ASSESSING THE DIGITAL LITERACY AMONG FRESHMEN COLLEGE STUDENTS: A DESCRIPTIVE-COMPARATIVE STUDY

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ABSTRACT

Digital literacy refers to the ability to find, evaluate, create, and communicate information using digital technologies. It involves understanding how to use digital tools and resources effectively and responsibly to achieve a desired outcome. Despite its significance, many individuals, particularly students, were still lagging behind in this aspect due to undeniable constraints on technology accessibility and wide disinformation online. To formulate a basis to augment the digital literacy of students, this descriptive study was conducted with the aim to test the significant difference of digital literacy when grouped according to sex and program. A sample of randomly selected 384 freshmen college students from different programs were involved in online surveys to achieve this purpose. Results showed that the level of digital literacy among the respondents is high which indicates that the variable is oftentimes manifested among the population of freshmen college students. More so, there was an identified significant difference of digital literacy when grouped according to sex and program. This study suggests that school-based programs, organizations, and activities relevant to digital literacy should be reintroduced and once more intensified to hone and harness the digital literacy of the population, particularly in the aspects of connectedness and creativity.

KEYWORDS: *digital literacy, freshmen college students, descriptive-comparative study, Philippines*

INTRODUCTION

Digital literacy refers to the ability to find, evaluate, create, and communicate information using digital technologies. It involves understanding how to use digital tools and resources effectively and responsibly to achieve a desired outcome. Digital literacy skills include basic computer skills, information literacy, media literacy, and critical thinking skills. According to Bawden and Robinson (2019), digital literacy is "the set of competencies needed to use and operate digital devices and services, and to access, evaluate, and produce digital content and services."

Digital literacy in India faces several issues and problems. Unequal access to technology, limited digital infrastructure, low digital literacy levels, and a limited focus on digital literacy in education are some of the significant barriers hindering the development of digital literacy skills among individuals and communities in India. Many individuals and communities lack access to basic digital technologies, especially in rural areas, which limits their ability to develop digital literacy skills. Inadequate digital infrastructure, limited internet connectivity, power cuts, and outdated technology in schools and colleges also limit the development of digital literacy skills among students and educators. Despite the growing emphasis on digital literacy, many individuals in India still lack basic digital literacy skills, especially those from low-income backgrounds, women, and the elderly. The education system in India also does not adequately emphasize digital literacy, with limited resources and attention given to developing digital literacy skills (Bansal, 2020; Kumar & Sharma, 2020; Shrivastava & Verma, 2020; Singh & Bhatnagar, 2021).

Digital literacy in the Philippines faces several challenges, such as limited access to technology, lack of digital skills, underdeveloped digital infrastructure, and the spread of misinformation. According to a study by the Philippine Statistics Authority, 61% of Filipino households have no access to the internet, hindering the development of digital literacy skills. Moreover, only 30% of the Philippine population has basic digital skills, according to a report by Google and Temasek. The underdeveloped digital infrastructure, such as slow internet speed and limited connectivity, limits the ability of Filipinos to engage in digital activities and develop digital literacy skills. Lastly, the Philippines is among the countries with the highest number of social media accounts sharing and amplifying disinformation, as reported by the University of Oxford (Cabading, 2021; Roxas-Chua, 2019; Tigno, 2020).

There are lots of previously conducted studies related to digital literacy by Satin and Bonnet (2019) which tries to assess the digital literacy skills of undergraduate students in the United States across various disciplines and academic levels but there is no study conducted in the local contexts which specifically aims to explore and evaluate the digital

literacy skills of freshmen students, identify areas of strength and weakness, and suggest ways to improve their digital literacy skills through targeted educational interventions.

This study is founded from Information Processing Theory of Miller et al., (1960) cited by Van der Meijden and Veenman (2018) which emphasizes the cognitive processes involved in digital literacy, including attention, perception, memory, and problem-solving. Information processing theory suggests that digital literacy involves effectively processing, analyzing, and utilizing digital information to achieve goals. This theory is relevant to digital literacy because it emphasizes the cognitive skills necessary to process digital information efficiently. As there is an abundance of online information available today, digital literacy requires efficient navigation of such data. Information processing theory helps understand how people process digital information and how cognitive strategies can be developed to improve digital literacy. Likewise, Socio-technical theory of Trist and Emery (1959) expanded by Monteiro and Vetere (2018) is related to digital literacy in that it emphasizes the importance of understanding the social and cultural context in which digital literacy is developed. Digital literacy is not just a technical skill; it is also shaped by social and cultural factors, such as the availability of digital resources, the cultural values attached to technology, and the ways in which technology is integrated into everyday life. Socio-technical theory helps us understand how these factors influence digital literacy and how we can develop interventions that promote digital literacy in different social and cultural contexts.

OBJECTIVES OF THE STUDY
To realize the study's purpose, it attempted to answer the following objectives:
1. to determine the profile of freshmen college students in the local college;
2. to assess the digital literacy skills of freshmen students in the local college; and
3. to ascertain the significant difference of digital literacy skills of freshmen college students when grouped according to sex and program.

RESEARCH HYPOTHESIS
The following null hypothesis was tested at 0.05 level of significance:
1. There is no significant difference on the digital literacy skills of freshmen college students when grouped according to sex and program.

METHODOLOGY
This study adopted the descriptive-comparative research design. On one hand, descriptive research attempts to systematically investigate and describe a population, situation or phenomenon. This is also used to describe one or more variables and is considered as the simplest type of research (Aggarwal & Ranganathan, 2019). On the other hand, comparative research utilizes quantitative comparisons to mark the similarities and differences of the variables (Miri &

Shahrokh, 2019). In this study, this design will be employed to determine the significant difference of digital literacy of freshmen college students in Davao del Norte. There were randomly selected 348 freshmen college students across different programs in a local college in Davao del Norte who were identified through random sampling via proportional allocation.

The instrument used for assessing the digital literacy of respondents is the Digital Literacy Scale which was adapted from the work of Amin et al. (2021). This has a Cronbach Alpha 0.894 which is described as acceptable by DeVellis (2012). The instrument is a Five-point Likert Scale which has 36 items that are divided across nine domains, namely: communication, copyright, critical thinking, character, citizenship, curation, connectedness, creativity, and collaboration. The instrument was utilized in this study after it was subjected to content validation by the panel of experts which was assigned to scrutinize this study.

In the data collection procedure, the survey was encoded and distributed using Google Forms. After asking the respondents to answer the online survey, the data was collated in a Google Sheet and this was transferred to Microsoft Excel file in preparation for statistical analysis. Statistical tools were used which include frequency, percentage, mean, T-test, analysis of variance (ANOVA), and standard deviation to answer the objectives of this research.

Frequency and percentage were employed to describe the profile of respondents according to their affiliated program and sex. Mean was utilized to describe the level of digital literacy among the respondents. T-test and ANOVA were used to determine the significant difference of digital literacy skills when grouped according to program and sex.

More importantly, research ethics were upheld throughout the process of conducting this research to maintain the well-being and safety of all involved human participants (Denzin & Lincoln, 2011). Consent was sought by giving the respondents a choice to refuse to participate in the online survey. Moreover, confidentiality was ensured by not forcedly collecting the email addresses and other personal information of the respondents. Conflict of interest was avoided by the researchers by not including the sections where the proponents were teaching at the time of data collection.

RESULTS AND DISCUSSION
Profile of Freshmen College Students
Table 1 presents the frequency and percentage of distribution of respondents according to sex. On one hand, data shows that males dominated among the respondents with a frequency of 197, comprising 56.61% of the total sample of respondents. On the other hand, females who participated in the study is expressed in frequency of 151, comprising the 43.39% of the respondents.

Table 1
Frequency and Percentage of Respondents in Terms of Sex

Sex	Frequency	Percent
Male	197	56.61%
Female	151	43.39%
Total	**348**	**100%**

Displayed in Table 2 is the frequency and distribution of respondents according to their respective affiliated program. BSBA students dominated the group with a frequency of 85 and a percentage of 24.43% of the respondents, and this is followed by BSC students with a frequency of 75, comprising the 21.55% of the respondents. BPA students have a frequency of 51 and a corresponding percentage of 14.66% of the respondents, while BSOA students garnered a frequency of 45 with a percentage of 12.93% of the respondents. BSEd students obtained a frequency of 41 corresponding to the 11.78% of the respondents, while there were 36 BSA students portioning 10.35% of the respondents. The least among the groups is the BEEd students with a frequency of 15 and a percentage of 4.31% of the respondents.

Table 2
Frequency and Percentage of Respondents in Terms of Program

Programs	Frequency	Percent
Bachelor of Elementary Education (BEEd)	15	4.31%
Bachelor of Public Administration (BPA)	51	14.66%
Bachelor of Science in Agriculture (BSA)	36	10.35%
Bachelor of Science in Business Administration (BSBA)	85	24.43%
Bachelor of Science in Criminology (BSC)	75	21.55%
Bachelor of Science in Office Administration (BSOA)	45	12.93%
Bachelor of Secondary Education (BSEd)	41	11.78%
Total	**348**	**100%**

Level of Digital Literacy of Freshmen College Students
Table 3 showed the summary of the level of digital literacy among the respondents which has a categorical mean of 3.74 and is described as high. This indicates that the variable is oftentimes manifested by the respondents. Further, this implies that freshmen college students were highly knowledgeable and skillful in utilizing digital tools to serve various purposes in cyberspace.

The highest identified domain of digital literacy is citizenship with a mean score of 4.19 which is described as high. This indicates that the domain of the variable is oftentimes manifested by the freshmen college students. This only implies that the respondents tend to use the digital space to communicate respectably with others while adhering to certain cyberspace laws and norms.

This domain is followed by character which obtained a mean score of 4.00 which has a description of high. This means that the particular domain is oftentimes manifested by the respondents. Further, this implies that freshmen college students tend to maintain a good character in the cyberspace, often persevering to maintain good relations and avoid posting negative remarks or content about others.

Table 3
Level of Digital Literacy of Respondents

Domains	Mean	Description
Communication	3.72	High
Copyright	3.80	High
Critical Thinking	3.75	High
Character	4.00	High
Citizenship	4.19	High
Curation	3.85	High
Connectedness	3.42	Moderate
Creativity	3.39	Moderate
Collaboration	3.58	High
Overall	**3.74**	**High**

Curation is the identified domain of digital literacy which garnered a mean score of 3.85 which is described as high. This indicates that the domain of the variable is oftentimes manifested by the freshmen college students. This also implies that the respondents have a high tendency to select only the reliable information from the internet and contribute meaningful and updated data on the cyberspace.

The previous domain is followed by copyright which obtained a mean score of 3.80 which has a description of high. This means that the particular domain is oftentimes manifested by the respondents. Further, this implies that freshmen college students oftentimes keep in mind to acknowledge the owners of others' ideas and information when they use such and persevere to avoid plagiarism to a high extent.

Critical thinking is the identified domain of digital literacy which garnered a mean score of 3.75 which is described as high. This indicates that the domain of the variable is oftentimes manifested by the freshmen college students. This also implies that the respondents are oftentimes able to pieces of information on the internet that they can use to solve problems in real-life situations.

The preceding domain is followed by communication which obtained a mean score of 3.72 which has a description of high. This means that the particular domain is oftentimes manifested by the respondents. Further, this implies that freshmen college students oftentimes demonstrate skills in establishing good communication and interaction online.

Collaboration is the identified domain of digital literacy which garnered a mean score of 3.58 which is described as high. This indicates that the domain of the variable is oftentimes manifested by the freshmen college students. This also implies that the respondents oftentimes showcase their ability to work together with others even with the use of online platforms.

The previous domain is succeeded by connectedness which obtained a mean score of 3.42 which has a description of moderate. This means that the particular domain is only manifested sometimes by the respondents. Further, this implies that freshmen college students only participate in online communities and discussions for various purposes sometimes.

The lowest identified domain of digital literacy is creativity with a mean score of 3.39 which is described as high. This indicates that the domain of the variable is sometimes manifested by the freshmen college students. This only implies that the respondents only use digital tools to render contents of creative expression in online realm sometimes.

Significant Difference of Digital Literacy in Terms of Sex
The significant difference of digital literacy among the respondents in terms of sex is presented in Table 4. It was found that the null hypothesis is rejected, given that the probability value is less than the .05 level of significance. This implies that there is a significant difference of digital literacy among the respondents when grouped according to sex. Further, this provides that males (M=3.70, SD=.445) have higher digital literacy compared to females (M=3.80, SD=.406), considering that males have a higher mean score compared to females. Although this is the case, it was noted from the result that the difference of digital literacy between the two sexes is not that huge. More so, it was also noted that the responses of the freshmen college students were quite uniform due to the fact that the mean scores of all sexes have a standard deviation below 1.0.

Table 4
Significant Difference of Digital Literacy in Terms of Sex

Sex	Mean	SD	t-Value	P-Value	Decision
1. Male	3.70	0.445			
2. Female	3.80	0.406	-2.253	.025	H_o Rejected

Significant Difference of Digital Literacy in Terms of Program
The significant difference of digital literacy among the respondents in terms of program is presented in Table 5. It was found that the null hypothesis is rejected, given that the probability value is less than the .05 level of significance. This implies that there is a significant difference of digital literacy among the respondents when grouped according to program. Further, this provides that BSEd students (M=4.056, SD=.421) have superior digital literacy to the rest of the programs, considering that BSEd students obtained the highest mean score compared to the rest. Furthermore, this provides that BEEd (M=3.679, SD=.583) and BSA (M=3.68, SD=.4) students have the inferior digital literacy to the rest of the programs, considering that BEEd and BSA students obtained the lowest mean scores compared to the rest. Data showed that the difference of digital literacy among the groups is quite expanse. It was also noted that the responses of the freshmen college students were quite uniform due to the fact that the mean scores of all programs have a standard deviation below 1.0.

Table 5
Significant Difference of Digital Literacy in Terms of Program

Program	Mean	SD	F-Value	P-Value	Decision
1. BEEd	3.679	0.583			
2. BPA	3.753	0.415			
3. BSA	3.68	0.4			
4. BSBA	3.669	0.391	4.706	<.001	H_o Rejected
5. BSC	3.745	0.417			
6. BSOA	3.671	0.423			
7. BSED	4.056	0.421			

CONCLUSIONS

The following conclusions were drawn based on the results of the study:

1. In terms of profiling, it was determined that males dominated the survey compared to females. Also, the greatest number of students was from BSBA while the least one was from BEEd.
2. In terms of the level of digital literacy, it was identified that the respondents oftentimes manifested the mentioned variable. The lowest domains of digital literacy were connectedness and creativity which were only manifested sometimes.
3. In terms of the significant difference of digital literacy of the respondents, it was found that there is significant different when digital literacy is grouped according to age and sex.

RECOMMENDATIONS

The following were the recommendations to the concerned audiences of this study:

1. In view of the lagging digital literacy skills of respondents in terms of connectedness and creativity. It is highly suggested that school-based programs, organizations, and activities relevant to digital literacy should be reintroduced and once again intensified in the college to hone and harness the digital literacy of the population. Official online organizations of the college must be established to widen the linkages and connections of students in the online realm.
2. More so, trainings, workshops, and seminars on using digital tools must be increased to cater to the needs of all students from different programs, particularly BEEd and BSA students. Trainings, workshops, and seminars may be tailored to the program-specific needs of each department, incorporating the nine domains of digital literacy in the process. These trainings may include video editing, Adobe photoshop editing, desktop publishing, web design and many other topics related to digital literacy must be introduced to the academic community.
3. School administrators must also consider investing more on facilities, technologies, and other digital infrastructure in the college such as faster and better internet connection coupled with new televisions and overhead projectors in classrooms and offices to allow the proliferation of digital literacy among the college students and faculty in general. Procurement of additional technologies such as but may not be limited to laptops and computer units for the college library and computer laboratory must also be considered for the same purpose.

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