Patterns of Information Literacy Skill Proficiencies of Undergraduates in Federal Universities in Southwestern Nigeria

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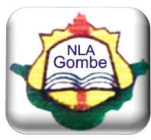Faculty of Education, University of Ibadan.
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Abstract
Information literacy skills are crucial to 21st century undergraduates who need to filter information from different sources, with a view to coming up with accurate information to complete courses, assignments and research projects. Adequate information literacy skills would empower an individual to become a lifelong learner. The study investigated patterns of information literacy skills among undergraduates in federal universities in southwestern Nigeria. Questionnaire survey and focus group discussions were used to elicit information from 1,318 respondents. Out of the 1,318 copies of questionnaire administered, 1,169 were duly completed and analysed giving a response rate of 88.7%. Multi-stage sampling procedure was adopted for the selection of 300L undergraduates for the study. The study found that the level of information literacy skills of the respondents was relatively high. Focus group discussions substantiated the findings of the quantitative aspect of the study by affirming that the level of information literacy skills was relatively high. The study showed a significant relationship between information literacy skills and gender indicating, a significant difference in the information literacy skills of male and female undergraduates. Male undergraduate's level of information literacy skills was higher than that of their counterparts. Institution and faculty had no statistically significant relationship with the information literacy skills of undergraduates. It was recommended that undergraduates should be regularly given complex tasks that would sustain the high level of information literacy skills, to enable them compete favourably with their counterparts globally.

Keywords: Federal universities, Information literacy skills, Southwestern Nigeria, Undergraduates

Introduction

Information literacy skills have become vital and indispensable tools for undergraduates to enable them navigate through the sea of information emanating from the information society. Information society provides a large volume of unfiltered information in different formats. Consequently, these skills are crucial to undergraduates in order to produce quality research work and open career opportunities to them upon graduation. Osunrinade (2018) observed that information sources available in an infinite amount which makes it imperative for individuals to develop a greater understanding of information sources and needed abilities to acquire, evaluate, use and communicate information. Subsequently, Akpovire, Olawoyin, Adebayo and Esse (2019) acknowledged information literacy skills as essential tools for undergraduates to have full understanding of course content and expand their knowledge beyond the classroom. Undergraduates who lack information literacy skills experience delay and frustration when
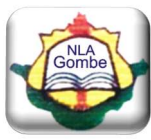
attempting to complete course-related work that requires research (Oakeaf and Owen (2010) as cited in Toyo, 2017, p. 27). Maurer (2016) asserted that information literacy skills should not be taken for granted. Evidently, undergraduates who lacks adequate information literacy skills could not go far in their academic or career pursuit. Banik and Kumar (2019) asserted that with adequate information literacy skills, undergraduates' academic performance would be improved significantly and which could contribute to the national development.

Hepworth (2015) described information literacy as a concept that is relevant in all disciplines with the term being widely used across various disciplines. The most extensively used definition of information literacy is that provided by the American Library Association (ALA) (Association of College and Research Libraries, 2016), which states that information literacy is the ability to recognise when information is needed, to locate, evaluate, and use effectively the needed information. Information literacy skills empower undergraduates to become lifelong learners. Majestic and Pellegrino (2018) surmised that information literacy encompasses the ability to discover information, understand how it is produced, valued and used in creating new knowledge and to participate ethically in the learning environment. Information literacy skills could therefore be regarded as instruments for undergraduates' empowerment to enhance abilities to determine information need, access, evaluate, use information and understand legal, ethical and economic issue of information use.

The present study was based on the Big6 information-solving model by Eisenberg and Berkowitz (1990). The Big6 model has been acknowledged as the most widely model used to explain information literacy skills, because it contains a guide by which undergraduates could conduct original research. Information literacy skills main focus is to solve information problems; similarly, the Big6 model focuses on the process of solving information problems. Samani, Noordin and Karimzadeh (2019) observed that socio-demographic characteristics are related to digital literacy, as digital literacy skills are subsumed in information literacy skills (Karnad, 2013), it is therefore, implies that socio-demographic factors of undergraduates could be predictors of information literacy skills. Nevertheless, Ode (2017) remarked that the determinants of undergraduates' art of navigating the sea of information available to them are unclear.

Soetan and Ominuta (2018) asserted that understanding gender differences allows for the development of a better approach in assisting individual learners to acquire needed information literacy skills and contribute to a better learning experience. The assertion was corroborated by Samani, Noordin and Karimzadeh (2019) who acknowledged gender as the key factor that could influence the acquisition of adequate information literacy skills.

Pinto, Fernandez-Pascual and Marco (2019) observed that sociological sources of individual variability in the acquisition of information literacy skills have become the target of scholars in recent times. Adimula (2019) acknowledged that the concept gender has been used in research as an analytical tool to draw attention to the importance of gender and gender differences. Shabi and Oyewusi (2020) lamented that gender disparities are more pronounced in developing economies and in the educational sector. There is a dearth of literature on patterns of information literacy skills of undergraduates. It is against this backdrop that this study investigated the patterns of information literacy skills of undergraduates in federal universities in southwestern Nigeria.

Objectives of the study

The objectives of the study are to:

1. determine the level of information literacy skills possessed by undergraduates in federal universities in southwestern Nigeria and
2. ascertain the relative contribution of socio-demographic factors (institution, faculty and gender) to undergraduates' information literacy skills.

Hypotheses

Two null hypotheses were postulated and tested at 0.05 level of significance:

1. There is no significant relationship between socio-demographic factors (institution, Faculty and gender) and undergraduates' information literacy skills in federal universities in southwestern Nigeria.
2. There is no significant difference in the information literacy skills of male and female undergraduates in federal universities in southwestern Nigeria.

Methodology

The study adopted a mixed method approach (MMA) involving quantitative and qualitative methods. For the quantitative aspect of the study, a descriptive survey was employed, while the focus group discussion (FGD) was adopted for the qualitative aspect. Three first generation federal universities in southwestern Nigeria were purposively selected for the study based on their year of establishment. The selected institutions are: Obafemi Awolowo University, University of Ibadan and University of Lagos. Twenty-seven (27) departments were selected for the study via multi-stage sampling technique. The population for the study comprised all 300L undergraduates in the selected federal universities which totalled 14,400 with the calculated sample size being 1,318 which was 60% of the population. The survey instrument used was Information Literacy Skills (α=0.82) scale which was adapted from Rodger (2015). Data collected through the questionnaire was analysed employing Statistical Package for Social Sciences (SPSS) version 21, using descriptive statistics such as frequency counts, percentages, mean and standard deviation, Multiple Regression while the hypotheses were tested at 0.05 level of significance, and using Pearson's Product Moment Correlation (PPMC). Twenty-four (24) participants were involved in the FGDs. Data collected from the FGD was content analysed based on the major themes identified from the study objectives.

Results

Out of the 1,318 copies of questionnaire administered to the respondents 1, 169 were properly filled and analysed giving a response rate of 88.7% which was considered to be adequate for the study.

Table 1   **Socio-demographic profile of Undergraduates in Selected Federal Universities (institution, faculty, department, gender and age)**

Socio-demographic profile		Frequency	Percentage
Institution	O.A.U.	452	38.7%
	U.I.	346	29.6%
	UNILAG	371	31.7%
	Total	**1169**	**100.0**
Faculty	Science	458	39.2%
	Social Sciences	375	32.1%
	Education	336	28.7%
	Total	**1169**	**100.0**
Department	Physics	104	8.9%
	Chemistry	125	10.7%
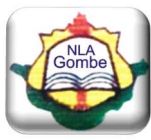
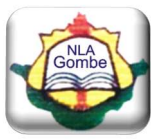|			
	Micro Biology	199	17.0%
	Geography	130	11.1%
	Sociology	180	15.4%
	Psychology	95	8.1%
	Human Kinetics/P.H.E.	122	10.4%
	Adult Education	127	10.9%
	Guidance and Counselling	87	7.5%
	Total	**1169**	**100.0**
Gender	Male	610	52.2%
	Female	559	47.8%
	Total	**1169**	**100.0**
Age	15-20 years	433	37.0%
	21-25 years	631	54.0%
	26-30 years	91	7.8%
	31 years and above	14	1.2%
	Total	**1169**	**100.0**

Mean age =21.99
$^+$- 2.84

Source: *Academic planning office and field survey, 2019*

Table 1 shows the total number of respondents from each institution, faculty, department, gender and age involved in the study, 452 (38.7%) of the respondents were from Obafemi Awolowo University, Ile-Ife 346 (29.6%) were from the University of Ibadan, Ibadan and 371 (31.7%) were from the University of Lagos, Lagos. Distribution of the respondents in the faculties indicated that458 (39.2%) of the respondents were from the Faculty of Science, 375 (32.1%) from the Faculty of Social Sciences and 336 (28.7%) from the Faculty of Education. Over half, 610 (52.2%) of the respondents were males while 559 (47.8%) were female. The age distribution revealed that majority of the respondents 631(54.0%) were aged 21-25 year.

Table 2: **Level of information literacy skills possessed by undergraduates in federal universities in southwestern Nigeria**

Strongly disagree = SD, agree = A, disagree = D and strongly agree = SA

S/N	Information literacy skills Indicators	SD	D	A	SA	Mean	S.D.
	Determine when information is needed						
1.	I am able to define my specific information needs	7	86	431	645	3.47	.66
		0.6%	7.4%	36.9%	55.2%		
2.	I can recognise that background information helps to achieve focus on a chosen topic	10	112	468	579	3.38	.69
		0.9%	9.6%	40.0%	49.5%		
3.	I understand the need to use information to undertake everyday task	9	11	493	556	3.37	.68
		0.8%	9.5%	42.2%	47.6%		
4.	I have ability to use several reference sources to increase familiarity with a topic	8	148	450	563	3.34	.72
		0.7%	12.7%	38.5%	48.2%		
5.	I can clearly define concepts of a topic	6	117	523	53	3.34	.67
		0.5%	10.0%	44.7%	44.7%		
	Criterion Mean = 2.50 Weighted Mean = 3.38						
	Access the needed information effectively and efficiently						
6.	I have ability to select materials and summarize in my own words for my use	15	116	418	620	3.41	.72
		1.3%	9.9%	35.8%	53.0%		
7.	I can understand the nature of information available on the Internet freely	6	141	466	556	3.34	.71
		0.5%	12.1%	39.9%	47.6%		
8.	I have the ability to take notes from print and electronic source by printing or saving to disk	20	165	437	547	3.29	.77
		1.7%	14.1%	37.4%	46.8%		
9.	I can use truncation search techniques	59	353	431	326	2.88	.88
		5.0%	30.2%	27.9%	27.9%		
10.	I can use Boolean search techniques	100	374	382	313	2.78	.94

			8.6%	32.0%	32.7%	26.8%	
	Criterion Mean = 2.50 Weighted Mean = 3.14						
	Evaluation of information						
11.	"I can select information that provides evidence for the topic"	23	139	487	520	3.29	.75
		2.0%	11.9%	41.7%	44.5%		
12.	I can competently evaluate information no matter what the source is	12	166	506	485	3.25	.73
		1.0%	14.2%	43.3%	41.5%		
13.	I can determine whether information satisfies the research or other information need	25	180	485	479	3.21	.78
		2.1%	15.4%	41.5%	41.0%		
14.	I have the ability to choose materials on topics taking accuracy into account	28	191	479	471	3.19	.79
		2.4%	16.3%	41.0%	40.3%		
15.	I can limit online search by fields	34	196	536	403	3.12	.78
		2.9%	16.8%	46.9%	34.5%		
	Criterion Mean = 2.50 Weighted Mean = 3.21						
	Information use						
16.	I am able to use information in critical thinking and problem solving	9	135	498	527	3.32	.70
		0.8%	11.5%	42.6%	45.1%		
17.	I am able to recognize accurate and complete information as the basis for intelligent decision making	9	140	520	500	3.29	.70
		0.8%	12.0%	44.5%	42.8%		
18.	I can competently evaluate information no matter what the source is	13	178	493	485	3.24	.74
		1.1%	15.2%	42.2%	41.5%		
19.	I understand the need to use appropriate search tools	19	169	500	481	3.23	.73
		1.6%	14.5%	42.8%	41.1%		
20.	I understand every online search tools	19	196	496	458	3.19	.77
		1.6%	16.8%	42.4%	39.2%		
	Criterion Mean 2.50 Weighted Mean = 3.26						
	Understanding Legal, ethical and economic issues of information use						
24	I can use web addresses to search the internet	17	163	440	549	3.30	.76
		1.5%	13.9%	37.6%	47.0%		
25	I am able to use information ethically and legally	17	157	462	533	3.29	.75
		1.5%	13.4%	39.5%	45.6%		
21	I am able to access sources of information including computer based and other technologies	19	142	512	496	3.27	.73
		1.6%	12.1%	43.8%	42.4%		
22	I can integrate new information into an existing body of knowledge	15	150	517	487	3.26	.73
		1.3%	12.8%	44.2%	41.7%		
23	I can rganize information for practical application	11	163	517	478	3.25	.72
		0.9%	13.9%	44.2%	40.9%		
	Criterion Mean 2.50 Weighted Mean = 3.28						
	Overall weighted mean =3.25						

Source: field survey, 2019

Table 2: Indicators of information literacy skills revealed that in rank order, undergraduates' ability to determine when information is needed had the highest weighted mean ($\overline{x}$ = 3.38). This was followed by understanding legal, ethical and economic issues of information use' ($\overline{x}$ = 3.28). Also, the ability to evaluate information ($\overline{x}$ = 3.21), access the needed information effectively and efficiently ($\overline{x}$ = 3.14) were ranked the least. It can be deduced that the information literacy skills of the undergraduates in federal universities in southwestern Nigeria is relatively high, since overall mean (3.25) is higher than criterion mean (2.50).

Focus Group Discussion
**How would you rate your level of information literacy skills?**
Using the FGD to further elucidate upon the level of information literacy skills of the respondents, the participants of the FGDs rated their computer literacy skills level to range between low and high.
Participants were asked to rate their level of information literacy skills.
Quoting the FGD participants
A Unilag participant stated,

> "*I can mention about two courses in our academic programme in which information literacy skill has helped me. For instance, GRY 329 is a field*
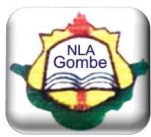
trip course where we were asked to write a group report. I needed to search the Internet and read in the library in order to understand what literature review and conceptual review were all about. It really helped me a lot" Another participant stated that, *"I give myself 70% because I like surfing the net for information. I am quite vast in the use of search engines such as Google, Web, Chrome, among others and their applications"* (23-year-old 300L UNILAG male discussant).

Another participant affirmed that *"I have an excellent knowledge of computer applications owing to my high level of information ..."* (22-year-old 300L UI female discussant)

Supporting the quantitative findings, the discussants of the FGD affirmed that their level of information literacy skills was relatively high and that they could determine information needs, access use and understand legal ethical and economic issues of information use.

Table 3: **Summary of regression analysis showing the relative contribution of socio-demographic of undergraduates' on Information literacy skills**

Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta Contribution		
(Constant)	84.631	1.636		51.730	.000
Institution	.090	.435	.006	.208	.835
Gender	-3.360	.730	-.134	-4.600	.000
Faculty	.774	.446	.051	1.737	.083

Table 3 shows the contribution of institution, faculty and gender to undergraduates' information literacy skills, expressed as beta weights, viz: Institution (β = .006, p (.835)>.05), Gender (β = -.134, p<.05), and Faculty (β = .051, p (.083)>.05). Gender was statistically significant and could independently and significantly predicts information literacy skills among undergraduates in the study. Gender is a predictor of information literacy skills among the study respondents.
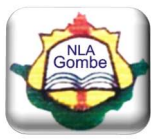
Hypothesis one: there is no significant relationship between socio-demographic factors and undergraduates information literacy skills in federal universities in southwestern Nigeria.

Table 4: **Zero order correlation showing the relationship between information literacy skills, Institution, Gender, and Faculty**

	Information literacy skills	Institution	Gender	Faculty
Information literacy skills	1			
Institution	.014 (.638)	1		
Gender	-.131* (.000)	-.054 (.066)	1	
Faculty	.042 (.153)	.011 (.715)	.066* (.025)	1
Mean ($\bar{x}$)	81.3062	1.9307	1.48	1.8956
S.D	12.53824	0.83655	0.500	0.81786

* Sig. at 0.05 level

Table 4 shows that there is a significant relationship between information literacy skills and gender (r=-.131, p(.000)<.05), but there is no significant relationship between information

literacy skills and institution (r= .014, p(.638)>.05), and Faculty (r=.042, p(.153)>.05) respectively. Hypothesis one is therefore rejected.

Hypothesis two: there is no significant difference in the information literacy skill proficiency of male and female undergraduates

Table 5: **Independent t-test showing the difference in the information literacy skill proficiency of male and female undergraduates**

Information literacy	N	Mean	Std. Dev.	Crit-t	Cal-t.	DF	p value
Male	610	82.8770	12.5662				
				1.96	4.511	1167	.000
Female	559	79.5921	12.2915				

Table 5: shows that there is a significant difference in the information literacy skill proficiency of male and female undergraduates (Crit-t = 1.96, Cal.t = 4.511, DF=1167, p(0.000)< .05 level of significance). Male undergraduate students ($\bar{x}$=82.88) significantly reported high information literacy compared to their female counterparts ($\bar{x}$=79.59) in the study. The hypothesis is therefore rejected.
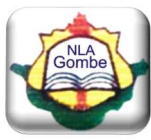
Discussion
The finding on the level of information literacy skills possessed by undergraduates in federal universities in southwestern ascertained from quantitative and qualitative analysis revealed that the respondents' information literacy skills was relatively high. The finding was substantiated by the focus group discussions with the majority of discussants reporting that their information literacy skills was high. As one of the FGD discussants aptly stated "If you are not well informed you are deformed". This is a clear indication that information literacy skills acquisition is vital to undergraduates most especially their academic pursuit. The result is not unexpected as information literacy skills are the bedrock for academic success in the 21st century, when all categories of students need to filter information sources which are mostly unfiltered.

Interestingly, the study findings are in consonance with the findings of Aliyu (2018) and Toyo (2017), who reported that undergraduates' information literacy skills level was relatively high. Evidently, there is steady improvement in the information literacy skills among undergraduates in Nigeria. Reasons for high level of information literacy skills among undergraduates could be as a result of the proliferation of business centres with Information and Communication Technology (ICT) facilities on campus which are heavily patronised by undergraduates coupled with the affordability of mobile phones that are internet enabled.

Although, overall result revealed that undergraduates' information literacy is high, in rank order, the ability to determine when information is needed indicator was ranked highest while ability to evaluate information and access to the needed information effectively and efficiently were ranked low. It is common to all studies that respondents had high percentages in the ability to determine when information is needed. The study corroborates the reports of earlier scholars; Somsak, Chindarat, Oramich, Ducingate, Nenuphar, Wachraporn and Saowapha (2012), Anafo and Filson (2014) and Ogbuyi (2015) who found that undergraduates faced the challenges of determining trustworthy sources of information for everyday life research and evaluation of information sources.

The study findings showed that in relation to socio-demographic factors, the pattern of information literacy skill proficiency revealed that faculty and institution respectively
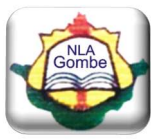
contribute to undergraduates' information literacy skills level, however, they could not predict information literacy skill proficiency level of undergraduates. The results were also substantiated by the submission of the FGD discussants that majority of the undergraduates acquired information literacy skills through self-effort. The study supports the findings of Ranasinghe, Wickramasingle, Pieris and Karunathilaka, (2012) who found that majority of the undergraduates gained their information literacy skills through formal training 64.1% while 63.0% acquired it through self-learning and peer training. It could be deduced from the findings that much has not been done by faculty and university administrators to support and sustain information literacy skills of undergraduates. Similarly, Karnad (2013) observed that faculty assumed that undergraduates' ability to acquire information literacy skills depends largely on personal motivation, interests and innate abilities, rather than the formal instructional training by faculty or institutional libraries.

Aghauche, Nkamnebe and Nkamnebe (2019) found that there was institutional negligence of information literacy instruction programmes of Nigerian undergraduates which could largely contribute to the few challenges the respondents might have faced in their quest for authentic information sources. Hassani and Pourahmed (2016) reported that the level of information literacy of faculty in Islamic Azad University, Iran, was low. The reason for the low level could be the few respondents involved in the study which was only 64 and probably the faculty were not given adequate information literacy training and were not encouraged to embark on self-effort to increase their information literacy level. It is evident that many faculties could not impact undergraduates with adequate information literacy skills probably because the staff themselves were inadequate. This finding is quite worrisome because of the importance of information literacy skills to undergraduates' all-round development. Evidently, in all the selected institutions for the study, none has a stand-alone information literacy course for undergraduates.

The findings of this study also revealed that gender contributed significantly to the level of undergraduates' information literacy skills. Therefore, the high level of information literacy possessed by undergraduates could be as a result of the undergraduates' appreciation of the importance of information literacy in their scholarship, which was ostensibly responsible for the respondents' high level of information literacy skills. Although the study findings revealed that generally, information literacy skills of undergraduates is relatively high, there was a significant difference in the information literacy skill proficiency of male and female undergraduates. Male undergraduates' possessed a significantly higher level of information literacy skill proficiency when compared to their female counterparts. This pattern is similar to the findings of Taylor and Dalal (2017) who reported that male undergraduates expressed confidence in their information evaluation skills and about the quality of results from the search engines they were using. Evidently, male undergraduates usually demonstrate a more satisfying behavior and confidence in the face of challenges to achieve the desired goals than female undergraduates Contrary to the observation of Soleymani (2014) that there was no significant difference between male and female students' information literacy skill proficiency level. The findings of this study is similar to what was reported by Taylor and Dalal (2017) and Ting-ting and Hai-bin (2012) who found strong indications of gender differences in information literacy skill proficiencies. The implications of the study findings is that in order to attain SDGs 4 and 5 which have to do with gender equality and provision of quality education for all irrespective of gender (Shabi and Oyewusi, 2020), practical steps have to be taken in order to bridge the gap in information literacy skill proficiency between male and female undergraduates

Conclusion

The study described the patterns of information literacy skill proficiencies of undergraduates in federal universities in southwestern Nigeria. The undergraduates possessed a relatively high level of information literacy skills with gender significantly predicting level of undergraduates' information literacy skills. Gender was the highest contributor to undergraduates' information literacy skills. There is a gender gap in information literacy skill proficiency levels of Nigerian undergraduates which deserves urgent attention. Male gender tilted towards higher levels of information literacy skills than their female counterparts. Although institution and faculty could not predict but contributed to undergraduates' information literacy skills.
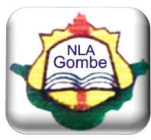
Recommendations
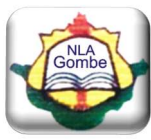The following recommendations are proffered based on the findings of the study:
1. Federal government owned management of universities in Nigeria should ensure that undergraduates are engaged in activities that will sustain the relatively high level of information literacy skills possessed by undergraduates in the federal universities in southwestern Nigeria.
2. All stakeholders: institution, faculty and librarians must be involved in the activities that will enhance the acquisition of information literacy skills for both male and female undergraduates. .
3. University administrators should strive to bridge the gender gap in information literacy skills among undergraduates. Females should be encouraged to put in more efforts to attain high levels of information literacy skills in order to bridge the gender gap in information literacy skills between male and female undergraduates.
4. All stakeholders: educators, librarians, policymakers should view information literacy skills acquisition as an integral part of the entire educational system.

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