Essential Digital Literacy Assessment of BBA Students : Empirical Evidence from Bangladesh

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Abstract

Purpose of the study: The purpose of this study is to explore the underlying digital literacy competence and perceptions of business school undergraduate students.

Methodology: 412 BBA students from American International University-Bangladesh participated in a series of assessments to assess their digital abilities, perspectives, and conceptions of digital literacy. Using a quantitative research approach, this study compared empirical data.

Findings: The result provided insight into the possessed skills and revealed students need more assistance developing higher-order digital literacy abilities. The competence findings revealed that just one-third of them could manage to do what they claimed. Due to the tendency of low performers to exaggerate their abilities, self-evaluation surveys fall short in the practical assessment. In terms of some specific fields, the students did better scores compared to the self-assessment task.

Implications: The findings of this research add to our knowledge of the difficulties associated in the area of teaching digital literacy in business schools. Examining students' reflections may help to broaden the scope of digital literacy instruction in business school programs.

Limitations and Future direction: A significant drawback of this research is the small sample size collected from one organization and the lack of diversity in sampling across all three rounds.

Value: Additionally, this study will stimulate additional research to inform official policy regarding the development of digital literacy strategies, information literacy policies, and the design of valid and relevant digital literacy curriculum content for business students and possibly the larger higher education community in digitally divided developing nations.

1. Introduction

Due to the fast integration of ICT into business, digital literacy is becoming an increasingly necessary need for the employment market of twenty-first-century knowledge workers (Van laar et al, 2017). Graduates with the ability to identify simple solutions driven by technology for the complicated challenges, of a constantly rising number of digital native stakeholders, are in high demand in industries. It is impossible to engage in the economy and digital society without proper digital literacy, especially given the digital revolution of knowledge workers in content and organization (Bejaković & Mrnjavac, 2020). Private universities in Bangladesh have long placed a greater emphasis on offering courses that prepare graduates to join the private sector as knowledge workers. To achieve this objective, they are providing several courses designed to improve digital literacy. As a prerequisite to such courses, secondary and higher-secondary curricula have included mandatory ICT courses over the previous decade to fulfill the vision and objective of the 2009 National Information and Communication Technology (ICT) Policy (Imon, 2017). To provide high-quality digital literacy, all tertiary business schools in tertiary level must have a well-maintained, resourceful computer lab, but regulatory bodies cannot ensure all educational institutions guarantee all these facilities, in a digitally divided society due to the lack of resources. Students that are technologically aware are more likely to enroll in ICT-related courses at universities, such as computer science and electrical engineering, as a path to a stable job. On the other hand, students with a background in business are not often interested in modern computer applications, and many lack the mathematical ability to match the needed technical instructions, as well as access to a computer. Inadequately qualified instructors, a lack of innovation in ICT-Teaching Applications, and ineffective education administration are additional significant impediments to ICT education at the secondary and higher secondary levels in Bangladesh (Sultana & Haque, 2018) (Rahman et al 2012). The ultimate challenge in this situation is to provide value to course material to boost students' employability and to make the syllabus relevant and equitable for students from diverse socioeconomic backgrounds in a digitally divided society. Bashir et al (2014) have identified a few problem domains and proposed a framework to define the rationale of the CSE syllabus of the tertiary level from introductory courses to advanced courses aligned with the higher secondary syllabus. Previous research on digital literacy assessments has focused primarily on this population of tertiary level students from developed nations(Öncül, 2020; Papanthymou & Darra, 2018). However, the number of research that have been conducted on ICT classes for business graduate schools at public and private universities in general is quite limited (Ferdows & Ahmed, 2015). Numerous studies have been undertaken in Bangladesh on information literacy, which is constituted of technical and information management abilities, but our study also included cognitive and emotional-social skills(Shoeb, 2011). Researchers and academic practitioners have revealed that digital literacy is high among secondary school students who excel in science, technology, engineering, and mathematics (STEM) subjects(Baterna et al., 2020). In universities in Bangladesh, the majority of students with strong STEM skills chose to study science, technology, and engineering(Rose & others, 2007). As a result, the majority of students from arts and commerce disciplines in a digitally divided country like Bangladesh (Babar, 2017) do not have a longstanding experience of attachments and enthusiasm for computer applications(Ajaz et al., 2014). Nevertheless, business graduates immediately become business professionals, whose employment and productivity depend on their proficiency with computer software. In contrast to previous research, this study aims to elucidate the factors that influence first-year BBA students' digital literacy competence and their views of their abilities in the domain of computer applications in business in the context of Bangladesh's labor market. As a result, the purpose of this study is to provide a response to the primary research questions:

1) What are the digital literacy requirements in tertiary level (Specially the business schools) of to achieve excellence from the context of maximizing graduate employability in Bangladesh.

2) How can the digital literacy abilities of business students at the tertiary level of Bangladeshi universities be evaluated using measuring instruments that are relevant to their self-assessment survey, operational skill survey as indirect evidence and actual assessments with performance tasks?

3) How to provide more meaningful skills support for new students and raise their awareness about the digital literacy skills fundamental to academic study.

This research will not only assist curriculum authors in detecting present or projected skill shortages but also in identifying incorrect perceptions to provide a more realistic and relevant pedagogical approach and find the appropriate syllabus materials according to learners' capability for first-year business students' digital literacy improvement course. In this article, the literature review part has examined the current body of knowledge to define digital literacy, information literacy, and methods for digital literacy evaluation for university students in the context of Industry 4.0. The results and discussion section contains preliminary findings. The conclusion section discusses the practical implications and potential future studies, as well as the limits. In a digitally divided society, however, there is a shortage of study on digital literacy among university students who are not from the science, technology, engineering, and mathematics department.

2. Literature Review:

2.1 Digital Literacy:

Digital literacy is a term encompassing the vast arena of knowledge on ever-changing technology. This term "digital literacy" started appearing in academic journals in mid 1990s, trying to put a shape to the changing trend in utilization of digital information (Julia Feerrar, University Libraries, Virginia Tech, Blacksburg, 2019). Fast paced innovation, different models and frameworks, even different professional aspect (Becker, 2018) jeopardized the concrete definition of Digital literacy (Öncül, 2020). Paul Gilster, the first person to coin the term "digital literacy", in an interview in 1997 defined it as "the ability to understand information- and more important- to evaluate and integrate information in different formats that the computer can deliver" (Pool, 1997, p. 6),(Öncül, 2020). Whereas American Library Association (ALA) defined digital literacy as "Digital literacy is the ability to use information and communication technologies to find, understand, evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills" (Becker, 2018).

2.2 Digital and Information Literacy:

As we talk about digital literacy, a mention of information literacy is required. Information literacy evolved as we moved from Information age to Digital age (Becker, 2018). Information literacy faced the same fate as digital literacy with evolving definitions (Shoeb, 2011). Becker (2018) tried to decipher the myth that information literacy and digital literacy are same and concluded that the qualities acquired by a digitally literate person differ from that of an Information literate. Digitally literates integrate this literacy into their life in collaboration, communication and participation, rather than just a set of learned skills. But then again Digital literacy cannot exist without Information literacy, as both tend to search, make sense and use of information (Becker, 2018).

2.3 Digital Literacy in Education Sector:

Digitization has offered numerous benefits for the Education industry (Khan et al., 2021). Bejakovi & Mrnjavac (2020) revealed a significant correlation between digital literacy and employability, concluding that those with at least some digital abilities had a better probability of finding work. Baxter, Lemay, and Helms (2012) discovered that most AACSB-accredited programs prioritize on teaching computer ethics, operating systems, email, wikis, drawing programs, internet search, and social media applications for business to improve undergraduate students' digital literacy. According to their analysis, few business schools provide courses in internet security, HTML, networking, data mining, and website design, which seems an important requirement

for the general job market(Baxter et al., 2012). Our research paper focuses on Generation Z, who are a significant part of the Digital Natives. Generation Z consists of pupils born after 1995 (Dolot, 2018), whereas digital natives are defined as "as the first generation who spent their entire lives surrounded by and using digital technologies" (Öncül, 2020). The world has the highest internet users from this age group (25-34), 33.8% (Statista Research Department, 2022). But does being surrounded by technologies make them digitally literate? Being a part of this Gen Z and digital natives, members of this group often gets targeted with this unfair assumption or stereotype that they are sound with all sort of technological tools and information (Becker, 2018). This often leads to faulty program and curriculum design for this generation.

2.4 Literature Work on Digital Literacy Measurement

Several scholarly articles assessed the digital capability of university students (Adekunmisi et al., 2022), (Mardani, P. B., Silalahi, 2021), (Guzmán-Simón et al., 2017), (Phuapan et al., 2016) and concluded that the university students not necessarily bring in the required digital literacy skill to reap out the best benefit of their curriculum. To design a wholesome curriculum embedded with all necessary skills for the Generation Z, we first need to understand their basics on technology. The skills they bring in while getting into a university, is an important benchmark for designing their later course work. Many researchers have come up with methods to measure digital literacy or internet skills among undergraduate students, or as a whole among students. One of the most well-known tools for assessing the capabilities in digital literacy seemed to be survey. But when it comes to self-assessment students always end up overestimating themselves. Shoeb (2011) and (van Deursen, Alexander et al., 2014) found perception gap among students while self-assessing their technical capabilities, as later confirmed by hands on assessment. Hossain (2014) have conducted a comparative study between a public and a private university based on self-perceptions of Bangladeshi undergraduate computer science students on digital literacy skills. Her study measured level of internet skills, Internet, competency using search engine applications, word processors, applications of cloud storages, proficiency using web 2.0 application and perceptions about overall digital literacy. Olney (2017) used the "Northstar Digital Literacy Assessment tool" to measure the digital reading of people with inadequate literacy abilities (Vanek, 2014). Öncül (2020) developed context-specific measurement tools to assess first-year university students' digital literacy skills by setting of three scales based on self-assessment survey, an online test to collect indirect evidence and finally a set of performance tasks online.

2.5 Dimensions of Digital Literacy:

To measure digital capabilities, we must venture into the multi-faceted dimensions of digital literacy. In their report, "A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2", UNESCO described competence areas and competences for digital capabilities for economically advanced countries as Information and data literacy (Browsing, searching and filtering data), Communication and collaboration (Interacting through digital technologies), Digital content creation (Developing digital content), Safety (personal and device safety) and Problem solving (Solving technical problems) (Law et al., 2018). Jisc's (2018) "Building digital capabilities framework" identified 6 capability areas along with 15 sub-areas: ICT proficiency (Functional skills), information, data, and media literacies (Critical use), digital creation, problem-solving and innovation (Creative production), digital communication, collaboration and participation (Participation), digital learning and development (Development), and digital identity and wellbeing (Self-actualising) (JISC, 2018). For even more analysis on micro level International Computer Driving License (ICDL) Foundation (2018) focused on "Computer Essentials, Online Essentials, Word Processing, Spreadsheets, and Presentation." for assessing the digital capabilities of the digital natives from Europe, Singapore and India (ECDL Foundation, 2018; Öncül, 2020). Our research took heed from these numerous measurement tools suggested by scholars over years and composed our tool for measurement.

The following table summarizes the literature review that paved the way for this research:

Table 1: Empirical Literature Review Summery on Assessing Digital Competency

Sl	Year	Author	Title	Variables	Methods	Results	Country
1	October 2014	Alexander J.A.M. Van Deursen, Ellen Johanna Helsper, Rebecca Eynon	Measuring Digital skills: From Digital Skills to Tangible Outcomes project report	Operational Internet Skills, Formal Internet Skills, Informational Internet Skills, Communicational Internet Skills, Content Creation Internet Skills	Three-fold approach with Surveys, Performance tests, exploratory factor analysis	A framework consisting of five types of digital skills measurement tool: Operational, Information Navigation, Social, Creative and Mobile skills	United Kingdom and Netherlands
2	November 2014	Alexander J.A.M. van Deursen, Cedric Courtois & Jan A.G.M. van Dijk	Internet Skills, Sources of Support and Benefiting from Internet use	Operational Internet Skills, Formal Internet Skills, Informational Internet Skills, Communication Internet Skills, Strategic Internet Skills,	Surveys with a dichotomous answering scale	This study added communication Internet skills to an existing skill framework of operational, formal, information and strategic skills, along with support source for Internet skill	Netherlands
3	October 2020	Gamze Oncul	Defining the need: digital literacy skills for first-year university students	Information skills, Content creation skills, Communication skills	A self-assessment survey, an online test to collect indirect evidence and a set of performance tasks.	There is a gap between the self-reported skill levels and the performance test results	Cyprus
4	August 2012	Bruce C. Hungerford, Joseph Baxter, Marilyn M. Helms, Stephen A LeMay	Strategies for Ensuring Computer Literacy Among Undergraduate Business Students: A Marketing Survey of AACSB-Accredited Schools	Structure and content of computer literacy programs, testing out of courses by students, the respondents' views of major influences on computer literacy programs	Online survey with five-point Likert-type scale of faculty members nominated by deans of AACSB-accredited undergraduate business programs	This research shed light on the limitation and areas of improvements for computer literacy programs offered	The United States
5	June 2011	Md. Zahid Hossain Shoeb	Information literacy competency of freshman business students of a private university in Bangladesh	Finding and using information at school and college, Access to the good computer facilities at school/college, Online computer access at home/hostel,	Survey with a combination of five-point rating scale and multiple-choice questions	The first-year students at the University did not have enough efficiency regarding information-related problem-solving tasks	Bangladesh

			Perception of Information Literacy behavior before taking. competency test			
January 2021	Puri Bestari Mardani, Rut Rismanta Silalahi	The Digital Information Literacy Skill Level on College Student (Case: Final-Year College Student)	Competence to determine the location of the information needed and how to access it, and Competence to understand also to use the information obtained	Descriptive quantitative approach and The Seven Pillars of Information Literacy, developed by SCONUL	The digital information literacy skills of final year students stand strong, but they lack efficiency when it comes outside the university related guidelines	Indonesia

3. Methodology:

3.1 Sample Description:

Students from American International University-Bangladesh, a private university, in Bangladesh formed the population for this research. After completing their Secondary and Higher Secondary School certification, these students get themselves enrolled in this private university. The 380 students covered under this research are from the business school. Simple random sampling technique has been utilized to select the homogeneous students and the sophomore students took the survey and the tests as an elective activity during their three-credit course, Computing and Business Applications or Office Management Technologies. As this research was conducted during Covid era, the survey was conducted online via Microsoft Form and Performance Task was assigned and reviewed via Microsoft Teams. The entire assessment was completed in around four months. Seven distinct aspects of digital abilities were narrowed down to assess the immediate skills to maintain a feasible scope, including a basic understanding of computing devices, proficiency in mobile internet, information management, problem-solving and content design via Microsoft Office Suites, and e-communication via basic e-mailing skills.

3.2 Research Instrument:

The methodology followed in this research to assess the capabilities in digital literacy among students have been adapted from (van Deursen, Alexander et al., 2014) and (Öncül, 2020). The analysis took place in three stages.
1) A self-assessment survey to capture the students' confidence in themselves regarding capability to manage digital content.
2) A survey with questions related to the operational part of digital content, to gather indirect evidence on their command of skills.
3) Performance task in a controlled environment to observe their practical expertise in the matter of concern.

The first stage has its subjective limitation with frequently students over or under estimating their own capabilities (van Deursen, Alexander et al., 2014), whereas the second stage often is often vulnerable due to its validity and reliability concerns (Öncül, 2020). The third stage gives the best view into the capabilities of students and as portrayed by Litt (2013) combined methods enables researchers a better understanding of the subject matter. We have used a dichotomous answering scale for our survey namely "True of Me" and "Not True of Me". The two-point scale has been used to keep the survey simple for the undergraduate students. But to avoid the rigidity of the scale "Neutral," option has been added to enable the students feel less pressured on

their unknown topic (van Deursen, Alexander et al., 2014). Both the surveys covered questions around the same Seven categories related to Internet Skills. The Operational part, that provided indirect evidence regarding skills, had more questions than the Self-Assessment part. The Performance task was a "take-home" assignment, that comprised of activities like finding information online, copying it yand pasting and manipulating them in several Microsoft Offices Suites.

The time students spent (average) on each stage was as follows:
(1) Self-assessment survey: 8 minutes
(2) Digital literacy test: 9 minutes
(3) Performance tasks: 132 minutes

Digital literacy does not merely involve the knowledge on technicalities of Internet, but internet skills pave the way to digital inclusion (a Van Deursen & Van Dijk, 2014). Information skills, Communication skills, Content Creation skills, Safety skills, and Problem Solving skills are part of digital competence as portrayed by Ferrari (Ferrari, 2013). Van Deursen and Van Dijk (2014) started with Operational, Formal, Information, and Strategic, to be as the measurement domain of Internet Skill but eventually added the communication skill to the existing skill framework (A. J. A. M. van Deursen et al., 2014). We designed our questionnaire around seven concern area in digital literacy context. Among these seven, three were adopted from Öncül (2020), namely Internet Skills, Basic Computer Skills and Basic Emailing Skills. Numerous literatures agreed upon these parameters to successfully measure digital literacy capabilities. The other four areas, Mobile Internet Skill, Microsoft Word Skill, Microsoft Excel Skill and Microsoft PowerPoint Skill, have been added considering the curriculum structure and future job prospect of these business students. Mobile Internet Skill has been included in this research questionnaire due to the advent in m-learning. Even though not initiated for the educational purpose, mobile devices and technology soon made its appearances into classrooms, with its multivariate opportunities (Karabatzaki et al., 2018). Now with the interrelationship between intelligence, communication and the future of humanity in coming 6G communication technology (Zhang et al., 2019), we should be in the lookout of our students' capabilities in this arena. Many researchers argued the importance of Microsoft Office tools in both student life and for later in administrative job responsibilities (Dharmawati, 2020), (Glazunova et al., 2017), (Elsharif, 2017). Apart from good academic record, fluency in Microsoft Office Suites have become a common standard for hiring practices (Zeng, 2005) and appropriate IT knowledge also helps with an employee's career advancement, promotion and pay raise (Ngo-ye & Gittens, 2018). Beside building capabilities in Microsoft Word and PowerPoint, Microsoft Excel individually helped business students in SME, Accountant and Marketing related jobs (Jusoh & Ahmad, 2019). The course the respondents are, teaches them about business application. Including assessment on Office Suites will help instructors better design their curriculum.

3.3 Materials and Methods

380 Bachelor of Business Administration students enrolled in the Computing and Business Applications course at a private university in Bangladesh, took part in a series of assessments in the form of (1) a self-assessment survey, (2) an online test to acquire indirect evidence to assess their operational skills, and (3) a series of performance tasks to assess their level of digital skills, perceptions, and attitudes towards their digital literacy, using a context-specific scale. To analyze the response and the performance of the students, in this research article, SPSS software was used. Besides this, the data analysis was also completed with Microsoft Excel. The comparison between the self-assessment and the operational assessment has been shown using tables and proper formats.

1) KoBoToolbox is used to collect data for self-assessment surveys,
2) Microsoft form is used for online tests to acquire indirect evidence to assess their operational skills.
3) Conducted a series of performance tasks (Throughout the semester, for 3 months, One assessment for each month) to assess their level of digital skills, perceptions, and attitudes about their digital literacy on a context-specific scale. To analyze the survey, we have used the spreadsheet assignment projects developed

by Cynthia Frownfelter- Lohrke, Brock School of Business, Samford University (Frownfelter- Lohrke, 2017). To measure other abilities, we interviewed industry experts in MIS domains and produced assessments based on their input and our own perceptions from our industry experience. They took the test under exam-like conditions online, and not in a computer lab due to the pandemic situation.

Table 2: Items covered in each topic in Self-Assessment round and Operational Skill Assessment round

Topics	No of items for self-assessment (round 1)	No of items for self-assessment round 2 (in direct operational skill assessment)
Mobile Internet Skill	3	6
Internet Skills	5	7
Basic Computer Skill	3	6
Microsoft Word Skill	3	5
Microsoft Excel Skill	3	5
Microsoft PowerPoint Skill	2	5
Basic e-mailing Skills	4	8
Total	26	41

There was no time limit, and the time students spent (average) on each scale was as follows:
(1) Self-assessment survey: 8 min;
(2) Digital literacy test: 9 min;
(3) Performance tasks: 132 min;

4. Results and Discussions

To analyze the internal consistency of the self-assessment and the operational assessment of digital literacy, Cronbach's alpha test using the reliability command of SPSS has been implemented. Beside the validity test, the assessment summary of both round as well as the comparison of the three rounds of this assessment test has been defined.

Table 3: Reliability Test of the Operational Assessment of Students on Digital Literacy:

	Reliability Statistics			
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items	No of Response
Round 2	0.7181	0.7002	23	382
Round 1	0.7013	0.7034	43	412

Table 4: The comparison of two rounds score		
Assessment Items	**Average of Round-1**	**Average of Round-2**
Basic Computer Skill	2.96431468	2.834554974
Basic Emailing Skills	2.820559611	2.794502618
Excel or Spreadsheet skills	2.674776967	2.859685864
Internet Skill	2.602798054	2.902019447
Mobile Internet Skill	2.908353609	2.914485166
PowerPoint Skill	2.784671533	2.816230366
Word processing Skill	2.475263585	2.762303665
Grand Total	**2.747248291**	**2.8405403**

In the validity test, where it defines the characteristics being measured by a test is related to the purpose of the requirements. Each question and query are related to purpose. In self-assessment and operational assessment, all queries covered the related terms titled, internet skill, basic mobile internet skill, computer skill, Microsoft word skill, Microsoft PowerPoint skill, excel skill, email writing. The good validity test presents the specific

questions related to the purpose in a proper way. In order to have the reliability test of the operational and self-assessment round, SPSS has been used. On the other hand, the reliability test of round 1 is .7 and for round 2 is 0.7, which is an acceptable level. Because of the number of participants and the response rate, the score of Cronbach's Alpha lies in 0.7. Based on the assessment items, the score of both rounds, self-assessment and operational assessment is summarized in a table. Here, though the perfect score was about 3, the grand total score of rounds 1 is, around 2.75 and round 2 is, 2.80 which is much better than round 1. The student who has responded in round 1 self-assessment test, after doing the practical exam, the results become better. As a few students do not understand the concept but responded in a proper way in operational assessment, as a result, the gap has been identified. The lack of a significant variation between round 1 and round 2 Cronbach alpha values indicates that the reliability of both tests is satisfactory. Based on this Cronbach alpha value, the study may also conclude that there are no significant relationships between the study's components. Due to the absence of correlational evidence between variables and factors in this research, a framework for digital literacy competency cannot be developed.
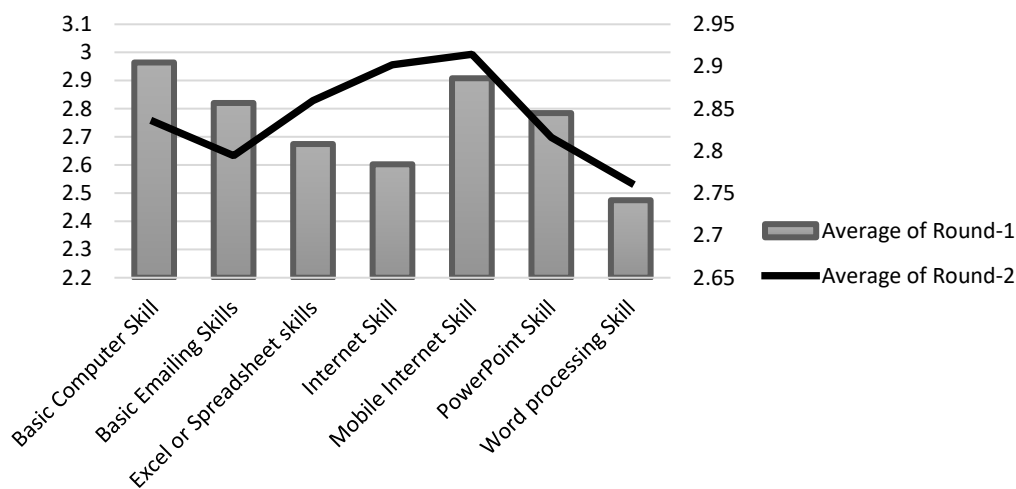

Figure 1: Comparison between Two rounds of Assessment

In this figure 1, the comparison part of two rounds of assessment has been done with Microsoft Excel. Round 1 is self-assessment round and Round 2 is for Operational assessment. In terms of basic computer skills, the self-assessment score was 2.96 whereas the operational assessment score is 2.84. As the students do not have that much basic required skill and the number of responses were lower than compared to the self-assessment test. The self-assessment test score of basic emailing skills is also higher than the score of operational assessment. The limited number of responses and the lower portion of the diversity of the respondents are the main reason behind these differences. In terms of excel or spreadsheet skill, the self-assessment sore is only 2.75 but the operational assessment score stands for 2.85 which indicates the knowledge level of the students on excel. This outcome is quite satisfactory as the students are going through a particular course during their graduation. While doing the self-assessment in terms of Internet skill, the score is lower than the operational assessment round. As a few numbers of students are not aware of while f=giving their responses, so the result got lower marks compared to the operational assessment round. In terms of both PowerPoint and excel skill , students do have better scores compared to the self-assessment task. With the help of different technology-based courses of their graduation and under graduation level the scores get better points compared to round 1. In every term there exists a gap between the self-assessment round and the operational assessment round. As the number of respondents were not that much satisfactory and the diversity level was high, so the gap does exist between these two round's responses.
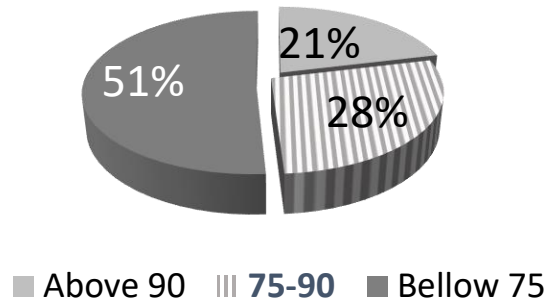
Figure 2: Round-3 Assessment Summery

In round 3, the actual result of the student's course has been taken and analyzed with Microsoft Excel. Here from figure 2, only 21% of students can get above 90 which shows their perfect intellectual ability and expertise on digital literacy. But the portion of these students is very low. Among the students only 28% of students are able to have a score around 75-90 which is low in number. It defines their lack of skill and knowledge on digital literacy. Beside these, the percentage of students getting below 75 is 51%, the highest compared to the other two sections. This can be stated that most of the students are not skilled enough and they are unable to have a better score.

5. Limitation:

This paper has identified major three limitations while implementing the responses of the students.

a. The number of responses are very low compared to the standard format. Students were not willing to fill up the questionnaire with proper attention. The standard number of respondents is not being used in this paper.
b. The diversity of the respondents is very low. Though a number of students filled up the form, the background and the diversity was not in constant level.
c. The proper attention and the full concentration of the students were missing. As a result the reliability level of the responses was not in a good condition.

6. Conclusion:

Digital Literacy is an important skill and the most demanding field for a student. Though the importance of having knowledge in this field is increasing day by day, the students are not able to cope up with this competition. As a result, though a number of tools and opportunities are open for them to learn about digital literacy, they are not utilizing the resources properly. The study on this digital literacy has three parts in total. At first the self assessment was done and a number of students participated there to let us know about their knowledge level. Then in the second round the operational assessment has been done to verify their responses and to find out the gap. At the third level, the class performance were assessed to make a validation. This research has been done to evaluate the knowledge of the students and the way they will implement the acquired knowledge from this course. In this competitive world, Microsoft Office Suite skills are required everywhere and if the gap between the required and actual knowledge can be assessed, proper steps can be taken, make the students successful in their prospective job arena. Both versions of the survey and performance tests and scales serve as a baseline for defining students' assistance requirements. The responses and the outcome define the gap between the self and operational assessment level. As the number of respondents were low and the diversity level was not that much good, the paper carries some limitations. For this reason, the reliability test was not in good condition and it does not have fulfilled the criteria of reliability test. The students should be aware of the

digital skills and try to implement and update themselves according to the demand of the world. As, digital literacy skill is one of the most important skills for every people.

Appendix:

Questionnaire		
Skill category for assessments	**Round 1 Instrument**	**Round 2 Instruments**
Mobile Internet Skill	1. I can easily connect my mobile device to internet	1. I know how to connect to a WIFI network
	2. It is easy for me to manage cost of Internet in mobile	2. I know how to purchase data package for internet in my mobile device
	3. Downloading Apps in my mobile device is easy for me	3. I know how to download apps to my mobile device
		4. I know how to turn my mobile phone off
		5. I know how to keep track of the costs of mobile app use
		6. I know how to install apps on a mobile device
Internet Skill	4. It is easy for me to find information online	7. Open an Internet browser (Chrome, Internet Explorer, etc.)
	5. I know how to use a wide range of strategies when searching for information	8. Open a new tab in my browser
	6. I find it hard to decide what the best keywords are to use for online searches	9. Go to the previous page when browsing on the internet
	7. I am confident selecting search results	10. Use the refresh function
		11. Bookmark a website
	8. I feel confident in my evaluation of whether a website can be trusted	12. Copy-paste information I found online
		13. Download/save document I found online
Basic Computer Skill	9. I know how to use a computer	14. I can open a file
	10. I understand what a file is	15. I can create a folder
	11. I understand what a folder is	16. I can save a file in a folder
		17. I can rename a file/ a folder
		18. I can delete a file in a folder
		19. I can use "Save as" to change file name, location, and/or file type
		20. I can use various print-out options
Word processing Skill	12. I can create a professional looking Microsoft Word Document	21. I know how to set margins in a Microsoft Word document
	13. Editing Microsoft Word document is easy for me	22. I know how to set the font type and size in a Microsoft Word document
	14. I sometimes do not find the Microsoft Word document; I have saved earlier	23. I know how to set line spacing in a Microsoft Word document
		24. I can insert page numbers in a Microsoft Word document
		25. I can change the text alignment (left, right or justify) in a Microsoft Word document
Excel or Spreadsheet skills	15. I am familiar with Microsoft Excel	26. I can open a Microsoft Excel Workbook
	16. I can easily insert data in a Microsoft Excel worksheet	27. I can write in a Microsoft Excel Workbook
	17. I am confident in doing calculation in Microsoft Excel	28. I can add a new sheet in a Microsoft Excel Workbook

		29. I can change the column and row size in Microsoft Excel Workbook
		30. I can do simple summation in a Microsoft Excel Workbook
PowerPoint Skill	18. I am familiar with Microsoft PowerPoint	31. I can open a Microsoft PowerPoint file
	19. I can create a beautiful Microsoft PowerPoint file.	32. I can add new slide in a Microsoft PowerPoint slide
		33. I can add pictures to my Microsoft PowerPoint slide
		34. I can add animation to my Microsoft PowerPoint slide
		35. I can play/present my Microsoft PowerPoint slides
Basic Emailing Skills	20. I can mail anyone who has an email address	36. I can write an email message
	21. I am familiar with email attachment	37. I can send an email
	22. I can send a single email to multiple people	38. I can reply to an email
	23. I can create an Online form (ex. Google Form/Microsoft Form)	39. I know what reply all function is for
		40. I can forward an email
		41. I can send a file as an attachment to an outgoing message
		42. I know what "Cc" is for
		43. I know what "BCc" is for
Study has used three-point Likert scale. Agree, Neutral and disagree. Study has used following weight for the Study: Agree = 3, Neutral = 2, Disagree = 1.		

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