains wave. The alpha and beta waves are highly correlated with concentration (Fink et al. 2009).

The formula of concentration is

$$Y = \frac{\ln(\text{high } \beta + \text{low } \beta)}{\ln(\text{high } \alpha + \text{low } \alpha)}$$  \hspace{1cm} (1)

$Y$ is the state of the brain in the process of activity, the state of serious thinking, the various waveforms exist at the same time. If only the wave of active thinking state is regarded as the focus, it is easy to cause misjudgment or overestimation. This study will also represent the sobriety and relaxation. The wave is included in the calculation by dividing with what should be used as a judgment of concentration $Y$. When the value is high, the concentration is high, and the lower value indicates that the subject's concentration is low (Wang and Hsu 2014). The calculated value is taken as the natural logarithm (ln), the data is normalized, and the focus value is converted to data from 0 to 100, which represents the extent to which the subject is focused throughout the experiment. More than 40 indicates that the subject was focused at this time (Wang and Hsu 2014).

3. Research Methodology

3.1 Research model and hypotheses

With the discussion of the literature, the correlation among whether listening to music, reading comprehension, memory recitation and logical problem-solving, the research model proposed in this study is shown in Figure 1.
We established the correlations among whether listening to music, reading comprehension, memory recitation and logical problem-solving through literature research and research purposes. The following two hypotheses were proposed:

H1: Whether listening to music had a significant positive effect on the learning process.

H1a: Whether listening to music had a significant positive effect on the reading comprehension.

H1b: Whether listening to music had a significant positive effect on the memory recitation.

H1c: Whether listening to music had a significant positive effect on the logical problem-solving.

H2: Music type and subject property will moderate the relationship between whether listening to music and learning process.

H2a: Music type and subject property will moderate the relationship between whether listening to music and reading comprehension.

H2b: Music type and subject property will moderate the relationship between whether listening to music and memory recitation.

H2c: Music type and subject property will moderate the relationship between whether listening to music and logical problem-solving.

3.2 Participants and experimental design

This study used laboratory experiment and time-series analysis to carry out the experimental design. The experiment designed the actual reading test in Chinese, the word recitation in English, and the problem solving method in mathematics to simulate the situation of reading comprehension, memory recitation and logical problem-solving in order to measure the degree of concentration of the subjects at various time phases and the relationship between whether listening to music and the learning process, and then analyze whether each task is affected by listening to music,
music types, and subject property.
The main research subjects are the senior high school students in Hualien County, and the graduated Hualien County high school students are secondary research subjects. The experimental duration was from 1st May 2018 to 15th July 2018, and there were 49 participants in the brainwave experiment, but 3 of them were not collected due to brain wave data, so the number of valid experimental samples was 46. The experimental instrument was BrainLink Lite, which was a non-invasive and dry single-channel electroencephalograph (Figure 2). The prefrontal lobe is the thinking area for judging high-level cognitive function, responsible for the organization, planning, problem-solving and emotional control of the main control area. The position of the electrode detected by the brain wave instrument is Fp1 of the prefrontal lobe.

![BrainLink Lite](image)

**Figure 2.** BrainLink Lite

<table>
<thead>
<tr>
<th>The kind of variable</th>
<th>variable name</th>
<th>Operation definition</th>
<th>sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>independent variable</td>
<td>whether listening to music</td>
<td>whether listening to music experiment group and control group</td>
<td>(Dosseville et al. 2012)</td>
</tr>
<tr>
<td>dependent variable</td>
<td>Reading Comprehension</td>
<td>the degree of concentration in reading comprehension</td>
<td>(Wang and Hsu 2014)</td>
</tr>
<tr>
<td>dependent variable</td>
<td>Memory Recitation</td>
<td>the degree of concentration in memory recitation</td>
<td>(Wang and Hsu 2014)</td>
</tr>
<tr>
<td>dependent variable</td>
<td>Logical Problem-solving</td>
<td>the degree of concentration in logical problem-solving</td>
<td>(Wang and Hsu 2014)</td>
</tr>
<tr>
<td>moderator variable</td>
<td>subject property</td>
<td>Reading comprehension, memory recitation and logical problem-solving</td>
<td></td>
</tr>
<tr>
<td></td>
<td>music type</td>
<td>The type of music you listen to, including Chinese songs, foreign language songs, soft music, rock music, etc.</td>
<td>(Shih et al. 2012)</td>
</tr>
</tbody>
</table>
Each subject needs to have 5 minutes of experiments in the experimental group and the control group in the course of reading comprehension, memory recitation and logical problem-solving, while the order of the experimental group and the control group was random to reduce the experimental error. The experimental group and the control group will rest for 3 minutes. The content of the experiment is to collect the subject’s concentration required for different learning process by using brainwave data under different conditions.

3.3 Operational definition
This study refers to the previous literature to define the independent variables and dependent variables of this study, and the summary is shown in Table 1:

3.4 Data analysis
This study used the Independent Sample t-test in the statistical tool SPSS 20 software to detect the significant differences of concentration in different subject between experimental groups and control groups. The Analysis of variance(ANOVA) was used to investigate whether different subject properties and different type of music caused a decrease in concentration or whether there was a significant difference.

4. Results
4.1 The experimental group and control group differences in the different learning processes
The experimental participants originally had 49 subjects participating in the experiment, but 3 subjects were incompletely removed when collecting brain wave data, and a total of 46 valid subjects were tested. There were 40 males (87.0%), 6 females (13.0%), while 35 of them are high school students (76.1%), 6 of them were high school students (13.0%), and 5 of them were university students (10.9%).

In this study, brainwave data collection was carried out using a self-developed brain-computer interface system. The brainwave data collected by BrainLink-Lite was transmitted from the Bluetooth to the brain-computer interface system, and brainwave data was collected every second, including high α, low α, high β, low β, attention, meditation and other bands, this study currently used attention data as the degree of concentration, the range of concentration was from 0 to 100. More than 40 indicated that the subject was focused at this time (Wang and Hsu 2014). It is averaged every 5 seconds to reduce its error. Then the average concentration value was used every 5 seconds to analyze the different work of reading comprehension, memory recitation, and logical problem-solving. The analysis results were as follows:

(1) Reading comprehension
In the reading comprehension stage, a total of 60 sets of alignment data were taken every 5 seconds in 300 seconds. After independent sample t-test analysis, only 14 sets
of data were presented in the control group with an average concentration value higher than the experimental group average. The concentration value was higher, and the remaining 46 groups were higher than the average concentration of the experimental group, and even 4 of them showed significant differences, which occurred at T20, T35, T37 and T42.

In Figure 3, the average concentration of the experimental group was almost higher than the average concentration of the control group, and there were even 4 significant differences (indicated as red circles), while the average concentration of only 14 groups was higher than the average concentration of the experimental group (indicated as purple circles). 5 of the 14 groups were concentrated in the last one minute. It showed the suitability for the participants to listen to music in reading comprehension.

![Figure 3. Line chart of the concentration in the reading comprehension stage](image)

(2) Memory recitation

In the memory recitation stage, after independent sample t-test analysis, more than half of the 37 groups of data showed that the average concentration of the control group was higher than the average concentration of the experimental group, and 8 of them occurred in the first minute (12 group data), even at T9 there was a significant difference. There were 14 groups that occurred within the first 90 seconds (18 groups of data), with a ratio of 77.8%. There were 7 groups that occurred in the last fifth minute. The remaining 23 groups were higher than the average concentration of the experimental group compared with the control group.

In Figure 4, it can be concluded that the average concentration of the control group is almost higher than the average concentration of the experimental group (indicated as purple circles), there are up to 37 groups, and even one has reached a significant difference (indicated as red circles). 37 The group was evenly distributed in every minute, and more than half of the time in each minute was higher in the control group than in the experimental group. The remaining 23 groups were higher for the
experimental group than the control group, but there was still no significant difference.

In the stage of memory recitation, the subject needs to pay more attention and concentration. In the five minutes, the number of groups per minute in the control group was half higher than that in the experimental group. However, it can be found that when the learner is working in memory, it requires a lot of attention and concentration. To the extent, there is a way to load the memory to memorize the work. Therefore, when doing memory recitation, it is very unsuitable for participants to listen to music.

(3) Logical problem-solving
In the logical problem-solving stage, after independent sample t-test analysis, only 18 groups of data showed that the average concentration value of the control group was higher than the average concentration value of the experimental group, and 11 of them occurred in the first minute (12 groups of data), and even at T3, T4 there were significant differences. In the beginning of the logical problem-solving work and within the last one minute, the control group was more likely to present a higher level of concentration.

In Figure 5, the remaining 42 groups were higher than the average concentration of the experimental group compared with the control group. There is still a significant difference in the T46, and it occurred almost one-and-a-half to four-and-a-half. Therefore, when it was logical problem-solving, less attention and less focus was required, so participants could play music for themselves.
4.2 Comparison of learning processes

In the same control group and experimental group, in the work of reading comprehension, memory recitation and logical problem-solving, what kind of difference is needed between attention and concentration. It will be divided into experimental group and control group for discussion, as follows:

(1) Experimental group

In Figure 6, by means of the analysis of variance (ANOVA), out of all 90 (red circle) groups of data, up to 68 groups showed significant differences, and only 22 (purple circle) groups did not show significances. The main reason for the significant difference is that the level of concentration required to memorize the memory is very high, and almost all of them are much more focused than the other two types of work.

Memory recitation requires the highest level of concentration, and almost all of them are higher than the level of concentration required for reading comprehension and logical problem-solving. The level of concentration required for reading comprehension and logical problem-solving is mutually advanced. From the previous
research results, it can also be shown that it is suitable for participants to listen to music when doing reading comprehension and logical problem solving.

(2) Control group
In Figure 7, among all 90 groups of data, up to 78 (indicated as red circles) groups showed significant differences, and only 12 groups did not show significances. Among the 24 groups of data in the first two minutes, there were significant differences between the 23 groups. The difference from the experimental group was that although the concentration of the control group decreased at the third minute, there were still significant differences among the 8 groups. The fourth minute has been improved to 11 groups as the data showed significant differences, and at the last minute, there were 7 groups showing significant differences.

![Figure 7. Line chart of each learning processes in the control group](image)

Memory recitation requires the highest level of concentration, and almost all of them are higher than the level of concentration required for reading comprehension and logical operations, and almost all show significant differences. There is no significant difference in the concentration of other reading comprehension and logical problem solving.

4.3 Comparison of different types of music
Whether different types of music will have differences in reading comprehension, memory recitation and logical problem-solving. In the classification of the original music type, it is divided into Chinese pop songs, foreign language pop songs, classical songs, rock songs and others. After checking the respondents' responses, they found that in various learning processes, the number of classical songs, rock songs and other types is no more than three, so the number of these three types of songs is combined with other types for analysis. The status of each type of music for different learning
processes was as follows:

1. Reading comprehension

In Table 2, only 3 out of all 90 groups (3.3%) showed significant results. It can be inferred that in the reading comprehension stage, the music type did not affect their concentration.

**Table 2.** The ANOVA result of different types of music in reading comprehension stage in the experimental group

<table>
<thead>
<tr>
<th>Group</th>
<th>Chinese pop songs(I) (N=21)</th>
<th>Foreign language pop songs(II) (n=19)</th>
<th>Others (III) (N=6)</th>
<th>F value</th>
<th>Scheffe multiple range tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I-II</td>
</tr>
<tr>
<td>T16</td>
<td>43.13</td>
<td>50.45</td>
<td>65.83</td>
<td>4.051*</td>
<td>n.s.</td>
</tr>
<tr>
<td>T44</td>
<td>44.97</td>
<td>55.65</td>
<td>45.00</td>
<td>3.238*</td>
<td>n.s.</td>
</tr>
<tr>
<td>T46</td>
<td>41.47</td>
<td>59.06</td>
<td>43.80</td>
<td>7.830**</td>
<td>*</td>
</tr>
</tbody>
</table>

n.s.=non-significant *, ** significant at 5% and 1% levels, respectively

**Table 3.** Different types of music counts in reading comprehension stage

<table>
<thead>
<tr>
<th>Type of music</th>
<th>numbers of highest concentration</th>
<th>numbers of middle concentration</th>
<th>numbers of lowest concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese pop songs</td>
<td>5(08.3%)</td>
<td>18(30.0%)</td>
<td>37(61.7%)</td>
</tr>
<tr>
<td>Foreign language pop songs</td>
<td>27(45.0%)</td>
<td>25(41.7%)</td>
<td>8(13.3%)</td>
</tr>
<tr>
<td>Others</td>
<td>29(48.3%)</td>
<td>16(26.7%)</td>
<td>15(25.0%)</td>
</tr>
</tbody>
</table>

In Table 3, among the other 60 types of music, 29 (48.3%) were the most highly focused, while the foreign language popular songs had 27 groups (45%) with the highest level of concentration. There were only 5 groups of Chinese pop songs (8.3%). When listening to music, classical music, soul music, rock music or foreign language pop songs is also a good choice. The least suitable music is Chinese pop music. However, only three groups (3.3%) of these three types of music were significant, and the rest of the time is not significant.

2. Memory recitation

In Table 4, at T10 and T39, Chinese pop songs have significant differences with other songs. At T3, T12, and T14, ANOVA analysis is significant, but there is no significant difference between them in the Scheffe multiple range tests. Only 5 of the 90 groups (5.6%) showed significant results, and it can be inferred that during the memory recitation stage, the type of music did not affect their concentration.
When listening to music, it is best to listen to classical music, soul music, rock music, etc. Foreign language popular songs are also a good choice. The least suitable to listen to is Chinese pop music. However, only 5 groups (5.6%) of the 3 types of music are significant, and the rest of the time is not significant. It is recommended that the level of concentration will be better without listening to music.

(3) Logical problem-solving
All of the 90 groups of data did not show significant, and it can be inferred that in the logic problem solving stage, the music type does not affect its concentration. Other types have a concentration of up to 11 groups < 40, and Chinese popular groups have 2 groups of focus < 40.

In Table 6, among the 60 groups of foreign language pop music, 30 groups (50%) had the highest level of concentration, while Chinese pop songs had 20 groups (33.3%), and other types of songs had 10 groups (16.7%). When performing logical problem-solving, if one wanted to listen to music, it was most suitable to listen to popular foreign songs. Chinese pop songs are still the second best choice. The least suitable to listening to is other types of music. But none of the three types of music were significant, indicating different types of music does not affect the level of concentration required in the logical problem-solving phase.

Table 4. The ANOVA result of different type of music in memory recitation stage in the experimental group

<table>
<thead>
<tr>
<th>Group</th>
<th>Chinese pop songs(I) (N=21)</th>
<th>Foreign language pop songs(II) (n=19)</th>
<th>Others (III) (N=6)</th>
<th>F value</th>
<th>Scheffe multiple range tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I-II</td>
</tr>
<tr>
<td>T3</td>
<td>51.77</td>
<td>59.55</td>
<td>64.87</td>
<td>3.760*</td>
<td>n.s.</td>
</tr>
<tr>
<td>T10</td>
<td>50.09</td>
<td>61.05</td>
<td>69.97</td>
<td>5.368**</td>
<td>n.s.</td>
</tr>
<tr>
<td>T12</td>
<td>48.23</td>
<td>58.15</td>
<td>60.97</td>
<td>3.544*</td>
<td>n.s.</td>
</tr>
<tr>
<td>T14</td>
<td>48.43</td>
<td>56.86</td>
<td>62.83</td>
<td>3.578*</td>
<td>n.s.</td>
</tr>
<tr>
<td>T39</td>
<td>51.08</td>
<td>59.32</td>
<td>67.60</td>
<td>4.317*</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Table 5. Different types of music counts in memory recitation stage

<table>
<thead>
<tr>
<th>Type of music</th>
<th>numbers of highest concentration</th>
<th>numbers of middle concentration</th>
<th>numbers of lowest concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese pop songs</td>
<td>1(1.7%)</td>
<td>9(1.5%)</td>
<td>50(83.3%)</td>
</tr>
<tr>
<td>Foreign language pop songs</td>
<td>21(35.0%)</td>
<td>34(56.7%)</td>
<td>5(8.3%)</td>
</tr>
<tr>
<td>Others</td>
<td>38(63.3%)</td>
<td>17(28.3%)</td>
<td>5(8.3%)</td>
</tr>
</tbody>
</table>
### Table 6 Different types of music counts in logical problem-solving stage

<table>
<thead>
<tr>
<th>Type of music</th>
<th>numbers of highest concentration</th>
<th>numbers of middle concentration</th>
<th>numbers of lowest concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese pop songs</td>
<td>20(33.3%)</td>
<td>21(35.0%)</td>
<td>19(31.7%)</td>
</tr>
<tr>
<td>Foreign language pop songs</td>
<td>30(50.0%)</td>
<td>20(33.3%)</td>
<td>10(16.7%)</td>
</tr>
<tr>
<td>Others</td>
<td>10(16.7%)</td>
<td>19(31.7%)</td>
<td>31(51.7%)</td>
</tr>
</tbody>
</table>

5. Conclusion and Implication

5.1 Conclusion

Listening to music significantly partially affects reading comprehension, memory recitation, and logical problem-solving. Listening to music had a significant positive impact on reading comprehension and logical problem-solving. However, it had a significant negative impact on the learning process of memory recitation. One could get a higher level of concentration without listening to music.

At the reading comprehension stage, only 3 out of all 90 groups (3.3%) were significant, and it can be inferred that the type of music did not affect their level of concentration. In the memory recitation stage, only 5 groups (5.6%) were significant, and the rest of the time was not significant, and the music type did not affect their concentration. In the logic problem-solving stage, all three types of music did not show significant, indicating different types of music did not affect the level of concentration required in the logical problem-solving phase.
Table 7. Result of the path coefficient and t-value

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Description</th>
<th>t-value/ F value</th>
<th>Hypotheses supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Whether listening to music had a significant positive effect on the learning process.</td>
<td></td>
<td>Partially supported</td>
</tr>
<tr>
<td>H1a</td>
<td>Whether listening to music → reading comprehension</td>
<td>-2.83*</td>
<td>Supported</td>
</tr>
<tr>
<td>H1b</td>
<td>Whether listening to music → memory recitation</td>
<td>2.02*</td>
<td>Negative supported</td>
</tr>
<tr>
<td>H1c</td>
<td>Whether listening to music → logical problem-solving</td>
<td>-1.99*</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>Subject property and music type will moderate the relationship between whether listening to music and learning process.</td>
<td></td>
<td>Partially supported</td>
</tr>
<tr>
<td>H2a</td>
<td>Subject property moderate → learning process</td>
<td>10.810***</td>
<td>Supported</td>
</tr>
<tr>
<td>H2b</td>
<td>Music type moderate → learning process</td>
<td></td>
<td>Not supported</td>
</tr>
</tbody>
</table>

5.2 Implication for practice
In previous studies, whether at home or abroad, the issue of concentration was discussed only at a certain learning level or in the Work Memory of a job (Kang and Williamson 2014; Karimnia and Sadeghzadeh Lari 2012). There is no full discussion at different levels of learning, and students are faced with different learning tasks every day from senior high to college. How music can keep learners accompanied and help them learn more systematic is of importance, which will in turn help learners get more learning benefits more directly. Learners have to deal with a lot of information and things within a limited time each day, moreover, the degree of concentration will decrease with time, so how to enhance their concentration by listening to music when studying different learning contents will make a difference on their learning results.

5.3 Limitations
Due to the regional relations of the schools taught by the researchers, and the limited number of students in the course of study, the results of the inference are limited. Future studies can expand on the number of samples and the number of experimental subjects.
6. References


Swaby, B. E. 1989. Diagnosis and Correction of Reading Difficulties. ERIC.


Wang, C.-C., and Hsu, M.-C. 2014. An Exploratory Study Using Inexpensive Electroencephalography (Eeg) to Understand Flow Experience in Computer-Based Instruction, Information & Management (51:7), 912-923.
Investigation into Japanese tweets with the hashtag “#ILoveKorea”

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ABSTRACT

In Japan, there are many hate speech posts directed toward minority people, especially anti-Korean hate speech posts, on social media, including Twitter. However, in July 2019, a new movement occurred. It was the “#ILoveKorea” movement, and thousands of tweets have been posted by Japanese Twitter users with the hashtag “#ILoveKorea.” Almost all such tweets were posted with not only the hashtag but also positive sentences on Korea. In this paper, the tendency of such tweets was investigated by considering the user who posted the tweets and the contents of the tweets. We obtained 11,900 tweets posted with the hashtag “#ILoveKorea” (henceforth, “#ILoveKorea tweets”) and 11,900 tweets posted with the hashtag “#IHateKorea” (henceforth, “#IHateKorea tweets”) and compared them. It was found that #ILoveKorea tweets were posted by the lighter user of Twitter compared with #IHateKorea tweets. It was also discovered that the #ILoveKorea tweets were posted with positive sentences on their favorite Korean things such as Korean cuisine, K-pop, and user experience such as “I was helped by Korean people in Korea.”

Keywords: Social media, Anti-hate-speech, Text mining

In Japan, there are many hate speech posts directed toward minority people on social media, especially anti-Korean hate speech posts. For example, Human Rights Now conducted an interview survey on Korean people and clarified that many Koreans in Japan were recipients of anti-Korean hate speech on Facebook and Twitter. However, in July 2019, a new movement arose in Japan. It was the “#ILoveKorea” movement, and tens of thousands of tweets with the hashtag “#ILoveKorea” have been posted on Twitter by Japanese users who are concerned about the worsening relationship between Japan and Korea. SBS (Seoul Broadcasting System) News reported that about 23,000 tweets with the hashtag “#ILoveKorea” were posted in six days, and the majority of those tweets were posted with not only the hashtag but also positive sentences on Korea. This movement led to the “#ILoveJapan” movement started by Korean Twitter users. In dissent to that movement, some Japanese Twitter users initiated the “#IHateKorea” movement by posting negative comments concerning Korea with the hashtag “#IHateKorea.”
In this paper, we analyzed tweets with the hashtag “#ILoveKorea” to find a key to eliminating racism. We obtained 11,900 tweets posted with “#ILoveKorea” and “#IHateKorea” using Twitter-official API from August 19 to September 18, 2019. From these data, we removed tweets with both hashtags, and we used 8,248 tweets posted with the hashtag “#ILoveKorea” (henceforth, “#ILoveKorea tweets”) and 10,309 tweets posted with the hashtag “#IHateKorea” (henceforth, “#IHateKorea tweets”) as our sample tweets.

Using these data, we conducted user analysis and content analysis. With respect to user analysis, we compared #ILoveKorea and #IHateKorea tweets with a focus on (1) the number of follows, (2) the number of followers, and (3) the year when the user signed up with Twitter. With respect to content analysis, we conducted quantitative text analysis using KH Coder, which is a free software for quantitative content analysis or text mining. In addition, we conducted content analysis of #ILoveKorea tweets based on manual, visual check.

Our results are as follows. With regard to the number of tweets, following, and followers, the median of #ILoveKorea tweets was significantly lower than that of #IHateKorea tweets based on the Brunner-Munzel test at 0.05 level. In addition, 17.9% of users who posted #ILoveKorea tweets signed up in 2018 and 14.7% of users who posted #IHateKorea tweets signed up in 2018. There was a statistically significant difference between these rates. The same tendency was shown in the rates for users who signed up in 2019 (19.4% and 12.5%, respectively), and a statistically significant difference was observed between the two. These results on the number of tweets, following, followers, and sign-up years suggest that users who posted “#ILoveKorea” were lighter users than the users who posted “#IHateKorea” tweets.

In addition, the top 30 words in #IHateKorea tweets and co-occurrence network charts of #IHateKorea tweets drawn by KH Coder suggest that many tweets with #IHateKorea had the same characteristic norm. Almost all such tweets included the same sentence, which was the title of curator sites of 2 channel. 2 channel is an anonymous BBS site, and Kou (2015) suggested that racist tweets tend to use 2 channel as the information source to attack Korean people, and the same tendencies were observed in this paper as well.

Finally, the results of content analysis of tweets based on manual visual check clarified that 17.2% of people who posted #ILoveKorea tweets provided their favorite things about Korea, such as “I like Korean foods” or “I like K-pop artists,” and 11.4% of people who posted #ILoveKorea tweets shared experiences such as “Many Koreans helped me when I got lost in Seoul, Korea.” On the other hand, 15.4% of #ILoveKorea tweets included negative comments about #ILoveKorea or Korea, and were posted by anti-Korean users in Japan.
Information literacy among graduate students in Kuwait University’s College of Education

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ABSTRACT
This quantitative study examined the information literacy skills among graduate students in the College of Education at Kuwait University. The study’s aim was to investigate the level of information literacy among the selected students, including their awareness, skills, and information needs, as well as the college’s role in supporting this population. The overall results showed that the students in the sample had only modest skills relative to their position as graduate students. In particular, the results also indicated a lack of skills regarding the use of most library services and facilities, which sheds light on the college’s role in disseminating an awareness of information literacy. The authors recommend that the college library be more engaged in the education process.

Keywords: Information literacy, college teaching, Kuwait University, graduate students, information Awareness.

1. Introduction
It is inevitable that the world is witnessing rapid growth in the amount of available and accessible information, which accordingly raises the importance of information literacy in all fields, especially in the academic community. Students in this generation are privileged to be part of this information-explosion universe. They can access, using different devices such as their mobile phones, more information than previous generations could using multilevel libraries. If it were the information itself that mattered, then we could say today’s students are more successful than former students. However, it is not the information per se that matters, but rather the skill in handling the enormous amount of information. Exposure to information does not make us informed unless we know how to deal with it effectively.
According to the Association of College and Research Libraries (ACRL), nothing has posed a greater challenge to the societies than the emergence of the information age. Information is expanding at an extraordinary rate, with particularly rapid strides...
being made in technologies for storing, organizing and accessing information [1]. The increasing amount of available information has increased the importance of information literacy, which scholars and other experts have endorsed since the 1980s [2]. Information literacy is essential in many fields – especially in education – and is the key component of educational progress; students need to know how to process a large amount of information in every aspect of their lives [3]. Graduate students, however, have different and more sophisticated information needs than those of undergraduates. Understanding the information needs of graduate students would assist librarians, faculty, and administration to offer the appropriate information skills services and instruction [4]. Thus, this paper focuses on information literacy in the College of Education (COE) at Kuwait University (KU).

1.1 Purpose
The aim of this study was to investigate the level of information literacy among graduate students in the COE at KU. The study’s results can be used to determine the college’s actual function (and its ideal function) in promoting information literacy among graduate students.

1.2 Research questions
This study examined graduate students’ information literacy skills and addressed the following questions:
1. What level of information literacy skills do the graduate students in the COE at KU possess?
   (a) Level of pre-search expertise
   (b) Level of during search expertise
   (c) Level of post-search expertise
2. What difficulties do students face when searching for information?
3. What is the COE’s role in developing graduate students’ information literacy skills?

1.3. Significance
To the researchers’ knowledge, this is the first study to assess information literacy among graduate students in the COE at KU. The study’s significance includes the following:
- Examining the students’ ability to identify their information needs to improve their research skills and their ability to efficiently locate required information
- Providing the results to faculty, college administration and the college library to develop the COE’s graduate programs based on students’ information literacy needs
Strengthening and disseminating the concept of information literacy among
academics
– Emphasizing the COE’s role in developing awareness programs that raise awareness of the information culture among students, faculty members and academic staff in the COE at KU
– Opening a new area of research in this field
– Adding to the sparse literature on information literacy in Arab countries

1.4. Information Literacy
The American Library Association defined Zurkowski’s term information literates as:

those who have learned how to learn, they know how to learn because they know how knowledge is organized, how to find information, how to use information, and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find information needed for any task or decision at hand [1].

These skills are the main components of most definitions of information literacy. Johnson and Webber [5] considered information literacy to describe the many initiatives in higher education aimed at meeting society’s broad information demands.

One of the most prominent groups to enact this concept is the American Library Association, whose Presidential Committee on Information Literacy issued a 1989 report that included four main components of information literacy: ‘the ability to recognize when information is needed and to locate, evaluate and use effectively the needed information’ [6]. In 1999, the American Association for Higher Education endorsed the Information Literacy Competency Standards for Higher Education; the ACRL approved these standards in 2000, followed by the Council of Independent Colleges in 2004 [6]. Because of the ACRL standards, several academic librarians in higher education associations have established learning tools, resources and outcomes that many institutions have employed to introduce information literacy concepts and skills in their curricula. In 2015, however, ACRL [7] developed and revised those standards and produced a new framework of information literacy concepts. This framework contains the conceptual understandings, which coherently shape many other concepts and ideas related to information, research and scholarship.

The framework consists of six frames essential to information literacy, knowledge practices and dispositions:
1. Authority is constructed and contextual
2. Information creation as a process
3. Information has value
4. Research as inquiry
5. Scholarship as conversation
6. Searching as strategic
The ACRL claims that this framework assists librarians, faculty and institutional partners to redesign workshops, assignments and curricula, in order to ‘connect information literacy with student success initiatives; to collaborate on pedagogical research and involve students themselves in that research; and to create wider conversations about student learning, the scholarship of teaching and learning, and the assessment of learning on local campuses and beyond’ [7, p. 2].

Over the past four decades, information literacy has begun to receive significantly more attention. According to Rader [8], this attention is demonstrated by examining the number of publications in the field, including US, Canada, UK, Australia and New Zealand. Later, more countries and regions have become engaged in these publications, including China, Germany, Mexico, Scandinavia, Singapore, South Africa, Spain and South America. Obviously, based on the recent resources used in this paper, more attention has been paid to this field in the Middle East since 2000, including studies in Jordan, Palestine, Kuwait, Saudi Arabia and Oman.

Despite the large quantity of studies addressing information literacy, in terms of both skills and the field’s role in developing academic researchers’ search skills, comparatively few Arabic studies have been conducted in this field [9]. Researchers in Arab countries have become noticeably more aware of the significance of information literacy only in the past decade; meanwhile, scholars in other countries began to investigate this field after the term’s appearance in 1974.

Some of the studies from the Arab world addressed information literacy among individuals (students or faculty members); whereas other studies investigated individuals’ attitudes towards information literacy programs or courses.

1.5. Information literacy in the Arab world
In Saudi Arabia, Al Amoudi and Al Selmi [9] investigated information literacy among a random sample of female graduate students in the master’s and doctoral programs in the College of Arts and Human Sciences at the University of King Abdul Aziz. A questionnaire was used to determine the students’ information literacy skills, which indicated an awareness of the need for information and the ability to use and evaluate this information. The results demonstrated these students’ lack of library, research and technology skills. The researchers’ recommendation was to encourage the academic staff, library staff and students to participate in developing information literacy awareness in the academic community.
In 2009, Johari and Al Amoudi [10] conducted a study at the same university to investigate information literacy awareness, its manifestation, information needs and skills among faculty members, academic assistants and female undergraduate students. The results indicated that the faculty members needed information for research purposes and that the students needed information for their assignments. The main source of information for both groups was the Internet, followed by journals for the faculty members and the college library for the students.

In 2010, Al Humood [11] examined information literacy among the students and faculty members of the College of Basic Education at the Public Authority for Applied Education and Training in Kuwait. The study was meant to demonstrate the importance of information literacy and to emphasize the responsibility of the faculty and the library staff to spread the information culture. The results indicated a need for information for research purposes and a lack of skills in determining the appropriate research methods due to a shortage of library facilities. Furthermore, both groups experienced difficulty in choosing accurate keywords for research, dealing with foreign languages and accurately referencing resources.

In 2012, Al Shwabkah [12] conducted a study with the educational sciences faculty at the University of Jordan to investigate their students’ attitudes towards a specific elective course (Library Skills and Use) as a model for information literacy. The findings indicated that students with high GPAs had a positive attitude towards this course and that these students’ practical skills ranked higher than the lower-GPA students’ skills did.

In 2012, Baraka [13] conducted a study at Al-Quds Open University in Palestine to detect the efficiency of information awareness among students. The tool used in this study was based on the Information Literacy Competency Standards for Higher Education, which were developed by ACRL in 2000 to assess the information literacy of college students. These standards consist of four main principles:

1. Inquiry, critical thinking and gaining knowledge;
2. Drawing conclusions, reaching informed decisions, implementing knowledge and creating new knowledge;
3. Sharing knowledge and participating ethically and productively; and
4. Pursuing personal and aesthetic growth [14].

The results of Baraka’s study showed a very high level of understanding of the issues surrounding legal and ethical information use and for the category of ‘how to use information effectively’, but the results were worse for the category of ‘evaluating
the information’. The study also showed a correlation among efficiency, grade point average and the year of study. Higher efficiency correlated with higher grades and with being in the third or fourth year of study.

In addition to the information literacy standards, different models were developed to solve information problems, such as the Big6 model. This model, which was established by Eisenberg and Berkowitz in 1987, integrates both information and technology skills. It consists of three main principles:

1. The conceptual component that emphasizes learning how to enrich existing information by problem-solving techniques, which promotes the ability to determine related tasks and information;
2. The six main skills that are used to solve information problems; and
3. The ‘Little12’ or the 12 subsidiary skills (each main skill is divided into two minor skills):
   3.1 Task definition: define the information problem, and identify information needed to complete task
   3.2 Information-seeking strategies: determine the range of probable sources, and evaluate the possible sources to determine the best ones
   3.3 Location and access: locate sources, and find information from located sources
   3.4 Use of information: engage the information within a source, and extract relevant information from the content of a source
   3.5 Synthesis: organize and present information
   3.6 Evaluation: judge the product and the process [14].

In Oman, Al-Aufi and Al-Azri [14] conducted a questionnaire study at Sultan Qaboos University based on the Big6 model to identify the status of information literacy among final-year students. The results indicated high rates of information literacy based on the Big6 skills synthesis; the participants showed ability ‘in summarizing, combining and linking, using consistent style of organization, and using a variety of ways to display information was ranked first, while the skill of location and access scored the lowest’ [14, p. 335]. Al-Aufi and Al-Azri also claimed that the amount of literature regarding information literacy in the Arab world is less than that in developed countries.

Overall, information literacy in the Arab world has been gaining a significance attention, particularly in the higher education institutions. Yet, Ashoor [15] claimed that developing countries-Arab countries are included-face main difficulties which deferral developing information their information literacy programs; such as the traditional
educational system, which is based on memorizing the teacher’s notes, besides lacking the appropriate facilities such as computer labs and library facilities. In addition to the low literacy rate; based on the UNESCO statistical report published in 2000 “one man in the Arab states is illiterate and one woman in two, the report states also that the countries where female illiteracy is the highest are Iraq, Morocco, Mauritania, and Yemen [15, p. 402].

1.6. Information literacy and graduate students
Ramphel and Davison [16] have claimed that information literacy instruction for graduate students is mostly neglected. Most colleges, according to them, assume graduate students can conduct scholarly research when they first join the graduate school, yet they often lack knowledge of basic library services such as interlibrary loan, database searching and other services. Such assumption prevents graduate students from receiving in-class library instruction by the faculty, and fails to indicate librarians and library services as main resources. Likewise, Harkins et al. [17] confirmed this assumption that incoming graduate students are information literate though they lack the essential skills to organise and critically evaluate research. They emphasized the major role of universities in supporting students in acquiring information literacy skills.

On the other hand, Madden [18] highlighted the significant role of the library once it makes itself known. Madden examined the impact of the information literacy module2 of humanities Ph.D. students at the University College Cork in Ireland to enable the library and librarians to support Ph.D. students by meeting their information needs. Shen [19] likewise investigated the effectiveness of graduate students’ library orientations – both online and face-to-face – in a master’s social work program at Sam Houston State University in the US. The results emphasized the positive effects of library orientations and lab sessions on graduate students’ information literacy skills and knowledge, regardless of format. According to the ACRL, librarians have a major responsibility in ‘identifying core ideas within their own knowledge domain that can extend learning for students, in creating a new cohesive curriculum for information literacy, and in collaborating more extensively with faculty’ [8, p. 1]. However, ACRL also emphasized both students’ major responsibility in understanding the changing dynamics of information, creating new knowledge and using information and data ethically and faculty’s greater responsibility in designing curricula and assignments that develop students’ engagement with information skills.

2. Methodology
The focus of this study was on the level of information literacy among graduate students, including their awareness, skills and information needs, as well as the
college’s role in supporting this field. For this purpose, a quantitative approach was selected, and a survey was employed to collect data from the students who were enrolled in the COE at KU during the 2016–2017 academic year. Graduate students came from the college’s four main departments: Educational Foundation, Educational Administration and Planning, Educational Psychology, and Curriculum and Instruction. The total number of graduate students registered during this year was 251 (27 males and 224 females); 3 of these students’ responses, 183 were included, as shown in Table 1, after excluding the invalid and incomplete responses.

2.1. Tools
The study explored information literacy among graduate students in the COE at KU. A questionnaire in Arabic was designed based on previously used tools in several studies [8,12,13], modified to fit the study purposes and distributed during the first term of the 2016–2017 academic year. The questionnaire contains six main questions in addition to the demographic question; general skills—such as their information needs, use of resources and library-, information skills before, during, and after searching information, the difficulties in searching information, and the role of COE in developing the graduate students’ information literacy skills from the students’ perspective. The questions—with 5 answers scales—targeted data about the students’ experiences and views of information literacy, and extra questions were added for their additional notices. After ensuring the tool’s validity and reliability, two formats were created (a hard copy and a digital copy). The digital version was administered via the Google Forms to ensure that as many responses as possible were obtained.

2.2. Reliability
To verify the tool’s reliability, the researchers gave the questionnaire to 28 graduate students who had attended the college during previous terms. The resulting Cronbach’s alpha was 0.914—a high value that confirmed the tool’s reliability. “A reliability coefficient of 0.70 or higher is considered acceptable in most social science research.
situations” [20]. Through an arrangement with faculty members, the questionnaire was then distributed to the students in the sample at the end of the semester in both formats, and the results from both versions were collected.

3. Findings

Data were coded using SPSS (v. 23), and multiple statistical procedures were applied, including descriptive analysis and a reliability test.

3.1. General description

The analysis of the data on the graduate students’ information literacy revealed the following (Table 2a–d):
Through an arrangement with faculty members, the questionnaire was then distributed to the students in the sample at the end of the semester in both formats, and the results from both versions were collected.

### Findings

Data were coded using SPSS (v. 23), and multiple statistical procedures were applied, including descriptive analysis and a reliability test.

#### Table 2a

<table>
<thead>
<tr>
<th>Information needs</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studies</td>
<td>182</td>
<td>4.764</td>
<td>0.4865</td>
</tr>
<tr>
<td>Development</td>
<td>182</td>
<td>3.538</td>
<td>1.5000</td>
</tr>
<tr>
<td>Follow ups</td>
<td>181</td>
<td>3.597</td>
<td>1.5010</td>
</tr>
<tr>
<td>Lectures</td>
<td>182</td>
<td>3.736</td>
<td>1.3489</td>
</tr>
</tbody>
</table>

#### Table 2b

<table>
<thead>
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<th>Information sources</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-sources</td>
<td>183</td>
<td>4.902</td>
<td>0.3649</td>
</tr>
<tr>
<td>College library</td>
<td>180</td>
<td>4.389</td>
<td>0.7723</td>
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<tr>
<td>Personal source</td>
<td>183</td>
<td>3.842</td>
<td>0.8334</td>
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<tr>
<td>Book</td>
<td>180</td>
<td>4.228</td>
<td>0.9083</td>
</tr>
<tr>
<td>Internet home</td>
<td>183</td>
<td>4.820</td>
<td>0.4863</td>
</tr>
<tr>
<td>Other library</td>
<td>178</td>
<td>3.281</td>
<td>1.1097</td>
</tr>
<tr>
<td>Conference</td>
<td>180</td>
<td>2.711</td>
<td>1.2304</td>
</tr>
<tr>
<td>Database</td>
<td>183</td>
<td>4.481</td>
<td>0.8634</td>
</tr>
<tr>
<td>Internet school</td>
<td>183</td>
<td>4.109</td>
<td>0.9545</td>
</tr>
</tbody>
</table>

#### Table 2c

<table>
<thead>
<tr>
<th>How students learn about the resources</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice</td>
<td>183</td>
<td>4.869</td>
<td>0.5181</td>
</tr>
<tr>
<td>Workshop</td>
<td>182</td>
<td>2.588</td>
<td>1.2079</td>
</tr>
<tr>
<td>Classes in library</td>
<td>183</td>
<td>2.617</td>
<td>1.2297</td>
</tr>
<tr>
<td>Personal help</td>
<td>183</td>
<td>4.153</td>
<td>1.0317</td>
</tr>
</tbody>
</table>

#### Table 2d

<table>
<thead>
<tr>
<th>Library services used by students</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meeting</td>
<td>182</td>
<td>2.390</td>
<td>1.0388</td>
</tr>
<tr>
<td>Field visit</td>
<td>181</td>
<td>2.260</td>
<td>1.0509</td>
</tr>
<tr>
<td>Source</td>
<td>181</td>
<td>2.718</td>
<td>1.3877</td>
</tr>
<tr>
<td>Website</td>
<td>181</td>
<td>4.193</td>
<td>0.9895</td>
</tr>
<tr>
<td>Lectures</td>
<td>181</td>
<td>2.309</td>
<td>1.1659</td>
</tr>
<tr>
<td>Personal experience</td>
<td>182</td>
<td>4.005</td>
<td>1.2100</td>
</tr>
<tr>
<td>Booklets</td>
<td>182</td>
<td>2.665</td>
<td>1.2538</td>
</tr>
</tbody>
</table>
1. The students’ primary information needs were for research and academic papers (m = 4.76 on a five-point Likert scale). This was followed by lesson or lecture preparation (3.74), staying up to date with the latest in a field (3.6), and general knowledge (3.54). (Table 2a)

2. Table 2b shows that the graduate students’ main information source was the internet (4.9 on a five-point Likert scale), followed by other electronic resources (4.82) and then the college library, print books and databases (each with averages between 4.2 and 4.4). Other sources, such as tutors, colleagues and external libraries, had lower scores (between 3.28 and 3.83), and specialized conferences did not receive much attention, coming in last (2.72). The students stated that they used particular resources more than others, simply because they had gotten used to relying on these sources and were ignorant of other resources. Other students stated that they did not use some resources due to their unavailability or due to the difficulty of accessing them. Some students also did not consider certain resources to be information sources.

3. Regarding the methods by which the students learned about the information resources (Table 2c), self-learning and practice had the highest score (4.87 on a five-point Likert scale), followed by personal assistance from colleagues (4.15); internal and external training workshops played no significant role in their learning processes (scores of 2.59 and 2.62, respectively).

4. The college’s library portal was the most significant service that the library offered as shown in Table 2d, according to the students (4.19 on the five-point Likert scale), followed by personal experience with using libraries (4.0); shockingly, however, the students did not benefit significantly from other library services, such as field visits to the library, training sessions, handouts or library manuals, reporting very limited usage of such services (between 2.26 and 2.72).

3.2. Research questions

To answer the research questions, descriptive statistics were adopted.

3.2.1. What level of information skills do the graduate students in the COE at KU possess?

This first question was divided into three parts to achieve more accurate answers regarding the students’ levels of expertise regarding the skills in use before, during and after searching for information.

What is the graduate students’ level of pre-search expertise?

Table 3 shows the averages for the sub-question regarding the research abilities applied before searching. The results indicated that the students’ pre-search skills varied between low and average (3.77 out of 5). The most common pre-search skill involved selecting keywords (4.43), followed by selecting the format of the results
(printed or electronic, 4.4), and ensuring the accuracy of the selected information (4.3). The least commonly used strategies involved asking questions to determine which information was required, as well as preparing multi-stage search strategies? (2.8 and 2.89, respectively).

What is the graduate students’ level of during search expertise?
Table 4 shows the averages for the sub-question regarding the research abilities applied during searching. The students’ skills with using the library during the search process received a 3.5 score (out of 5); meanwhile, using electronic services (databases and the internet) had the highest score (4.4). The least common skills were those related to the library cataloguing system and to the unassisted use of bibliographies and periodicals (2.82 and 2.74, respectively). Students also indicated that if they did not find the information, they desired using their first method, their first alternative was to search the internet (4.95 out of 5); the next most common method was asking their tutors (4.11), followed by asking librarians (4.1). Going to external libraries or other specialized centres was the least common method (3.73).

Regarding the information that the students wanted to learn during the information searching process, the results showed that the most significant aspects were the format of the source (4.86 out of 5) and the date of publication (4.82), followed by its accessibility (4.66) and proper citation (4.65). The author’s reputation and experience did not receive much attention (3.7).
Table 3
Graduate students’ answers regarding their pre-search skills

<table>
<thead>
<tr>
<th>The ability to specify</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required information</td>
<td>182</td>
<td>4.132</td>
<td>1.0160</td>
</tr>
<tr>
<td>Medium</td>
<td>182</td>
<td>4.401</td>
<td>0.7643</td>
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<tr>
<td>Questions</td>
<td>182</td>
<td>2.890</td>
<td>1.5047</td>
</tr>
<tr>
<td>Previous knowledge</td>
<td>182</td>
<td>3.934</td>
<td>1.0904</td>
</tr>
<tr>
<td>Keywords</td>
<td>182</td>
<td>4.434</td>
<td>0.8234</td>
</tr>
<tr>
<td>Strategies</td>
<td>176</td>
<td>2.795</td>
<td>1.4435</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>3.7709</td>
<td>0.63673</td>
</tr>
</tbody>
</table>

Table 4
Graduate students’ answers regarding their during-search skills

<table>
<thead>
<tr>
<th>The ability to specify</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-list</td>
<td>181</td>
<td>3.873</td>
<td>1.1881</td>
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<tr>
<td>Indexing</td>
<td>181</td>
<td>2.818</td>
<td>1.4004</td>
</tr>
<tr>
<td>Database</td>
<td>181</td>
<td>4.403</td>
<td>1.1632</td>
</tr>
<tr>
<td>Bibliography</td>
<td>181</td>
<td>2.735</td>
<td>1.2185</td>
</tr>
<tr>
<td>Services</td>
<td>181</td>
<td>3.718</td>
<td>1.2575</td>
</tr>
<tr>
<td>Resource type</td>
<td>181</td>
<td>4.862</td>
<td>0.3912</td>
</tr>
<tr>
<td>Date</td>
<td>181</td>
<td>4.818</td>
<td>0.4533</td>
</tr>
<tr>
<td>References</td>
<td>181</td>
<td>4.646</td>
<td>0.6471</td>
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<tr>
<td>Information type</td>
<td>180</td>
<td>4.506</td>
<td>0.6809</td>
</tr>
<tr>
<td>Editor experience</td>
<td>181</td>
<td>3.691</td>
<td>1.0559</td>
</tr>
<tr>
<td>Ease of access</td>
<td>181</td>
<td>4.657</td>
<td>0.6090</td>
</tr>
<tr>
<td>Hardware and software</td>
<td>181</td>
<td>3.536</td>
<td>1.3103</td>
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<tr>
<td>Database</td>
<td>181</td>
<td>3.878</td>
<td>1.3109</td>
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<tr>
<td>Search engine</td>
<td>181</td>
<td>4.492</td>
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<tr>
<td>Indexes</td>
<td>181</td>
<td>3.503</td>
<td>1.3929</td>
</tr>
<tr>
<td>Recognition</td>
<td>179</td>
<td>3.067</td>
<td>1.6027</td>
</tr>
<tr>
<td>Special database</td>
<td>181</td>
<td>3.099</td>
<td>1.6163</td>
</tr>
<tr>
<td>Discussion groups</td>
<td>181</td>
<td>2.481</td>
<td>1.2978</td>
</tr>
<tr>
<td>Email</td>
<td>180</td>
<td>3.017</td>
<td>1.4929</td>
</tr>
</tbody>
</table>
Regarding skills related to searches of electronic resources, the overall average was 3.5 (out of 5), which is a low to moderate score. The highest score was for using internet search engines (4.5), and the lowest was for participating in group discussions to become more familiar with the topics (2.48).

**What is the graduate students’ level of post-search expertise?**

Table 5 shows the averages for the sub-question regarding the research abilities applied after searching is complete. The average for this item was 3.66 (out of 5). The values varied from 2.22 (for preparing and publishing studies in specialized journals) to 4.2 (for determining the advantage of the obtained information).

**3.2.2. What difficulties do the graduate students experience when searching for information?**

Table 6 shows the averages for this question regarding research difficulties. The average score was 3.57 (out of 5), and the scores varied between 3.02 and 4.12. The most common difficulty was in determining the accuracy and clarity of the information, and the least common difficulty was regarding an inability to formulate correct keywords.

**3.2.3. What is the COE’s role in developing graduate students’ information literacy skills?**

Table 7 shows the averages for items related to the services that faculty members
offer to graduate students. Overall, the services items received fairly low scores (2.75 average out of 5); particularly low scores included guidance and instructional programs (2.68), awareness courses and workshops (2.28), and an explanation of the college’s services on its website (2.14). Other items scored slightly higher, but even these would be generally considered low scores.

### Table 6
Graduate students’ difficulties in information searches

<table>
<thead>
<tr>
<th>Difficulties in</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specifying the required information</td>
<td>180</td>
<td>4.122</td>
<td>0.9010</td>
</tr>
<tr>
<td>Resources type</td>
<td>180</td>
<td>3.339</td>
<td>0.9041</td>
</tr>
<tr>
<td>Resource selection</td>
<td>178</td>
<td>3.933</td>
<td>0.9602</td>
</tr>
<tr>
<td>Using particular resources</td>
<td>177</td>
<td>4.073</td>
<td>0.9356</td>
</tr>
<tr>
<td>Using e-resources</td>
<td>179</td>
<td>3.559</td>
<td>1.0813</td>
</tr>
<tr>
<td>Indexing and references</td>
<td>180</td>
<td>3.867</td>
<td>1.0696</td>
</tr>
<tr>
<td>Reading the results</td>
<td>179</td>
<td>3.156</td>
<td>1.0101</td>
</tr>
<tr>
<td>Keywords</td>
<td>179</td>
<td>3.022</td>
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<tr>
<td>Languages</td>
<td>178</td>
<td>3.944</td>
<td>1.1919</td>
</tr>
<tr>
<td>Strategies</td>
<td>177</td>
<td>3.944</td>
<td>0.9398</td>
</tr>
<tr>
<td>Technology</td>
<td>178</td>
<td>3.062</td>
<td>1.0849</td>
</tr>
<tr>
<td>Employers in the library</td>
<td>180</td>
<td>3.200</td>
<td>1.1742</td>
</tr>
<tr>
<td>Facilities in the library</td>
<td>179</td>
<td>3.285</td>
<td>1.1719</td>
</tr>
<tr>
<td>References</td>
<td>178</td>
<td>3.517</td>
<td>1.1311</td>
</tr>
<tr>
<td>Tot_OBSTACLE</td>
<td>180</td>
<td>3.573</td>
<td>0.75598</td>
</tr>
</tbody>
</table>

### Table 7
The college of education’s role, according to graduate students

<table>
<thead>
<tr>
<th>Role</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information availability</td>
<td>180</td>
<td>3.717</td>
<td>0.9232</td>
</tr>
<tr>
<td>Information development and technology</td>
<td>180</td>
<td>3.017</td>
<td>1.2349</td>
</tr>
<tr>
<td>Professional development</td>
<td>180</td>
<td>2.711</td>
<td>1.2167</td>
</tr>
<tr>
<td>Lectures and workshops</td>
<td>180</td>
<td>2.283</td>
<td>1.2018</td>
</tr>
<tr>
<td>Orientation in research methods</td>
<td>179</td>
<td>2.140</td>
<td>1.1600</td>
</tr>
<tr>
<td>Website</td>
<td>180</td>
<td>2.678</td>
<td>1.3060</td>
</tr>
</tbody>
</table>

### 4. Discussion
The overall results showed that the students’ skills were relatively modest for graduate students who had finished their bachelor’s degrees in education (which required research, studies and projects). In addition, as teachers, they were obligated to conduct studies and research related to their teaching duties before they could enrol in graduate programs. Furthermore, most of the students had been in the graduate
program for more than one course and had completed some core modules requiring research, including a research methodology module.

Similar to Al Humood’s [12] study, this study indicated that the main information need of graduate students is for research purposes; this study also showed that the main source of information is the internet, which is equivalent to Johari and Al Amoudi’s [11] results. The main challenge for students is their lack of library skills, which relates to both the cataloguing system and the bibliography; this is as Al Humood indicated, but unlike in that study, the students in this study could choose suitable keywords in the search process.

On the other hand, the level of difficulty that the students faced was not expected. Kuwait University dedicates a large budget to library services, and the COE library has most of the facilities that students require, including a portal, online services and workshops for both faculty members and students. However, the results indicated that students lack the skills needed to use most of the services at the library; they have difficulty dealing with electronic resources (e-resources), resource selection, indexing and reading results (Table 6). If the required facilities and services are available but the students are unaware of such services, the blame cannot be placed on the library alone. This conclusion was supported by the students’ responses to the question about the college’s role, which received the lowest score of all the questions.

Finally, if the graduate students in COE have such modest results in information skills, we can argue that undergraduate students have limited fundamental information and research skills as well. Although the undergraduate students have acquired the basic computer skills in different core courses (Computer in Education), they may lack the skills to search the internet effectively and to use the available library resources for their studies and their research, including references and citations skills for the used information. El Hassani [21] argued that such skills are essential and have great impact on the success of students; with the fundamental information literacy skills, students will face fewer difficulties in their assignments and academic papers. The significance of these results raises the need for enhancing the educational program at COE to meet the information needs and the required information skills, for both graduate and undergraduate students, to cope with the information age.

5. Recommendations

Bønløkke et al. [22] emphasized the importance of formal cooperation between librarians and educators, which requires a joint understanding of information literacy in order to achieve this teamwork effectively. They argued that librarians need access to program and modules documents to understand the students’ information needs. Faculty members, on the other hand, who lack information literacy skills, would be a
problem when challenging students on information literacy for their assignments. Thus, they argued that information literacy is everyone’s business. Additionally, Walter [23] claimed that the issue of incorporating information literacy instruction into the academic curriculum has grown beyond the boundaries of professional librarianship to be a concern addressed by faculty, administrators and even regional accrediting organizations.

Accordingly, for the COE future, we highly recommend that the library be more engaged in the educational process. Although the library has a variety of services and facilities that can meet both undergraduate and graduate students’ needs, the library workers need to increase students’ awareness of its facilities and resources. However, the library cannot fulfil its role if neither the curriculum nor the faculty members provide the students with the necessary information skills to locate information and assess resources.

Regarding the university’s role, we highly recommend applying to the COE the same methods that KU’s College of Social Sciences uses, in which a core (100 level) course teaches students the basics of information literacy. An appropriate way to apply this curriculum without adding an extra course would be to include these basic skills in an existing course: Educational Research Methodology (a 100-level course).

In this case, the students would benefit and be able to use information literacy skills starting in the first year of college, thus gaining extra benefit in their studies, whether undergraduate or graduate. The next step is to evaluate the COE’s faculty members and their ability to develop information literacy skills in their curricula. In addition, the information literacy skills of both the graduates and the faculty members in the COE can be examined in terms of the ACRL standards.

REFERENCES


[16] Rempel HG, Davidson JR. Providing information literacy instruction to graduate students through literature review workshops. Issues in Science and Technology Librarianship, 2008; 53.


[19] Shen L. Both Online and In-Person Library Orientations Have Positive Effects on Graduate Students’ Information Literacy Skills. Evidence Based Library and Information Practice. 2016; 11(2): 189-191.


Students' Attitudes Toward Flipped Classrooms supported by Motion Infographic and its Correlation with Some Variables

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ABSTRACT

This study aimed at measuring students' attitudes towards flipped classrooms supported by Motion infographic. A quantitative design approach was employed to examine the attitude of (64) graduate and undergraduate students in the college of education and the college of administrative sciences at Kuwait University. A questionnaire containing three sections and (30) items was developed and used to collect data. The results of the descriptive analysis showed a high positive attitude toward flipped classrooms. In addition, the results of independent sample t-tests showed no significant differences in the attitude toward flipped classrooms related to sex, study level, or academic major.