

Impact of Digital Literacy Level on Practicum Courses in Distance Education*

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<Abstract>

This study aims to analyze the impact of digital literacy level on students taking practicum courses at an open and distance university. Thus, differences in digital literacy competency were investigated using an online survey of 423 students. Descriptive statistical analyses and chi-square tests were performed on the collected data to analyze learning experiences that accord with the level of digital competency. The results demonstrate that the level of difficulty experienced from taking practical courses varied depending on the perceived digital capabilities of students, with significant differences in performance of assignments and satisfaction about the courses depending on the actual level of digital competency of the students. While students with above-average digital competency were more proactive toward solving digital devices-related problems, those with lower digital competency suffered clear difficulty in using digital technology and assignment-related tasks. The findings suggest that measuring the digital competencies of learners is essential when planning and creating new hands-on courses and that teachers should consider ways to improve the digital literacy of learners.

• **Key words:** digital competency, digital literacy, distance education, practicum courses

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I. Introduction

During the COVID-19 pandemic, most higher education institutions adopted non-face-to-face lectures, including Zoom classes, thereby accelerating digitalization in the education sector. Distance education in particular, which became more prominent and experienced during the pandemic period, required a certain level of access to technology and the ability to use this technology, known as digital literacy, correctly (Kasimoğlu, Bahçelerli, & Çelik, 2022; Lankshear & Knobel, 2015).

The term digital literacy encompasses the use of instruments such as digital devices, the ability to produce and share information, and the ability to utilize networks. It also includes digital familiarity and digital efficacy in addition to technical ability, as well as the ability to solve problems via the basic use of digital devices. Digital literacy is imperative in running Open Distance and e-Learning(ODL) programs for institutions, as it is driven heavily by technology (Santos & Serpa, 2017). In a distance-mode education, it is imperative for both the lecturer and students to have the ability for using ICT tools, regardless of their age and gender. Generally, students enrolled in distance education do possess at least a rudimentary level of digital literacy, allowing them to take Internet-based classes and do homework online. In this respect, digital literacy is a skill that students of open distance universities must have for a successful ODL program (Buckingham, 2006). Julien(2018) also points out that digital literacy is important in ODL because it is a “set of skills, knowledge, and attitudes required to access digital information effectively, efficiently and ethically. Moreover, it includes knowledge how to evaluate digital information and how to use it in decision-making” (Julien, 2018; cited in Maphosa, & Bhebhe, 2019, p. 194).

However, because distance education students vary widely in age and educational background, their ability to learn could differ greatly based on the level of digital literacy. On average, older students tend to show a slightly lower level of digital literacy, making learning that much more a challenge. Some of the media-related practicum courses in distance education, especially those that involve multidimensional digital features, tend to require heightened digital literacy from individuals. With many of the physical lectures being replaced by online lectures and test assignments during the COVID-19 period, it became even more important that students performing their

assignments be able to grasp and handle digital devices and other technical matters such as use of digital cameras and editing tools. It was only natural, then, that older students with less familiarity of digital devices and tools had difficulty completing practicum courses, the lack of digital literacy proving to be an obstacle to distance learning for this group. Creating even simple videos using computers and digital devices proved difficult for many older students, the ease or difficulty of the task fluctuating with their level of digital literacy. The student's access to and ability with digital devices, including the ability for using smartphone cameras and editing applications, were shown to be the most significant factors dictating the level of one's learning. An individual's grasp on digital literacy has become critical, for he or she now must create on their own digital contents using various media, digital devices, and applications.

As such, it is necessary to examine how the degree of digital literacy among students affects their practicum course performance in distance education. To this end, this study used the existing standards of measuring digital ability for adults to discover whether or not students will opt for practicum courses and their reasons for not taking them, as well as the motivation for their participation. Specifically, we attempted to investigate whether there was a difference in the level of digital literacy(digital attitude and digital utilization competency) as per demographics. By comparing digital literacy behaviors and practicum difficulties as well as satisfaction according to demographics, we sought to find the causes that impede a student's choice of practicum courses and explore what support can be offered in the future. Also, this study tried to glean the key difficulties and problem-solving issues faced by students while doing their assignments, as well as their satisfaction level with the practicum courses and what further support was required for them to execute their tasks better. The two main questions raised by this exploratory study are as follows:

Research question 1. What kind of learning and difficulties do students experience from taking practicum courses and in performing the assignments?

Research question 2. How does a student's level of digital literacy impact his/her ability to perform assignments and satisfaction about the coursework?

II. Review of Literature

1. Digital Literacy and Distance Learning

Digital literacy is generally defined as the ability to utilize information and communication technologies in learning (Maphosa & Bhebhe, 2019). Paul Gilster(1997), who introduced the concept of digital literacy for the first time, defined digital literacy as “the ability to understand and use information from various digital sources”. According to Gilster, digital literacy is a particular mindset that includes mastering not only computer technology but also concepts of the digital environment (Gilster, 1997). Martin, who emphasized digital literacy more broadly, defined it as the ability to perceive, use, analyze and assemble digital resources, create new information, and communicate with others in this way (Martin, 2006).

Digital literacy, particularly in relation to distance learning, refers to an individual's ability to find, evaluate, produce and communicate clear information through writing and other forms of communication across a variety of digital platforms. Digital literacy does not replace traditional forms of literacy but instead, builds upon the skills that form the foundation of traditional forms of literacy. Lynch(2017) defines digital literacy as the ability to find, evaluate, utilize, share and create information found online, while Heitin(2016) says that digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills. In this study, digital literacy entails the use of digital devices such as smartphones, tablets, laptops, desktop PCs, and other applications in distance education (Common Sense Media, 2020).

Digital literacy is also a kind of media literacy in that both includes the idea of information literacy. According to Common Sense Media(2020), digital literacy applies to media from the internet, smartphones, video games, and other non traditional sources (Maphosa & Bhebhe, 2019, p. 188). Such digital literacy can help improve academic performance by allowing students to use digital media to create such content as presentations, videos and blogs. Learners who use digital tools to create own content are also likely to have a better grasp of given materials and retain more information, for digital literacy can improve one's ability to find, evaluate, and use information with

the help of digital tools such as social media, web browsers, and online discussion boards.

Technically, the ability to use text/image software(graphics, illustrations, etc.) to supplement the learning process can play an important role in optimizing collaboration and communication in online learning and performing practicum tasks. When students lack such abilities, they become hesitant in choosing practicum subjects or have difficulties in producing digital contents. Moreover, with the advent of various digital devices and the spread of social media, digital literacy is not just computer literacy, but rather finding and analyzing information and data on the Internet, using it for your own purposes, recreating it, expanding it, and then sharing and collaborating with people around you. It extends to the ability to communicate (Kwon & Hyeon, 2014, p. 124).

Existing research on students' digital literacy skills in distance education include a study by Ozdamar-Keshin and colleagues (Ozdamar-Keshin et al., 2015) and a study by Rahman and colleagues (Rahman, Ariawan, & Pratiwi, 2020). Ozdamar-Keshin et al.(2015) investigated the learning habits and digital literacy abilities of learners enrolled in Anadolu University in Turkey using a quantitative survey. The approach of this study was divided into four parts to investigate demographic information, ability to use digital technologies, learning habits, and learners' preferences in using digital technologies for learning purposes. The researchers applied major component analysis to group and differentiate learners' attitudes from personal learning preferences, problem-solving skills, project work skills, and abilities to use digital tools for learning purposes. According to the research results, learners answered that they have problem solving and project work skills to deal with educational difficulties. However, skills to use information and communication technologies and digital literacy skills are only rudimentary, requiring training on how to use digital tools more effectively for learning purposes (Ozdamar-Keshin et al., 2015, p. 74).

On the other hand, Rahman, Ariawan, & Pratiwi(2020) compared students' digital literacy competency by measuring students' digital literacy abilities by location in Indonesia. This study also used a survey method as a research method. As a result of the study, it was found that all students had similar intermediate digital literacy abilities in relation to location. This includes proficiency in using the media. The middle type of digital literacy means that the students' capability to operate digital media is quite high, and the ability to analyze and evaluate media content is quite good. The intermediate type of digital literacy was sufficient ability to use media for learning in the form of

social interaction. In other words, Indonesian students already appear to be fairly proficient in digital media. However, as for the level of literacy related to creative content production, only a small number of students were able to use digital technology to create content (Rahman, Ariawan, & Pratiwi, 2020).

Existing research results suggest that among the various elements of digital literacy, the ability to create content requires a fairly high level of digital literacy, that an ability to utilize digital technology and digital media beyond information literacy is required. Thus a lack in digital literacy can impede one's potential of becoming a competent student, especially for those taking media-related courses offered through distance learning.

2. Digital Literacy Competencies

There are various definitions and classification criteria for digital skills or digital capabilities. First of all, previous studies that measured digital ability for Korean adults divided the digital ability, for the most part, into awareness of digital technology, possession and operation of devices, use of digital devices, and digital safety and ethics (Gil et al., 2022). Meanwhile, existing studies dealt largely with critical media understanding, including perceptions and attitudes toward digital technology, or measured possession and operation of digital devices as digital capabilities (Choi, Park, & Lee, 2021; Norman & Skinner, 2006; Park & Chung, 2019; Roque & Boot, 2018).

Elsewhere, European Union has divided digital skills and competencies for learners and citizens into three categories: digital competencies, job-related digital skills, and digital skills for ICT professionals. Among them, it is necessary to evaluate digital competencies, which are considered digital literacy, in order to conduct distance education. Digital competencies include a full set of basic digital skills covering information and data literacy, online communication and collaboration, digital content creation, safety, and problem solving. For example, the ability to retrieve, evaluate, store, create, present, and exchange information using computers and mobile computing devices, and to communicate and participate collaboratively in virtual networks.

Guitert & Romeu(2009) state that there is a number of digital literacy competencies which higher education students should possess and these include ability to search for information from the internet, produce digital information, disseminate digital information,

and acquire communication skills in an online environment. Furthermore, these competencies should include understanding the basics of digital technologies, planning and managing a virtual project, acquiring a digital civic attitude and team working skills in an online environment. Such elements of digital competencies also apply to distance learning.

Digital literacy in distance learning is, therefore, about the ability to apply specific digital skills in a confident, critical and responsible way within rich digital environments. The term also encompasses positive attitude about things digital and high technical ability for using digital devices. With regards to media-related practicum courses, digital literacy required is not job-related nor professional-level digital skills but rudimentary technical competency with regard to basic digital devices. Many assignments are related to the production of simple digital content, creating or editing videos and images using their own smartphones and/or PCs. We have, however, found it difficult to locate studies investigating digital competencies related to media practice in distance education.

For measuring digital literacy of DE learners, digital competencies can be divided into digital attitudes and digital device utilization capabilities. Digital attitude consists of three factors: digital familiarity, digital efficacy, and digital self-management (Gil et al., 2022). First, digital familiarity is the attitude of not being psychologically afraid and trying to adapt actively when facing a new digital device. Second, digital efficacy is an attitude of self-directed use of digital devices and confidence that one can solve problems on their own when faced with a problem situation. It is the attitude of being able to figure out how to use a new digital device well, and being able to solve problems with confidence when problems arise. Third, digital self-management refers to the attitude of using digital devices only when necessary while managing the time of using digital devices.

Next, digital device utilization capabilities involve the 'basic use of digital devices' and 'digital problem solving'. Basic use of digital devices refers to the ability to use the basic functions of digital devices proficiently. Digital problem-solving refers to the ability to use digital devices and technologies effectively to conveniently use transportation tools in daily life, or to carry out consumption, leisure, and administrative needs. Among the five digital competencies, the digital competencies required in distance education are to have a digital attitude and the ability to use digital devices. Based on the two categories of digital competencies, this study sought to explore how distance

education students' digital attitudes and abilities in using digital devices affected their performance in media-related practicum subjects.

III. Methods

1. Research Subject

In order to analyze the learning experience of the subjects according to their level of digital literacy, an online survey was conducted from June 1st to June 14th, 2023 targeting students of the Department of Media Arts & Sciences at Open University A. After excluding for incomplete responses, the 522 total respondents were whittled down to 423. 90.3% of respondents declared they had previously taken practicum courses while 9.7% responded that they had not. By gender, those who had taken the practicum courses were 60.5% female, 39.5% male; and by age, 33.8% were in their 20s, 25.8% in their 30s, 16.5% in their 40s, 14.7% in their 50s, and 7.2% in their 60s or older. The demographic figures based on the "yes" or "no" on course experience are shown in <Table 1>.

<Table 1> Course Experience Demographic Characteristics

(N=423)

Variables	Category	Have experience taking classes		No experience taking classes		Total	
		N	%	N	%	N	%
Gender	Female	223	89.5	28	10.5	256	60.5
	Male	153	91.6	14	8.4	167	39.5
Total		381	90.3	42	9.7	423	100.0
Age range	in their 20s	131	91.6	12	8.4	143	33.8
	in their 30s	101	92.7	8	7.3	109	25.8
	in their 40s	64	92.9	6	7.1	70	16.5
	in their 50s	52	83.9	10	16.1	62	14.7
	in their 60s	31	86.1	5	13.9	36	8.5
	over their 70s	2	66.7	1	33.3	3	.7
Total		381	90.3	42	9.7	423	100

2. Measurement

The purpose of this study was to analyze the impact of digital literacy level on students' participation in practicum courses. For this purpose, the variables were divided into individual backgrounds(gender, age), digital literacy competency, and experience in taking practicum courses. The experience of taking the practicum course was organized with a focus on the decision to take the course or not, the reasons for taking it, and the difficulties and solutions in performing course assignments composed of activities that typically reflect the characteristics of the practical nature of the courses. And basing it on the theoretical background discussed above, measurement for digital literacy was taken based on one's digital attitude and on the ability to use basic digital devices.

The digital literacy diagnostic tool was selected by considering three from the many tools that have already been developed. First, because the purpose of this study was not to diagnose the level of digital competency per se, it was necessary to include only items that focus on areas related to learning in distance universities rather than encompassing multiple digital competencies. Second, because the practicum courses offered at Open University A form a part of the basic level course roster, it was appropriate to include elements that diagnose the basic level of digital literacy competency. Third, since it was not our purpose to strictly diagnose the level of digital competency, it was necessary to try to increase the response rate by minimizing the number of survey items.

Based on the above criteria, we used the "Digital Competency Diagnostic Tool" developed by the Seoul Digital Foundation in 2022, which meets the criteria for selecting a measurement tool. This tool was developed to provide customized digital competency education to adults so that they can easily participate in the diagnosis and check the results to pinpoint the digital competency education that suits them. This tool consists of a total of 36 questions containing basic elements of digital competency in two areas: 'digital attitude' and 'use of digital devices and technology'. In this study, factors judged to be related to learning of distance education practice subjects were selected. A total of 16 questions were selected and reconstructed, including 8 questions on familiarity(4) and efficacy(4) among the components of digital attitude, and 8 questions on the basic use of digital devices among the components of digital devices and technology use. Digital attitude questions were measured on a self-report 5-point

scale from 'not at all = 1' to 'very much = 5'. Cronbach α of the digital attitude factor was found to be .923. In the "Digital Competency Diagnosis Tool", the basic use of digital devices was surveyed on a 3-point scale, and in this study, it ranged from 'almost can't do it = 1' to 'can do it without much difficulty'. 'Yes = 3' was surveyed, but in order to facilitate understanding of the response results, they were converted into a 5-point scale and presented. Cronbach α of the basic use of digital devices factor was found to be .824.

3. Data Analysis

For analysis, SPSS Statistics 27.0 was used in this study. Through frequency analysis and descriptive statistical analysis for each item, the response pattern for each was first confirmed and differences between groups by gender and age were analyzed together. In addition, the chi-square test was conducted to confirm the subjects' behavior in performing the assignments and their satisfaction ratings according to the level of digital literacy of respondents who had experience taking the practicum course. The test also confirmed the statistical significance of group differences. The level of digital literacy competency was applied by dividing it into a below-average group and an above-average group based on the average score of those who had taken the practicum courses.

IV. Results

1. Frequency Analyses of Respondents' Perception of Practicum Experiences

First, we examined the respondents' course experience and digital literacy level in practicum subjects through frequency analysis. Among the respondents, the majority, 381 (90.1%), said they had taken a practicum course in the Department of Media Arts and Sciences, while 42 (9.9%) responded that they had not taken such courses. The main reasons for not taking the course were that 'the respondents don't know how to do the practicum'(31.0%) and 'they don't have the confidence to do the practicum'

〈Table 2〉 Reason for Not Taking the Practicum Course

Reasons for not taking the course	Frequency (N)	Percentage (%)
Others	15	35.7
I am not interested in the subject	2	4.8
I don't know how to proceed with the practice.	13	31.0
I don't have the confidence to do the practicum assignments.	8	19.0
I have difficulties using digital tools required to perform tasks	4	9.5
Total	42	100.0

(19.0%). There is a high rate of hesitation in taking these media practicums courses due to a lack of digital literacy or insufficient prior information or guidance on the practicum courses(<Table 2>). In addition we asked those who did not take practicum courses whether they were willing to take them pursuant of practical, training-related digital technology education, and 34 students (81.0%) responded 'yes', indicating high demand for digital literacy education.

Looking into the responses from 381 students who took practicum course about their experience, overall satisfaction (on a 4-point scale) about such courses was found to be high among(79.1% answered 'satisfied' or higher). Main factors that motivated the students to select practicum courses were that the courses were 'a major subject required by the department' and 'to acquire practical skills or experience in production'. There was a statistically significant difference according to gender and age. Males answered 'because it is a major subject in the department', while most women responded 'to acquire skills or experience in production'. By age group, 55.7% of the respondents in their 20s showed the highest response to 'because it is a major subject in the department', and the response rate for 'to acquire practical skills or experience in production' increased as the age increased. It can be seen that there is a high interest in learning the practical experience itself in women and in the older age group.

About 40% of those who completed practicum courses among the respondents answered that the most difficult aspect of the assignments was understanding and using the digital technology required by the practicum, such as digital editing program tools. Lack of time, difficulty in filming and producing recordings, and lack of information and data collection skills related to assignments were the next most difficult aspects of the program. It was confirmed that the students who took practicum courses found it

(Table 3) The Most Difficult Aspect in Practicum Assignments

Difficult Aspects	Frequency (N)	Percentage (%)
Others	30	7.9
Lack of information utilization skills to collect data related to the tasks	54	14.2
Difficulty understanding and utilizing digital technologies such as digital editing program tools	149	39.1
Camera filming and recording production are difficult	55	14.4
Methods of compressing data are difficult	5	1.3
It is difficult to communicate online	32	8.4
Not enough time	56	14.7
Total	381	100.0

(Table 4) How to Solve Problems when Performing Practicum Assignments

How to solve	in their 20s	in their 30s	in their 40s	in their 50s	in their 60s	over their 70s	Total
Others	14 10.7%	14 13.9%	10 15.6%	7 13.5%	3 9.7%	0 .0%	48 12.6%
Study consultation through Department website	7 5.3%	10 9.9%	5 7.8%	11 21.2%	2 6.5%	0 .0%	35 9.2%
Professor website/ email consultation	11 8.4%	6 5.9%	2 3.1%	1 1.9%	2 6.5%	1 50.0%	23 6.0%
Email/text consultation with tutor	14 10.7%	9 8.9%	7 10.9%	6 11.5%	3 9.7%	0 .0%	39 10.2%
Department study group or student council meeting	14 10.7%	9 8.9%	8 12.5%	3 5.8%	10 32.3%	0 .0%	44 11.5%
External site/external acquaintance	71 54.2%	53 52.5%	32 50.0%	24 46.2%	11 35.5%	1 50.0%	192 50.4%
Total	131 100.0%	101 100.0%	64 100.0%	52 100.0%	31 100.0%	2 100.0%	381 100.0%

$$\chi^2=38.821^*$$

* $p<.05$, ** $p<.01$, *** $p<.001$

difficult to use digital devices to fulfill the assignments(<Table 3>).

When asked how to solve difficulties in performing assignments, the majority of the respondents answered that they 'inquired from external websites or acquaintances' (50.4%), and then posed an 'inquiry to the department study or at the student council

〈Table 5〉 Required Supports for Practicum Courses

Difficult Aspects	Frequency (N)	Percentage (%)
Others	22	5.8
Offline digital camera shooting special lecture	49	12.9
Special lecture on digital editing programs and practical training	154	40.4
General digital literacy education on computer use	22	5.8
Educational videos on the use of digital tools	70	18.4
How to compress files and upload support	9	2.4
Online real-time support for utilizing digital tools when necessary during assignment	55	14.4
Total	381	100.0

meeting’ (11.5%) or ‘got counseling with a tutor by e-mail or text message (10.2%), confirming that the rate of using resources outside the school was higher than using on-campus tools. Regarding this, there was a statistically significant difference according to age group. The response ‘to inquire from ‘external sites or acquaintances’ was higher for those in their 20s (54.2%) and 30s (52.5%) than those in their 40s or older, making it difficult for this latter group to even consult external sources(〈Table 4〉).

In addition, when we asked the students what kind of support they wanted from the school to deal with issues, ‘special lectures on the use of digital editing programs and practical training’ (40.4%) ranked the highest, followed by ‘educational videos on the use of digital tools’. (18.4%), then by ‘online real-time support for the use of digital tools when necessary during assignment’ (14.4%), further evidence that schools need to provide detailed explanations on digital tool usage and techniques(〈Table 5〉).

2. Assignment Performance by Digital Competencies

In order to investigate performing practicum assignments according to digital attitude and digital competency level, and whether there is a difference in satisfaction with practicum subjects, 381 participants who responded that they had taken practicum subjects were surveyed for digital attitude. Based on the average values of (M=3.77, SD=.784) and use of digital devices (M=4.58, SD=.578), cross-tabulation was conducted by dividing the group into below-average and above-average groups. The most difficult

〈Table 6〉 Aspects of Difficulty in Assignments by Digital Attitudes

Aspects of Difficulty in Assignments	Below average group	Above average group	Overall	χ^2
Others	10 5.0%	20 11.2%	30 7.9%	24.382***
Lack of information utilization skills to collect information and data related to tasks	29 14.4%	25 14.0%	54 14.2%	
Difficult to understand and use digital technology such as digital editing program tools	98 48.5%	51 28.5%	149 39.1%	
Camera shooting and recording production are difficult	30 14.9%	25 14.0%	55 14.4%	
It is difficult to compress data, etc.	3 1.5%	2 1.1%	5 1.3%	
Difficulty communicating online	12 5.9%	20 11.2%	32 8.4%	
Not enough time	20 9.9%	36 20.1%	56 14.7%	
Total	202 100.0%	179 100.0%	381 100.0%	

* $p < .05$, ** $p < .01$, *** $p < .001$

thing in performing assignments was different according to the degree of digital attitude. As shown in 〈Table 6〉, it was confirmed that there was a difference at a statistically significant level in the aspect of difficulties experienced in performing assignments according to the digital attitudes.

In terms of the degree of digital device utilization competency, there was also a statistically significant difference between the above-average and below-average groups. As shown in 〈Table 7〉, for more than half (50.7%) of the group with below-average digital device utilization competency, using digital technology, using techniques such as camera shooting and recording production (14.5%), and task-related data collection (13%) were found to be difficult. On the other hand, the group with above-average digital device utilization competency answered that they had difficulty using digital technology (32.5%), but this percentage was not higher than that of the below-average group.

Respondents with high digital device literacy (above average) did not experience any difficulty in camera shooting, recording production, and task-related data collection in performing these practicum courses, compared to those with below average digital

〈Table 7〉 Aspect of Difficulty in Assignments by Digital Device Utilization

Aspects of Difficulty in Assignments	Below average group	Above average group	Overall	χ^2
Others	7 5.1%	23 9.5%	30 7.9%	16.071**
Lack of information utilization skills to collect information and data related to tasks	18 13.0%	36 14.8%	54 14.2%	
Difficult to understand and use digital technology such as digital editing program tools	70 50.7%	79 32.5%	149 39.1%	
Camera shooting and recording production are difficult	20 14.5%	35 14.4%	55 14.4%	
It is difficult to compress data, etc.	2 1.4%	3 1.2%	5 1.3%	
Difficulty communicating online	11 8.0%	21 8.6%	32 8.4%	
Not enough time	10 7.2%	46 18.9%	56 14.7%	
Total	138 100.0%	243 100.0%	381 100.0%	

* $p < .05$, ** $p < .01$, *** $p < .001$

device literacy. It can be seen that personal factors such as lack of time can become a bigger obstacle. There was no statistically significant difference when it came to solving problems for the respondents, when performing assignments, based on their level of digital device utilization competency. More than half of the students were receiving help from outside acquaintances or external sites when faced with difficulties in performing practice assignments. There was no statistically significant difference in the support that was considered necessary for carrying out practice tasks between the groups. They both recognized 'provision of educational videos on the use of digital tools' as the second most necessary support tool.

Specifically, the majority of the group with a below-average digital attitude found difficult understanding and using digital editing program tools (48.5%), followed by camera filming and recording production (14.9%), and information utilization such as task-related data collection (14.4%). On the other hand, the above-average digital attitude group answered the difficulty of using digital technology highly (28.5%), but the percentage was not higher than the below-average group. It was found that personal factors such as lack of learning time, rather than difficulty with digital technology use,

were the main obstacle to the difficulty in performing the practical media courses for the above-average digital attitude group, compared to those with low digital attitude competence (the below-average group).

There was no statistically significant difference in how to solve problems when performing practicum assignments based on the respondents' degrees of digital attitude. In other words, both the above-average and below-average groups were overwhelmingly dependent on external websites and help from outside acquaintances to solve difficulties when performing tasks. This can be understood as the school not being able to find the support it needs, or the support provided not helping students to perform the assignments for the media practicum courses. With regards to the support required to perform tasks according to the degree of digital attitude, there was no significant difference between the below-average group and the above-average group, and both groups answered 'use of digital editing programs and special lectures' as the most necessary support and 'provision of educational videos on the use of digital tools' as the second most necessary support.

Finally, satisfaction with the practicum courses among the two groups was compared and analyzed according to the digital attitude score. As a result, it was found that the satisfaction level of the below-average digital attitude group was statistically significantly lower than that of the group with the above-average digital attitude score. In addition, the satisfaction level with the practicum course among the group with the below-average digital device utilization score was statistically significantly lower than that of the group with the above-average digital device utilization score. Similar to the results of digital attitude analysis, it was found that the practice courses provided by A Open University were not sufficiently satisfactory for the expectations of students with low digital device literacy. Also, the lack of digital capabilities and the lack of support to supplement them can be assumed to be the main causes of the low satisfaction rates. This can be interpreted to mean that the level or composition of practicum courses currently provided by the department may be appropriate for those with a high digital attitude. Thus, it is assumed that the main cause of low satisfaction rates is the lack of capacity and support students have to properly perform their media practicum.

V. Conclusions and Discussion

During the COVID-19 pandemic, students at distance universities had to adapt to a certain level of individual digital literacy in order to access online courses and make correct usage of digital technologies in learning. Although distance universities have provided various digitally-oriented supports by providing standardized education tools to a broader audience at low cost, without time and place restrictions, simply using computers and digital devices does ensure a high level of digital literacy nor of performance for students. This was especially true for students enrolled in media related practicum courses. As such, the purpose of this study was to explore and evaluate the students' learning experiences in such practicum courses according to the level of digital literacy competency using specifically those enrolled at the Department of Media Arts & Sciences at A Open University through a online survey.

Research results showed that one, the difficulty in taking practicum courses differed depending on the students' perceived digital capabilities. It was found that students who think they are deficient with digital devices tended to hesitate or give up on taking practicum courses and thereby miss out on important learning opportunities. As solution, they called for 'special lectures on the use of digital editing programs and practical training', 'provision of educational videos on the use of digital tools', and 'online real-time support on the use of digital tools when necessary during assignment' from the school. They said that if these types of support were available, they would consider taking practicum courses. It's clear such learning support must be given priority when preparing for and conducting online practicum courses to be attended by adults of various age, a result consistent with a previous research conclusion that open university students need to learn how to effectively use digital tools for learning purposes (Ozdamar-Keshin et al., 2015).

Two, there were significant differences in assignment performance and satisfaction depending on the students' actual level of digital literacy. While students with above-average digital literacy showed a more proactive attitude toward solving problems related to digital devices, those with lower digital competencies had serious difficulties with digital technologies such as using digital cameras, recording and producing videos, and other assignment-related tasks. They also had difficulty handling information,

including data collection. One thing the two groups were similar in was that they both relied on help overwhelmingly from external sites and/or outside acquaintances when faced with difficult course assignments. These findings imply that students are not finding the support they need from school or that the support provided is insufficient to their needs, a signal that improvements in the practicum course support system are necessary. Attention should also be paid to the fact that it is difficult for students to utilize information related to video and recording production, and task-related data collection.

In addition, satisfaction level about the practicum subjects was found to be statistically significantly lower in the group with digital competency scores below the average than in the group with digital competency scores above average. These findings also suggest that the level and/or composition of the practicum courses currently provided by the Department of Media Arts & Sciences may be appropriate for those with high digital attitudes, but may be insufficient for those students with low digital competency scores for them to fully understand or be satisfied with the subjects. To sum up, a student's digital competency level can affect the smooth performance in practicum courses in distance education, and the factors that affect satisfaction or dissatisfaction can differ according to their level of digital competence. Thus, it is necessary to help digitally less-competent students who are reluctant to take practicum courses by supporting them with programs or special lectures geared toward improving their digital skills before the actual term begins. Above all, it is crucial to provide educational videos on the use of digital tools including filming and non-linear editing procedures, or to devise methods for online real-time support from instructors.

As shown in the research results, students' perceived digital literacy competencies and competencies identified through practical diagnosis affect their participation in practicum courses at distance universities and their meaningful learning experiences and satisfaction. Therefore, universities such as Open University A, where adult learners of various ages take courses from remote locations, first thing must be to measure the digital capabilities of learners when planning and opening new courses and consider how to increase the digital literacy capabilities of those with lower capabilities. Such steps must be taken along with course planning. Furthermore, it is necessary to help digitally less-competent students who are reluctant to take practicum courses by supporting them with programs or special lectures geared toward improving their digital

skills before the actual term begins. Above all, it is crucial to provide educational videos on the use of digital tools including filming and non-linear editing procedures, or to devise methods for online real-time support from instructors.

Finally, this study has following limitations. First, although a survey was conducted targeting students of the Department of Media Arts & Sciences, the number of respondents for the survey was only 423, which limits the generalization of the results to only the students in the department, and the Department of Media Arts & Sciences emphasis on digital competencies may limit the generalizability of these findings to other departments. Next, in the case of practicum courses, individual digital abilities per each subject may require different levels of digital competencies, so the student's problem-solving approach or prerequisites for support in learning may be different. Third, digital competencies according to demographic characteristics could not be analyzed in depth for every item, and the cross-analysis between the presence or absence of the media practicum course experience and the average group was limited. As such, problems according to gender and age and customized support plans could not be sufficiently discussed in this paper. However, despite these limitations, the study is significant for the future findings in that it explored the relationship between media-related practicum courses and levels of digital competence, thereby identifying factors that can improve the operation of practicum courses and proposing teaching methods for better supporting and strengthening the digital competencies of students.

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〈요 약〉

디지털 리터러시 수준이 원격교육 실습과목에 미치는 영향에 관한 연구

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본 연구의 목적은 원격대학에서 학습자들의 디지털 리터러시 수준이 실습과목 수행에 미치는 영향을 분석하는 것이다. 이를 위해 원격대학의 학생 423명을 대상으로 온라인 설문조사를 실시하여 실습과목 수강경험과 디지털 리터러시 역량의 차이를 조사하였다. 수집된 데이터를 대상으로 기술 통계분석과 Chi-square test를 실시하여 디지털 역량 수준에 따른 학습 경험의 차이점을 분석하였다. 연구 결과, 학생들이 인식하는 디지털 역량에 따라 실습과목 수강에 대한 난이도가 달랐으며, 학생들의 디지털 기기 활용과 같은 실제 디지털 역량 수준에 따라 과제 수행 및 강좌 만족도에 유의미한 차이가 있는 것으로 나타났다. 평균 이상의 디지털 역량을 가진 학생들은 디지털 기기 관련 문제 해결에 더 적극적으로 참여했지만, 디지털 역량이 낮은 학생들은 디지털 기술 사용 및 과제 관련 업무에 어려움을 겪었다. 이러한 연구 결과는 원격교육으로 새로운 실습 과정을 계획하고 개설할 때 학습자의 디지털 역량을 측정하는 것이 필수적이며 교수자는 도움이 필요한 학습자의 디지털 리터러시 역량을 높이는 방법과 지원책을 고려해야 함을 함의한다.

• 주요어: 디지털 리터러시, 디지털 역량, 원격교육, 실습과목

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