

Enhancing Digital Literacy Competencies of Librarians for People with Disabilities

장애인을 위한 사서의 디지털 리터러시 역량개발 방안 연구

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ABSTRACT

This study investigates strategies to enhance the digital literacy competencies of librarians to improve digital literacy for individuals with disabilities. As digital transformation progresses, the digital divide remains a significant issue, particularly for people with disabilities. Libraries and librarians play a crucial role in bridging this gap by providing digital literacy education and services. This research involved a comprehensive review of existing literature, surveys, and in-depth interviews with librarians responsible for disability services. The findings indicate that while librarians recognize the importance of digital literacy for individuals with disabilities, they lack practical experience and targeted training. To address this, the study proposes systematic and continuous educational programs focused on digital literacy skills and understanding disabilities. The proposed strategies aim to reinforce the role of librarians as key providers of digital information and educators, thus promoting digital inclusion and enhancing social participation for individuals with disabilities. This research contributes to the field by providing actionable insights and recommendations for improving librarian competencies and library services for the disabled community.

초 록

본 연구는 사서의 장애인 디지털 리터러시 역량 강화 방안을 모색하는 것을 목적으로 한다. 디지털 전환 속에서 장애인과 비장애인 간의 디지털 격차가 여전히 존재하며, 이에 대한 해결이 필요하다. 디지털 포용은 장애인의 디지털 리터러시 기술 향상, 기술과 서비스 제공, 사회적 참여 촉진을 목표로 한다. 도서관과 사서는 이러한 격차 해소를 위한 중요한 역할을 하며, 정보 제공자이자 디지털 교육자로서 장애인의 자립을 지원할 수 있다. 본 연구는 도서관 사서를 대상으로 설문조사와 심층 인터뷰를 진행하여, 장애인 디지털 리터러시에 대한 인식, 교육 필요성 및 요구를 파악하였으며, 체계적이고 지속적인 교육 프로그램을 위한 시사점을 제안하였다. 본 연구결과는 사서의 장애인 디지털 리터러시 역량을 강화하고, 도서관이 장애인의 정보 접근성과 사회적 참여를 촉진하는 데 기여할 것으로 기대된다.

Keywords: Digital literacy, Competency, Library, Librarian, People with disabilities, Education
디지털 리터러시, 역량, 도서관, 사서, 장애인, 교육

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1. Introduction

The contemporary era is undergoing a rapid transformation due to digital informatization, offering new opportunities and challenges to all members of society. The advancement of digital technology has the potential to significantly improve information accessibility and expand social participation, particularly for individuals with disabilities (Oh & Yeo, 2023; Park et al., 2022). Despite these advancements, the digital divide between disabled and non-disabled individuals persists as a significant challenge, necessitating attention to ensure that people with disabilities are not marginalized in an information society.

The concept of digital inclusion extends beyond merely bridging the digital divide to encompass the enhancement of digital literacy skills for individuals with disabilities, the provision of technology and services, and the promotion of economic and social participation. The objective of digital inclusion is to expand the digital skills of all citizens with a particular focus on assisting vulnerable groups, such as people with disabilities, to avoid exclusion from the information society. According to the South Korean Ministry of Science and ICT in 2023, the digital informatization level of people with disabilities is markedly inferior to that of non-disabled individuals, exacerbating their social isolation and difficulty in accessing information. It is therefore imperative that systematic and continuous education be provided to improve the digital literacy skills of people with disabilities, representing the initial

step towards achieving digital inclusion.

Libraries and librarians play a pivotal role in enhancing the digital literacy skills of people with disabilities. Librarians are crucial in facilitating access to information and enhancing the information utilization skills of people with disabilities. They serve not only as information providers but also as digital educators and mentors, helping individuals with disabilities to become independent in digital environments.

This study aims to enhance the competencies of librarians to improve digital literacy for individuals with disabilities. This approach seeks to facilitate the vital role that libraries can play in digital inclusion bridging the digital divide for people with disabilities, and promoting their social participation.

To achieve this, the study reviews previous researches on digital literacy and the competencies of librarians for disability services, conducts surveys and in-depth interviews with librarians responsible for disability services in South Korean libraries, and examines the exposure to and demand for education on digital literacy for people with disabilities. Subsequently, the study proposes strategies for enhancing librarians' competencies.

The research questions guiding this study are as follows:

- (1) What are the current competencies of librarians in South Korea regarding digital literacy for individuals with disabilities?
- (2) What are the specific educational needs of librarians to improve their digital literacy competencies for serving individuals with dis-

abilities?

- (3) What strategies can be implemented to enhance the digital literacy competencies of librarians to better support individuals with disabilities?

The suggestions for enhancing librarian competencies derived from this study are expected to have the following benefits: First, reinforcing the role of librarians as key providers of digital information for individuals with disabilities. Second, enhancing librarians' comprehension of digital literacy for people with disabilities to facilitate the provision of tailored educational services. Third, establishing libraries as pivotal institutions for digital literacy education for people with disabilities thereby reducing the digital divide and promoting social participation.

This study contributes to the understanding of the necessity of enhancing the digital literacy competencies of librarians and providing systematic librarian competencies to improve the digital literacy of people with disabilities thereby supporting libraries in playing a crucial role in digital inclusion.

2. Theoretical Framework

2.1 The Concept of Digital Literacy

Digital literacy can be defined as the ability to communicate effectively in digital media. The traditional concept of literacy is generally considered to have originated with the three Rs (reading, writing

and arithmetic) in contexts where face-to-face interaction and print media were the primary modes of communication (Castelluccio, 2015).

The advent of information and communication technology and the concomitant growth in internet usage have precipitated an evolution in the concept of literacy. This has led to the emergence of new forms of literacy, including information literacy, media literacy and digital literacy, which are informed by socio-cultural perspectives. The growing attention to digital literacy can be attributed to two factors: the continuous development of digital media, which changes communication methods, and the increasing reliance on the ability to adapt to and utilize these evolving communication environments. Consequently, digital literacy is emphasized as an essential competence for citizens in future societies (OECD, 2018).

Digital literacy is defined as the ability to search for, evaluate, create and communicate information using digital media and technology. Martin and Grudziecki (2006) define digital literacy as the ability to access a range of digital materials, evaluate, analyze, synthesize new knowledge and communicate. Newman (2008) conceptualizes digital literacy as a central concept, with media literacy and critical thinking (e-safety) positioned as subordinate elements. Newman posits that digital literacy is comprised of three key elements: traditional digital literacy skills, media literacy, and the capacity to critically engage with and utilize digital information resources. UNESCO (2006) characterizes digital literacy as the ability to search, manage, comprehend, integrate, communicate, evaluate, and create information uti-

lizing digital technology for purposes such as employment, entrepreneurship, and workplace tasks. The Korea Education and Research Information Service (2006) defined digital literacy as the ability to acquire the skills and knowledge to use digital media and technology, to recognize the need for information, to find information sources and strategies, and to critically select and use the information to solve problems, communicate, and create knowledge. This contributes to personal, social, national, and global advancement.

Given these definitions, it becomes evident that the concept of digital literacy encompasses information, technology, and digital keywords. It entails not only the appropriate use of digital knowledge and skills but also encompasses a proactive stance towards digital technology, critical thinking, problem-solving abilities, and ethical considerations.

In light of these diverse definitions and frameworks, this study defines digital literacy as the ability to effectively search for, evaluate, create, and communicate information using digital technologies. It includes competencies in information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. This definition encompasses the practical use of digital tools, critical thinking, ethical considerations, and the capacity to adapt to and utilize evolving digital environments. This comprehensive definition will guide the research in assessing and enhancing the digital literacy competencies of librarians to better serve individuals with disabilities.

2.2 The Digital Literacy Framework

The Digital Literacy Framework provides a systematic definition of the various elements and competencies that constitute digital literacy, as well as guidelines for enhancing these skills. In 2018, UNESCO published the Digital Literacy Global Framework (DLGF), which aims to establish a baseline level of proficiency in digital literacy skills that can serve as indicators for sustainable development goals. The DLGF is based on the five digital competencies set out by DigComp 2.0, namely information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. In addition, two further competencies have been incorporated: basic hardware and software skills, and job-related competencies.

The United Kingdom's Joint Information Systems Committee (JISC) framework (2015) categorizes digital literacy into the following six domains: ICT proficiency, information and data literacy, digital creation, problem-solving and innovation digital communication and collaboration, and digital identity and well-being. The JISC framework encompasses a comprehensive range of competencies that are essential in a digital environment. These can be effectively employed in the creation of educational curricula and the mapping of digital expertise.

Hague and Payton (2010) in the UK defines digital literacy as comprising functional skills, critical thinking, collaboration, creativity, and digital safety, emphasizing that these elements are interlinked to effectively develop digital literacy.

DigComp, the European Union's digital competency framework, presents the skills citizens need to use digital technology confidently, critically, and responsibly in learning, work, and social participation. Since its initial release in 2013, the DigComp framework has undergone several revisions and expansions to reflect the various aspects of digital competence and new technological trends. The latest version of the framework, DigComp 2.2, delineates five principal domains of digital competence: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. These five areas are subdivided into 21 specific competencies, each detailed with illustrative examples of knowledge, skills, attitudes, and use cases, classified according to proficiency levels (basic, intermediate, advanced, expert) (European Commission, 2021).

In 2013-14, the Special Education Support Service (SESS) presented a framework for digital literacy for individuals with disabilities, targeting students with learning disabilities. The principal objective of the SESS framework is to establish structures that facilitate the utilization of digital technologies (e.g., tablets, apps, mobile devices) by students with learning disabilities in order to access the curriculum. The framework outlines six competences: access, management, integration, collaboration, creation, and communication. Furthermore, the SESS proposes educational programs at three levels (basic, intermediate, advanced) to support students in effectively acquiring digital literacy at their respective learning stages.

A review of the digital literacy frameworks reveals that they are fundamentally based on technological and information literacy, with a particular focus on searching, accessing, managing, reorganizing, and integrating information using digital technology. In addition to technical abilities, these frameworks seek to foster social communication, active engagement, and practical literacy skills.

From these frameworks, 14 competencies have been identified: utilization of digital tools, understanding digital tools, information retrieval and collection, information management, understanding and selecting digital media, digital content production, digital communication, digital collaboration, digital safety, identifying the digital divide, technical problem solving, creative problem solving, digital wellness, and digital safety. These competencies are used in the study to conduct surveys and interviews to understand the digital literacy competencies of librarians, specifically focusing on their ability to support individuals with disabilities.

3. Literature Review

Previous studies have focused on two main areas: the importance of digital literacy for individuals with disabilities and the competencies of service providers for this population. Friesem (2017) emphasizes the significance of digital education for students with disabilities, noting that education should transcend mere technology use to cultivate critical perspectives on media usage. This study underscores the need

for tailored curricula and the development of specialized personnel to enhance digital literacy among individuals with disabilities. Kasap and Gürçınar (2018) argue that media literacy education is essential for reducing social isolation and negative experiences among people with disabilities. They advocate for proactive and timely media literacy education in response to evolving media paradigms. Kim et al. (2021) found that, due to COVID-19, disabled adolescents have increasingly engaged with computers, YouTube, TV, and internet games, exposing them to higher risks of harmful information. This finding highlights the necessity of media education for individuals with disabilities, with a particular focus on developing critical analysis skills to navigate harmful information. Kim (2022) suggests that digital literacy should be expanded to encompass digital citizenship, and that digital literacy education for people with disabilities should help them understand and navigate the broader digital environment. The curriculum for digital literacy education should include key areas such as digital access, digital communication, digital etiquette, digital security and self-protection, digital rights and responsibilities, digital law, digital commerce, and digital health and wellness.

Research on the digital literacy competencies or needs of librarians serving individuals with disabilities is limited. To date, only a few researchers have surveyed librarians' perceptions and educational needs regarding services for people with disabilities. Pyo (2014) conducted a survey of librarians to explore strategies for enhancing library services for individuals with disabilities. The survey

revealed that while librarians demonstrated a high level of interest in facilitating library use for people with disabilities, they perceived a lack of dedicated programs for this group. The study also identified additional challenges, including a shortage of personnel, low participation of individuals with disabilities, insufficient facilities and equipment, prejudice, budget constraints, and a lack of information. Pionke (2020) surveyed graduate students in library and information science regarding their understanding of accessibility and disability. The study found that future librarians were not adequately prepared to collaborate with or provide services to users with disabilities, highlighting the need for educational programs on accessibility, assistive devices, and technology training in librarian education. Lee and Kim (2023) examined the digital literacy competency levels of pre-service special education teachers. The study revealed significant differences in technological pedagogical knowledge across academic years, as well as differences based on experience with teaching demonstrations and participation in digital competency enhancement programs. This study emphasizes the need for developing digital competency enhancement programs for special education teachers, which should provide both professional education and practical experience.

The review of previous studies indicates that improving digital literacy for individuals with disabilities is crucial for facilitating their access to information and strengthening their critical thinking skills. Digital literacy education should encompass a comprehensive range of skills, including practical

access and utilization of information and digital technology, critical understanding, communication, and social participation skills. Existing research has conducted on special education, highlighting the importance of digital literacy education for special education teachers. Considering the observed differences in digital literacy competencies among special education professionals depending on the presence or absence of digital literacy education, it is evident that training to strengthen librarians' competencies is imperative. However, such research has not been extended to the context of libraries. Therefore, this study is valuable as it bridges the gap by investigating digital literacy competencies required by librarians, proposing targeted educational strategies, and ultimately contributing to the enhancement of library services for individuals with disabilities.

4. Research Method

This study employed a mixed-methods approach, combining surveys and interviews, to ascertain the significance of digital literacy for individuals with disabilities and to delineate the competency enhancement strategies and requirements for librarians.

4.1 Survey

The survey targeted librarians who are responsible for services to individuals with disabilities in South Korean libraries. It aimed to gather opinions regarding awareness, experiences, and the need for educa-

tion in digital literacy for individuals with disabilities. A total of 124 librarians participated in the survey, which was conducted over one month in August 2023.

The survey comprised three main sections: awareness of librarians of the importance of digital literacy for people with disabilities, librarians' education experience and intentions in training, strategies for enhancing librarians' competencies (Table 1).

The gender distribution of respondents showed a significantly higher proportion of female respondents, with 102 females (82.3%) and 22 males (17.7%). The age distribution included 27 respondents in their 20s (21.8%), 42 in their 30s (33.9%), 39 in their 40s (31.5%), 15 in their 50s (12.1%), and 1 in their 60s (0.8%), adequately reflecting a diverse age range. Regarding the type of institutions where respondents were employed, the majority were from public libraries (74 respondents, 59.7%), followed by national libraries (19 respondents, 15.3%), private libraries for individuals with disabilities (14 respondents, 11.3%), and public libraries for individuals with disabilities (8 respondents, 6.5%), indicating that 77.5% of respondents were from public or specialized libraries for individuals with disabilities.

4.2 Focus Group Interviews

The focus group interviews were conducted with six panels. A panel of experts was selected for the focus group interviews (FGI), consisting of six participants: a librarian from a braille library, a professor

<Table 1> Survey Questions

Category	Questions
Awareness and Experience of Digital Literacy for Individuals with Disabilities	① Librarians' Interest in digital literacy for individuals with disabilities ② Importance of digital literacy competencies for individuals with disabilities ③ Reasons for the necessity of digital literacy for individuals with disabilities ④ Experience in operating digital literacy programs for individuals with disabilities ⑤ Intention to operate digital literacy programs for individuals with disabilities in the future
Librarians' Education Experience and Participation Intentions in Digital Literacy for Individuals with Disabilities	① Librarians' Experience in digital literacy education for individuals with disabilities ② Effectiveness of education on digital literacy for individuals with disabilities ③ Reasons for non-participation in education on digital literacy for individuals with disabilities ④ Intention to participate in digital literacy education for individuals with disabilities for librarians
Opinions on Strategies for Enhancing Librarians' Competencies in Digital Literacy for Individuals with Disabilities	① Librarians' Educational needs based on digital literacy competencies for individuals with disabilities ② Strategies for enhancing librarians' competencies
General Information	Gender, age, type of institution, etc.

specializing in information services in library and information science, a professor in special education, a digital literacy education specialist, a director of disability support services at a welfare center for people with disabilities, and a librarian from a public library's disability resources section. The focus group interviews were conducted over three hours in September 2024, with interview questions shared in advance to allow participants time for review and

preparation. In-depth discussions were held on survey topics, including experiences in operating digital literacy programs for individuals with disabilities, the educational content required to enhance librarians' competencies, and the necessary cooperation for providing digital literacy programs for individuals with disabilities in libraries. The focus group interview questions were as follows in Table 2.

<Table 2> Focus Group Interviews Questions

Questions
1. Awareness of the importance of digital literacy for individuals with disabilities
2. Experiences in operating digital literacy programs for individuals with disabilities
3. Awareness of the need for librarian education for digital literacy services for individuals with disabilities
4. Opinions on strategies for enhancing librarians' competencies in digital literacy for individuals with disabilities

4.3 Research Tools and Data Analysis

The survey was distributed as a structured online questionnaire, with respondents providing answers on a 5-point Likert scale or nominal scale for each question. The frequency analysis and descriptive statistical analysis of the survey were performed using SPSS. Interview data were analyzed through content analysis based on transcriptions, involving coding, bundling of codes, extraction of core categories, and theme derivation. The analysis of FGI data was refined by repeatedly reading the transcripts, focusing on key content, and following the process of coding, bundling codes, extracting core categories, and deriving themes.

5. Findings

5.1 Survey

5.1.1 Awareness and Experience of Librarians of Digital Literacy for Individuals with Disabilities

Regarding interest in digital literacy for individuals with disabilities, 54 respondents (43.5%) indicated they were “somewhat interested,” and 31 respondents (25.0%) reported they were “very interested.” Thus, 63.5% of respondents expressed interest in digital literacy for individuals with disabilities, with an average interest score of 3.89. This indicates a relatively high level of interest in this area. Regarding the importance of digital literacy

competencies for individuals with disabilities, 80 respondents (64.5%) indicated it is “very necessary,” and 29 respondents (23.4%) stated it is “somewhat necessary.” Consequently, 87.9% of respondents acknowledged the significance of digital literacy competencies for individuals with disabilities. The mean score for necessity was 4.52. The primary reasons for the necessity of digital literacy competencies included enhancing information accessibility for individuals with disabilities (78.8%), strengthening social communication (62.1%), and promoting independence for individuals with disabilities (49.2%).

Only 10 respondents (8.1%) indicated they had experience operating digital literacy programs for individuals with disabilities. Regarding the intention to operate such programs in the future, 29 respondents (23.4%) indicated a high level of willingness, and 41 respondents (33.9%) reported a moderate level of willingness. Consequently, 57.3% of respondents expressed a favorable intention to run digital literacy programs for individuals with disabilities, with an average willingness score of 3.67. This suggests considerable interest in operating these programs despite a lack of practical experience.

Table 3 presents the survey data on librarians’ awareness and experience regarding digital literacy for individuals with disabilities.

5.1.2 Experience and Willingness of Librarians to Participate in Digital Literacy Training for Individuals with Disabilities

Only a small proportion of respondents, 11 (8.9%),

〈Table 3〉 Awareness and Experience of Librarians

Interest in Digital Literacy for Individuals with Disabilities	N	%	Mean	Importance of Digital Literacy for Individuals with Disabilities	N	%	Mean
Very interested	31	25.0	3.89	Very important	80	64.5	4.52
Somewhat interested	55	44.4		Somewhat important	29	23.4	
Neutral	31	25.0		Neutral	14	11.3	
Slightly uninterested	7	5.6		Slightly unimportant	1	0.8	
Not interested at all	0	0		Not important at all	0	0	
Reasons for the Importance of Digital Literacy Competencies for Disabled				N	%		
Enhancing information accessibility for individuals with disabilities				99	79.8		
Strengthening social communication and supporting life in society				77	62.1		
Promoting positive changes in values and attitudes				61	49.2		
Enhancing positive school learning and vocational competencies				35	28.2		
Strengthening self-efficacy and self-motivation for individuals with disabilities				33	26.6		
Experience in Operating Digital Literacy Programs	N	%		Intention to Operate Digital Literacy Programs	N	%	Mean
Yes	10	8.1		Very high	29	23.4	3.67
No	114	91.9		Somewhat	42	33.9	
				Neutral	40	32.3	
				Slightly unwilling	9	7.2	
				Not willing at all	4	3.2	

had experience with education in digital literacy for individuals with disabilities, while 113 (91.1%) had not received such education. Among those who had undergone training, six respondents (54.5%) stated that it was “very helpful,” two (18.2%) found it “somewhat helpful,” two (18.2%) rated it as “neutral,” and one (9.1%) found it “barely helpful.” Consequently, 72.7% of respondents provided positive feedback regarding the effectiveness of the education, with an average score of 4.18 on a 5-point scale.

Among the 113 respondents without training experience, the most common reasons for not participating were “lack of time” (60 respondents, 55%) and “no suitable education available” (39 respondents, 35.8%). This indicates a lack of accessible information about education opportunities.

Conversely, the willingness to participate in digital literacy training for individuals with disabilities was high among librarians. A substantial 84.7% expressed a willingness to participate, with an average willingness score of 4.20. This suggests that librarians have a significant interest in digital literacy training for individuals with disabilities. Table 4 presents the survey data on librarians’ experience and willingness of librarians to participate in digital literacy training for people with disabilities.

5.1.3 Educational Needs and Strategies of Librarian Competencies in Digital Literacy for Individuals with Disabilities

Regarding the educational needs of librarians for

<Table 4> Experience and Willingness of Librarians to Participate in Digital Literacy Training

Education Experience	N	%	Helpfulness of Education	N	%
Yes	11	8.9	Very helpful	6	54.5
No	113	91.9	Somewhat helpful	2	18.2
Total	124	100	Neutral	2	18.2
			Barely helpful	1	9.1
			Not helpful at all	0	0
			Total	11	100
Willingness to Participate in Digital Literacy Education for Individuals with Disabilities			N	%	Mean
Very high willing			46	37.1	4.20
Somewhat willing			59	47.6	
Neutral			17	13.7	
Slightly unwilling			2	1.6	
Not willing at all			0	0	
Total			124	100.0	

various digital literacy competencies for individuals with disabilities, the highest necessity was recorded for “Utilization of Digital Tools,” with a score of 4.66. This was followed by “Digital Communication” (4.65), “Digital Safety” (4.53), “Information Analysis” (4.52), “Understanding Digital Tools” (4.50), “Information Retrieval and Collection” (4.44), “Creative Problem Solving” (4.41), and “Identifying the Digital Divide” (4.35), all scoring above 4.33 on average. Conversely, the necessity for “Technical Problem Solving” was the lowest at 3.60. The overall mean score for all 15 competencies were 4.33, indicating that librarians perceive a need for competency enhancement in nearly all areas.

In addition to the specific competencies, the highest-rated strategy for enhancing librarian competencies was “Understanding of Disabilities,” with a score of 4.74. This was followed by “Provision of a Pool of Professional Instructors” (4.71), “Sharing Various Educational Materials and Case Studies” (4.63), “Possession of ICT Devices Suitable for Individuals

with Disabilities” (4.53), “List of Organizations Capable of Collaborating on Regional Digital Literacy Programs for Individuals with Disabilities” (4.49), and “Securing Librarians Dedicated to Services for Individuals with Disabilities” (4.23). Other significant factors included raising awareness of digital literacy for individuals with disabilities, support from institutions and managers for enhancing librarian competencies, and the need for manuals on operating digital literacy services and programs for individuals with disabilities.

Table 5 presents the survey data on educational needs and strategies of librarians’ competencies in digital literacy training for people with disabilities.

5.2 Interviews

The interviews aimed to explore how librarians perceive the significance of digital literacy competencies for individuals with disabilities, their experiences providing digital literacy services in libraries,

〈Table 5〉 Educational Needs and Strategies of Librarian Competencies

Digital Literacy Competency	Mean	Standard Deviation	Strategies for Competency Enhancement	Mean	Standard Deviation
Utilization of Digital Tools	4.66	0.583	Understanding Disabilities	4.74	0.508
Digital Communication	4.65	0.64	Provision of Professional Instructors	4.71	0.538
Digital Safety	4.53	0.703	Sharing Educational Materials and Case Studies	4.63	0.631
Information Analysis	4.52	0.759	Possession of Suitable ICT Devices	4.53	0.63
Understanding Digital Tools	4.5	0.738	List of Collaborative Organizations	4.49	0.77
Information Retrieval and Collection	4.44	0.666	Securing Dedicated Librarians	4.23	1.003
Creative Problem Solving	4.41	0.71			
Identifying the Digital Divide	4.35	0.767			
Information Management	4.3	0.806			
Understanding and Selecting Digital Media	4.25	0.813			
Digital Collaboration	4.23	0.882			
Digital Wellness	4.19	0.868			
Digital Content Production	4.07	0.903			
Technical Problem Solving	3.6	1.235			

the need for education, and practical strategies for enhancing librarian competencies.

5.2.1 Awareness of the Importance of Digital Literacy for Individuals with Disabilities

All librarians interviewed demonstrated an awareness of the importance of digital literacy for individuals with disabilities. They emphasized that digital literacy competencies are crucial for addressing everyday challenges faced by people with disabilities.

“Digital literacy is essential not only for those traditionally categorized as disabled but also for the increasing number of people who acquire dis-

abilities later in life and for older adults who might develop additional disabilities. Even individuals who are not officially classified as disabled often need assistance, making digital literacy crucial.” (Interviewee 6)

“There are many digital activities in everyday life, such as using kiosks or online banking, which can be intimidating for people with disabilities. As a result, they frequently call the library to ask about very basic things. They often ask for assistance with tasks that significantly aid their daily lives, such as locating books or directions. This indicates a substantial need for digital literacy.” (Interviewee 1)

These results align with survey findings that reflect librarians' high level of interest in and recognition of the importance of digital literacy for individuals with disabilities.

5.2.2 Experience of Digital Literacy for Individuals with Disabilities

Most librarians viewed the planning and provision of digital literacy programs for individuals with disabilities as relatively uncharted territory. They expressed concern about their limited expertise in this area. Due to the lack of best practices or manuals for reference, librarians often do not know what services to provide or how to prepare for programs.

“Librarians often don't know what training is needed or how to set goals. This uncertainty leads to significant challenges. For instance, our library runs a digital literacy program for individuals with developmental disabilities, and librarians from even large libraries frequently call us for advice on program or service. This highlights the urgent need for proper training.” (Interviewee 1)

These results are consistent with survey findings, which indicate that, despite a willingness to run digital literacy programs for individuals with disabilities, 91.9% of respondents reported no experience in operating such programs. This highlights a gap between awareness and practical experience. This gap can be attributed to a lack of manuals, expertise, and relevant knowledge.

5.2.3 Educational Needs for Librarian Competencies in Digital Literacy for Individuals with Disabilities

Librarians expressed a strong need for education in digital literacy to better serve individuals with disabilities. Despite the practical demands in the field, there is a notable shortage of relevant training, causing difficulties for librarians in their daily operations.

“Although I completed an online course from the National Institute of Special Education, it mainly covered theoretical aspects, which are significantly different from practical program operations. More hands-on training is necessary.” (Interviewee 6)

“There was an instance where a librarian and a user were both confused because the librarian did not know how to use a reading magnifier available in the library. This incident underscores the need for enhancing librarians' competencies with assistive technologies.” (Interviewee 2)

5.2.4 Strategies for Enhancing Librarian Competencies in Digital Literacy for Individuals with Disabilities

Librarians emphasized that enhancing competencies should begin with a fundamental understanding of disabilities. Since individuals with disabilities have diverse needs and characteristics depending on the type and severity of their disabilities, as well as the required assistive technologies, it is essential to have a basic understanding in order to provide suitable programs and education. Moreover,

the training should concentrate on pragmatic, hands-on content rather than theoretical aspects. Librarians highlighted the need for resources such as lesson plans, materials, tools, and guidance on collaboration with relevant organizations and instructors when planning digital literacy education for individuals with disabilities. Additionally, the training should cover a broad range of digital literacy skills, from basic library use to advanced topics like information retrieval, kiosk use, mobile accessibility, digital ethics, and social media.

“Training should start with the basics of library use and proceed step-by-step. This includes fundamental procedures such as library membership registration, issuing library cards, and mobile verification, which are often overlooked in general library education. It is crucial to emphasize these basics and also help individuals with disabilities effectively use various digital services offered by libraries. Practical training is essential so librarians can confidently use and guide others in using these services.” (Interviewee 2)

“In a recent class, I instructed users with disabilities on how to issue mobile library cards. However, many participants could not continue using this service independently. Therefore, programs must be tailored according to the severity of disabilities. For instance, individuals with physical disabilities might not have cognitive impairments. Librarians need to understand these distinctions to offer appropriate education, wheth-

er in small groups or large groups. Without this knowledge, it is challenging to work effectively in the field.” (Interviewee 4)

As indicated by the survey, where training was deemed necessary in most areas, the interviews also underscored the importance of education. It is evident that appropriate training must be provided to enable the delivery of digital literacy services for individuals with disabilities. Furthermore, this training should encompass not only knowledge of digital literacy for people with disabilities but also understanding of disability, program operation manuals, and other diverse content.

6. Discussion

Based on the research results, this study has drawn the following insights into current state and necessary improvements for enhancing librarians' competencies in digital literacy for individuals with disabilities.

First, for current competencies of librarians, the findings indicate that librarians in South Korea have a high awareness of the significance of digital literacy for individuals with disabilities. Survey results indicate that while 63.5% of librarians expressed interest in digital literacy for individuals with disabilities, only 8.1% have practical experience in operating such programs. The interviews revealed that librarians face significant challenges in running such programs and perceive a pressing need for further education and support in this field. This highlights

a notable gap between awareness and practical experience in operating digital literacy services for this demographic. This gap suggests that current training and support mechanisms are insufficient to equip librarians with the necessary skills and confidence.

Second, for educational needs, the study results reveal that librarians perceive a high necessity for training in various competencies. The average scores for the necessity of training in areas such as utilization of digital tools (4.66), digital communication (4.65), and digital safety (4.53) indicate strong demand for comprehensive and practical training. The interviews also underscored the importance of skills in selecting and using digital tools (such as kiosks and smart-phones), effective communication through diverse digital channels, and protecting individuals from potential risks such as privacy breaches (“digital safety”).

Third, for challenges and supports, the study highlights several challenges in delivering digital literacy services, including a lack of dedicated programs, the lack of practical, hands-on materials, insufficient facilities and equipment, lack of organizational support, and a shortage of trained personnel. Developing and implementing targeted training modules and providing practical materials and case studies can enhance librarians’ competencies. Libraries should ensure they have the necessary facilities and equipment to support these programs and foster collaborative efforts with other organizations to deliver comprehensive digital literacy services. The study underscores the need for national and local governments to recognize the importance of digital literacy for

individuals with disabilities and provide adequate support for libraries. Policymakers should focus on funding training programs, providing resources, and creating frameworks that enable libraries to effectively deliver digital literacy services.

7. Conclusion

The purpose of this study was to explore strategies for developing the competencies of librarians to improve digital literacy for individuals with disabilities. To achieve this, the study reviewed previous studies on digital literacy for individuals with disabilities and the competencies of librarians providing these services. Additionally, surveys and interviews were conducted with librarians responsible for disability services in South Korea.

The findings revealed that while librarians have a high awareness of the importance of digital literacy for individuals with disabilities, they lack practical experience in running such programs. The study recommends the implementation of systematic and continuous educational programs. These programs should cover digital literacy competencies for individuals with disabilities as well as an understanding of disabilities. Institutional support, including the provision of up-to-date digital tools, professional development opportunities, and fostering a culture of continuous learning and collaboration, is crucial. Libraries should also establish collaborative models with various organizations to support the implementation of digital literacy programs.

The study's findings have significant theoretical, practical, and policy implications. They emphasize the need for comprehensive and pragmatic training programs and organizational and governmental support to enhance librarians' competencies. This will enable libraries to play a pivotal role in promoting digital inclusion for individuals with disabilities, thereby improving their access to information, social inclusion, employment opportunities, independence, and advocacy for their rights.

While this study provides valuable insights, it has some limitations. First, the research was limited to librarians in South Korea, making it difficult to generalize the findings to other countries or regions. Second, further studies should be conducted to explore the specific needs of individuals with disabilities and to gain a deeper understanding of the perception gaps between librarians and individuals with disabilities.

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