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Profiling Information Seeking Behavior of Distance Learning Students in Wawasan Open University

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Abstract

In today's rapidly developing learning environment, technology has emerged as a strong contender in distance learning especially in the areas of information seeking behavior. The enormous availability of information on the Internet and library databases necessitates distance learning students to prepare themselves with skills to search relevant information for their research and learning activities. This was and is still a growing concern among adult students considering their limited time and, work and family commitments, and hence the library must also continuously improve their services to accommodate the needs of the students. In light of this, Wawasan Open University Library has undertaken a survey study, based on the Wilson's revised model of information behavior (1999), to profile the information seeking behavior of their distance students in using library resources in their research and learning activities. Using the stratified random sampling method, samples were selected to ensure proper representation of the population across 4 Schools of Studies and 5 Regional Centres. A total of 550 questionnaires were sent to undergraduate and postgraduate students and 435 completed questionnaires were returned with a success of 79% response rate. Findings of the study provide useful information on improving students' information search behavior as well as the utilization and efficiency of library services.

Keywords: information needs, information seeking behavior, Wilson model of information behavior, distance learning, Wawasan Open University

Introduction

The emergence and development of technology-aided distance education is a relatively new approach in the Malaysian educational landscape. With recent exponential technological development in educational practices, a growing number of institutions have attempted to service distance education programmes via various modes; some favoring more face-to-face contact hours while others take a liking for engagement in the online learning environment. Regardless on these modes of delivery, what is certain is the need for students to be technologically literate for them to successfully savor the University learning experience.

Wawasan Open University offered the first suite of 11 programmes in 2007 and is now offering a suite of 47 programmes. Wawasan Open University is one of the three full-fledged distance learning institutions in Malaysia that delivers distance learning programmes with a heavier focus on engagement in online learning environment. While this mode is not uncommon in many of the full-fledged and recognized distance learning institutions such as IGNOU and Athabasca University, it is imperative to pay consideration to the competency of students in engaging and interacting in the online learning environment, particularly the process of information search and effectively utilizing the said information for learning and research work.

This responsibility is shouldered by the Tun Dr Lim Chong Eu Library of Wawasan Open University, which adheres to the Guidelines for Distance Learning Library Services: "*Members of the distance learning community, including those with disabilities, must therefore be provided effective and appropriate library services and resources, which may differ from, but must be equivalent to those provided for students and faculty in traditional campus settings*" (Distance Learning Section Guidelines Committee, 2004, p.607). Based on this philosophy on the Bill of Rights for the Distance Learning Community, the *Standard* for *Access for Achievement of Superior Academic Skills* requires the Library of distance learning institutions, despite circumstances of geographical distance, limited face-to-face contact hours and other aspects relevant to the provisions of distance learning, to provide services and resources equivalent to conventional institutions (American Library Association, 2008). This is a standard of practice for Library Services that is often undervalued in some distance learning institutions, which ultimately leads to the common perception that the Library is no more than an avenue for a collection of books and resources; which is certainly not the case!

The ensuing discussion attempts to highlight the significant role of the Library in distance learning institutions, specifically by investigating the profiling of information seeking behavior of distance learners in Wawasan Open University.

Information Seeking Behavior and Its Role in the Scholarship of Learning and Research

Information seeking behavior refers to the process of seeking, collecting, analyzing and utilizing information in a meaningful manner (Bystrom & Hansen, 2005), and this is an iterative process until the user acquires the intended information. Figure 1 illustrates Wilson's (1999) information seeking model that is commonly used in demonstrating the steps in information seeking behavior. Wilson (1999, p.249) describes information seeking as "activities a person may engage in when identifying their own needs for

information, searching for such information in any way, and using or transferring that information." In the context of the study, this description of information seeking behavior translates into distance learners' active and purposeful information seeking that result from the need to complete course assignments, preparation for tutorial discussion, engagement in workshops and engagement in research work.

Figure 1: Wilson's information behavior model
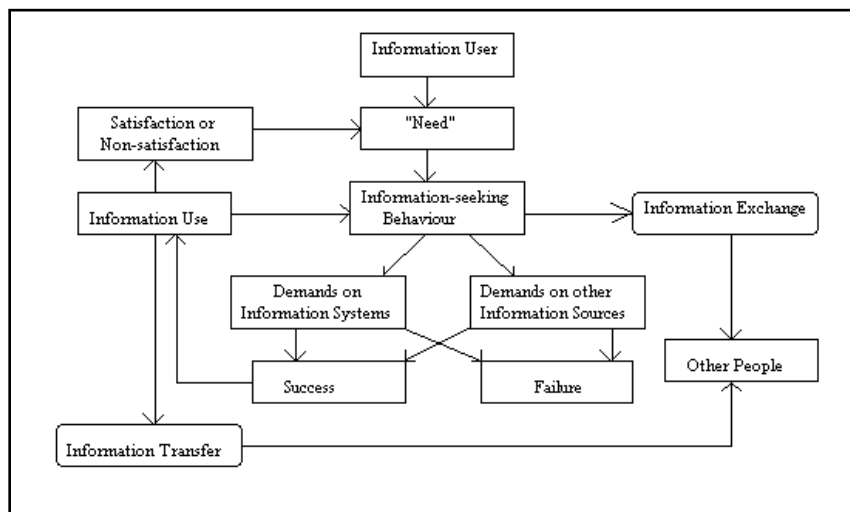
While information seeking can be achieved without (physical collection of resources) or with (digital collection of resources) computing assistance, the latter is becoming more significantly associated with the Internet and ubiquitous computing. For instance, there is this growing social aspect of information seeking that Shah, Capra and Hansen (2014, p. 23) elucidate as "current work [information seeking] coincides with a combination of new technologies, such as Web 2.0 and social media/networking tools, and changes in human behavior, including people's increasing tendency to quickly and ubiquitously share and connect with others through new interfaces and devices." They further argued that it is this confluence of modes of seeking and sharing information that sparked the need to better comprehend information seeking behavior in this changing trend of technological development. Although a substantial body of literature exists expounding on both theoretical and empirical findings on profiling information seeking behavior in a variety of contexts, still there is an enduring concern in observing such behaviors that correlate with the changing online environment in distance education– and this begs the question *"What are some of the challenges that distance learners face in information search and information utilization in the age of Internet data mining?"*

Looking across both dimensions of emerging technological developments and expansion of distance education, it becomes clear that information seeking behavior is an individualistic process, and invariably, the information needs for every individual is different depending on the necessities for learning and research work. Recognizing this key importance, the mandate falls onto the Library to cultivate effective information seeking behavior among students, and this measure has initiated the Library to take a shift into acknowledging the presence of increasingly complex information systems; among others, online repositories, e-resources, and electronic information sources (Devi & Dlamini, 2014; Head, 2013; Kadli & Kumbar, 2013; Kumar, 2013). In view of the aforementioned, the ensuing discussion attempts to study

information seeking behavior of distance learners in Wawasan Open University, one of the premier distance learning institutions in Malaysia.

Research Objectives

The primary aim of this study was to explore and profile information seeking behavior among distance learning students in Wawasan Open University. In the context of this study, information seeking behavior refers to both the process of information search as well as effective utilization of information obtained from the information search process.

The following objectives were developed, based on relevant literature governing information seeking behavior in distance learning, to guide the direction of the study:

1. Identify the problems faced in information search among distance learning students in Wawasan Open University
2. Identify the problems faced in effective utilization of information among distance learning students in Wawasan Open University
3. Examine the relationship between problems faced in information search and effective utilization of information

Methodology

This study adopted the survey research design for several reasons. First, the survey research allowed the researchers to obtain the students' perceptions and practice in seeking information and utilizing the said information for learning and research activities across the different Schools, i.e., School of Business Administration (SBA), School of Science and Technology (SST), School of Foundation and Liberal Studies (SFLS) and School of Education, Languages and Communications (SELC). Second, this measure was particularly important considering the University has Regional Centres in 5 different states, namely, Kuala Lumpur, Penang, Ipoh, Johor Bahru and Kuching. These Regional Centres act as a student recruitment centre, and they provide the provisions of tutorial rooms, libraries and other relevant academic and operational facilities. Finally, this survey measure allowed for quantitative analysis that highlights statistical significance for relevant extrapolation of research findings, especially in the area of information management in distance learning.

The population of the study involved distance learners from the 5 Regional Centres that provides courses serviced by the 4 Schools. At this juncture, it must be noted that this is a preliminary study executed in relation to a larger funded research that also attempts to study information seeking behavior of distance learners in Wawasan Open University. This preliminary study aims to gauge the challenges faced in survey administration among distance learners in the University. One of the major challenges faced in gathering data in distance learning institutions was chances of low response rate due to the nature of distance learning mode. In the context of this study, tutorial attendance is optional and hence no obligatory measures are taken on the more commonly practice of 80% attendance rate in conventional universities.

With advice sought from the respective Regional Centres on active average attendance rate for the tutorial weekends, a total of 550 questionnaires were couriered to the respective Regional Centres to be administered accordingly to the tutorial classes identified by the researchers. In the sampling process, emphasis was also placed on avoiding data duplicates from students who attend both the first and second tutorial weekends. This particular emphasis on data duplication also drew attention to the fact that response to the administered survey was not course-dependent, but should focus on their (student's) overall information seeking behavior. Relevant concerns were highlighted to the staff at the respective Regional Centres that assisted in the administration of the survey. Clear instructions were given and students were assured on the anonymity of their response to the survey instrument. The survey instrument was developed based on literature governing information seeking behavior among distance learners (Liu & Zheng, 2004) and completed with the researchers' experience in the field.

Results and Findings

Findings of the study drew attention to statistical data imperative to profiling information seeking behavior among distance learners in Wawasan Open University. Findings of this study also bear importance to distance learners in other distance learning institutions that share similar parameters to Wawasan Open University.

From the total of 550 questionnaires administered, a total of 435 completed questionnaires were returned accounting for a success response rate of 79%. Table 1 presents the demographic findings of the respondents.

Table 1 Demographic Findings

| Variable	Frequency	Percentage
Gender		
Male	188	43.2%
Female	247	56.8%
Age		
21-29 years	224	51.5%
30-39 years	130	29.9%
40-49 years	63	14.5%
Above 50 years	18	4.1%
Student Status		
Undergraduate	334	76.8%
Postgraduate	101	23.2%
Year of Study		
One year	145	33.3%
Above one year	290	66.7%

Table 1 presents the demographic findings of the 435 respondents. Based on the figures presented, 43.2 % (n=188) of the respondents were male students whereas 56.8% (n=247) were female students. Almost half (51.5%, n= 224) of the respondents were between the ages of 21-29 while 30% of the respondents (n=130) were in the ages of 30-39. The remaining respondents are ages 40–49 and above 50 years respectively. For the student status, a vast majority (76.8%, n=334) of the respondents were undergraduate student whereas (23.2%, n=101) of them were postgraduate students. Also, the majority (66.7%, n=290) of the respondents had more than one year of learning experience.

In the ensuing discussion, findings of the study are presented in accordance to the research objectives of the study to facilitate comprehension.

Research Objective 1: Identify the problems faced in information search among distance learning students in Wawasan Open University

There were 7 major problems that distance learners experience in their information seeking process. Figure 2 illustrates the problems faced by distance learners in their information seeking process. The most significant problem they face is the inability to determine the appropriateness of the information they obtained (22%). While this is not an uncommon concern among distance learners, findings do seem to imply that this particular problem leads to other relevant problems, mainly, not being able to locate information (19%) and considering that information are outdated (14%). The other concern that must be noted in this finding is how distance learners are not aware that relevant information is available in the library, whether in the form of hard copies or digital copies (12%).

Figure 2 Problems faced by distance learners in their information seeking process
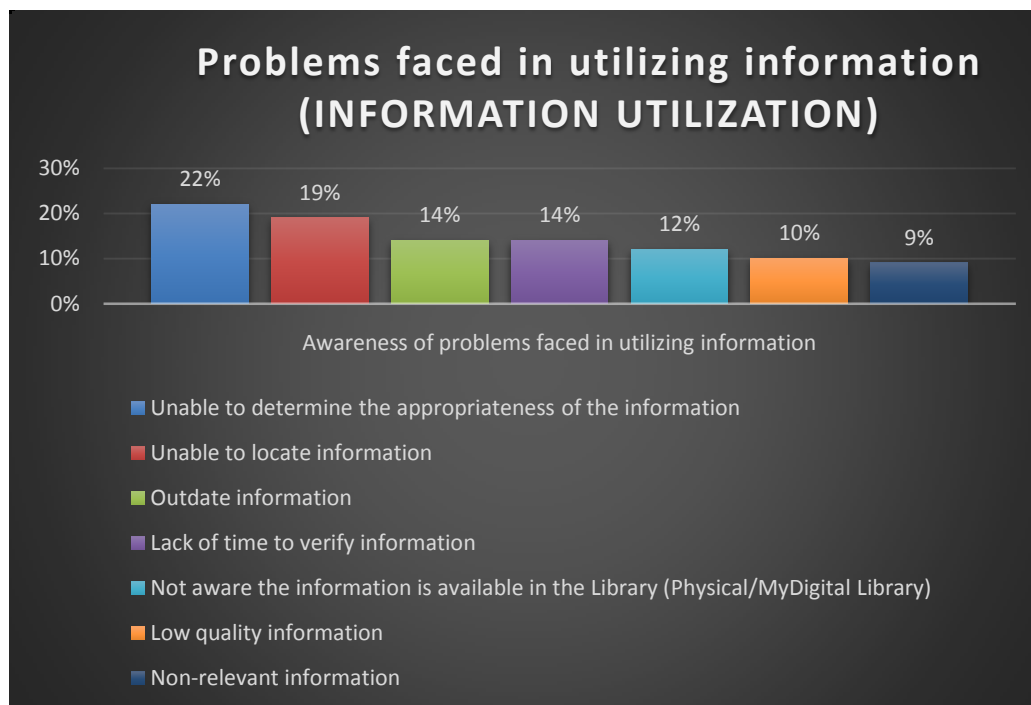
Given the vested interest in profiling information seeking behavior of distance learners, further analysis was conducted to examine their awareness of searching for information using the provisions of both MyDigital Library database and Internet search engines. Referring to Figure 3, descriptive results clearly indicate that students, in their scholarly learning and research work, require guidance in searching for information using MyDigital Library database and Internet search engines such as Google and Yahoo.

Figure 3 Percentage of respondents who required guidance with online information search
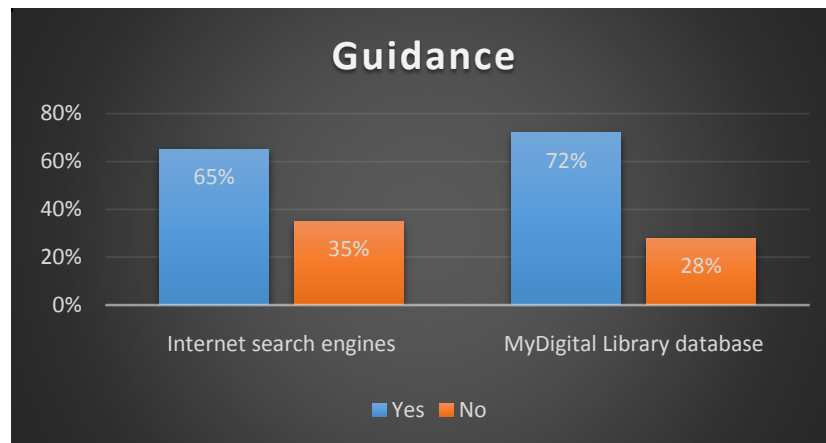
An independent sample t-test was used to statistically compare differences between undergraduate and postgraduate students in using digital library as their major source of information search in their learning and research work. Referring to Table 2, the results indicate that there exist a significant difference (t=3.415, p<0.01) in the scores between undergraduate students (M=.20, SD=.403) and postgraduate students (M=.39, SD=.489) in using MyDigital Library. Results also indicate a significant difference (t=3.234, p<0.01) in the scores between undergraduate students (M=.18, SD=.271) and postgraduate students (M=.29, SD=.326) in using the Physical Library.

Table 2 Student Status findings on MyDigital Library and Physical Library

Dependent Variable (Y)	Independent Variable (X)	n	Mean	Standard Deviation	Standard Error Mean	t	Sig
MyDigital Library	*Student Status* Undergraduate Postgraduate	334 101	.20 .39	.403 .489	.022 .049	3.415	.001**
Physical library	*Student Status* Undergraduate Postgraduate	334 101	.18 .29	.271 .326	.0149 .0325	3.234	.001**

**p<0.01

While the results did not reveal any significant differences between undergraduate and postgraduate students in using Internet search engines for their learning and research work, results did indicate significant differences (t=2.097, p<0.05) between first year students (M=.81, SD=.396) and post-first year students (M=.89, SD=.318) in using Internet search engines. In other words, post-first year students are more likely to refer to Internet search engines for information compared to the first year students.

Table 3 Year of Study findings on Internet search engines

Dependent Variable (Y)	Independent Variable (X)	N	Mean	Standard Deviation	Standard Error Mean	t	Sig
Internet search engines	*Year of Study* First year Post-First year	145 290	.81 .89	.396 .318	.033 .019	2.097	0.05*

*p < 0.05

Research Objective 2: Identify the problems faced in effective utilization of information among distance learners in Wawasan Open University

There were 8 major problems that distance learners experienced in effectively utilizing information they obtained from the information search process. Refer to Figure 4.

Figure 4 Problems faced in effective utilization of information
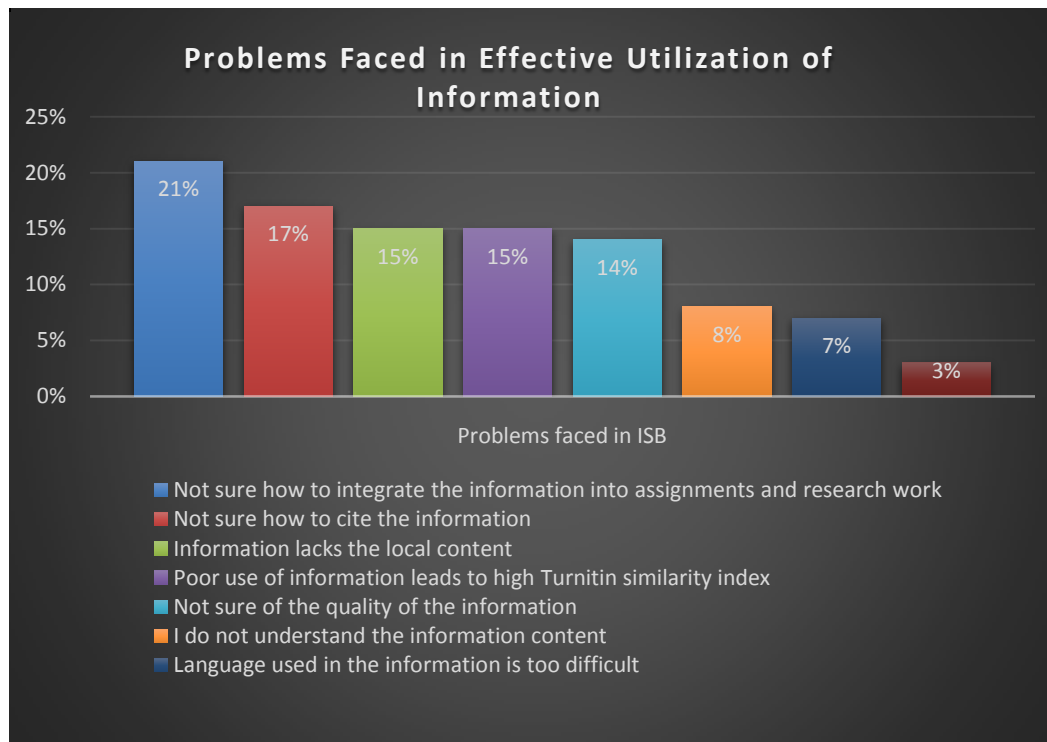
The critical concern here is that distance learners were uncertain on how to integrate information into their assignments and research work (21%). This is closely followed with the uncertainty on how to cite information (17%), lack of local context in the information (15%), poor use of information leads to high Turnitin similarity index (15%) and uncertain over the quality of information obtained (14%). Poor employment of these essential skills will surely impede any distance learner from progressing in the scholarship of learning and research. Further inferential analysis on these results revealed some interesting findings that necessitate relevant stakeholders, Library Support and Academics among others, to provide informative support in the relevant areas of concern. Referring to Table 1, an independent sample t-test was used to statistically compare differences between undergraduate and postgraduate students in their understanding of information content. Results revealed that there exist a significant difference (t=2.364, p<0.05) in the scores between undergraduate students (M=.16, SD=.366) and postgraduate students (M=.08, SD=.271). In other words, undergraduate students face more problems in understanding the content of the information they obtained compared to postgraduate students.

Table 3 Student Status findings on comprehension of information content

Dependent Variable (Y)	Independent Variable (X)	n	Mean	Standard Deviation	Standard Error Mean	t	Sig
I do not understand the information content	*Student Status* Undergraduate Postgraduate	334 101	.16 .08	.366 .271	.020 .027	2.364	.001**

**p<0.01

In addition, independent sample t-test was used to statistically compare differences between year of study (First year versus Post-First year) in their understanding of the language used in the information. Results revealed that there exists a significant difference (t=1.702, p<0.05) in the scores for first year student (M=.17, SD=.379) and post-first year students (M=.11, SD=.314). Significant differences (t=2.017, p<0.05) in mean was also obtained for first year (M=.37, SD=.483) and post-first year students (M=.27, SD=.444) in properly citing information they obtained from the search process.

Table 5 Year of Study findings on language used and citation of information

Dependent Variable (Y)	Independent Variable (X)	n	Mean	Standard Deviation	Standard Error Mean	t	Sig
Language used in the information is too difficult	*Year of Study* First year Post-First year	145 290	.17 .11	.379 .314	.031 .018	1.702	0.05*
Not sure on how to cite the information	*Year of Study* First year Post-First year	145 290	.37 .27	.483 .444	.040 .026	2.017	0.05*

*p < 0.05

Research Objective 3: Examine the relationship between problems faced in information search and effective utilization of information

A simple linear regression analysis was used to examine the relationship between problems faced in information search process and effective utilization of information. A positive correlation was found between both variables (β=.565, p<0.001).The results indicate that problems faced in information search process significantly predicts effective utilization of information with 32% prediction of the variance [F(1,433)=202.619, p<0.01].

Table 6 Findings of regression analysis

Independent variable (X)	Problems faced in information search	
Dependent variable (Y)	Effective utilization of information	
R square	Beta	F
.319	.565**	202.619

Discussion and Implications

The aim of this study was to explore and profile information seeking behavior among distance learners in Wawasan Open University. The operational definition of information seeking behavior refers to both the process of information search as well as effective utilization of information obtained from the information search process. Directed by this aim, specific objectives included identifying the problems faced in the information search process, problems faced in effective utilization of information, and finally examining the relationship between these two factors.

Several implications were drawn from the findings of the study which address significant importance to the understanding of information search behavior of distance learners in Wawasan Open University. These implications also possess the potential to be extrapolated to other context of information seeking behavior of distance learners that shares similar parameters with this study. Findings of the study provide statistical evidence to the convictions that distance learners are not familiar with information seeking processes and the subsequent process of effective utilization of information. In addition, findings have also revealed that unfamiliarity with information search process mostly affects either undergraduate learners or first year distance learners.

While this finding may have been somewhat anticipated, what is enlightening is that poor information search behavior can lead to distance learners to develop a sense of isolation in the scholarship of learning and research. In a qualitative study investigating cases of student isolation among distance learners, Vighnarajah and Santhiram (2014) found that poor engagement with Library services was among the precursors that led students to isolate themselves from the different interactions one would expect from a university learning experience. They further emphasized that distance learners will find it difficult to search for information online particularly if they are unfamiliar with search engine technology and library databases such as EBSCOHost Online Research Databases, Books 24x7 and eBrary. If not attended to accordingly in the early stages of the learning and research work, students who experience difficulties in

effectively searching for information and utilizing the said information could find themselves to feel a sense of isolation. This is a situation that should not be taken lightly as it may lead, almost always impulsively, to other relevant learning concerns, such as developing the perceptions of incompetency of learning and the encumbrance of returning to learning, more so of engaging in distance learning.

In light of the aforementioned implication, relevant stakeholders must play their role in guiding students to improve on their information seeking behavior. The Library plays the most crucial role in this perspective of facilitating distance learners who are not accustomed to effective information search behavior and utilization of information, and this should be sustained as a continuous effort in the scholarship of learning and research. This view is in line with Kumar (2013) who emphasizes that the Library should organize more programmes and seminars to disseminate awareness among students on effectively collaborating with the Library for information search and utilization. Also, it is imperative that these affected groups of distance learners are made aware of this concern to encourage them to seek the necessary guidance from the relevant stakeholders - this is a critical finding that requires attention on part of the Library as well as the users (distance learners). For instance, Devi and Dlamini (2014) points out that while 92% of library users are aware of e-resources, 32% of this group finds it difficult to use these e-resources for their immediate needs. Moreover, it is crucial that these measures by the Library must be supported by the relevant academics and faculties.

It was also interesting to note from the findings that experiencing problems in information search positively correlates with effective utilization of information. In other words, students who experience problems in searching for information is most likely, with 32% of possibility, to experience problems in effectively utilizing the said information mainly with concerns towards integration of information, citation of information and chances of plagiarizing work. This is a matter of grave concern as pointed out by Head and Eisenberg (as cited in Head, 2013, p.474): "*Eighty percent—eight in ten of the students PIL surveyed in 2010—reported having overwhelming difficulties with getting started on research assignments and determining the nature and scope of what their instructors required of them.*" PIL, acronym for Project Information Literacy, was a series of national studies that attempted to investigate the scenario of a college student in an era of digital age. With support from major institutions such as Institute of Museum and Library Services (IMLS), Cengage Learning, Harvard's Berkman Center for Internet and Society and ProQuest, PIL addressed the findings of surveys and interviews of more than 11,000 students from 57 colleges and universities across the US.

Hence, it is imperative for students to develop a sense of awareness of this positive correlation between information search and information utilization in attempt for them to take the necessary measures to seek for guidance from the relevant stakeholders. However, it was even more alarming to discover that the services of a librarian were tremendously underutilized: "*Across all PIL surveys, students tremendously underutilize librarians. Eight out of ten of the respondents (80%) in PIL's 2009 survey reported rarely, if ever, turning to librarians for help with defining topics or searching for sources when working on course-related research assignments.*" (Head & Eisenberg, 2009).

Conclusion

Emergence of the Internet in the frontiers of distance learning has impacted the delivery of education in more ways than one. This attempt to understand the profiling of information seeking behavior among distance learners is no more than a fraction of a larger quality assurance measure to advise and guide students how to industriously experience distance learning at its best. All in all, results from this study have confirmed that distance learners (at least, in the context of Wawasan Open University) experiences critical difficulties in effectively searching for information and utilizing the said information in the scholarship of learning and research. Also, efforts are required from Library and relevant stakeholders in guiding distance learners to successfully acquire and manage information in this digital age. This paper reports the preliminary findings, and is by no means a comprehensive review on profiling information seeking behavior among distance learners. With this in mind and ardour to investigate further into the various facades of profiling information seeking behavior, the scope of research has been extended to study a wider population of distance learners in Wawasan Open University.

Acknowledgment

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