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**Digital Information Literacy: A Case Study in Oslo Public Library**

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**Abstract**

This paper examines the digital information literacy (DIL) of public library professionals in Norway and explores the ways to improve their skills as well as identify barriers to improvement. The case study method was used and semi-structured face-to-face interviews were conducted with twenty public library professionals. The knowledge sharing approach was visible among the staff, but the slow adaptation of technology, and organizational, personal, and technological barriers were hindering the DIL development. Online training modules, mapping the staff competencies, assessment of the staff needs, advanced and customized training programs, long-term strategies, and decentralized initiatives were suggested for the improvement of DIL.

**Keywords:** Information literacy, Digital information literacy, Public library, Librarians, Oslo public library, Deichmanske bibliotek

**1 Introduction**

Although it is widely assumed that the Net Generation is skilful with the latest technology, and finding and using information, this is not always the case. Students often experience difficulties in evaluating and using information [1–5] and therefore they need proper digital information literacy (DIL). The public library is driven by the information and cultural requirements of the general public. Their users' requirements are wideranging; their age, previous learning experience and ability is not homogeneous and their attitudes of learning are very diverse [6, 7]. Therefore, the difficulties of the aged or adult users to use information in a digital environment can be easily understood and public libraries are changing to address their users' requests for digital information services [8, 9].

Sveum and Tveter [10] indicated that two major Norwegian governmental reports, Library Reform 2014 [11] and Cultural Heritage for All – Digitization in the Archive, Library and Museum sector [12] were prepared to create the Norwegian nationwide library through a network of cooperating libraries, across municipal borders, and to create easy access to digital content. Aabø [13] found that Norwegian public libraries are widely in use, as 52 % of all citizens visit a public library during a year, and except for cinemas, this is the highest percentage for any cultural institution. On average, each inhabitant visits the library five times a year [14]. Aabø [13] also indicated that the Norwegians are highly satisfied with the services of public libraries, and the service ranks third out of 52 public services. Kuhlthau [15] indicated that in the information search process, the public librarian works as an adviser, tutor or counsellor. The librarian has the role of mediator [2], which Kuhlthau defined as ‘a person who assists, guides, enables, and otherwise intervenes in another person’s information search process’ [15, p. 107]. In addition, rapid change of information technologies (IT) requires library professionals to use a dynamic understanding of information literacy (IL) and to be open to the diversity of information sources that can be utilized by their patrons [16].

No research was identified that investigated the DIL of public library professionals in Norway. Hall [17] stated that public libraries are the most important places for a community to connect them with information. They help the community to read, interpret, and produce information that is appropriate as well as valuable to the community. Therefore, it is important to identify how public library professionals practice and acquire DIL, and prospects and barriers to improve their DIL.

The purpose of this study was to investigate practice, strength, weakness, influence, and the challenges of DIL of the public library professionals. The focus was on how the public library professionals perceive their DIL, what kind of DIL practice they are engaged in, how they can improve their skills, and what kind of barriers to the improvement of their skills exist. The research questions were: (a) what are the library personnel’s experiences of learning DIL in the public library environment? (b) what are the prospects and barriers to improve the DIL of public library personnel?

The public library professional is defined as a person who is engaged in the library activities as paid occupation. This paper is an advanced version of the master thesis of Khatun [18].

## **2 Literature Review**

### **2.1 Information Literacy and Digital Information Literacy**

Considerable effort has been made by researchers in many parts of the world to define IL. Several overviews and analysis of the concept of IL have been published [19–22]. According to the Society of College, National and University Libraries, “Information Literacy is an umbrella term which encompasses concepts such as digital, visual and media literacies, academic literacy, information handling, information skills, data curation and data management” [23, p. 3]. Different authors define IL in various ways and it is related to information, literacy, competency, skill, learning and knowing [21, 24]. In this study, IL is

defined as the ability to identify, locate, access, evaluate appropriate sources of information to meet the information need, as well as effectively and ethically use information resources regardless of format.

DIL is one aspect of IL that is very relevant for the 21st century [25]. However, there is very little information available about how to develop DIL among the public library professionals. Illinois Mathematics and Science Academy [26, p. 2] mentioned that DIL involves “knowing how digital information is different from print information; having the skills to use specialized tools for finding digital information; and developing the dispositions needed in the digital information environment”. Martin [27, p. 19] defined DIL as the “awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyze and synthesize digital resources”. Hegarty et al. [28, p. 7] described DIL as a subset of IL and gave a following definition: “the ability to recognize the need for, access, and evaluate electronic information. The digitally literate can confidently use, manage, create, quote and share sources of digital information in an effective way”. Garcia et al. [29] referred to DIL as tools and skills needed to conduct library research to introduce information resources that are relevant for personal and professional lives as well as for lifelong learning. Jeffrey et al. [30, p. 385] pointed out that “the digitally literate can confidently use, manage, create, quote, and share sources of digital information in an effective way that demonstrates an understanding and acknowledgement of the cultural, ethical, economic, legal, and social aspects of information”. The authors of this paper agree that DIL is a subset of IL. In this study, the term DIL has been defined as an ability to access, evaluate, use, manage, communicate, and share digital information and sources in an effective and efficient way.

## **2.2 Information Literacy and the Public Library**

Public libraries play a vital role in supporting learning processes through library professionals [31, 32]. However, it raises the question about the library professionals’ role in the learning process and how far they can take their role as learning providers. The European Commission’s memorandum identifies three types of learning: formal, non-formal, and informal learning. Formal learning usually takes place in educational institutions (e.g. schools, high schools, and universities) while non-formal learning typically takes place in the workplace or in organizations and complements formal learning. Informal learning is a ‘natural accompaniment to everyday life’ [33]. This informal learning is a predominant type of learning in public libraries, which supports self-directed learning [34]. There is an increased emphasis on librarians knowing their own role in this learning process [34–36]. Although the librarians are not trained as educators, they need to know how to identify the users’ needs and subsequently support them in their learning processes [2].

Several researchers [17, 37, 38] agree that public libraries have an important role to play in raising IL levels within their communities. Bruce and Lampson [37] found that public librarians have difficulty articulating the difference between IL and IT literacy. Bruce and Lampson [37] and Hall [17] focused on the ability of public libraries to use existing links

within their communities to move into roles of advocacy. Harding [38] indicated that IL is often interchangeable with “lifelong learning” and “user education” in the literature, but these three concepts are inherently distinct, although related. De Groot and Branch [39] found that public libraries are very active proponents of childhood literacy and face increased demands as school libraries suffer due to low funding or even elimination. Lai [40] indicated that people who have not received formal IL instruction can be reached by public libraries in the form of adult learning and lifelong learning. Thus, it is clear that the public library plays an important educational role, yet the potential benefit of IL in the public library environment has not been acknowledged. In fact, there is a lack of research on IL and public libraries.

### **2.3 Implication of Digital Information Literacy in Public Libraries**

Bruce and Lampson [37] identified a range of factors that affect IL instruction and efforts in public libraries. Julien [41] indicated that Canadian public libraries were approaching IL instruction and defined the factors that limit IL implementation. De Jager and Nassimbeni [42] stated that public library staffs have indeed made a difference in the IL of their respective communities. Koltay [43] examined the role of IL and digital literacy under the circumstances and challenges of the Web 2.0 environment, and indicated that users require literacies similar to services traditionally offered by academic, special and public libraries. Nielsen and Borlund [2] found that public libraries play an important role in developing IL and guide their users through the information seeking process. Hall [17] expressed the view that public libraries can reach out to all who wish to be lifelong learners rather than just the institutionally educated elite. Lai [40] indicated that Canadian public libraries value their role as IL training providers, and pay careful attention to staff development by offering various training approaches in order to provide efficient IL instruction for the public. Lai also indicated that Canadian public libraries build partnerships with other organizations to extend their IL teaching responsibilities. Further, Tavares et al. [44] found that IL helps to solve social problems, as the users are able to identify, classify, and prioritize information needs and use information in order to suggest solutions. The library users can develop collaborative problem solving skills and heighten a sense of citizenship. However, Robertson [45] notes that library staffs face financial barriers to achieve DIL in their own time to keep current in the workplace, and they prefer hands on learning in the workplace and training from peers.

Thus, the literature review indicates that researchers have explored different aspects of IL in public libraries, including attitudes towards IL, assessment of how a public library develops IL in the community, and challenges faced by public libraries to facilitate IL in the Web 2.0 environment. However, only some researchers have stressed training needs and strategic approaches to the development of IL among public library staff. [40, 44, 45]. The literature review revealed that no study investigated DIL of public library professionals in Norway and therefore this study was initiated.

### 3 Methodology

This study used a qualitative approach to gain insight into participants' opinions, feelings, emotions, and experiences. The Oslo public library (known as *Deichmanske Bibliotek*) was the research site that has approximately 300 employees spread over 16 branches in the Oslo municipality. The Main Library, and seven branches, namely Furuset, Grünerløkka, Holmlia, Gamle Oslo, Lambertseter, Majorstuen and Stovner were investigated in this study.

A case study method was used as a research strategy. In Yin's [46] terms, the case study logic proceeds sequentially and each case provides an increasingly accurate understanding of the question at hand. Semi-structured face-to-face interviews were conducted with twenty public library professionals. To maintain a balance between native and immigrant dense localities, branches were selected accordingly. The interviews were recorded and transcribed. Significant parts of the conversations are stated in the narrative forms, and quoted directly from the transcribed script.

### 4 Results

Twenty library professionals from the Oslo Public Library participated in this study. One-fourth of them were female, while the rest were male. The majority of participants were older than 53 years. The interviewees included: head of the branch, consultant cum trainer, children's librarian, program manager, and special librarians who were directly involved in DIL programs. The majority of them had a professional degree in library and information science while the others attended library related courses. The majority of interviewees had work experience in the public library, and a few of them had experience also in other types of library. All interviewees were familiar with IT, although the use of IT varied due to the nature of their job.

The first research question explored the DIL learning experiences of public librarians, what kind of training they had received, who conducted the training, how the trainings were conducted, and effectiveness of the training in the workplace. However, the interviewees noted that there is no exact term for IL in the Norwegian language, but the term IL as well as DIL are well known to the library professionals. The main elements covered by these terms in practice were the ability to find and critically evaluate information within the learning and information and communication technology (ICT) based context.

The interviewees focused on four kinds of learning processes: (a) self-learning, (b) learning by doing, (c) learning by sharing and (d) learning through training. The majority of them emphasized self-learning and expressed that they learnt DIL themselves to fulfil the requirement of their personal development. For example, Interviewee 1 stated: *"We try to learn to find out how to use it in our work because we are involved in the process"*. The reasons behind this practice were the lack of time and appropriate training courses. Young professionals who grew-up with digital technologies were more enthusiastic about learning on their own. For example, Interviewee 5 mentioned: *"I mostly find it myself ...I have grown up with the digital world ... I started with computers when I was eight years old"*.

The librarians felt inadequately prepared for an instructional role due to lack of formal training. Sometimes they had to start without any training and they learnt DIL by doing. The majority of interviewees indicated that they did not have a formal DIL education. For example, Interviewee 4 commented: *“I have learned something about information literacy in bachelor level, but for digital information literacy most of the things I am doing here in the library, I learnt by doing”*. A learning by sharing approach was identified as one of the most effective ways to learn DIL. The library professionals did not receive any training in either IL theory or IL instruction and they mainly learnt from each other. For instance, Interviewee 5 mentioned: *“We can learn a lot from our colleagues as well as just talking to each other and helping each other”*. Sometimes a few library professionals were sent to formal training sessions, and after returning they shared and taught others. In addition, every branch library had experts in different fields, and they worked as ‘a kind of information organism’; they knew who had expertise in a particular area, and they helped to find each other when there was a need. For example, when any confusion arose about the digital content of English literature, they referred to that person who knew better about it. They also learnt from users who were specialists in a particular area and overcame the time and resource barriers to attend formal training programs.

The Main library arranged the training courses, but some branch libraries conducted their own training programs according to their needs. Sometimes library professionals went to external training courses. The training courses were mostly related to the basic skills of computers and software; sometimes, specialized training was provided on different databases and the latest technologies. The training opportunities were limited by funding, staffing, and internal support by library administrators, and there was no specialized training on DIL. Some of the interviewees believed that whenever new services were introduced, the documentation helped a lot to improve their DIL.

Learning experiences of the interviewed library staff differed from each other depending on their age and association with ICT. The staff who were less interested in ICT and spent less time with it at home and workplace, mostly faced difficulties in providing ICT-based services. Moreover, they felt stressed when they were sent to ICT training courses. However, professionals who were aware of ICT developments did not fear learning new things and found it easier and interesting to learn. However, almost everybody mentioned that learning is time consuming.

The study also explored what kind of training was effective for the library professionals, and suggestions were sought about how to provide effective training on DIL. The majority of the interviewees expressed the view that the combination of formal training and practice was the most effective way of learning DIL. There should be sufficient opportunities to practice the learning afterwards at the branch. For example, Interviewee 6 expressed: *“I have been in many courses where I learnt something and when I came back, I did not have the same equipment or access to information to practice”*. In some cases, advanced level training was not fruitful when the required access or technologies were not available in the branch libraries. It was expected that the main library provides training for trainers and later these

trainers provide training at their respective branch, face to face or customized training according to the need of the branch.

The majority of the interviewees believed that online learning or distance education is an effective way of training. However, no online training courses had been arranged yet and interviewees had not used online modules. For example, Interviewee 20 indicated: *“Online learning ... I mean what is called distance education or we may say it distance training... we can manage time, according to our convenience to learn in an effective way”*. There was no training policy or strategy for DIL, not even a short-term one. For example, Interviewee 10 indicated: *“... there is a lack of long-term training strategy”*. However, a training strategy is essential to raise the level of DIL of the library staff.

The second research question investigated how DIL of public library staff could be improved, what were the barriers, and how these barriers could be overcome. The interviewees indicated three kinds of barriers: (a) Organizational barriers, (b) Personal barriers, and (c) Technological barriers to the improvement of DIL. Several organizational barriers like inadequate budget, resources, staff, advanced training programs, and infrastructure hindered the improvement of the library professionals' DIL. The branch libraries were functioning with a small number of staff, and were not always able to send staff to the training due to scarcity of budget or the need to get a replacement for those who wanted to go for training. For example, Interviewee 7 mentioned, *“We have not enough budget to take somebody (as replacement)... there has to be someone keeping the library open”*.

The interviewees expressed the wish to attend at some advanced level training course outside the library, but it was not often possible, as external training courses were expensive and there was a budgetary limitation. For example, Interviewee 9 stated, *“We do not really have the money to pay for somebody to go for expensive courses”*. According to one-third of interviewees, funding was not always a problem and self-motivation was also required. For example, Interviewee 17 stated, *“Staff have to keep themselves updated as well, because one cannot expect that government can provide everything he needs, should get responsibility himself as well”*.

The majority of the interviewees wanted advanced level training, but the training offered was often at a very basic level. However, sometimes advanced level training programs were not suitable for some branches, because users do not need that kind of services. For example, Interviewee 16 stated, *“I have been in a very good course some time ago at the parliament library. But I did not get so many questions afterwards, so I forgot a bit how it works”*. The nature of services and the need of the local people are very different from branch to branch; therefore, the expertise in DIL should respond to the need. For example, Interviewee 13 stated *“We have to specialize ourselves on the users living in this area, so perhaps we should pick those training programs which are relevant for us, more than doing everything”*.

Personal barriers were also mentioned as a major obstacle for improving DIL. Some librarians were not interested in following recent ICT developments. Being accustomed to

repetitive work for several years, some library professionals had lost the enthusiasm to learn anything new. For example, Interviewee 12 mentioned, “...*here half of the staff members are above 60 years... I think they are not really open minded about digital literacies ... they are not interested in going further*”. Furthermore, they feared new knowledge that might create a new kind of job responsibility.

Technological advancement seems to develop slowly in the public library system. The interviewees agreed that rapid technological changes are obstacles to DIL development. For example, sometimes old computers are not compatible with new software and old games do not work on new computers. The interviewees suggested adequate allocation of funding, training, recruitment, knowledge sharing, needs assessment of the staff and recruitment of DIL experts to overcome the existing obstacles to developing library professionals' DIL. They also emphasized several issues, like increasing knowledge sharing among colleagues, continuous monitoring of staff performance, and encouragement to have DIL expertise.

The interviewees suggested that the library management should consult with the staff and identify what level of competency they want among their staff. There should be provision of specialization of staff members in each branch instead of giving training on everything to every staff member. There was a need to map what kind of DIL is needed by the staff and then develop their needed expertise. It was noted that there should be at least one staff member in each branch who could provide dedicated DIL training to other colleagues and users. Library staff need updated competencies in accordance with the changing information environment. Recruitment of digital information literate staff was also suggested.

The majority of the interviewees were in favour of decentralized initiatives to improve DIL. A small number of interviewees noted that the initiatives should come from the municipality authority, while others indicated that the main library should take the major responsibility for the development of DIL. As different branches face different kinds of user needs, the branch manager along with the staff can decide on the best way to implement DIL in the respective branch. The needed initiatives should be taken by the branch library according to the local needs in cooperation with the main library and the municipality.

## **5 Conclusions**

There were visible differences between library professionals who were experts and nonexperts in DIL. The library professionals were able to manage basic DIL shortcomings by sharing their knowledge and skills with other colleagues when required. The learning experiences of the library professionals differed from each other depending on their age and association with ICT. Young library professionals were more enthusiastic about learning ICT and DIL, while aged professionals preferred a sharing approach. The sharing approach also helped the library professionals to overcome the lack of time and resources needed for formal training courses. Apart from searching techniques in different databases, no specialized training on DIL for the public library professionals was available. It was believed that an online module for learning DIL might be an effective and convenient way to improve the DIL



of library staff. For the advanced level DIL, formal training followed by practice was found to be the most effective learning method. Organizational, personal, and technological barriers were identified as the major obstacles to DIL improvement. Allocation of funds, recruitment of digital information literate staff, needs assessment of existing staff, encouragement of knowledge sharing, providing customized and advanced training were found to be potential components to overcome the existing barriers. The respective branch library should take the necessary initiatives in cooperation with the main library and the Oslo municipality to cope with changing circumstances in the information and knowledge society. A policy and long-term strategy are needed to raise the level of DIL of Oslo Public Library professionals. Sustainable IL education in public libraries will depend on more dynamic leadership and on a vision of a new model of the public library.

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